

**County:** Cornwall

**Site Name:** Phoenix United Mine

**District:** Caradon

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

**Local Planning Authority:** Cornwall County Council  
Caradon District Council

**National Grid Reference:** SX 266724      **Area:** 29.79 (ha) (ac)

**Ordnance Survey Sheet 1:50,000:** 201      **1:10,000:** SW 27 SE

**Date Notified (Under 1981 Act):** 1996      **Date of Last Revision:** –

**Other Information:**

This is a new site.

The site is within an Area of Outstanding Natural Beauty.

\* Cornish Path Moss *Ditrichum cornubicum* is listed on Schedule 8 of the Wildlife and Countryside Act, 1981 (as amended).

\*\* The Liverwort species *Cephaloziella nicholsonii*, *C. integerrima* and *C. massalongi* are listed as Red Data Book species.

\*\*\* Greater Horseshoe Bat *Rhinolophus ferrumequinum* is listed in Schedule 5 of the Wildlife and Countryside Act, 1981 and Annex II of the E.C. Habitats and Species Directive (92/43/EEC).

**Description and Reasons for Notification:**

Phoenix United Mine is of special interest for its nationally and internationally important populations of mosses and liverworts, including the only known population of Cornish path moss \* *Ditrichum cornubicum* in the world, three nationally rare liverwort species, one nationally scarce liverwort species, two nationally scarce moss species together with several other notable liverwort species. No other mine site in Cornwall exhibits such high bryological interest as Phoenix United Mine.

Phoenix United Mine is located near Minions on the south eastern edge of Bodmin Moor, approximately 7 kilometres north of Liskeard. The site lies at an altitude of 280 m and drains north eastwards via a small tributary of the River Lynher.

The site is situated within the metamorphic aureole surrounding the Bodmin Moor granite. Granite and granitic head with boulders occur on the western edge of the site, although most of the site is underlain by interbedded sandstone, siltstone and shale of the Brendon formation of Lower Carboniferous age. Mine waste and made ground cover much of the central part of the site. The soils reflect this complex geology, with well-drained gritty loamy soils of the Moretonhampstead and Hexworthy Series overlying the granite with head, and brown earths of the Denbigh Series occurring over the Carboniferous strata.

Rich metalliferous veins characterise this part of the metamorphic aureole, which was mined primarily for its rich tin and copper lodes in the 19th century. Evidence of this past mining activity is apparent in the disused mine buildings, engine house and associated mine spoil.

The ecology of the site is strongly influenced by the presence of heavy metals in the mine waste and soils which have severely restricted the growth of vascular plants, favouring colonisation by bryophytes and lichens. Derelict mine buildings and old granite walls also provide an important substrate for lower plants, including calcicolous species which are restricted in the mortar.

The site is of particular importance for its rare moss and liverwort populations, most notably as the only known extant site in the world for Cornish path moss. This is a pioneer species of bare or sparsely vegetated peaty soils within the areas of mine spoil. The continued survival of this rare and vulnerable species depends on the retention of these bare soil habitats.

The site also supports three nationally rare liverwort species, \*\* *Cephaloziella nicholsonii*, \*\* *C. integerrima* and \*\* *C. massalongi* which are restricted to copper bearing substrates at a few localities mainly in Cornwall. These species occur here on the banks of the metal rich stream which flows through the site. *C. nicholsonii* does not occur outside of Britain.

The lower plant interest is further enhanced by the presence of three nationally scarce species, the mosses *Gymnostomum viridulum* and *G. calcareum* and the liverwort *Cephaloziella stellulifera*. Additional bryological interest is provided by the occurrence of three liverwort species which have northern and/or western distributions and are very rare in southern England, *Lophozia sudetica*, *Gymnomitrium obtusum* and *Marsupella funckii*.

Other habitats present on the site include dry acidic heath dominated by heather *Calluna vulgaris* and European gorse *Ulex europaeus*, occurring on the more vegetated mine waste. Granite clitter slopes to the north east with dense bracken *Pteridium aquilinum* stands merging into scrub woodland composed of pedunculate oak *Quercus robur*, pendulous birch *Betula pendula* and holly *Ilex aquifolium*. The oak supports rich moss and lichen communities including *Usnea articulata*. Open water habitats include small pools and derelict mine leats in addition to the fast-flowing stream rich in dissolved metals.

Disused mine adits at the northern boundary of the site provide a winter roost site for the greater horseshoe bat \*\*\* *Rhinolophus ferrumequinum*. The site also provides feeding habitats for bat species.