



Penwith Moors SSSI

Cornwall

**Notification under Section 28 of the Wildlife
and Countryside Act 1981**

Issued by Natural England's Devon, Cornwall & Isles of Scilly
Team on **7 October 2022**

Contact points and further information

This notification document is issued by Natural England's Devon, Cornwall & Isles of Scilly Team. Please send any correspondence relating to this notification by post or email using the information below. Alternatively, you can send a response online using the Citizenspace link below:

Your contact point for specific enquiries relating to this notification is **Mark Beard**.

Post: Natural England
Polwhele
Truro
Cornwall
TR4 9AD

Telephone: 07917 183498

Email: penwithmoorscornwall@naturalengland.org.uk.

Online: <https://consult.defra.gov.uk/natural-england/penwith-moors>.

A second document (Penwith Moors SSSI – supporting information) is available online and on request using the details above. This contains information and extracts from relevant documents that have been used in the decision to notify this SSSI.

The date of notification of Penwith Moors SSSI is: **7 October 2022**.

Contents

1. Summary.....	4
2. The legal background.....	4
3. Making objections and representations.....	5
4. Reasons for notification.....	6
5. Site boundaries and relationships with other SSSIs.....	7
6. Management of the SSSI	8
7. Supporting information	9
8. Legal documents.....	9
<u>Annex 1: Citation</u>	<u>10</u>
<u>Annex 2: Views about Management.....</u>	<u>15</u>
<u>Annex 3: List of operations requiring Natural England's consent</u>	<u>22</u>
<u>Annex 4: Map showing the land notified.....</u>	<u>25</u>

1. Summary

- 1.1 This document explains why Penwith Moors is notified by Natural England as a Site of Special Scientific Interest (SSSI).
- 1.2 Penwith Moors SSSI is a large expanse of open heathland and associated habitats chiefly occupying the higher ground of the granite hills and slopes of West Penwith. It comprises 59 closely juxtaposed land parcels, extending for approximately 17 km from Nanquidno Downs in the west to Trencrom Hill in the east. The site supports a diverse mosaic of semi-natural habitats, including lowland heathland, fens, lowland dry acid grassland, bracken, scrub, rocky outcrops, ponds and historic man-made trackways. It is of special interest for its nationally important lowland heathland, fen/mire, lowland dry acid grassland, populations of four species of plant, assemblage of lichens, assemblage of invertebrates and breeding Dartford warbler.
- 1.3 Penwith Moors has a long history of settlement which has shaped its character. The majority of the site is within the West Penwith section of the Cornwall Area of Outstanding Natural Beauty (AONB). Part of the site also falls within the Cornwall and West Devon Mining Landscape UNESCO World Heritage Site. This SSSI notification gives formal recognition to a key environmental asset of West Penwith, for the benefit of local people, visitors and wildlife.
- 1.4 The annexes to this document comprise the legal papers that detail the scientific interest of Penwith Moors SSSI, the management required to maintain this interest and maps of the site. You have a right to make representations or objections about this notification. Part 3 of this document explains how to do this.
- 1.5 Natural England's consent is required by owners and occupiers before any of the operations listed in [Annex 3](#) can be carried out. We will work closely with owners and managers, as well as other bodies, to ensure that existing operations and new works that are not considered likely to damage the special features of the SSSI can be carried out.

2. The legal background

- 2.1 Penwith Moors SSSI is notified under section 28 of the Wildlife and Countryside Act 1981.
- 2.2 Part 8 of this notification document contains the following legal papers required by section 28 of the Wildlife and Countryside Act 1981:
 - a citation detailing the reasons for notification ([Annex 1](#));
 - a statement of Natural England's views on the management of the SSSI ([Annex 2](#));
 - a list of operations requiring Natural England's consent ([Annex 3](#)); and
 - maps identifying the land subject to this notification ([Annex 4](#)).
- 2.3 This notification has several effects. The key ones can be summarised as follows:
 - owners and occupiers must give Natural England notice before carrying out, causing or permitting to be carried out any of the activities in the list of operations ([Annex 3](#));
 - owners of land included in the SSSI have a legal obligation to notify Natural England within 28 days if the ownership or occupancy of the land changes;

- it is an offence for any person intentionally or recklessly to destroy or damage the special features of the SSSI or to disturb any of the fauna;
- other public bodies must consult Natural England before carrying out or authorising any works that may damage the SSSI; and
- it gives Natural England the ability to require the management of the SSSI by way of management schemes and notices.

2.4 If you require any further information or advice on how this notification affects you, please do not hesitate to contact Natural England using the information on [page 2](#) of this document.

3. Making objections and representations

- 3.1 You have a legal right to make objections and representations about this notification. Any representations, including those supporting the notification, or objections should be made in writing to Natural England's Devon, Cornwall & Isles of Scilly Team by **7 February 2023**. Representations can be sent by post, email or online using the details on [page 2](#). You may wish to seek legal or independent advice and your representative may wish to write to us on your behalf.
- 3.2 Natural England's Devon, Cornwall & Isles of Scilly Team will consider your objections or representations and will try to resolve them. If there are no unresolved objections, approval to confirm the notification will be considered by an appropriate Natural England Director within nine months of this notification.
- 3.3 Any unresolved objections or representations will be considered by the Board of Natural England within nine months of this notification. Following consideration of objections and representations, the Board of Natural England may confirm or withdraw all or part of this notification. In reaching its decision the Board will consider whether, in light of the objections and representations received, Natural England remains of the opinion that the site is of special scientific interest. The desirability of the notification for socio-economic reasons will not form part of the Board's decision.
- 3.4 If you wish to emphasise any of your objections or representations to the Board in person, you should tell us when you write to us. You will then be advised of the date and location of the Board meeting.
- 3.5 Natural England will accept correspondence relating to unresolved objections up to seven days prior to the Board meeting at which the confirmation is due to be considered. Correspondence received after this date will only be presented to the Board in very exceptional circumstances and you will be expected to provide justification as to why there has been a delay in providing the information. The decision whether this information will be submitted to the Board is entirely at Natural England's discretion. The reason that there is a seven day cut off is to allow Board members sufficient opportunity to consider all of the issues and read all the relevant paperwork before they meet to take their decision.
- 3.6 Natural England has a policy of openness, which reflects our obligations under the Environmental Information Regulations 2004 and the Freedom of Information Act 2000. This legislation provides a legal right of access to information held by public bodies. This means that we will provide information on how we make our decisions on SSSIs to any person on request. This includes details of objections and representations received. We will assume, therefore, that your representation or objection can be made publicly available unless you indicate with clear and valid

reasons which (if any) part(s) of these you wish to be excluded from this arrangement. However, you should be aware that the requirements of the legislation may mean that we cannot comply with your request that this information be withheld. We do, however, respect people's privacy and will take all reasonable steps to consult you before reaching a decision on disclosure of the information.

- 3.7 As an individual with an interest in Penwith Moors SSSI, your information will be stored and processed on a computer database that will be operated within the General Data Protection Regulation and the Data Protection Act 2018. For the purposes of the Data Protection Act, the data controller is Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX. For more information, please see the SSSI notifications privacy notice at <https://www.gov.uk/government/publications/natural-england-privacy-notice/site-of-special-scientific-interest-notification-privacy-notice> or request a copy using the details on [page 2](#) of this document.

4. Reasons for notification

- 4.1 Penwith Moors SSSI is of special interest for the following nationally important features:

- **Lowland heathland**

Lowland heathland is the most extensive semi-natural habitat present on the site. A mosaic of humid, dry and wet heath is present reflecting soil and hydrological conditions characterised by western gorse *Ulex gallii*, heather *Calluna vulgaris*, bell heather *Erica cinerea*, cross-leaved heath *Erica tetralix*, bristle bent *Agrostis curtisii* and purple moor-grass *Molinia caerulea*. Lowland heathland is included in the Government's list of priority habitats and species that are of principal importance for the conservation of biodiversity in England¹.

- **Lowland Fens**

The wetland communities present within Penwith Moors are characteristic of valley mires fed by acid groundwater from a shallow granite aquifer. Several types of wetland vegetation are present, often following the valley slopes and gradients of nutrient availability and wetness. These are characterised by purple moor-grass, tormentil, cross-leaved heath, bog asphodel *Narthecium ossifragum*, cottongrasses *Eriophorum* spp., sharp-flowered rush *Juncus acutiflorus*, greater bird's-foot-trefoil *Lotus pedunculatus* and marsh bedstraw *Galium palustre*. With increasing wetness, usually towards the valley centres, *Sphagnum*-dominated mires, soakaways and bog pools are found.

Adjacent to the open mires are areas of wet woodland which form an integral part of these valley wetlands adding significantly to their biological and structural diversity, characterised by abundant grey willow *Salix cinerea* with ferns, mosses and liverworts. Lowland fen is included in the Government's list of priority habitats and species that are of principal importance for the conservation of biodiversity in England.

- **Lowland dry acid grassland**

Lowland dry acid grassland is mostly present in mosaics with lowland heathland and bracken, characterised by common bent *Agrostis capillaris*, bristle-bent, sweet vernal-grass *Anthoxanthum odoratum*, tormentil, heath bedstraw *Galium saxatile* and sheep's sorrel *Rumex acetosella*. Lowland dry acid grassland is

¹ Under section 41 of the Natural Environment and Rural Communities Act 2006.

included in the Government's list of priority habitats and species that are of principal importance for the conservation of biodiversity in England.

- **Vascular plants**

The extensive mosaic of semi-natural habitats supports three flowering plants and a fern which have a restricted range (Nationally Rare/Scarce) and three of which are also threatened with extinction in Great Britain. These are the Nationally Rare and endangered coral-necklace *Illecebrum verticillatum*, the Nationally Scarce and vulnerable pale dog-violet *Viola lactea* and pillwort *Pilularia globulifera* and the Nationally Scarce Cornish moneywort *Sibthorpia europaea*.

- **Invertebrates**

Penwith Moors supports an assemblage of invertebrates associated with scrub-heath and moorland. This assemblage is found on low nutrient, acid soils where herbaceous and dwarf shrub vegetation is dominant. It includes a wide range of invertebrates which demonstrate a high fidelity to this habitat type but beetles, true bugs and spiders are particularly important components.

Over 600 species have been recorded across the site, including the Nationally Rare Perkin's mining bee *Andrena rosae* and tormentil nomad bee *Nomada roberjeotiana*, the endangered butterfly species grayling *Hipparchia semele* and wall brown *Lasiommata megera*, and the vulnerable wetland rove beetle *Stenus kiesenwetteri*.

- **Lichens**

Many of the site's granite outcrops support an assemblage of lichens associated with non-montane acid rock. The assemblage comprises 13 rare, scarce and/or declining species. These are the notable and Nationally Scarce *Cladonia cyathomorpha*, *Herteliana gage*, *Lecanora alboflavida*, *Lecidea fuliginosa*, *Opegrapha saxigena*, *Parmelinopsis minarum*, *Pertusaria excludens*, and *Pertusaria monogona*. The assemblage also includes the notable and Nationally Rare *Melaspilea interjecta*, the Near Threatened and Nationally Scarce *Parmelinopsis horrescens* and *Sarcogyne clavus*, and the Vulnerable and Nationally Rare *Usnea subscabrosa*. Great Britain has international responsibility for three of these species as it supports a significant proportion of the European and/or global populations.

Two small colonies of *Bryoria* were recorded at Hannibal's Carn. There is uncertainty whether the species is the notable and Nationally Scarce *Bryoria bicolor* or the Critically endangered and Nationally Rare *Bryoria smithii*.

- **Dartford warbler *Curruca undata***

Stands of mature heathland within Penwith Moors, sometimes with associated scattered scrub, support a population of breeding Dartford warbler. This species is classified in the UK as Amber under the Birds of Conservation Concern 4: the Red List for Birds (2021). It is also listed as Near Threatened on the global and European IUCN Red Lists of Threatened Species.

5. Site boundaries and relationships with other SSSIs

- 5.1 The boundary has been drawn to include land supporting the features of special interest and those areas required to ensure their long-term sustainability. It has been defined to include the following:

- areas of lowland heath, lowland dry acid grassland and valley mire (fen) vegetation communities including mosaics of vegetation communities and transitions between them;
- areas of bracken and scrub where they are within management or ecological units which also contain lowland heath, lowland dry acid grassland or valley mire (fen) vegetation communities;
- land within the hydrological zones of lowland fen features as far as the first break of slope; and
- any additional parcels of land which support notified vascular plants and/or the non-montane acid rock lichen assemblage.

- 5.2 The boundary follows boundary features which are evident from Ordnance Survey maps and/or in the field, wherever practical to do so. Generally, it follows 'Cornish hedges', traditional field boundaries made of earth and stone. Some of the Cornish hedges used to define the site boundary are in a state of disrepair but still evident on O.S. maps and in the field. Occasionally and where appropriate other linear features including fences, roads and tracks are used to delineate the boundary.
- 5.3 There are a small number of examples where such boundaries are not used. These occur where large areas of long established agriculturally improved or highly modified land (such as disturbed ground, tips, hardstanding, buildings, enclosed gardens), beyond the areas listed in section 5.1, would be included within the SSSI boundary if it extended to the next available 'field' boundary. In these few cases the extent of parcels of lowland heathland and/or lowland dry acid grassland is used to define the SSSI boundary and delineated by straight lines between fixed points or coordinates.
- 5.4 Further clarification of the precise location of the boundary of the SSSI can be obtained from Natural England's Devon, Cornwall and Isles of Scilly Team using the details on page 2 of this document.
- 5.5 There are two SSSIs in close proximity to and in some locations adjoining Penwith Moors SSSI. These are Aire Point to Carrick Du SSSI located on the west and north coast of the Penwith peninsula, and Lower Bostraze and Leswidden SSSI. Aire Point to Carrick Du SSSI is designated for its maritime grassland and heath and Lower Bostraze and Leswidden SSSI is designated for its bryophyte interest.

6. Management of the SSSI

- 6.1 This notification includes at Annex 2 a statement of the management that Natural England considers is needed to conserve and enhance the features of special interest. Different management will be appropriate in different parts of the site and this statement is not intended to detail the exact requirements at specific locations. The statement is intended to explain how we can work with and support owners and managers in continuing to achieve positive management of the SSSI.
- 6.2 This notification also includes a list of the operations requiring Natural England's consent at Annex 3. Some of the operations may already be taking place. Where they do not cause any damage, they will be given consent. We will work with landowners and managers to agree lists of such existing and planned activities, which can be approved.
- 6.3 Where an operation has been granted a consent, licence or permission from another public body a separate consent will not generally be required from Natural

England. However, other public bodies are required to consult Natural England before such consents, licences or permissions are issued.

- 6.4 In particular, we recognise the important roles of the owners and managers of the land in managing this site. We will continue to work with them to develop means to secure the sustainable management of Penwith Moors SSSI.

7. Supporting information

- 7.1 The detailed information, which has been used to assess the importance of this SSSI is available on request and on-line using the details on [page 2](#) of this document.

8. Legal documents

- 8.1 Attached at Annexes 1 - 4 are the legal documents, which are required by section 28 of the Wildlife and Countryside Act 1981.

Annex 1

Citation

This is a legal document on which you have a right to make objections or representations, as explained in part 3 of this notification document.

Site name: Penwith Moors

Unitary Authority: Cornwall

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

Local Planning Authority: Cornwall Council

Ordnance Survey sheet: 1:25,000: 102 **National Grid reference:** SW422357

Notification date: 7 October 2022

Area: 3152.76 ha

Reasons for notification:

Penwith Moors SSSI is of special interest for the following nationally important features:

- lowland heathland;
- fens including habitats often referred to as mires and transitions to wet woodland;
- lowland dry acid grassland;
- populations of the plants: coral-necklace *Illecebrum verticillatum*, pale dog-violet *Viola lactea*, pillwort *Pilularia globulifera* and Cornish moneywort *Sibthorpia europaea*;
- an assemblage of lichens associated with non-montane acid rock;
- an assemblage of invertebrates associated with scrub-heath and moorland; and
- breeding Dartford warbler *Curruca undata*.

General description:

Penwith Moors SSSI comprises 59 closely juxtaposed land parcels, extending for approximately 17 km from Nanquidno Downs in the west to Trencrom Hill in the east. It supports a diverse mosaic of semi-natural habitats, including lowland heathland, fens, lowland dry acid grassland, bracken, scrub, rocky outcrops, ponds and historic man-made trackways. It is underlain by granite rocks of the Cornubian batholith which give rise to acid loamy soils with a shallow peat surface.

The site has a long history of settlement which has shaped the diversity and character of semi-natural habitats present and the species they support. Enclosure and intensification of land management during the nineteenth and twentieth centuries, including drainage of wetlands and cultivation of heaths, has resulted in fragmentation of the moor and some loss of habitat transitions. However, transitions from hill-top to valley bottom remain. Abandonment of management in the early twentieth century has led to the development of mature gorse scrub and bracken on areas of previously open moor.

Lowland heathland

Lowland heathland is the most extensive semi-natural habitat present on the site. These are predominantly 'humid' heaths reflecting the wet climate of the Penwith peninsula and most of the communities present are restricted to south-west Britain. A mosaic of humid, dry and wet heath is present reflecting soil and hydrological conditions. On higher ground the heathland is characterised by western gorse *Ulex gallii*, heather *Calluna vulgaris*, bell heather *Erica cinerea*, bristle bent *Agrostis curtisii*, purple moor-grass *Molinia caerulea*, green-ribbed sedge *Carex binervis*, tormentil *Potentilla erecta*, heath milkwort *Polygala serpyllifolia*, lousewort *Pedicularis sylvatica*, heath plait-moss *Hypnum jutlandicum* and

bracken *Pteridium aquilinum*. Common dodder *Cuscuta epithymum* is also frequent, growing parasitically on western gorse. Where ground conditions are more humid, cross-leaved heath *Erica tetralix* is characteristic, with bog-mosses *Sphagnum* spp in the wettest areas, merging into fen (mire) vegetation.

Fens

The wetland communities present within Penwith Moors are characteristic of valley mires fed by acid groundwater from a shallow granite aquifer. Peat to a depth of 1.5m has accumulated in many of these wetlands. Several types of wetland vegetation are present, often following the valley slopes and gradients of nutrient availability and wetness.

In the drier, grazed parts of the mires, rush pastures have developed and are characterised by soft-rush *Juncus effusus*, sharp-flowered rush *Juncus acutiflorus*, greater bird's-foot-trefoil *Lotus pedunculatus*, marsh-bedstraw *Galium palustre*, wild angelica *Angelica sylvestris* and water mint *Mentha aquatica*. In lower nutrient and wetter conditions, distinctive species-rich vegetation is characterised by purple moor-grass, common sedge *Carex nigra*, tormentil, cross-leaved heath, heather, lesser skullcap *Scutellaria minor*, devil's-bit scabious *Succisa pratensis*, marsh violet *Viola palustris*, royal fern *Osmunda regalis* and wild angelica. With increasing wetness, usually towards the centre of the valley, *Sphagnum*-dominated mires, soakaways and bog pools are found. These are characterised by bog-mosses, including *Sphagnum subnitens*, *S. denticulatum* and *S. cuspidatum*, and associated flowering plants such as star sedge *Carex echinata*, carnation sedge *Carex panicea*, bog asphodel *Narthecium ossifragum*, common cottongrass *Eriophorum angustifolium*, hare's-tail cottongrass *E. vaginatum*, round-leaved sundew *Drosera rotundifolia*, marsh St-John's-wort *Hypericum elodes* and bog pondweed *Potamogeton polygonifolius*. Ivy-leaved bellflower *Wahlenbergia hederacea* and pale butterwort *Pinguicula lusitanica* are also occasionally present.

Adjacent to the open mires are areas of wet woodland characterised by abundant grey willow *Salix cinerea*, with marsh bedstraw, bramble *Rubus fruticosus* agg., royal fern, broad buckler-fern *Dryopteris dilatata* and lady fern *Athyrium filix-femina*. Permanent high humidity gives rise to a luxuriant mat of mosses and liverworts including overleaf peltia *Pellia epiphylla*, shining hookeria *Hookeria lucens*, dotted thyme-moss *Rhizomnium punctatum* and blunt-leaved bog-moss *Sphagnum palustre*. Wet woodlands form an integral part of these valley wetlands and add significantly to their biological and structural diversity.

While wet habitats form an integral part of the site, the largest areas of fen are found at Bostraze, Boswens, Tregerest, Boswarva, between Lanyon and Men-an-Tol, Bosilliack, between Bodrifty and Bosporthenis, Tredinneck, Gear and Chyembro Commons, Embla, and Bussow Moor.

Lowland dry acid grassland

Though not as extensive as lowland heathland, lowland dry acid grassland is a significant habitat often present in mosaics with lowland heathland and bracken. It is characterised by common bent *Agrostis capillaris*, bristle bent, sweet vernal-grass *Anthoxanthum odoratum*, sheep's-fescue *Festuca ovina*, red fescue *Festuca rubra*, field-woodrush *Luzula campestris*, tormentil, heath bedstraw *Galium saxatile*, sheep's sorrel *Rumex acetosella* and common dog-violet *Viola riviniana* along with neat feather-moss *Pseudoscleropodium purum* and springy turf-moss *Rhytidiadelphus squarrosus*. Chamomile *Chamaemelum nobile* is also occasionally present in areas of low-turf.

Vascular plants and ferns

The extensive mosaic of semi-natural habitats supports three vascular plants and a fern which have a restricted range (Nationally Rare/Scarce) and three of which are also threatened with extinction in Great Britain. These are coral-necklace *Illecebrum verticillatum*, pale dog-violet *Viola lactea*, pillwort *Pilularia globulifera* and Cornish moneywort *Sibthorpia europaea*. Native sites for coral-necklace in Britain are restricted to Cornwall. Penwith Moors is one of its few remaining strongholds where it is found on gravel trackways flushed with freshwater seepages. Pale dog-violet is restricted to heathland and acid grassland locations where the vegetation is kept short and open. Pillwort is restricted to the margins of shallow ponds. Cornish moneywort is more widespread across Penwith Moors being found mostly in tussocky fens and wet woodland.

Penwith Moors also supports a number of other species of conservation interest. The nationally scarce lanceolate spleenwort *Asplenium obovatum* grows in rocky places such as relict Cornish hedges. Whist western Cornwall is a national strong-hold for this species there are larger populations around the coast. Wilson's filmy-fern *Hymenophyllum wilsonii* occurs at a few locations growing amongst granite rocks. Allseed *Linum radiola* and chaffweed *Lysimachia minima* occasionally occur in areas subject to disturbance such as unsurfaced trackways. Penwith Moors supports a number of bramble *Rubus* species and there are also historic records for the nationally scarce and threatened yellow centaury *Cicendia filiformis* at a seasonal pond.

Lichens

Many of the granite outcrops, including those at Carn Kenidjack, Watch Croft, Carn Galver, Hannibal's Carn, Carn Downs, Boswarva Carn, Zennor Hill, Logan Stone, Sperris Quoit, Trendrine Hill, Rosewall Hill and Trencrom Hill, support a nationally important assemblage of lichens associated with non-montane acid rock. The assemblage comprises rare, scarce and/or declining species. These include *Cladonia cyathomorpha*, *Herteliana gage*, *Lecanora alboflavida*, *Lecidea fuliginosa*, *Melaspilea interjecta*, *Opegrapha saxigena*, *Parmelinopsis horrescens*, *Parmelinopsis minarum*, *Pertusaria excludens*, *Pertusaria monogona*, *Sarcogyne clavus* and *Usnea subscabrosa*. Two small colonies of *Bryoria* were recorded at Hannibal's Carn. There is uncertainty whether the species is *Bryoria bicolor* or *Bryoria smithii*. Great Britain has international responsibility for three of the above species as it supports a significant proportion of the European and/or global populations.

Invertebrates

Penwith Moors supports a nationally important assemblage of invertebrates associated with scrub-heath and moorland. This assemblage is found on low nutrient, acid soils where herbaceous and dwarf shrub vegetation is dominant. It includes a wide range of invertebrates but beetles (Coleoptera), true bugs (Hemiptera) and spiders (Araneae) are particularly important components. Species found on Penwith Moors include heather beetle *Lochmaea suturalis*, a rove beetle *Staphylinus erythropterus*, small heather weevil *Micrelus ericae*, the weevils *Protopirapion atratum*, *Stenopterapion scutellare* and *Sitona striatellus*, the ground bugs *Scolopostethus decoratus* and *Ulopa reticulata* and the spiders *Agroeca proxima* and *Clubiona trivialis*.

Surveys recorded over 600 species across the site, including the Nationally Rare Perkin's mining bee *Andrena rosae* and tormentil nomad bee *Nomada roberjeotiana*, the endangered butterfly species grayling *Hipparchia semele*, and wall brown *Lasiommata megera* and the vulnerable wetland rove beetle *Stenus kiesenwetteri*.

Dartford warbler

Stands of mature heathland within Penwith Moors, sometimes with associated scattered scrub, support a nationally important population of breeding Dartford warbler *Curruca undata*. Male birds are often spotted singing from the tops of gorse bushes in the spring. Gorse also provides a safe nesting place and hunting ground for this species. Dartford warbler is resident in Great Britain and highly susceptible to severe winters. Due to its extreme south-westerly position Penwith Moors could act as a regional refuge for this species when there are episodes of severe winter weather elsewhere in Britain.

Annex 2

Views about Management

This is a legal document on which you have a right to make objections or representations, as explained in part 3 of this notification document.



Views About Management

Wildlife and Countryside Act 1981 Section 28(4)

A statement of Natural England's views about the management of Penwith Moors Site of Special Scientific Interest (SSSI)

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

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

This Statement does not constitute consent for any of the 'operations requiring Natural England's consent'. The written consent of Natural England is required before carrying out any of those operations. Natural England welcomes consultation with owners, occupiers and users of the SSSI to ensure that the management of this site conserves and enhances the features of interest, and that all necessary prior consents are obtained.

Background

Penwith Moors SSSI comprises a mosaic of lowland heathland, fen (including valley mires, marshy grassland and transitions to wet woodland), lowland dry acid grassland, bracken, scrub, granite outcrops and artificial habitats such as ponds and old trackways. This mosaic of habitats supports rare and scarce plants, lichens, invertebrates and breeding Dartford warbler.

The importance of the site is a function of its large extent across a number of parcels in close proximity and the juxtaposition of and transitions between habitats.

For centuries the moors have been maintained by traditional management using extensive livestock grazing and cutting. This has depleted the thin acid soils of nutrients and kept the land mostly free of scrub and trees. This management in combination with natural variations in soil conditions and drainage has created a rich diversity of habitats.

Management principles

All of the habitats require management to maintain their suitability for the interest features. The most important principles are to maintain: water quality and quantity; relative proportions of woodland, scrub, fen, heathland and grassland habitats; and connectivity for mobile species. In many cases the habitats and species they support rely on similar management. Cultivation and the application of pesticides (including the use of persistent veterinary products on livestock), fertilisers (including manures) and lime are damaging and must be avoided. Herbicides should also generally be avoided, although some types can be useful for the targeted control of invasive species.

Lowland heathland

On this site the majority of the lowland heathland is 'humid' heath which results from the wet oceanic climate of west Cornwall and unimpeded drainage. Heathland occurs in

mosaics with and/or transitions to other habitats such as mires, acid grassland, bracken and scrub.

Heathland supports the greatest diversity of plants and animals where management maintains its open nature and promotes a varied structure of uneven-aged stands of native heathers and other characteristic plants such as Western gorse. It is generally beneficial if all stages of the heather life cycle are present. Without such management, heathland becomes progressively dominated by bracken, European or western gorse and, on wetter ground, purple moor-grass tussocks. Eventually scrub and trees may invade. The precise management requirements will vary both between and within sites according to the needs of the different heathland interests present and site conditions.

Low intensity grazing is a suitable means of managing dry heath. By grazing selectively in different areas and on different plants, free-roaming livestock help to maintain variation in the vegetation composition and structure. They can also suppress scrub encroachment and provide some light poaching to create small pockets of bare peat and sandy ground that are of benefit to a variety of specialised plants, invertebrates and reptiles. Cattle grazing is an acceptable method of management but hardy ponies may also be used, although care must be taken to avoid damage to the heather by trampling. An appropriate stocking rate should take into account local conditions and the timing and length of grazing, but an off-take of between 30-40% of the current growth increment is desirable. Heavy grazing should be avoided on wet heath as it can lead to a decline in characteristic dwarf shrub cover in favour of grass and sedge species, as well as excessive poaching and erosion of the underlying peat.

Cutting or mowing may also be useful options where varied structure with a mosaic of patches of heather and other dwarf shrubs of different ages is desired. The cut material must be removed to avoid nutrient accumulation and allow the cut plants to re-sprout successfully. Burning can be damaging to wet and humid heath by destroying the structure of peat soils and preventing the build-up of peat-forming mosses. It can also adversely affect populations of reptiles, small mammals, ground-nesting birds and lichens. For these reasons heathland management should primarily be achieved through livestock grazing and/or cutting or mowing. However burning can be useful to bring neglected sites back into management and facilitate grazing or in target locations for the management of particular species such as pale dog-violet *Viola lactea*. Burning should be carefully planned as part of a wider habitat management plan. Individual burns should be small in extent (e.g. no greater than 2 ha) and the Heather and Grass Burning Code must always be followed. Some areas of mature heath should be retained to help provide the full range of dwarf-shrub ages and habitat for species which require mature heath such as dodder *Cuscuta epithymum* and Dartford warbler.

The heathlands of Penwith Moors support a diverse assemblage of invertebrates, which is reliant on a varied physical structure of vegetation, particularly when found in a patchwork of intimate mosaics. A range of structural stages or 'surfaces' should be present to provide as many niches as possible from short, pioneer heathers, through areas of 'building' and mature heather and gorse to patches of scattered scrub and trees, along with small, scattered patches of bare soil throughout. Heathland vegetation is further enhanced for invertebrates when unsurfaced paths and tracks supporting a range of flowering plants from spring to early autumn are present. Large areas of single-aged, uniform heathland support far less invertebrate diversity and management should aim to gradually diversify the structure of such areas through cutting, grazing and, where appropriate, carefully managed patch-burning.

In areas where pale dog-violet, a rare and declining plant of acid soils, is known to be present or to have been present in the past there are significant opportunities for

population expansion and recolonisation. Areas of open, low heathland vegetation should be maintained or created by cutting, small controlled burns and/or targeted grazing. This plant requires open conditions with little competition from heathers, gorse or tall grasses.

Retaining some scattered individual trees and small patches of scrub is beneficial to wildlife. However, some additional management may be required to remove any dense bracken or scrub invasions or to control tree encroachment where this begins to impact on the open nature of the heath. This can be achieved either by mechanical control or manual cutting (depending on ground conditions) followed by the careful application of a suitable herbicide where necessary.

Where European gorse is present, scattered stands with a bushy structure rather than large continuous blocks are of greater benefit to the characteristic bird and invertebrate species associated with gorse scrub. For example, Dartford warbler require areas of open heath (less than 25 trees per hectare) with over 50% cover of mature heath (preferably over 30 cm tall) and patches of dense, compact, mature gorse bushes (0.5-3m tall). Winter cutting of 'leggy' stands of European gorse and the removal of cut material will maintain gorse at different stages of re-growth and avoid nutrient accumulation in the soil. At this site, however, the relative abundance of Western gorse is not necessarily an indication that it is badly managed.

Management should ensure that necessary measures are taken to control recreational and other activities that can be damaging to heathland habitats and species, such as lighting fires or vehicle scrambling. Suitable measures may include a system to allow for the effective control of fires, such as firebreaks, access for fire-fighting vehicles and emergency water, and the careful management of public access.

Old trackways may support populations of coral-necklace, a rare and declining plant. Penwith Moors is one of the few remaining strongholds for this species. The site provides significant opportunities for the recolonisation of areas where this species has historically been recorded and also for new populations to become established. Coral-necklace requires open conditions with gravel or sandy surfaces, usually flushed by shallow, clear water from springs or stream-sides. Such trackways should be kept open through light and occasional use by livestock and/or machinery. Abandonment of use leads to the establishment of shading trees, shrubs, coarse grasses and herbage with which coral-necklace cannot compete. However, the habitat may be made unsuitable for coral-necklace if heavily disturbed, artificially surfaced or if natural hydrology is altered through drainage.

Fens: including valley mires and transitions to wet woodland and marshy grassland

Fen often develops within valleys and the origins and movement of the water within the fen give rise to a number of different vegetation zones. The variety of plant and animal life in the valley mire is closely linked to the number and type of zones it contains. There may be flushes and springs with a characteristic sward of short herbs and mosses on the valley sides and floor where groundwater breaks out at the surface, but these may be overlain by silt or peat on the valley bottom. Valley mires have catchments which provide groundwater which percolates through fissures in the acid rock. These catchments may be extensive and include areas of farmland as well as natural and semi-natural vegetation. In many valleys, there is a central stream intercepting water from the sides and carrying it away from the wetland. A rich variety of other habitats are frequently associated with valley mires including areas of damp and drier grassland, wet heath, natural pools, runnels, seepages, ditches, willow scrub and wet woodland, all of which add to the diversity of the habitats and species supported.

The maintenance of the characteristic composition and diversity of valley mires is therefore dependent on a number of factors operating both at the surface and below ground. The quantity and quality of the groundwater must be maintained, though the quantity is not likely to be naturally constant throughout the seasons or between wet and dry years. The groundwater comes from aquifers, and these may become depleted due to abstraction or failure to recharge. They may be contaminated by agricultural chemicals such as fertilisers, or by pollution from waste disposal sites. When this occurs the characteristic fen vegetation will be replaced by rank grasses, reeds and nettles.

Grazing is important in the management of valley mires. Animals help to break up tussocks of rank grasses such as purple moor-grass and open the sward up to a greater variety of plants. The precise timing and intensity of grazing will vary according to local conditions and requirements. Some trampling is necessary to create open soil for invertebrates, mosses and seedling establishment. Grazing also limits the spread of willow and other trees, which naturally tend to develop around the central watercourse and should be restricted to this area, other than isolated clumps elsewhere for the benefit of birds and invertebrates. Spread of rushes and fast-growing rank vegetation is likely to be an indication of nutrient enrichment and/or overgrazing, the cause of which should be investigated and addressed to maintain or restore the characteristic vegetation communities.

Supplementary livestock feeding should not take place within valley mires or within the vicinity of valley mires, including land grazed alongside valley mires. This is to ensure the mire vegetation does not become enriched by nutrients from animal feed/dung or affected by concentrated disturbance (poaching) of soils.

Natural hydrological systems give rise to the most resilient and diverse mires/wetlands. Modifications to the natural hydrological function of wetlands and their catchments, including ditches, drains and deepening of natural water courses, are generally damaging to mires and their component species. No new drainage should be installed and existing artificial drainage should be removed or disabled unless required for protection of infrastructure or safety. Within the mire and its catchment the application of materials that modify the natural background nutrient status and soil/water chemistry (other than the carefully targeted spot application of certain herbicides to cut stumps) would be damaging and should be avoided.

Excessive or long-term application of fertilisers (including slurry and manure), lime and other soil improvers within the catchment may percolate into the groundwater and reach the valley mire altering its ecology, often to the detriment of characteristic flora and fauna. It is important that the valley mire does not receive run-off from fertilised or cultivated land or surface water from farmyards. Ideally, farmland within the catchments should be managed as permanent grassland with very low inputs, particularly when immediately adjacent to the mires. Farm nutrient management plans should be put in place (and kept updated) to ensure inputs do not exceed crop requirements and minimise the likelihood of nutrient run-off or percolation to groundwater.

In some locations the open fen vegetation transitions to wet woodland usually characterised by willow. Whilst small in size, these woodlands add significantly to the diversity of flora and fauna. They benefit from minimum intervention and are best left undisturbed. This allows the development of old stands where individual trees reach maturity and collapse naturally to create gaps in the canopy, leading to a diverse woodland structure. Some dead and decaying wood such as fallen logs or old hollow trees is essential for providing habitats for fungi and dead wood invertebrates. Areas of tussocky fen and undisturbed wet woodland should be retained to provide habitat for shade-loving plants such as Cornish moneywort.

Lowland dry acid grassland

Free-draining, acidic soil is the key requirement of the grassland communities at this site but their maintenance also depends on active management. If neglected, the sward becomes dominated by tall, vigorous grasses or bracken which, together with an associated build-up of dead plant matter, suppresses less vigorous species and reduces botanical richness. Traditionally, management has consisted of stock grazing and this remains the most appropriate management tool. Grazing, through the removal of plant matter and nutrients, helps to maintain an open sward of small tussocky grasses. It also, through disturbance and trampling, creates areas of open ground suitable for colonization by lichens, ephemeral plants and invertebrates which are often characteristic of this type of grassland. However, rabbit grazing, though difficult to control, can also be a useful management tool in some situations. Occasional management of invasive scrub and bracken may be necessary but no other management should be routinely required.

In areas where pale dog-violet, a rare and declining plant of acid soils, is known to be present, or to have been present in the recent past, areas of low turf should be maintained or created by cutting and/or targeted livestock grazing. This plant requires open conditions with little competition from tall grasses or other herbage.

Lichens

The assemblage of lichens at Penwith Moors grows on exposed granite outcrops which are well lit by natural sunlight and have good air quality. Lichens are highly sensitive to changes in environmental and substrate conditions. The key management principles are to ensure that granite outcrops are not removed or subject to increased or unnatural levels of erosion e.g. through rock climbing or footfall and that management ensures maintenance of high levels of sunlight and minimises nutrient enrichment.

The important lichen species on the granite outcrops require open, sunny conditions which would be threatened by the growth of shading scrub or other vegetation. Examples include shrubs e.g. gorse, small trees e.g. willow, ivy, bracken, bramble or non-native shrubs e.g. cotoneaster or berberis. In addition, increased shade can cause luxuriant growth of mosses which overgrow and outcompete lichens. The growth of scrub is often a consequence of little or no management of the surrounding land. Cutting and physical removal of scrub around granite outcrops may be necessary whilst livestock grazing will help maintain open conditions.

Nutrient enrichment is another serious threat to lichens. In addition to background air pollution, local impacts can result from ammonia due to inorganic fertilisers, slurry or manure applications on adjoining land, the installation of nearby pig or poultry units, or high concentrations of livestock or game birds on/around the granite outcrops. Such activities can be damaging to lichens and should be kept as far from granite outcrops as possible, particularly when their source is upwind of the lichens. Generally, the use of herbicides should also be avoided, though some carefully planned application may be helpful in the control of scrub provided it is applied in a targeted manner.

Lichens on rocks may be vulnerable to physical disturbance from recreational walking or climbing. Where this proves to be problematic carefully targeted measures to manage access might be necessary in some areas e.g. popular viewpoints. However, occasional and light levels of disturbance may help maintain open conditions.

Ponds supporting pillwort

Both natural and artificial ponds can support a wide range of scarce and threatened aquatic plants, such as pillwort. Ponds often require periodic management to prevent a build-up of plants and silt which reduce water depth and increase nutrient levels. Silt and

plant material should only be removed from a portion of the pond at any one time, allowing sufficient time for recovery before other areas are dredged. Exposed muddy margins should be retained.

The relatively small area and water volume of ponds means they are particularly vulnerable to pollution events and accidental spillages may affect a whole pond. Increased nutrients may cause a loss of aquatic plants and increase algal growth, whilst silt inputs may smother diminutive plants and lead to rapid infilling. Management of the pond and the surrounding areas should aim to maintain good water quality by limiting inputs of silt and nutrients.

The introduction of bottom feeding coarse fish, which uproot plants and disturb pond sediments, may also cause a loss of aquatic plants and increase algal growth. Ponds are also susceptible to invasion by non-native aquatic plants such as Australian swamp stonecrop and parrot's feather. These species are able to grow rapidly, taking up available habitat and smothering other plants. They should be controlled or removed where practicable. Some native species such as duckweed are also able to take over in this way, but such growths are usually exacerbated by increased nutrients in the water.

Changes to the use of surrounding land can alter the amount of water reaching the pond, often resulting in the pond drying out. Ponds may be particularly vulnerable where large volumes of groundwater are abstracted nearby.

Date Notified: 7 October 2022

Annex 3

List of operations requiring Natural England's consent

This is a legal document on which you have a right to make objections or representations, as explained in part 3 of this notification document.

Operations requiring Natural England's consent

Wildlife and Countryside Act 1981 Section 28 (4)(b)

The operations listed below may damage the features of interest of Penwith Moors SSSI. Before any of these operations are undertaken you must consult Natural England and may require our consent.

It is usually possible to carry out some of these operations in certain ways, or at specific times of year, or on certain parts of the SSSI, without damaging the features of interest. If you wish to carry out any of these activities please contact the Natural England Area Team who will give you advice and where appropriate issue you with a consent. Please help us by using the 'notice form' (provided at notification and available on request) to ask us for consent to carry out these operations.

In certain circumstances it will not be possible to consent these operations, because they would damage the features of interest. Where possible the Area Team will suggest alternative ways in which you may proceed, thereby enabling consent to be issued. To proceed without Natural England's consent may constitute an offence. If consent is refused, or conditions attached to it, which are not acceptable to you, you will be provided with details of how you may appeal to the Secretary of State.

Standard reference number Type of operation

1. Cultivation, including ploughing, rotovating, harrowing and re-seeding.
2. Grazing and alterations to the grazing regime (including type of stock, intensity or seasonal pattern of grazing).
3. Stock feeding and alterations to stock feeding practice.
4. Mowing or cutting vegetation and alterations to the mowing or cutting regime (such as from haymaking to silage).
5. Application of manure, slurry, silage liquor, fertilisers and lime.
6. Application of pesticides, including herbicides (weedkillers) whether terrestrial or aquatic, and veterinary products.
7. Dumping, spreading or discharging of any materials.
8. Burning and alterations to the pattern or frequency of burning.
9. Release into the site of any wild, feral, captive-bred or domestic animal, plant, seed or micro-organism (including genetically modified organisms).
10. Killing, injuring, taking or removal of any wild animal (including dead animals or parts thereof), or their eggs and nests, including pest control and disturbing them in their places of shelter.
11. Destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungal fruiting body, leaf-mould, turf or peat.
12. Tree and/or woodland management and alterations to tree and/or woodland management (including planting, felling, pruning and tree surgery, thinning, coppicing, changes in species composition, removal of fallen timber).

Standard reference number	Type of operation
13a.	Draining (including moor-gripping, the use of mole, tile, tunnel or other artificial drains).
13b	Modification to the structure of water courses (streams, springs, ditches, dykes and drains) including their banks and beds, as by re-alignment, regrading, damming or dredging.
13c.	Management of aquatic and bank vegetation for drainage purposes.
14.	Alterations to water levels and water tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes). Also the modification of current drainage operations, such as through installation of new pumps.
15.	Infilling or digging of ditches, dykes, drains, ponds, pools, marshes or pits.
20.	Extraction of minerals including peat, hard rock, sand and gravel, topsoil, subsoil and spoil.
21.	Destruction, construction, removal, rerouting, or regrading of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, including soil and soft rock exposures or the laying, maintenance or removal of pipelines and cables, above or below ground.
22.	Storage of materials.
23.	Erection of permanent or temporary structures or the undertaking of engineering works, including drilling.
24a.	Modification of natural or man-made features and clearance of boulders, large stones, loose rock, scree.
26.	Use of vehicles or craft.
27.	Recreational or other activities likely to damage or disturb the features of special interest.
28a.	Game and waterfowl management and hunting practices and alterations to game or waterfowl management and hunting practice.

Notes

- i. This is a list of operations appearing to Natural England to be likely to damage the special features of the SSSI, as required under section 28 (4) (b) of the Wildlife and Countryside Act 1981.
- ii. Where an operation has been granted a consent, licence or permission from another authority separate consent will not be required from Natural England. However, other authorities are required to consult Natural England before such consents, licences or permissions are issued.
- iii. Any reference to 'animal' in this list shall be taken to include any mammal, reptile, amphibian, bird, fish, or invertebrate.

Date notified: 7 October 2022

National Grid Reference: SW422357

Annex 4

Maps showing the land notified

This is a legal document on which you have a legal right to make objections or representations, as explained in part 3 of this notification document.

<Insert map(s) here>