Bodmin Moor

Managing an ancient and modern pastoral landscape

To develop and maintain resilient and environmentally sustainable pastoral practice

Historic Environment Action Plan (HEAP)

Premier Archaeological Landscapes (PALs)

Bodmin Moor Vision

Pete Herring, David Attwell and Daniel Ratcliffe

For Cornwall National Landscape and Cornwall Council

March 2025

Cattle and sheep graze Rillaton Common while visitors explore the Hurlers stone circles and Stowe's Hill, with its Neolithic tor enclosure, dominates at rear left. Such a pastoral scene may have been experienced when these monuments were created c 4000 and 5500 years ago (Pete Herring, 2020).

Contents

Cheese-Wring, S Prout 1804

1 Introduction

1.1 The review, based on the project brief

Outline of the project scope

The Cornwall Council's Nature Recovery Team, supported by Cornwall Council's Strategic Historic Environment Team have commissioned this review of the historic environment strand of the Bodmin Moor Vision, and in particular the Bodmin Moor Rough Ground Historic Environment Action Plan (HEAP), and the associated Premier Archaeological Landscapes (PALs), the areas of greatest historic environment and archaeological interest, where those interests may normally be expected to have greatest weight in most decision-making.

Background

The commissioning of the review followed discussions with farmers and Commoners Associations on Bodmin Moor and funding for this piece of work has been made available through the Farming in Protected Landscapes (FiPL) initiative, administered by the Cornwall National Landscape team. (Bodmin Moor is one of the twelve separate parts of the Cornwall National Landscape.)

The Bodmin Moor Rough Ground HEAP was created in 2003 and the PALs were delineated and described in 2007, the same year that the Vision was agreed. Over 17 years have passed since then, and nothing endures but change. Since that time there has been continued archaeological and related work on the Moor, so some features and sites have been re-evaluated while others are newly discovered. The condition and the trajectory of change of the semi-natural environment and sites also varies; some areas are in beneficial management, but others have declined, mainly as a result of increased vegetation cover, usually due to relaxation of grazing.

This is a pivotal time on Bodmin Moor. Current issues include concerns over revenue values in agri-environment schemes, the condition of protected and highly important sites and areas (both natural and historic environment), historically low stocking rates, and the need to make space for the next generation of commoners and farmers, and to pass on to them a healthy environment and sustainable practice.

Flexibility, creativity and commitment are required from all sides in order to devise and deliver sustainable long-term management. Despite the primary focus of ELM being on nature and climate, there remain opportunities to integrate PALs and to broaden the lens to look beyond the common boundary.

Developing a better understanding of the significance of the historic and semi-natural environment of Bodmin Moor's ancient semi-natural grasslands and the archaeological remains that survive within them on a national and European scale will help to support PALs and the wider pan-Moor cultural and semi-environmental heritage associated with pastoralism.

Change and need

While the sustainability of the ancient semi-natural grasslands and the levels of grazing required to retain and enhance their biodiversity remains the primary issue for those considering the future of the Moor's rough ground, other challenges and opportunities facing the Moor have also changed since 2007.

Responses to each of the following can be developed in ways that enhance and provide positive management opportunities for the historic environment, which includes the semi-natural environment of the rough ground, made and maintained by at least four millennia of grazing. Indeed, all can draw from our understanding of the historic and semi-natural environment in their design – learning from the deep history of sustainable land use on Bodmin Moor.

- Global Climate Change, recognised locally by Cornwall Council's Declaration of a Climate Emergency in January 2019, and the various responses to it.
- Changes to farm payments through the emerging Environmental Land Management (ELM) schemes that place emphasis on options for environmental gain. SSSIs and SACs remain priorities for management under agri-environment schemes. There is a need to understand and communicate better the prehistoric and historic land-use basis of the North Bodmin Moor SSSI. It is recognised in the designation's description that it is dominated by coarse grasslands, but because there are fragments of heathland at its edges, and it is presumed to have derived from an ancient heathland, it is being managed as if it were a heathland rather than a grassland.
- The continuing viability of the millennia-long tradition of pastoral farming of the moorland using livestock including cattle, sheep and ponies when considered against ELM options, is a substantial issue for many farmers.
- Other initiatives include large scale change through peatland restoration and an increase in woodland canopy cover.
- Complementary initiatives to restore meadows, heathland and wetland all look to increase biodiversity net gain.
- Landscape Recovery Schemes are being developed as a concept to look at landscape-scale positive management and change.

It is expected that there may be new ways of managing heritage sites in achievable and cost beneficial ways, for example through techniques such as fenceless grazing, which might enable the more tactical targeting of grazing. Management of the historic landscape, including the semi-natural environment, can be expected to support a need for at the minimum retaining and more likely increasing existing animal numbers.

Interweaving of the historic and semi-natural environments

The internationally important historic environment of Bodmin Moor, which is described, discussed and evaluated in the main part of this report, and presented in greater detail in the individual PALs texts, is interwoven with an important semi-

natural environment including some of the largest areas of significant habitat in Cornwall, notably acid grassland, western heath and valley mires. Most of these host Biodiversity Action Plan species, and all have been made biodiverse through the variety or heterogeneity of historical land uses.

This is a nationally important semi-natural environment, and much of the Moor north of the A30 has been designated as a Site of Special Scientific Interest. Smaller parts are Special Areas of Conservation.

Landscape

The historic and semi-natural environments of Bodmin Moor contribute greatly to people's perception of the place, and so turn it into valued landscape.

Landscape has been best defined as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (European Landscape Convention definition, Council of Europe 2000), and, as noted, the agreed importance of Bodmin Moor's landscape is recognised through inclusion as one of the twelve Areas that make up the Cornwall National Landscape, a designation of the highest rank in the UK.

The most detailed assessment of Bodmin Moor's landscape was that carried out in 1993-4 by Land Use Consultants (Countryside Commission 1994).

The lack of large modern settlements and major intrusive development has also contributed to the Moor being recently confirmed as an International Dark Sky Reserve.

A living landscape, home and workplace for a resilient pastoral community

'Most importantly of all, Bodmin Moor remains a working, living landscape, home to generations of landowners, commoners and tenants. These are the descendants of the people who created the archaeology of the moor and continue to work with and understand its special environment' (extract from the project brief).

Two crucial strands of this review are these.

- Presentation of the long history of the owners, occupiers, farmers and commoners who have created and maintained the archaeological remains, the land cover, and the character of the Moor, from early prehistory through to today.
- Understanding, appreciating, and representing the concerns of the present generations as they strive to ensure their own resilience and sustainability while delivering the livestock and the effort that sustainability of the Moor itself and the other interests and values that reside in it require.

The historic environment has long been involved in conversations and decision-making about the Moor, but it can often be regarded as a slightly tangential specialist area, whereas it actually provides the base and the evidence for understanding the

genesis, and the trajectory of change for each of the other valued aspects of the Moor – the pastoralist community of farmers and commoners, the natural (or semi-natural environment), the valued wild (or relatively wild) landscape, and the amenity of an exciting and dramatic place to explore.

A short history of the Bodmin Moor Vision, and HEAPs and PALs

A Historic Environment Action Plan, or HEAP, for Bodmin Moor's Rough Ground was first drafted in October 2003, and was one of the initiatives that fed into the development of the first Bodmin Moor Vision, in 2005. That involved English Heritage (now Historic England), the Environment Agency, Natural England, and Cornwall Council devising a mapped '25 year vision… of a farmed landscape with the retention of grazing animals, cattle, sheep and ponies, to provide the management of the vegetation'. It was 'offered as the first stage in building a consensus with landowners, farmers and other stakeholders' (BMV 2005, published as Natural England 2010).

The Vision was required, and still is required, because 'inevitably, management priorities for the historic and natural environments can be at odds with each other and with the farmers' interests. The low vegetation required to see and understand archaeological features may not always be in the best interests for nature conservation targets and equally, vegetation cover such as Bracken, while favoured for some BAP habitat species, is devastating for archaeology both visually and below ground. Where these interests meet in potentially conflicting designations, a way forward must be found' (drawn from the brief for this project).

The original Vision was developed through multiple meetings and conversations between agencies, commoners and farmers, at a time when reductions in grazing levels (linked to prescriptions in agri-environmental schemes) and the consequent scrubbing up of some highly valuable archaeological complexes was causing concern. The Vision attempted to balance the differing aims or requirements of all interests on the Moor, natural and historic environment and the farming communities and visitors and was agreed in 2007. It aimed to 'provide a transparent message of management outcomes to those who live and work on the moor from the national agencies' (from the project brief).

To support the Vision, a set of 22 Premier Archaeological Landscapes (PALs) were identified and mapped through discussions between heritage professionals working in Cornwall. Similar initiatives were under way at the same time on Dartmoor and Exmoor. A principal aim was to recognise coherent archaeological and historical landscapes with important interrelationships with the topographical landscape of the Moor, rather than individual archaeological features, most of which are either already protected by their own designations (mainly by Scheduling) or have been identified as being of National Importance through systematic assessment (especially Rose and Herring 1990).

PALs on Bodmin Moor were confined to CROW Act 2000 open access land. Much of this is also common land. 'In many cases, the features and landscapes identified within the PALs extend into enclosed land, …but these areas were not mapped as part of the Vision, as they fell outside the CROW land. Further mapping in the future may address these areas, however' (from the project brief). That objective was not addressed in the brief for the current project, but to ensure sustainable land management across the whole of Bodmin Moor, the aspiration still holds.

Project team

This review of the 2003 Bodmin Moor Historic Environment Action Plan (HEAP), the 2005 Premier Archaeological Landscapes (PALs), and the historic environment element of the 2007 Bodmin Moor Vision was undertaken by an experienced team, each of whom has brought valuable expertise to the project.

Pete Herring

- Landscape archaeologist with 45 years' experience of surveying, researching, characterising, assessing and guiding change in Cornwall's landscape, and with a particular interest in Bodmin Moor, having undertaken detailed survey of Brown Willy (1:1000 plan of the whole field system), reconnaissance survey of the rest of the Moor, sketch survey of 80% of its industrial remains, and led over 150 field trips, and published numerous papers and articles on aspects of the Moor's history and archaeology.
- Editor and a principal author of *Bodmin Moor, an archaeological survey Vol 2 the Post-medieval and industrial landscape* (2008). Joint-author with Peter Rose of Bodmin Moor, an evaluation for the Monuments Protection Programme (1990), and the popular booklet, *Bodmin Moor's Archaeological Heritage* (2001).
- Helped establish Cornwall Council's Historic Environment Countryside Advice Service (HECAS). Conceived concept and method for Historic Enviornment Actions Plans (HEAPs) and co-authored the first HEAP, on Bodmin Moor, and was closely involved in the original delineation of the Bodmin Moor PALs.
- Oversaw the first ever Historic Landscape Characterisations of Bodmin Moor and Cornwall. Developed principles of HLC and disseminated them as part of English Heritage's Characterisation Team. Recently commissioned by Historic England to draft guidance on assessing the historic landscape's sensitivity to various forms of change and on identifying opportunities for change beneficial to environmental growth, climate change adaptation, etc.
- Led Historic England's Assessment Team (landscape archaeology, architectural history, historic characterisation). Led Cornwall Council's Strategic Historic Environment team. For nine months oversaw the Cornwall and Tamar Valley AONB (now National Landscape) teams as Interim Lead of Cornwall Council's Environmental Growth Team.
- Drafted the 2020-2030 Cornwall Historic Environment Strategy.

David Attwell

- Worked for 30 years for Cornish local authorities managing coast and countryside services and has been involved in initiating and delivering practical sustainable management for several areas of Bodmin Moor.
- Lives and farms in the heart of the Moor.
- As a self-employed consultant he also works part time as a Land Management Adviser coordinating the Dartmoor Hill Farm Project and is closely involved in the implementation of the recommendation of the Fursdon Review Independent review of protected site management on Dartmoor - GOV.UK (www.gov.uk).

- Familiar with all forms of upland agri-environmental schemes and has undertaken numerous conservation schemes for sites and monuments on Bodmin Moor.

Dan Ratcliffe

- Specialist in the archaeology of buildings and landscapes.
- Worked from 2003-2009 for the South Yorkshire Archaeological Service conducting historic characterisation, development control archaeological advice and HER enhancement.
- Moved to Cornwall in 2009 to manage building conservation and archaeological advice in central Cornwall. From 2014 Strategic Historic Environment Lead for Cornwall Council. Led on the Council's development of a Cornish Distinctiveness Assessment framework, oversaw the Cornwall and Scilly Historic Environment Record and the delivery of strategic heritage advice, including the continuing HECAS.
- From 2015 to 2017 Inspector of Ancient Monuments for Devon and Cornwall for Historic England.
- Established Statement Heritage in 2017 and has since undertaken over 350 successful projects for commercial and public sector clients, mostly in Cornwall, Devon and Somerset, and increasingly nationwide.
- Technical skills: photography, building survey, aerial survey, GIS, CAD, historic research, heritage management and development control policy.

The brief

This report is the substantial output of our response to the project brief that was summarised (in a letter from Cornwall Council dated 19.8.2024) as follows.

I. To review each of the current 22 PAL areas using desk-based methods.
II. To assess the current condition of the PALs, including the visual inter-relationships between key features both within PALs and across the moor, including some ground truthing.
III. To update the Vision for optimum management of each of the PALs for heritage outcomes, linking recommendations to current ELMs, landscape change initiatives and other funding opportunities. Includes discussion with farmers/commoners and landowners.
IV. To review and update the Bodmin Moor Historic Environment Action Plan (HEAP) in the light of the above, including HEAPs for each PAL.
V. Present the findings of the above digitally through mapping and a report.

Item IV has enabled a fairly comprehensive review of how pastoral agricultural land use on the Moor presents both opportunities and sensitivities for the highly important historic environment and the important semi-natural environment there. The review also considers opportunities and sensitivities in relation to other forms of change, especially those aimed at responding to the climate and biodiversity crises. These might also affect the rough ground on Bodmin Moor and include extending tree and woodland cover by either planting or regeneration, peatland restoration, various forms of 're-wilding' or wilding, and continued increase in public recreation.

The HEAP considers how such changes would affect or impact historic and semi-natural environment interests on Bodmin Moor. It also explores how an understanding of the development of the Moor's natural environment, or more

accurately its semi-natural environment, can be used to inform the location and design of such changes.

1.2 Bodmin Moor

Bodmin Moor's character, of open semi-natural grasslands overlain in places by mosaics of scrubland, heathland, and woodland, was created by prehistoric pastoral farmers and has been maintained by medieval and modern ones. Pastoral farmers from the Neolithic period to the present day have reared and cared for animals and drawn all or most of their living from them, through their meat, milk and dairy products, wool, skin, horn and oil, and through their power, by hauling, carrying, or by being ridden.

Formerly (before the early 19th century) called Fawymore, and before that *Goen Bren*, Bodmin Moor is Cornwall's highest and largest upland. It contains several extensive open commons and many other areas of privately held rough ground. Its granite geology provided raw materials for durable structures – monuments, houses and boundaries – that in those areas that have continued as open pastures have survived remarkably well from early prehistoric times through to the modern period.

From the project brief (p3):

> 'Over 544 kilometres of prehistoric and medieval boundaries, 211 prehistoric settlements including 1600 round houses, 354 round cairns, 16 stone circles, 37 shrunken medieval settlements with 65 longhouses, 277 medieval field systems and extensive evidence of tin stream working, mining (part of which is now a World Heritage Site) and granite quarrying.'

Cairn (foreground), cists (centre right) and ancient semi-natural grassland on Hamatethy Common, St Breward (Pete Herring, November 1998).

Historic environment

This is defined in the National Planning Policy Framework as, 'All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora' (MHCLG 2021, Glossary).

Bodmin Moor has, therefore, an especially rich and important historic environment, containing unusually coherent physical remains in the form of the landscape archaeology of activities from the Neolithic, Bronze Age, Iron Age, medieval and post-medieval periods, and, in the 'ancient semi-natural grassland' that dominates the semi-natural environment, it has a valuable survival of an extremely long-managed flora, established and then maintained by the same communities that created the archaeological remains (see Section 3.4).

Upland Rough Ground

This historic landscape type is distinguished mainly by habitat/ecology from surrounding enclosed and improved ground. The impact of human action in first creating and then in maintaining the character of upland rough ground is usually underestimated, and the zone is often regarded as largely 'natural'. In fact, it has the longest history of human interference/utilisation of all semi-natural land cover types in Cornwall and Britain, with its principal attributes, impoverished soil supporting essentially rough grassland communities, hosting variable densities of heath/scrub vegetation, being a product of early prehistoric human intervention and maintained through later prehistoric, medieval and early modern land use systems based on summer grazing.

Once vegetation had settled into its open, rough grassland and heathy form (by c2000 BC over most of the Moor, earlier in some places), its use over the subsequent 4000 years or more as extensive pastures and fuel-grounds (turf/peat and furze), often as commons shared by several local farming communities, maintained the essentially open appearance and the biodiversity of the grasslands.

Upland Rough Ground was, until c1750, considerably more extensive; its enclosure by industrial labourers and more importantly by an expanding agricultural population in the 19th century and its continued improvement by farmers with capital and machinery in the 20th has greatly reduced it.

Traditional farming systems

In Cornwall these tend to be mixed farming regimes making sensitive use of the agricultural potential of a holding through awareness of soils, aspect, climate etc. Their roots can be found in the prehistoric and medieval periods, but they adapted to changes in tenure and technology in the early 20th century when market forces changed and specialisation (beef, horticulture etc) became dominant and the application of artificial fertilisers, herbicides and pesticides widespread. This trend

away from traditional farming intensified during the Second World War and has been maintained by subsequent Government and European support schemes.

Unusually now, a body of Traditional Ecological Knowledge (TEK) is still retained and passed on by the pastoral farmers of Bodmin Moor who learn the qualities of the different slopes of the hills of the Moor and manage their grazing accordingly.

Looking north-east across the extensive ancient semi-natural grassland of the West Moor commons. An Early Bronze Age cairn is left of centre on Bray Down (in the dark distant shade). In front of that is the notch created by tin-workers forming the eluvial streamworks between Buttern and Leskernick Hills (left and right centre). More streamworking remains are in the foreground. (Pete Herring, November 2007.)

1.3 An overview of archaeological, palaeoecological and historical research of Bodmin Moor's rough ground

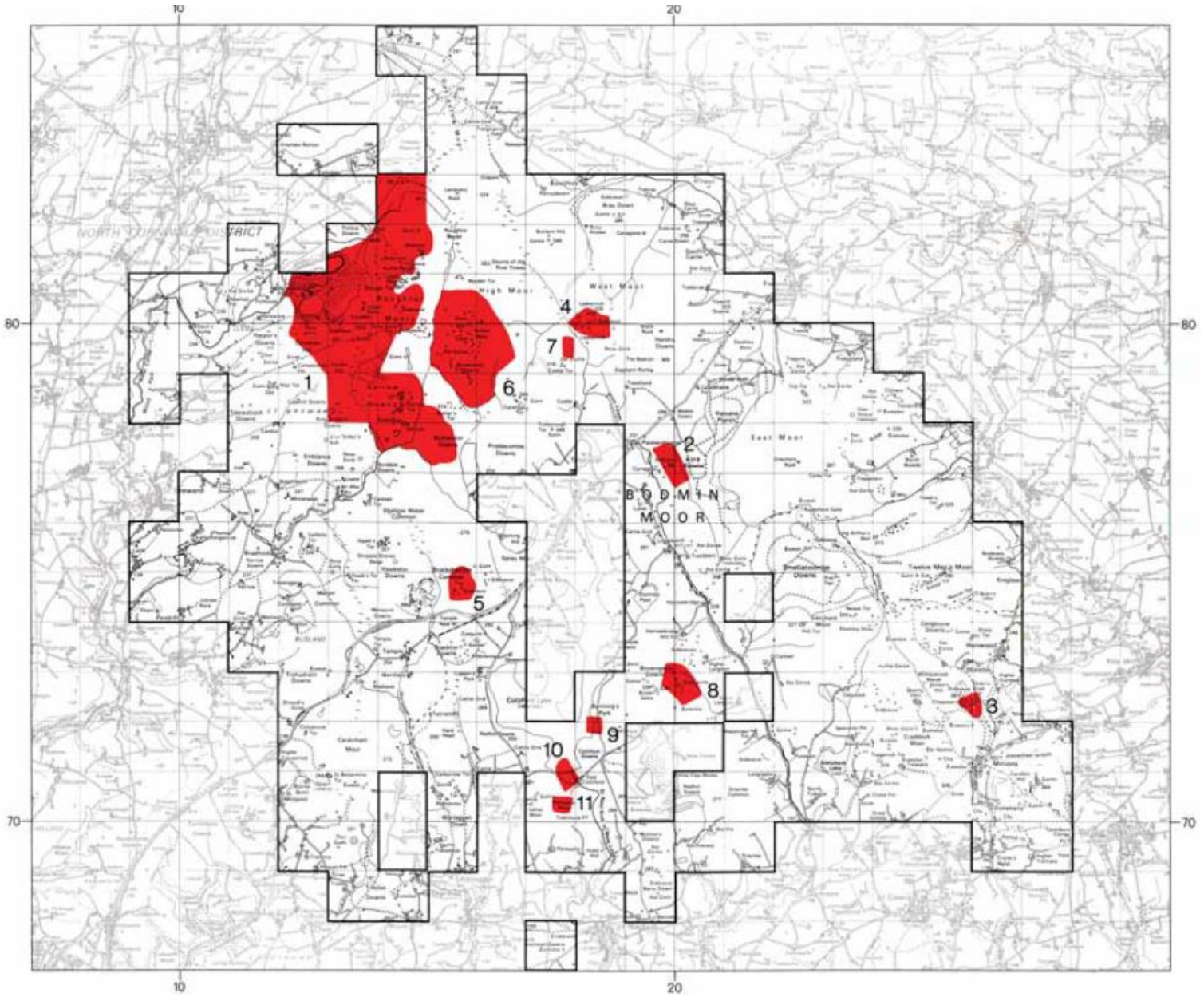
The Bodmin Moor Survey (c1980 - c1990)

Most of the remains summarised in the project brief (above) were either discovered or recorded for the first time during the Bodmin Moor Survey, a series of interlinked projects that ran broadly from 1980 to 1990, and was undertaken in partnership by Cornwall Committee for Rescue Archaeology (CCRA), which became the Cornwall Archaeological Unit (CAU) during the 1980s, and the Royal Commission on the Historic Monuments of England (RCHME, which became English Heritage and is now Historic England).

The Bodmin Moor Survey was itself a response to concerns that there was inadequate knowledge of the archaeology of the Moor, both an incomplete record of the locations and forms of the archaeological remains themselves (Johnson and Rose 1989, 65), and also a poor understanding of their meaning and significance at a time when various forms of potentially damaging change were considered likely. Threats then were considered to be mainly the following.

- Agricultural improvement (by taking rough ground into enclosed farmland)
- Coniferous afforestation
- Construction of reservoirs
- Improvements to the A30, the main road that crosses the Moor.

The Bodmin Moor Survey involved photogrammetric plotting of archaeological remains based on 458 vertical aerial photographs taken especially for the RCHME in



The extent of the Bodmin Moor Archaeological Survey, showing the squares subjected to 1:2500 photogrammetric plotting of archaeological remains and, in red, the 15 square kilometres that were checked and enhanced at 1:1000 scale (from Johnson and Rose 1994, fig 2).

May 1977 by Cambridge University Committee for Aerial Photography. There were 60% overlaps of photos to enable stereoscopic viewing, and the E-W runs themselves overlapped by 20% to ensure coverage of the 193 square kilometres of open moorland that the survey covered, broadly equivalent to the area that is now CROW Act 2000 open access land, and thus overlapping with the Premier Archaeological Landscapes.

Archaeological features were plotted to a high degree of precision at 1:2500 by Ann Carter using a Thompson Watts Mk II stereo plotting instrument (Carter, 1994, 8).

The field check of the plotted remains was undertaken in two separate programmes, with 15 square kilometres being undertaken in great detail by Cornwall Archaeological Unit (CAU) at 1:1000 scale, using the 1:2500 plots blown up to form accurate base maps, mainly by Nick Johnson and Pete Rose with help from Adam Sharpe, Ann Preston-Jones, Roger Radcliffe, Pete Herring and others. The remaining 178 square kilometres were checked at 1:2500 scale by RCHME, largely by Norman Quinnell and Martin Fletcher (Johnson and Rose 1989, 65).

This process identified good examples of site types that were then surveyed at larger scales again, 1:500, 1:200, 1:100 and 1:50, as appropriate. They included Early Bronze Age cairns, Middle Bronze Age roundhouses and fields and enclosures, Iron Age rounds, Early Medieval animal pounds, Later Medieval longhouses and outhouses, post-medieval houses, farm buildings, beehive huts. (Many of these plans and elevations are included in Johnson and Rose 1994.)

Industrial and post-medieval remains

A second programme of projects surveyed the industrial remains on the Moor (mainly extraction of tin, copper and minor metals, granite, china-clay, turf, etc). Results fed into a second volume on the post-medieval and industrial landscape (Herring et al 2008).

This included the post-graduate work done by Dr Sandy Gerrard, largely in St Neot parish, on the earlier tin working remains, including groundbreaking surveys and analyses of streamworks and surface workings for shode and along lodes (Gerrard 1986). In these Gerrard established the principles and mechanics of many of the techniques that medieval and early post-medieval miners and tin-workers employed. He also undertook sketch survey of the streamworks and associated leats, dams and shode works on West Moor in Altarnun parish.

Adam Sharpe led a community archaeology project surveying the mainly industrial remains in the south-east corner of the Moor, in the Caradon Mining District, as the *Minions Project* (Sharpe 1989; Sharpe 2008).

John R Smith and Adam Sharpe surveyed selected china-clay working complexes in the western half of the Moor, notably the very well-preserved sites of Burnt Heath and Glynn Valley (see Smith 2008).

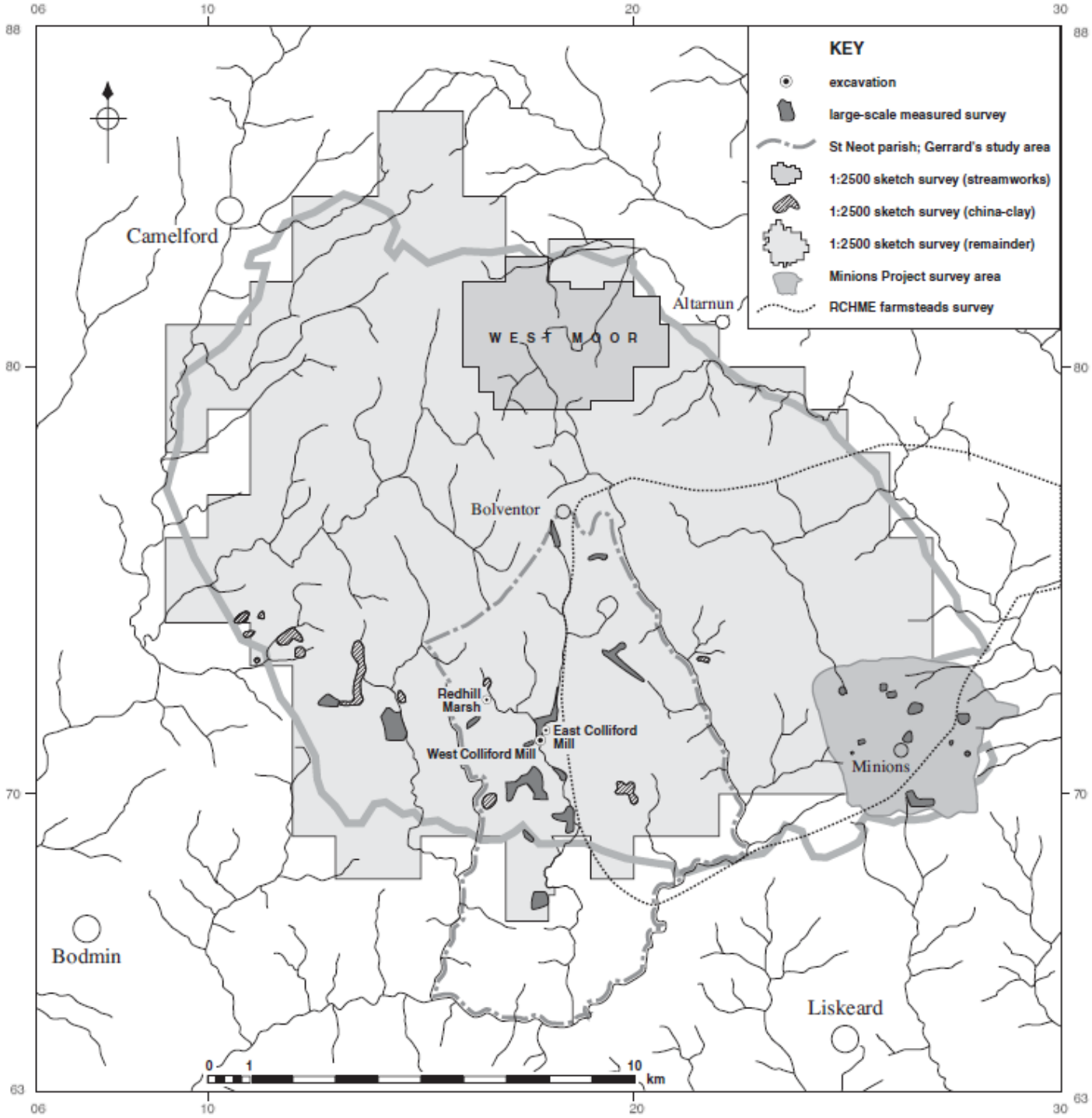
Pete Herring and Nigel filled in the gaps in the coverage of those industrial surveys, undertaking 1:2500 sketch surveys in the remaining 80% of the Moor (see Herring et al 2008, fig 3).

Oral history recording of the testimonies of people living in Altarnun, St Neot and St Cleer parishes in the centre of the Moor informed understanding of turf-cutting and saving, granite stone-splitting and some agricultural practices. This was undertaken by the late Tony Blackman and informed many chapters in volume 2 of the Bodmin Moor survey.

Post Bodmin Moor Survey archaeological work

Archaeological field work on Bodmin Moor since 1990 has been more sporadic, more thematic, and more localised, but has continued to deepen and sometimes to transform our understanding of the Moor and its archaeology. It has included the following projects.

- 1990 **Systematic evaluations** of all known heritage assets on Bodmin Moor using the criteria for scheduling to inform the **Monument Protection Programme** (MPP) by English Heritage (Rose and Herring 1990).
- 1991 Surveys and excavations along the line of the **De Lank to Lowermoor** water main. Included examination of King Arthur's Hall, leats, banks, prehistoric fields and a cairn (Ratcliffe et al 2011).
- 1993 **Bodmin Moor Historic Landscape Characterisation**, the very first HLC ever to be undertaken, as part of a landscape Character Assessment of the Bodmin Moor part of the Cornwall AONB (Countryside Commission 1994). See below (1.4).
- 1994-2010 Searching for and recording prehistoric **propped stones**, including using precession to suggest an early Neolithic date for the first propped stone to be identified, on Leskernick Hill (Herring 1997; Blackman 2011; Farnworth et al 2024a).
- 1994-1999 Oral history undertaken by **Tony Blackman** on the cutting, saving and use of **turf and furze** as the principal domestic fuel in post-medieval and modern periods on the Moor. (Results presented in Herring 2008c.)
- 1994-2012 Research on **early medieval transhumance** on Bodmin Moor and comparative studies on its practice elsewhere in NW Europe (Herring 2012).
- 1994-1995 Development of a **phenomenological approach** to understanding prehistoric ritual and ceremonial monuments on Bodmin Moor, responding to and building upon Johnson and Rose 1994 (Tilley 1995).



Bodmin Moor; extents of archaeological surveys of industrial and post-medieval remains (from Herring et al 2008, fig 3).

- 1995-1999 **The Leskernick Project**, examining by excavation and fieldwork, including phenomenological exploration, of the well-preserved Early and Middle Bronze Age settlements, fields and ritual and ceremonial monuments on Leskernick Hill, Altarnun (Bender et al 2007).

- 1996-1997 Ivey and Hawkstor Farms archaeological assessment, including recommendations for sustainable management. Includes **Garrow Tor, Carkees Tor and Scribble Downs**, all in PAL 2 (Cole 1997).
- 1998-2000 **Stannon Down**, St Breward, excavations and investigations ahead of china-clay operations. Included examination of Bronze Age cairns and Iron Age reuse of monuments, together with further pollen analysis and environmental reconstruction (Jones 2004-5; Tinsley 2004-5).
- 1998-2000 **Palaeo-ecological work** on prehistoric settlement on the Moor, with new work from Rough Tor and East Moor (Gearey et al 2000a and b)
- 2004-2011 **Phenomenological** fieldwork by Roger Farnworth, examining cairns, stone circles, propped stones and chambered tombs on Bodmin Moor (Farnworth et al 2024a-d).
- 2005-2006 Community project recording all **boundary stones** on the Blisland Commons (Langdon 2006).
- 2007-2025 Continued work on the early prehistoric **stone rows** of Bodmin Moor (Herring 2008b; Gerrard 2025).
- 2008-2013 Research on the use of **commons and pastoralism** on Bodmin Moor from early prehistory to the modern period (Herring 2004; 2008b; 2013).
- 2009-2013 **Caradon Hill Area Heritage Project** (CHAHP) supported by the National Lottery, aimed to celebrate local distinctiveness, protect wildlife and livestock grazing, conserve mining and prehistoric sites and encourage local skills training.
- 2010-2025 The **TimeSeekers**, a group of archaeologists who contribute to researching and managing principally prehistoric sites on the Moor, including stone rows and stone circles, and King Arthur's Hall.
- c2010-2025 **Robin Paris** has been undertaking extensive phenomenological field work, mainly in the SE quarter of the Moor.
- c2010-2025 **David Edyvean** has been collecting and recording prehistoric flint artefacts at the modern reservoirs and elsewhere on the Moor.
- 2013-2016 **Investigations at the Hurlers** triple circle and associated monuments, including geological studies of standing stones and archaeo-astronomical observations and modelling (Nowakowski et al 2021).
- 2014-2025 **Caradon Archaeology**, a group of enthusiasts led by Iain Rowe, maintains the work started by the CHAHP and continues to organise walks and activities, particularly in the SE quarter of the Moor.
- 2020 -2025 The **Monumental Improvement** project addressed the condition of 11 Scheduled Monuments on Bodmin Moor, including excavation and restoration. Included King Arthur's Hall (dated by OSL to the late 4th millennium BC), Emblance Down stone circles, East Moor stone row and Tresibbet medieval hamlets.
- 2022-2024 Recording all **boundstones** on the Moor (Moore 2024).

Earlier work

Peter Rose summarised archaeological work prior to the 1980s (Johnson and Rose 1994, 4). In addition to the following, there were numerous descriptions and occasional records of individual sites, listed in Johnson and Rose 1994, Appendix 1.

- 1580s John Norden produced good **antiquarian drawings** of King Arthur's Hall, The Hurlers stone circle sand Trethevy Quoit.
- 1891-1892 Rev Sabine Baring-Gould **excavated** the later medieval settlement at **Trewortha Marsh** (Baring-Gould 1891; 1892).
- 1908 St George Gray **excavated the Stripple Stones circle henge** (Gray 1908).
- 1935-1938 Ralegh Radford **excavated parts of the Hurlers triple circle** (Radford 1935; 1938).
- 1942 Croft Andrew **excavated cairns and other sites** on Davidstow Moor ahead of the creation of the RAF airfield there (Christie 1988).
- 1950s Dorothy Dudley **excavated several roundhouses and longhouses**, mainly on Garrow Tor, but also on Rough Tor and at Smallacoombe (Dudley and Minter 1962-3; Dudley 1963).
- 1970 Roger Mercer **excavated several roundhouses** on Stannon Down ahead of china-clay operations (Mercer 1970)
- 1970s **Major revisions to the antiquities records for Bodmin Moor** held by the Archaeology Division of the Ordnance Survey.

Much of this work was piecemeal, responding to passing interests in particular themes and sites, but the rapid growth in interest in landscape archaeology in the 1970s turned wider attention to the Moor, at just the time that large-scale change was posing threats to the archaeological remains, hence the Bodmin Moor Survey.

A significant outcome of all the work noted above has been the discovery, mapping and description and interpretation of thousands of individual sites and features on Bodmin Moor.

The following is a list of the **prehistoric and medieval archaeological site types** recognised on Bodmin Moor and the numbers of each that had been recorded by c1990 (largely drawn from Rose and Herring 1990). Brief introductions to most of these types are included in Appendix 1. It is anticipated that for each entry a brief summary of typical threats and opportunities affecting each can be developed to help guide future management at the level of individual sites.

Site type	Period	No.
Long Cairn/Chambered Tomb	Neo	8
Cairn Group	EBA	79
Cairn	EBA	462
Stone Circle	Neo/EBA	14
Stone Row	Neo/EBA	10
Stone Setting	Neo/EBA	5

Menhir	Neo/EBA	21
Embanked Avenue	Neo/EBA	2
Cup Marked Stone	Neo/EBA	1
Spaced-Stone Enclosure	Neo/EBA	l
Hut Circle Settlement	BA/IA	211
Prehistoric Field System		189
Earlier Prehistoric Hillfort	Neo	2
Iron Age Hillfort	IA	2
Round	IA/RB	38
Medieval Settlement	LMed	224
Building (Medieval)	LMed	45
Historic Field System	LMed	227
Pound/Enclosure	LMed	18
Beehive Hut (Medieval)	LMed	4
Castle	LMed	1
Bridge etc.	LMed	19
Cross	LMed	59
Chapel	LMed	21
Holy Well	LMed	8

Industrial and post-medieval site types

Shode working	24
Openwork	20
Lode-back works	42
Streamwork, alluvial	68
Streamwork, eluvial	80
Tinner's building	46
Mine	101
Shaft*	31
Adit *	66
Engine house*	58
Wheelpit *	48
Horse whim	25
Flat rod*	9
Stamping mill/dressing	47
Crusher*	5
Calciner *	4
Magazine*	12
Smithy*	16
Tramway	17
Blowing house	6
Prospecting pit*	69
Reservoir, sundry	17
Leat, sundry	34
Quarry, dimension stone	29
Proto-industrial quarry	10

Roadstone quarry	15
Rab pit	23
Quarry, uncertain	24
Millstone Roughout	38
China clay works	29
Brickworks	1
Peat platform (group)	54
Peat cutting	24
Airfield	1
Shooting range	2
Iceworks	1
Beehive Hut (Post-Medieval)	14

1.4 Historic Landscape Characterisation

Historic Landscape Characterisation (HLC) is a method of identification and interpretation of the varying historic character within an area that looks beyond individual heritage assets as it brigades understanding of the whole landscape into repeating HLC Types. It is a technique that has since the mid-1990s been applied across the whole of England, and Scotland (the latter as Historic Land Use Assessment) to support more nuanced landscape character assessment, to frame research and decision-making, and to provide a spatial framework within which other historic environment data can be held (Herring et al 202.

HLC was first undertaken here on Bodmin Moor in 1993 (published as Countryside Commission 1994). The Bodmin Moor Archaeological Surveys underpinned the HLC which was undertaken by Pete Herring, then of the Cornwall Archaeological Unit, for Land Use Consultants, commissioned by the Cornwall AONB service and the Countryside Commission to prepare a Landscape character Assessment. The basic principles of HLC were established here on Bodmin Moor.

1. HLC deals with the present-day landscape but emphasises time-depth in the landscape and the contribution of the past to today's landscape.
2. HLC incorporates those semi-natural elements of landscape shaped by human action.
3. It is area-based: zones and patterns are given more weight in HLC than individual sites and monuments.
4. HLC offers a framework in which all can recognise their place and engage with and contest other views. It is therefore inclusive and plural: different collective, public and individual views of the historic landscape are acknowledged and welcomed.
5. It is also comprehensive all types and parts of landscape are treated equally during characterisation.

6. Character not significance: HLC assesses what is there and valuation of aspects like rarity, typicality, distinctiveness, condition comes later when necessary.
7. It is transparent: sources, interpretation and decisions made in its creation are clearly presented.
8. Accessibility: HLC is designed to be understood and used by different users. Maps and text are jargon-free and where possible integrated with other environmental and heritage records.

Bodmin Moor HLC, 1993

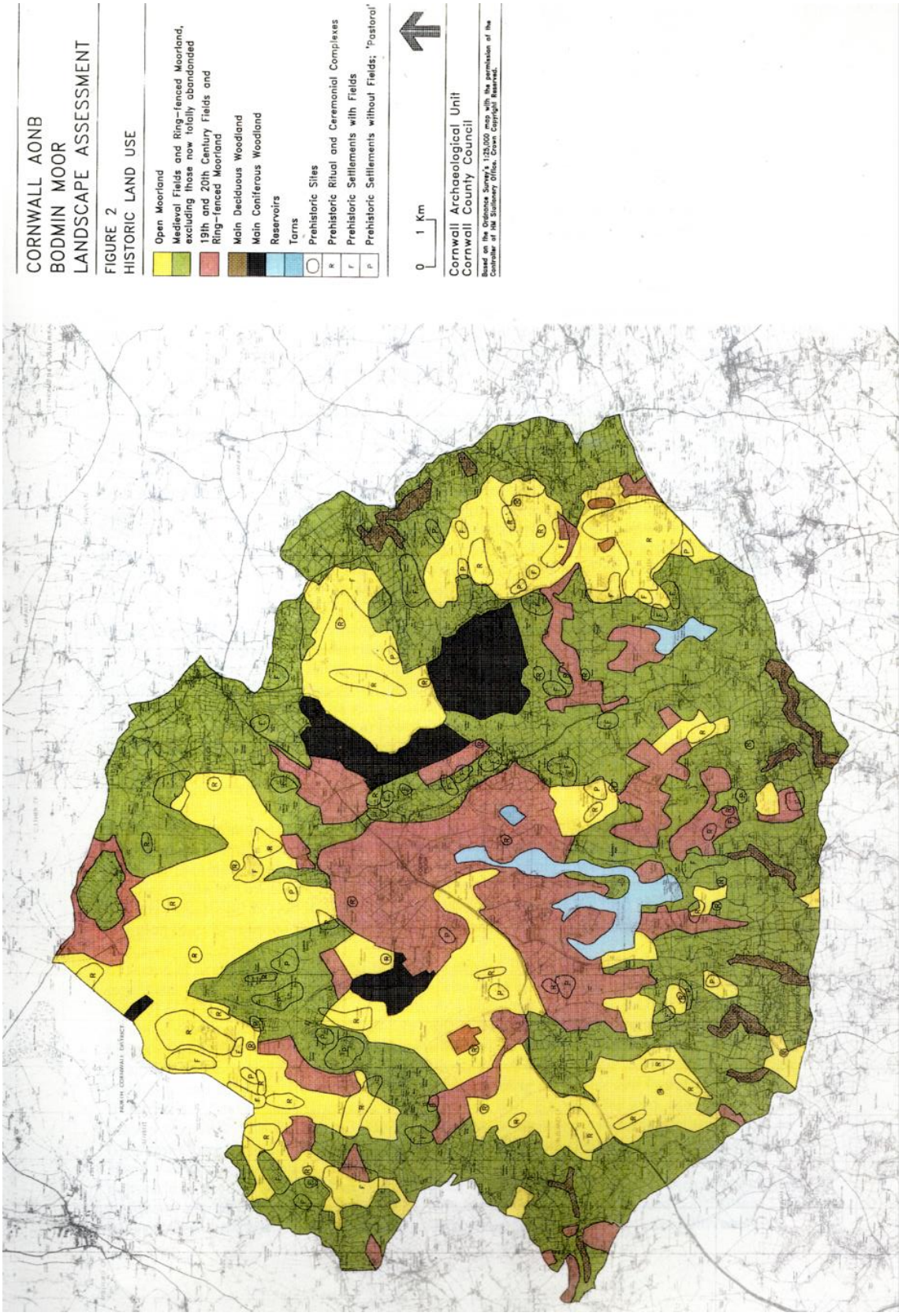
The Bodmin Moor HLC developed the identification of HLC Types, then call historic land use types. Three broad Types were established, Moorland, Enclosed Land and Woodland, though it was noted that Industrial landscape 'occurs throughout the other types', but at the scale of the whole of Bodmin Moor could not be easily mapped. It was also recognised that each Type could be usefully subdivided. Texts were prepared that summarised the then current understanding of the Type's history and its character. That understanding has developed since 1993, especially with regard to the chronology of the establishment of extensive rough grazing, now known to have been in place c4000 years ago, but then thought to have been 3000 years old. The following are extracts that are still helpful.

Moorland

This Type would now be called **Upland Rough Ground**, a term developed in 1994 when the whole of Cornwall was the subject of historic landscape characterisation.

It can be 'divided into that which is open [and common land] and that which is ring-fenced, the latter having been taken out of the former by farming hamlets in the medieval period and by small farms in the 18th and 19th centuries. Although ring-fenced moorland is generally more fragmented, its total area is roughly the same as that of open moor and together they make up nearly one half of the total area of the AONB.'

'The areas of open moorland around the western, northern and eastern high grounds are fragments of the extensive sea of heathy grasslands which was the undivided summer grazing ground for mixed farmers from the lower ground surrounding Bodmin Moor… It is still possible to imagine young Iron Age or Early Medieval men and women herding cattle and sheep when looking south from Scribble Down across Shallowater and Brockabarrow Commons, when looking east from Brown Willy over High Moor, Buttern Hill and Leskernick, and when looking south from Fox Tor across the rolling downs of East Moor towards Kilmar and Caradon. Most of these blocks are still common, as are the smaller areas of unfenced moor in the southern quarter of Bodmin Moor.'



The 1993 Historic Landscape Characterisation of Bodmin Moor (Countryside Commission 1993, fig 2).

‘The ring-fenced moorland is mainly in private hands and has generally been managed differently from the open moorland in recent centuries and decades, being typically less heavily grazed and therefore more overgrown with gorse, bracken and heather. One or two areas of medieval ring-fenced moor were, in fact, abandoned during the later medieval period itself and have returned to open moor are now held in common (e.g. Emblance Downs, Louden Hill, Great Care, Greenbarrow and Lamlavery).’

‘In terms of archaeological importance, as measured by the wealth, survival and condition, variety and visibility of remains, the moorland areas (both open and ring-fenced) of Bodmin Moor are the most valuable parts not just of the AONB but also the whole of eastern Cornwall. Here clearly visible on the surface are complete Bronze Age farms, with round houses and outbuildings set within rectangular or irregular fields containing stone clearance heaps and with narrow lanes leading through the fields and away to the open pastures… Here too are ritual and ceremonial areas; beautifully preserved complexes of stone circles, stone rows, standing stones, embanked avenues, cairns and barrows, usually carefully separated from the domestic or secular areas.’

‘It is still possible, when looking down from Rough Tor onto Fernacre circle or when looking along the Colvannick row or the Craddock Moor avenue, to appreciate clearly that certain tors, hills, ridges and valleys were regarded as sacred. This is emphasised by those cairns which either enclose or envelope natural tors (most impressively the ring cairn around the ‘cheesewring’ on Showery Tor) or which as groups ‘claim’ the flattened hilltops, visible from afar, of Buttern Hill, Bray Down and, of course, Brown Gelly’

‘The long later prehistoric and early medieval period of summer grazing left small groups of summer grazers’ huts (best example on the east side of Brockabarrow Common) and in virtually every valley bottom and dry hillside valley there are relatively undamaged tin streamworks, most of which are later medieval’ (Countryside Commission 2004, 5-6).

Enclosed Land

This was distinguished between ring-fenced later medieval field patterns, based on strip fields worked by the several cooperating households in colonising hamlets, and post-medieval intakes with dead-straight boundaries, the homes of solitary households. Each are now the in-bye land of farmers who use the moorland as rough grazing, still largely in the summer, from May to the end of October.

Woodland

This too was separated between Deciduous and Coniferous woodland, the former the remnants of ancient woodland mainly found in the steep-sided valleys on the edge of the Moor, and the latter the mid and later 20th century plantations on poorly drained land in the heart of the Moor.

Relict prehistoric complexes

Because of the importance of the survival of prehistoric archaeological remains, the Bodmin Moor HLC included as polygons placed on top of the Types mapping those extensive areas of surviving remains. These are themselves separated into three sub-types: Ritual and Ceremonial Complexes; Settlements with Fields; and 'Pastoral' Settlements without Fields. This practice was not continued when the Cornwall-wide HLC was undertaken, and has not generally been included in other English HLCs, but it was built in to the method of Scotland's Historic Land-use Assessment (Dixon and MacInnes 2019).

Cornwall HLC (1994 - 2020)

Bodmin Moor was re-characterised during the Cornwall-wide HLC of 1994, which was funded by English Heritage. Although done at a smaller scale, the granularity of this characterisation was coarser and it included more Types, including Industrial. 'Moorland' was re-named Rough Ground and the Enclosed Land included Prehistoric, Medieval, Post-medieval and 20th century sub-types (Herring 1998).

Texts for the Types were more detailed, and have been twice updated since 1994, to reflect changing understanding of the Type and to provide users with more information.

The following are extracts from the most recent version of the Cornwall HLC texts (Cornwall Council 2020).

Rough Ground

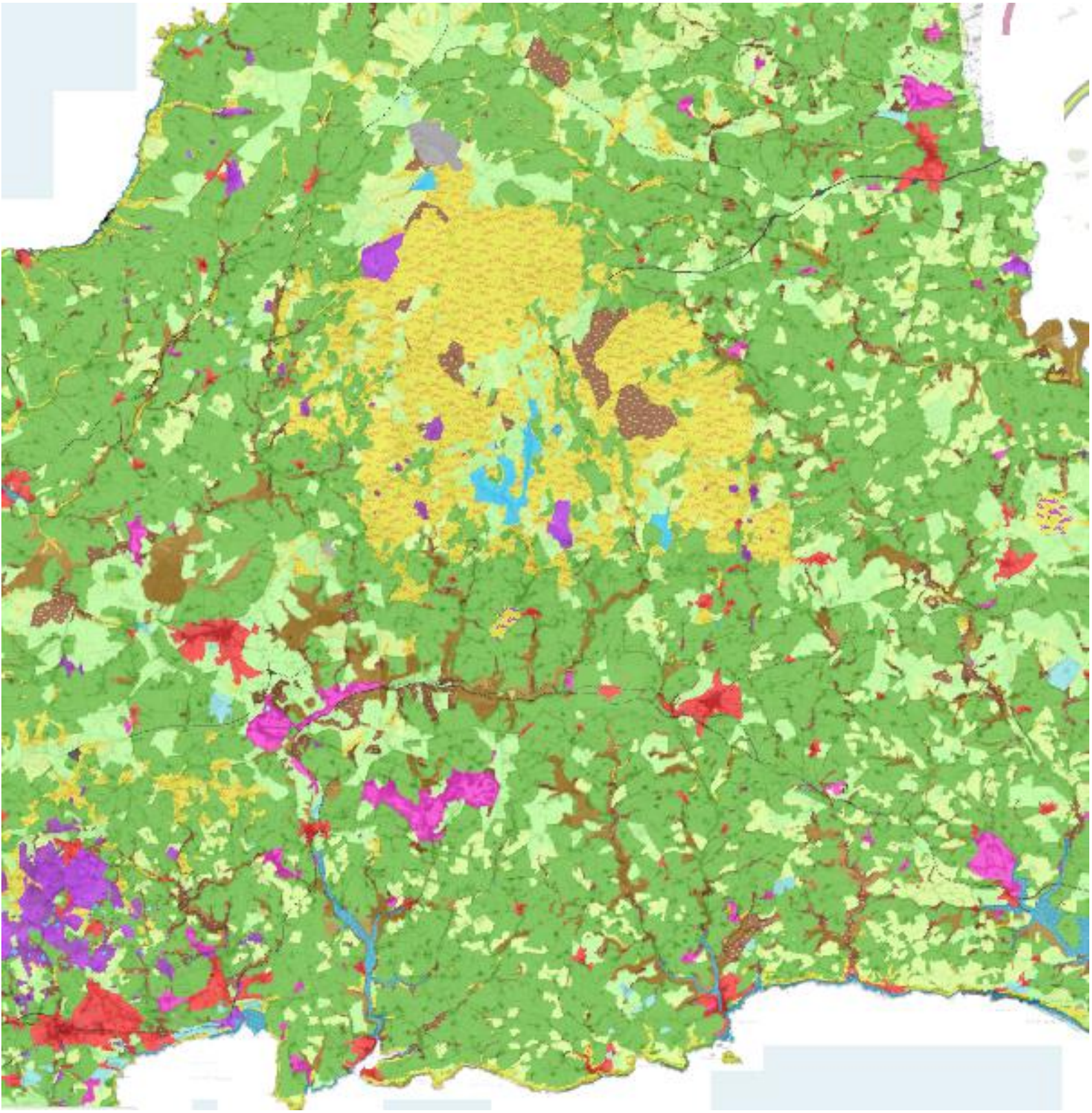
Defining attributes

Areas of rough grassland, heathland, and open scrub, usually on the higher or more exposed ground in a locality. Mostly found on granite or poorly drained and particularly exposed downland. Now distinguished mainly by habitat/ecology from surrounding enclosed or improved ground. The principal sources used when identifying this were the 1988 LIFE habitat mapping (held by the Environmental Records Centre for Cornwall and the Isles of Scilly) and aerial photographs.

The impact of human action is often underestimated, and the Type is regularly regarded as largely 'natural' or 'wild'. In fact, it usually has the longest history of human interference/utilisation with its principal attribute, impoverished soil supporting essentially heath/scrub vegetation communities, usually being a product of prehistoric human intervention, which was maintained through medieval and early modern land use systems and commoning.

Four subdivisions of Upland Rough Ground can be defined (Herring 1998) and were identified in the Lynher Valley HLC (Herring and Tapper 2002) and in a more detailed review of the rough ground of west Cornwall (Dudley 2011):

- Upland Rough Ground which appears to have always been open, undivided by pasture boundaries and not enclosed and farmed. Often common land.



Extract from the Cornwall HLC showing Bodmin Moor as Upland Rough Ground (mustard yellow) set in a landscape dominated by Anciently Enclosed Land (medium green). See next page for full key. (Copyright Cornwall Council, courtesy of CSHER.)

- Upland Rough Ground which is divided by long pasture boundaries. Often 'private' rough ground attached to single settlements, either farmsteads or hamlets, in the latter case sometimes shared by the several farmsteads but more often with each block of rough ground attached to a single farmstead.
- Upland Rough ground which has the remains of prehistoric field systems within it. These contain patterns of low stony banks and ruined structures and often have noticeably more varied vegetation communities, including more bracken. They are generally confined to the higher Moors like Bodmin Moor.

Upland Rough ground which has the remains of medieval field systems within it. These contain patterns of low stony banks and ruined structures and often have noticeably more varied vegetation communities, including more bracken. They are generally confined to the higher Moors like Bodmin Moor.

Principal historical processes

Environmental analysis confirms that woodland cover right up to the highest slopes in most parts of Cornwall was removed by early farmers in the Neolithic and Earlier Bronze Age periods (*c*4000-1500 BC). It is now increasingly accepted that the early prehistoric woodland was a more open form of wood pasture rather than continuous dense high canopy forest (see Vera 2000), but nevertheless, its loss led to soil deterioration through nutrient loss and leaching. Iron pans, formed by leaching minerals, inhibited drainage. This and relatively wet

and cold climatic conditions accelerated peat formation in later prehistory. All these processes (except the climate) can be either directly attributable to human action or closely associated with it.

Once vegetation had settled into its open, heathy form, probably by *c*1500 BC, its use by farmers was mainly as extensive pastures and fuel-grounds – turf (peat) and furze. The rough ground was often organised into commons shared by several local farming communities, so maintaining an essentially open appearance, although some long pasture-dividing boundaries were created, especially in the Middle Bronze Age (mid second millennium BC), the later medieval period and in the last three or four centuries.

Upland Rough Ground was, until *c*1750, considerably more extensive; its enclosure by industrial labourers and by an expanding agricultural population in the 18th and 19th centuries, and its continued improvement by farmers with capital and machinery in the 20th century, has greatly reduced it (see Post-medieval Enclosed Land and Modern Enclosed Land HLC Types, and maps showing its loss in Herring 2004, fig 4.1; Johnson 2016, fig 2.11).

Typical historical and archaeological components

The semi-natural vegetation community is the most immediately visible component of this Type but there is also usually a wealth of archaeological remains, many of which may be fairly ephemeral, not making a significant impact on present landscape form. Others, however, are highly visible and catch the eye; for instance, hill-top Bronze Age barrows, long post-medieval pasture boundaries, and areas of turf-cutting.

In Cornwall generally, prehistoric sites and complexes are generally best-preserved in Upland Rough Ground and can comprise complete Bronze Age ritual/ceremonial monuments (long barrows, chambered tombs, round barrows, stone circles, stone rows, standing stones etc) and apparently coherent groups of these. These are sometimes sufficiently well preserved to establish that certain natural features, like tors or streams, were incorporated by prehistoric people into their ritual complexes.

Transhumance huts, the shelters used by seasonal pastoralists from the long period of common grazing, survive on Bodmin Moor and there are remains of peat cutting including the little platforms the dried peat was stacked on.

More recent components include pasture boundaries, usually laid out as commons were ‘privatised’ in the post-medieval period. Industrial remains often survive well on Upland Rough Ground and the extensive disturbance of some tracts has inhibited later agricultural improvement. Quarries and mines form important components of certain areas of Upland Rough Ground.

There are few medieval or modern settlements and tracks and roads are usually open (not hedged).

Interaction with other Types

Upland Rough Ground in Cornwall contains few post-prehistoric settlements and is a Type which has been dependent on use by occupants of other neighbouring Types for the last 3000 years (since a range of forces around 1000 BC contributed to a general abandonment of the uplands as permanent settlement areas). Most notably, farmers living in the Anciently Enclosed Land used it for their summer grazing grounds and it was also a major source of fuel (turf and furze) and stone. As such it was of critical importance to traditional agricultural

communities. Where close to the coast, the Upland Rough Ground was used as rough grazing in conjunction with Coastal Rough Ground and Dunes.

The loss of large areas of Upland Rough Ground to enclosure in the last 300 years has greatly diminished the impact of the once coherent mixed agriculture landscape on the present Cornish countryside. A great deal of the Post-medieval and Modern Enclosed Land Types have been taken from Upland Rough Ground and their distribution indicates the previous extent of summer grazing; many parishes whose land is now wholly enclosed once contained significant amounts of Upland Rough Ground.

Evidential value

Great potential for further research. Archaeological and historical studies of remains will yield much valuable information, as will palaeo-environmental work, particularly that investigating the ancient pollen preserved in bogs. More work could be done on the long-term relationship of Upland Rough Ground with Anciently Enclosed Land. This could be seen as a model for sustainable future relations.

Survival

Archaeological features survive well because the Type has been used increasingly extensively through time. Subsequent land use tends not to have damaged or destroyed earlier features. Archaeological remains are generally well preserved, but in areas no long grazed they can be overgrown with gorse, scrub, secondary woodland, etc, all of which can damage below-ground remains through the action of roots and rhizomes. The loss of so much Upland Rough Ground in the last 2-300 years to Post-medieval and Modern Enclosed Land has had a major impact on a once much more extensive historical and archaeological resource.

Safeguarding the Type

Grazing is important for maintaining the variety of semi-natural communities and keeping archaeological remains visible for people to explore and undamaged by roots and rhizomes. Further agricultural improvement should be discouraged, at the same time as more sustainable (generally traditional) land use and management are encouraged. Hedges and walls should be repaired/maintained, but not wholly rebuilt (as dismantling damages or destroys their fabric). Lanes should be kept open and bracken and European gorse domination reduced.

Agri-environmental schemes could be of considerable benefit to local farming communities as well as to the highly important habitats and archaeological remains In Upland Rough Ground. The values of Upland Rough Ground should be always in mind when considering applications for quarries, mines or china-clay workings to either open or expand, and for road schemes, conifer plantations, reservoirs, and other developments.

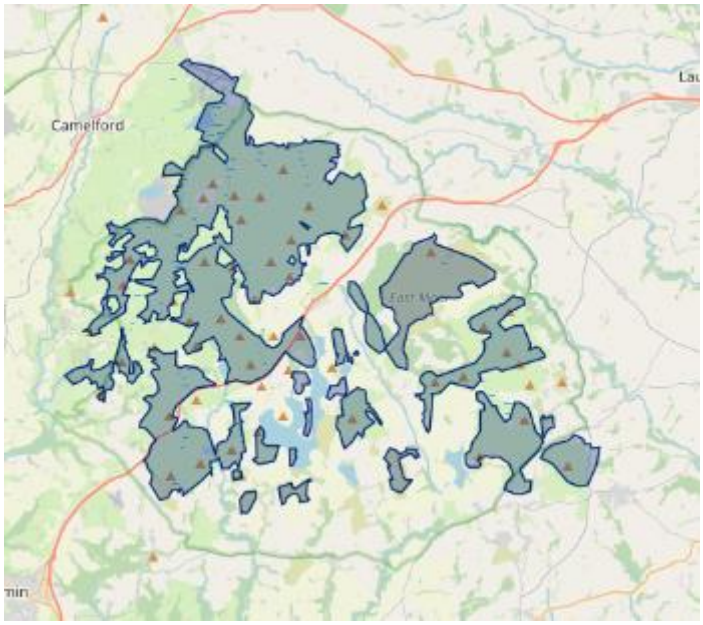
1.5 Landscape and natural environment

The archaeological remains are emmeshed within the highly valued semi-natural environment of Bodmin Moor, created and shaped by pastoral farming. This includes extensive **Sites of Special Scientific Interest** (SSSIs), largely to the north of the A30, and several **Special Areas of Conservation** (SACs), which together with the **County Wildlife Sites** identified by the Cornwall Wildlife Trust, cover almost all of the Upland Rough Ground Historic Landscape Character Type. The habitats here and in the wooded valleys and marshes contain numerous **Biodiversity Action Plan**

species (Brief, p3). Many of the moor-edge deep valleys contain Ancient Semi-Natural Woodlands.

The description of the Bodmin Moor North SSSI includes this paragraph, summarising the anthropogenic source of its valued coarse grassland communities, and inserting a presumption that they derived from heathland which is therefore regarded as degraded, rather than from the mix of grasslands and other species that resulted from clearance of woodland by early pastoralists, as summarised in Section 3.4 of this report. Those grasslands did include some heather and ling in some places at some times, but the evidence suggests that grasslands have been the base or dominant vegetation in the post-forest era.

- 'At intermediate altitudes, between about 250 m and 300 m the vegetation of the more gently sloping ground displays the influence of several thousand years of pastoral activity. A number of grassland types have been identified here, typically dominated either by Common Bent, Velvet Bent *A.canina*, Red Fescue *Festuca rubra*, Sheep's-fescue, Mat- grass *Nardus stricta* or Purple Moor-grass. The balance between these communities is maintained largely by local variation in grazing intensity and type of livestock. These grasslands probably represent degraded heathland communities. Where grazing is very light, Bracken *Pteridium aquilinum*, Western Gorse and Gorse *Ulex europaeus* may dominate.'



The Important Bird Area of Bodmin Moor (https://datazone.birdlife.org/site/factsheet/bodmin-moor).

Bodmin Moor is one of only three **Important Bird and Biodiversity Areas** designated in England; the IBA being essentially the main areas of rough ground on the Moor. It is important for 'important for breeding waders and other moorland species, and wintering raptors' (https://datazone.birdlife.org/site/factsheet/bodmin-

moor). To qualify as an IBA the area has to contain at least one qualifying species and Bodmin Moor has two, the Common Stonechat (*Saxicola torquatus*) and the Eurasian Golden Plover (*Pluvialis apricaria*).

- **Stonechats** are found in open country – rough grassland and heathlands, and are often spotted perched on furze bushes.
- **Golden plovers** also prefer open rough grassland for their winter grounds.

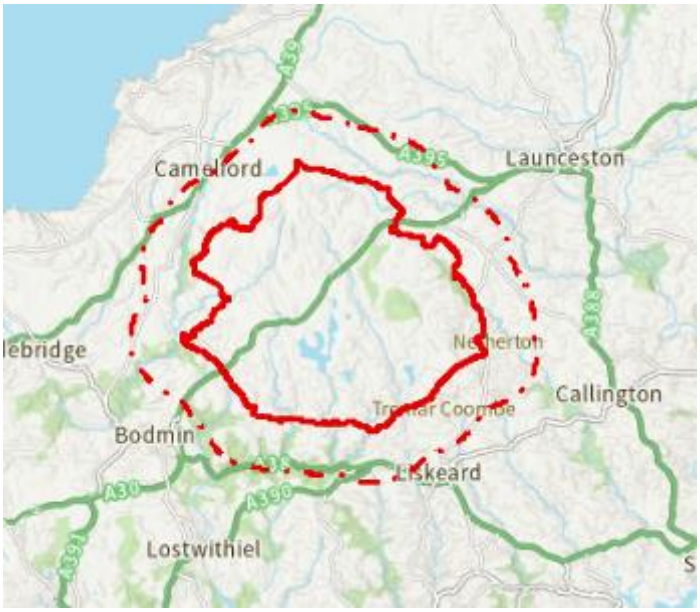
Bodmin Moor is also one of the 12 discrete parts of the Cornwall National Landscape (formerly the Cornwall Area of Outstanding Natural Beauty). Its area profile, as presented in the 2022-202 nicely draws together the historical ecological and landscape aspects and links them to the communities that live and work on the Moor and those that have an enduring interest in it. The following are extracts.

> ‘Extensive, unenclosed high moorland is grazed by hardy weather-beaten cattle, sheep and ponies according to historic laws governing common land. This grazing plays an essential role in controlling scrub thereby maintaining the distinctive openness of this landscape. In parts the moor has never been enclosed. In other areas, past efforts at enclosure are long abandoned leaving enigmatic vestiges of past attempts to tame the land. Edging the open
>
> moorland, larger fields show enduring recent enclosure whilst nestling in sheltered folds at lower levels anciently enclosed farmland is recognisable by its smaller fields with irregular boundaries. This long historic process of attempts to tame the open moor has created a fascinating texture of intermingling pockets of commons and enclosures that distinguishes Bodmin Moor from most other upland landscapes’ (Cornwall National Landscape 2022, 254).
>
> ‘Much of the northern section of the Moor is designated a Site of Special Scientific Interest (SSSI). The peaty soil is generally poor with high acid content which in turn has a significant influence on vegetation providing a suitable environment for acid grassland, heather, gorse and bracken, grazed by small flocks of sheep, together with small herds of cattle and moorland ponies. In the valleys at the edge of the moor there are large areas of peat and blanket bog. Due to its exposed nature, Bodmin Moor is frequently subjected to high winds and rain blown in from the Atlantic and this in turn has influenced the type of vegetation. Many streams and small rivers traverse the Moor having penetrated weaknesses in the granite and eventually cascade into shallow falls at the edge of the granite shelf’(Cornwall National Landscape 2022, 255).
>
> ‘Key species of interest for this section: Fritillary butterflies (pearl, small pearl and marsh), Cuckoo, Redstart, nationally rare liverworts (Greater Copperwort), bog plants (bog bean, round-leaved sundew), wintering Golden

Plover, Snipe, Curlew, Lapwing, Whinchat' (Cornwall National Landscape 2022, 255).

The management plan also notes that the *Vision for Bodmin Moor* [also known as the *Bodmin Moor Vision*] 'seeks to establish a plan for shared agreement between agencies, landowners and commoners for the management of habitats and historic landscapes of unenclosed land within the moorland line only'. And that 'the Bodmin Moor Commons Council was legally established under the Commons Act 2006 in 2015 and aims to better manage animal welfare and combat anti-social behaviour on the moor as well as wider land management issues' (Cornwall National Landscape 2022, 257).

In 2017 the Bodmin Moor International Dark Sky Landscape was designated by the International Dark-Sky Association (IDA).



The International Dark Sky Landscape of Bodmin Moor shown with its two-mile buffer zone.

Some areas of Bodmin Moor's rough ground have been regarded as 'over-grazed' and strategies to reduce grazing to encourage diversification of habitats have been devised and implemented through agri-environment schemes (see Section 7, below).

A note on the photographs

As one of the aims of this piece of work is to consider changes in vegetation cover in the last 20 years, many of the photographs have been selected to show sites and places at various times in that period, and in some cases in the decades before that. Some from the 1950s, 60s and 70s have been drawn from the collection of the Newquay photographer Charles Woolf. Where the information is known, the date the picture was taken is given.

Black-faced sheep in inbye land at Cannaframe with mosaic of ancient semi-natural grassland, bracken, furze and thorn trees on the SW slopes of Beacon Hill, Altarnun (Pete Herring, August 2005).

2 Bodmin Moor rough ground Historic Environment Action Plan

View north from the ancient semi-natural grassland at the summit of Carkees Tor towards the three great hills, or mountains of St Breward, Rough Tor, Garrow and Brown Willy. Garrow (centre) has curving medieval strip fields on its nearest, southern slope (Pete Herring, February 2025).

2.1 Introduction to HEAPs – their purpose and status

Historic Environment Action Plans (HEAPs) were first conceived in Cornwall in the early 2000s as historic environment equivalents of Biodiversity Action Plans (BAPs) then helping stimulate positive action in the natural environment sector (Herring 2007, 24). The Bodmin Moor Rough Ground HEAP (Herring and Preston-Jones 2003) was the first one to be developed. It was prepared by Cornwall Council and Historic England (or Cornwall County Council and English Heritage, as they then were).

The aim of creating HEAPs was to develop an approach to the historic environment that was not wholly centred on protection and conservation (Clark et al 2004, 53-54). By working in partnership with other interests and sectors, like those representing

the natural environment, landscape, land use, business, administration and community, those preparing a HEAP would contribute to proactive and positive management of the historic environment.

A HEAP would help local communities and individuals gain a better understanding of their local heritage, strengthening their attachment to it, and clarifying how they value it, so that they could then develop strategies and programmes of management that enhanced its condition and increased the recognition of its significance among the local community.

HEAPs can be prepared for individual sites, or site types (equivalents of particular plants or animals, or communities of them), or Historic Landscape Character (HLC) types, or particular areas within the historic landscape (both of which are expanded on below). They can also be seen as important contributors to the identification of 'Landscape Quality Objectives' as proposed by the European Landscape Convention (ELC; Council of Europe 2000).

2.2 Typical stages and structure of a HEAP

Stage 1 Understanding

Select and describe the type of archaeological site, structure or historic landscape or the area that will be considered. For this exercise HEAPs are being prepared for the whole of Bodmin Moor's rough ground, and also for each of the 22 PALs.

Characterise both its history and its fabric or form.

- This will usually involve deepening existing recording and research.

Stage 2 Character and Significance

Assess the subject's character and significance. This may involve consideration of aspects such as the following. When dealing with types of site or landscape then the typical is considered, for example the typical form of survival, or the typical way that such things are perceived by local people.

- Heritage Values, as derived from *Conservation Principles* (English Heritage 2008).
- Conservation designations
- Coherence, condition and survival
- Evidence for time-depth (phases) and relationships with other features and types.
- Contribution to local landscape character
- Relationship with other components of the historic landscape
- Rarity and significance
- Previous research and documentation
- Potential for education and amenity
- Known or typical management issues

Stage 3 Changes affecting the HEAP's subject

Consider the forces for change that are acting on the subject, and the effects they can be expected to have.

Forces may include types and intensities of land use, natural processes, economic and social factors (including various forms of development), and neglect.

Effects may be positive as well as negative.

Consider the degree of sensitivity or vulnerability, and the types of opportunity that attend each form of change.

Stage 4 Plans and strategies

Develop plans and strategies for protection, conservation, enhancement and regeneration, and for further research, and presentation to the interested public.

2.3 Principles underpinning HEAPs

When preparing HEAPs the following principles are borne in mind (drawn from Herring 2024, which also draws on previous HEAPS prepared elsewhere in the UK).

1. Focus on the present-day landscape and how it includes the recent and more distant past, in what is termed time-depth.
2. Consider all aspects of the landscape, including heritage that is relatively recent or seems 'everyday'. It is often the more locally typical heritage that engages local people most.
3. Semi-natural and living features, like hedges, orchards and saltmarshes, or the ancient semi-natural grassland of rough pastures, and the marshes that developed alongside tin streamworking are heritage as much as archaeological remains and buildings are.
4. Creating HEAPs involves interpretation (thinking about economic, social and communal aspects) as well as recording and conserving. This helps us understand the meanings people find in places, and helps people place sites and HEAPs in bigger pictures and more complicated stories.
5. Recording and responding to local people's perceptions, as well as specialist's views and priorities are important when creating HEAPs.
6. HEAPs should help people recognise and reinforce sense of place and local distinctiveness.
7. HEAPs should consider the wider landscape when working with sites, buildings and places, in order to place the HEAP into its context.
8. Recognise that places, spaces, sites and buildings are always changing. HEAPs can help with managing change as well as with preservation.
9. HEAPs should be methodical yet inclusive, involving different groups and individuals, working with varying ideas, skills and needs.
10. HEAPs need to be jargon-free and clearly understandable.

3 Understanding the resource, an overview, HEAP Stage 1a

3.1 Stakeholders on Bodmin Moor

Stakeholders in Bodmin Moor's Rough Ground include the following, each with their own aims, objectives and obligations, and each with their own detailed, subtle and sensitive understanding of the Moor, a nationally important landscape and semi-natural environment, and its internationally important archaeological remains.

Farmers, landowners and commoners, and the agencies, government departments, businesses, unions and societies that regulate, resource, control and guide them. For them, the rough ground is a resource from which livings are made, and through which a culture of pastoralism has developed. For those who work on the Moor directly a nuanced and invaluable body of Traditional Ecological Knowledge (TEK) has been developed and passed on, generation by generation. If that could be followed back in time then some strands of TEK may well have developed in Neolithic and Bronze Age times, when alertness to connections and pathologies would have been vital for survival and then growth.

Those who champion and guide management of the landscape, including the Cornwall National Landscape team, writers, artists, amenity groups and many others. The moorland landscape is beautiful or dreary according to taste, but it is also intensely interesting, dramatic and wild, stirring fears and emotions as well as being thrilling and inspiring.

Those who champion and guide management of the natural, or semi-natural environment, including statutory agencies (like Natural England and the Environment Agency), charities (like RSPB, Cornwall Wildlife Trust, and many others), and bodies and individuals, all of whom recognise the value of aspects of what many will regard as wilderness, but which is one of the most ancient continually managed semi-natural communities in Britain and Europe, the ancient semi-natural grassland of the summer pastures.

Those who champion and manage the historical environment including statutory agencies (like Historic England), charities (like the Cornwall Archaeological Society and the Cornwall Heritage Trust), and more local bodies like Caradon Archaeology and the TimeSeekers and many individuals, including researchers.

Each stakeholder group might expect to review the value of working with classifications of semi-natural communities and with recommended management regimes that are nationally designed, that squeeze particular places, like Bodmin Moor, into classes that it is felt they should be in, rather than what they have long been, and in Bodmin Moor's case has been since early prehistory.

3.2 Components of the rough ground of Bodmin Moor

Historic landscape character

- Open downland with ability to move freely in all directions, a quality maintained since the Neolithic period (4th millennium BC) through extensive grazing. It is noticeable that in 1748, no less than 76 of the farms on the higher parts of Bodmin Moor included on Thomas Martyn's Map of Cornwall had no lane to them; people would have approached them either on foot or by horseback.
    - The novel *Jamaica Inn* set around 50 years later captures well the open character of Bodmin Moor, people moving around on horses and ponies, or by walking (Du Maurier 1936).
- The rough ground is a mix of ancient extensive commons (some almost certainly of prehistoric origin) and smaller blocks of rough ground that were appropriated and fenced around by medieval hamlets (in 'hamlet' or 'home' commons) and by post-medieval and modern intakes.
- The land cover, dominated by 'ancient semi-natural grassland', but with a mosaic of semi-natural scrub and limited low semi-natural woodland, is a product of millennia of pastoral land use, suppressing woodland regeneration and maintaining valued open rough habitat that enables long vistas and wide panoramas to be enjoyed. The character of many archaeological monuments, and especially stone rows, which can be expected to have been walked along, indicates that such visibility and intervisibility were major factors in their design.
- This largely historically determined landscape character was recognised through the inclusion in 1959 of Bodmin Moor in the Cornwall National Landscape (originally the Cornwall Area of Outstanding Natural Beauty) designation, reflecting the national significance of the landscape.

Semi-natural habitats

- Though many regard Bodmin Moor as wilderness and raw nature, its land cover is actually a complex of semi-natural habitats, in that the natural communities have been shaped and maintained by human activity, principally through around 5000 years of grazing, largely for six months of the year, in the long summer from early May to late October.
- The semi-natural environment of Bodmin Moor is at its early prehistoric, later prehistoric, and medieval core a summer grazing or transhumance environment (see below).
- The land cover of the rough ground on Bodmin Moor has varied through time, reflecting changing grazing levels and thus variable pressure on rough grassland, heath, furze, marshland and the limited woodland and woody scrub (evidence for the variety is found throughout the sources drawn from in this report). The adjustments to grazing levels in the last 30 years have themselves had an effect on the mosaics of vegetation on the Moor.

- The importance of the semi-natural habitats was partially recognised in an extensive SSSI (Bodmin Moor North), though an interrupted programme of designation left most of the rough ground to the south of the A30 undesignated.

Tangible heritage - archaeological remains

- Extensive archaeological remains including internationally rare coherent prehistoric complexes of settlements, field systems and ritual and ceremonial monuments (many Scheduled).

Aerial view of part of the western slope of Rough Tor, St Breward showing the Neolithic bank cairn (left), c2500BC and a complex of roundhouse settlements with associated curvilinear enclosures (right), part of a settlement with over 120 houses (Steve Hartgroves, Cornwall County Council, March 2007).

- Nationally rare complexes of medieval settlements, field systems and pasture boundaries (many Scheduled).
- Internationally important mining complexes (many Scheduled; World Heritage Site (WHS) in the Minions / Caradon area); and important post-medieval farming and industrial remains.

- These are not elaborated on here as they are covered in detail in other parts of this report, and of course in the PAL descriptions themselves.

Intangible heritage – narratives, meanings and associations

> *'But our best neighbour – and he's choice and good*
> *Is the wild moor there's the best neighbourhood*
> *It keeps vast herds of cattle, I profess,*
> *and flocks of sheep even almost numberless*
> *Thus we our stock do summer on the Down,*
> *And keep our homer grass till winter come...'*

This seventeenth-century verse, from the *Spoure Book* (a manuscript created by the family of that name who lived in Trebartha Hall, North Hill), captures the agricultural value of the rough ground of the Moor, and the affection in which it was held, and to a considerable extent still is (in Pounds 1947, 124; cited in Johnson and Rose 1994, 80).

Bodmin Moor may be regarded as 'a God-forsaken place' by outsiders (e.g. Leigh 1937, 93), but it was and is seen as a place rich in interest and full of beauty and meaning by local people.

The commons of Bodmin Moor and Dartmoor are among the handful of places in Europe where clearly visible prehistoric, medieval and post-medieval settlements, fields and pasture boundaries survive alongside ceremonial and ritual monuments. The ability to relate these to the natural worlds of tors, hills, marshes and downlands that their creators also experienced further enhances the enjoyment of the historical landscape.

3.3 The need for a Bodmin Moor Vision

Threats to the historic and semi-natural environment were previously associated with various forms of 'development': construction of reservoirs (1970s and 1980s); extensions and improvements of road systems (1980s and 1990s); planting of conifer woods (1930s to 1980s); or agricultural improvement of rough ground (18th, 19th and earlier 20th centuries).

In the late 20th and early 21st centuries significant change to the condition, visibility, sustainability and enjoyment of both the historic and the semi natural environment of Bodmin Moor came from new directions, first from the effects of responses to headage-based agricultural support and then from the requirements of those government agencies responsible for the condition of protected areas and assets as they sought to correct impacts of the consequent over-grazing.

In the later 20th century, many farmers used the Moor as a feedlot in response to headage-based agricultural payments, leading to over-grazing and impoverishment of semi-natural communities. The response was a radical reduction in grazing levels by focussing agri-environment support on addressing the condition of certain

elements of protected sites, particularly the Bodmin Moor North SSSI. Concern then developed that grazing levels were being informed by nationally applied prescriptions derived from the needs of substantially different semi-natural communities in more marginal, higher altitude, non-granitic parts of the country, rather than from an understanding of local conditions, traditional (pre-headage) local practice and knowledge.

A disconnect developed so that the Moor's vegetation communities were perceived as a 'natural' rather than a pastoral environment, whose unusually biodiverse semi-natural communities had been created and then maintained by four or five millennia of commons-based sustainable pastoralism. The remarkably well-preserved historic environment – the archaeological remains and the semi-natural communities themselves – is itself largely a product of pastoralism (save for the remains left by short-lived episodes of sporadic extractive industry).

Now the historic and semi-natural pastoral environments and the pastoralist farming and commoning communities are facing multiple issues and threats as set out in this report and in the framing of HEAP recommendations. There is an urgent need for communities and government agencies to recognise the central role pastoralism has played and can continue to play in sustainably managing Bodmin Moor's environment, landscape and tangible and intangible cultural heritage.

The principal threat to Bodmin Moor is not just the effects on historical and semi-natural environment of reducing livestock numbers but the loss of that continuous relationship between people, livestock and place. Traditional pastoral practices can be traced back to the Neolithic period, practices that varied through time, but were always adjusted as required to ensure sustainability of the ancient semi-natural grasslands created and then maintained through the millennia by grazing. Various forms of Traditional Ecological Knowledge had been developed by the pastoralist communities who had a profound personal, social and economic interest in maintaining the sustainability of the ancient semi-natural grassland.

PAL 14 Goonzion Downs. Land cover in 2005 (CC aerial photo, from CSHER). Dense furze developing in SW portion and to the SE of the northern crossroads; the beginning of a transformation of the ancient semi-natural grassland was clearly detectable and informed the concerns about reduction in grazing levels that led to the initial Bodmin Moor Vision, HEAP and delineation of PALs on Bodmin Moor.

Goonzion Downs. Land cover in 2025 (© Airbus, obtained from Google Earth Pro, with thanks). Rapidly being covered by furze (blacky-green) and bracken (rust coloured) leaving very little grassland and greatly reducing the biodiversity of the common. Trajectory is clearly towards the common becoming largely covered with impenetrable furze, obscuring most of the complex archaeological remains. Its roots will affect below-ground remains and its closed canopy will block light to other plants and the common will be transformed from a heterogenous biodiversity to a form of monoculture that makes resumption of grazing very difficult, and which provides very little benefit to the semi-natural environment, none to the landscape, none to those who enjoy exploring the common, none to the historic environment, and little to the commoners who graze the fragmentary survivals of the ancient semi-natural grassland.

3.4 Palaeo-ecological evidence for ancient and more recent vegetation communities on Bodmin Moor

Several palynological studies have been undertaken on Bodmin Moor, examining pollen surviving in peats and soils. The following is a brief summary that characterises the main trends of environmental and especially vegetation change on Bodmin Moor through prehistoric times and into the medieval and post-medieval periods.

An early review of the evidence for environmental change on Bodmin Moor was undertaken by Caseldine (1980). It was based largely on the work of Brown (1977), whose deep peat core from Hawk's Tor (Blisland) suggested that tree cover was partial on Bodmin Moor in the first 5000 years after the Ice Age, to around 3000BC (i.e. Middle Neolithic period, the time of King Arthur's Hall). 'Even during the maximum expansion of woodland during the later Boreal and early Atlantic it seems likely that the highest and most exposed areas of Cornwall remained under grassland or heather moorland' (Caseldine 1980, 10). Denser, taller, oak and hazel-dominated woodland was established on the steep valleys on and off the Moor (ibid).

Useful overall sequences from valley-floor peats had been studied by Conolly, Godwin and Megaw (1950) as well as by Brown (1977); one of the main shortcomings of their work, however, is the limited amount of scientific dating for their sequences and consequent problems in relating them to the archaeological evidence.

Pollens from soils buried beneath archaeological monuments have been examined at Stannon (hut circle settlement; Mercer and Dimbleby, 1978), East Moor (cairn and field system; Brisbane and Clews, 1979), Colliford (cairns and medieval field system; Maltby and Caseldine, 1984).

Heather Tinsley undertook detailed pollen analysis of several sites around Stannon Down, St Breward, including at Site 2, an Early Bronze Age 'tailed cairn', both beneath the cairn and adjacent to it, and at Site 9 an Early Bronze Age ring cairn, from the fills of the outer ditch (Tinsley 2004-5). Tinsley also analysed two deep cores taken in peat on the NE slopes of Stannon Down, in the valley between it and Rough Tor Downs. One (site 86) had peats that radiocarbon dating showed began forming in the Mesolithic period, in the early 6th millennium calBC, and continued to form right into the early medieval period, and she looked at this most closely. (The other core began in the later Mesolithic.)

The Stannon Down site 86 pollen analysis found evidence of small-scale glade creation in the later Mesolithic period. It showed some reduction of woodland and an increase in pastoral activity in the Neolithic period and by the later Neolithic (that is in the later 3rd millennium BC), the **'establishment of the first permanently open pastures**' (Tinsley 2004-5, 65-66), and by the end of the next millennium, the Later Bronze Age, there was a **'much more intensive use of the landscape…, [and] a**

range of herbs typical today of upland acid grasslands, such as tormentil, devil's bit scabious and sheep's bit, plus the establishment of a continuous pollen record for heath plants such as *Calluna,* indicates the emergence of the vegetation communities which ultimately developed to form the modern landscape of Bodmin Moor' (ibid, 66).

This and the similar evidence from elsewhere on the Moor supports the term **'ancient semi-natural grassland'** when describing the fundamental vegetation community of the Moor.

The soils beneath the Early Bronze Age cairn on East Moor, North Hill, called Clitters Cairn and beneath the Middle Bronze Age terminal boundary of the coaxial field system, 'had deteriorated under grassland to [a] humic iron podzol' with iron pans (Brisbane and Clews 1979, 46). Pollen analysis of the soil beneath Clitters Cairn indicate that oak dominated woodland had 'disappeared before the construction of the cairn'. There was also evidence for alder and hazel trees, which were presumed to have been on the poorer draining plateau land to the south of the cairn, with the oak on the drier better drained northern slopes. As there was no indication of burning it was also suggested that grazing was the cause of the removal of the woodland: 'woodland browsing by cattle could be sufficiently intense to prevent regeneration' and there was no indication in the pollens of weeds for cultivation in the vicinity (ibid, 49-53).

There was an 'invasion of a grass heath community' whose extent through time is in opposition to that of bracken (*Pteridium*), the bracken thriving alongside the woodland and when the grass heath declined, possibly around the turn of the 1st millennium BC (ibid, 53).

Soils beneath two Early Bronze cairns on either side of the Loveny valley excavated ahead of the Colliford Reservoir in St Neot also showed an open landscape in the early 2nd millennium BC. 'Prior to barrow construction at CRII the area was relatively open grassland with only scrubby local oak and hazel. At CRIV this had developed into a heather-dominated community. On both slopes bracken was important. From this time the vegetation cover of the whole area appears to have been characterised by competition between grasses and heather with less bracken and the possibility of a phase of hazel regeneration. Although precise time periods cannot be assigned to these variations it is likely that grazing pressures were largely responsible for the changing patterns of vegetation' (Maltby and Caseldine, 1984, 110).

Soil buried beneath the Early bronze Age tailed cairn at Stannon, site 2, was also dominated by grasses with some heather ling (Tinsley 2004-5, 61).

Pollen in the soil beneath the Middle Bronze Age (later 2nd millennium BC) roundhouse (hut circle) 7 at Stannon Down in St Breward, included some oak and hazel, but was dominated by *Gramineae* (the grasses) and some *Calluna* (heather or ling), and the 'weed pollen assemblage it contains is more characteristic of pasture

than of arable land' (Mercer and Dimbleby 1978, fig 3). [Note that the excavator associated the Stannon Down round houses with long narrow fields that subsequent examination suggests were elements of later medieval outfield strips; he was therefore expecting pollen evidence to support cultivation.]

More recent pollen analysis at Stannon Down has confirmed that 'by the Middle Bronze Age the environment was more open [than the oak and hazel woodland that had lingered here until the earlier Bronze Age] and supported predominantly grassland and moorland species, including heather' (Gale 2004-5, 45; Tinsley 2004-5).

Later peaty soils had higher levels of tree pollen including beech and hornbeam and is likely to relate to the medieval period at Stannon (Mercer and Dimbleby 1978, 27-28, fig 3), possibly from when the medieval hamlet was occupied, and the outfield strips were in use.

Vanessa Straker summarised the results of all these studies in 2011:

> 'permanent grassland was established in the early Bronze Age… with little surviving woodland. Acid grassland and heath plants demonstrate soil deterioration and heath development from the early Bronze Age in places, but the main increase in heathers and woody heath plants such as gorse, evident from pollen and charcoal, is late prehistoric (especially Iron Age) and could result from all or a combination of increased soil acidification, reduced grazing and the use of fire to manage the balance of heather/grass moorland' (Straker 2011, 176-177).

Woodland had been replaced by grassland before the building of the Early Bronze Age Clitters Cairn on East Moor (Brisbane and Clews 1979, 49), and at Colliford one Early Bronze Age cairn (CRII) had been built in an area of 'relatively open grassland' while another (CRIV) was in an area with 'a heather-dominated community'. In the millennia that followed grasses, heathers and hazel scrub came and went, but the Moor remained essentially open, unwooded, and 'it is likely that grazing pressures were largely responsible for the changing patterns of vegetation' (Maltby and Caseldine 1984, 110). In short, the environment in which the cairns, stone circle and roundhouse settlements were established was one dominated by the effects of pastoralism. The landscape was open, with views long and full.

The earlier Neolithic woodland that had been cleared to enable the pastures to be developed had been dominated by oak and hazel, with birch, elm and lime rare (Gearey et al 2000). This is likely to be the result of early management and the deliberate selection of oak and hazel as neither of these trees flowers, pollinates and seeds in dense woodland.

Peat from the marsh at Tresellern in North Hill was investigated and was shown to have had an alder carr until the early 1st millennium BC, the later Bronze Age, but this had been replaced by grass-dominated vegetation by the Romano-British period

and plants associated with arable in the later 1st millennium AD, at the time when permanent settlement was returning to the Moor (Gearey et al 1997, 198 and fig 3).

Pollen analysis has also informed understanding of early medieval environment in parts of Bodmin Moor. ‘A clear picture of the nature of the upland vegetation in the pre-12th- to 14th-century context is provided by the Rough Tor sequence. Anthropogenic activity in the Romano-British period led to the development of a species rich grassland at Rough Tor. This grassland, represented in zone RTN3, seems to have been floristically very similar to 'old meadow' communities maintained by a low input, traditional management regime that would have involved light grazing and perhaps the removal of a hay crop. In the context of the suggested field evidence for transhumance, the pollen record from this site points to the existence of a grassland that is typical of a vegetation community that would be expected to develop and be maintained by such a low-input system of land use. This began sometime between the 1st-4th centuries A.D., was maintained for about 1000 years, and remained in place until late medieval settlement of the uplands made this system redundant. Documentary evidence records the significance of moorland grazing areas later in this period.’ (Gearey et al 1997, 204).

West Moor looking west from near Black Rock. The tors of Rough Tor and Showery Tor break the distant horizon, beyond the rolling downs of Bray Down, Buttern Hill and High Moor. An ancient semi-natural grassland in Altarnun, with scattered moorstones, and on the flank of Bray Down sheep quietly grazing (Pete Herring December 2022).

Mid-16th century bench-end in Altarnun church. Sheep whose tight curls suggest they may be the native Cornish breed eat grass among blocky stones on rolling downs, no doubt a familiar scene on Bodmin Moor half a millennium ago: ancient semi-natural grassland sustained by pastoralism (photo courtesy of Katy Whitaker).

4 Deepening understanding of the resource: HEAP Stage 1b

Development of Bodmin Moor's rough ground,

4.1 Creation and maintenance over 5000 years of a pastoral landscape

This section presents a narrative of the creation of the open and quite wild character, semi-natural environment, 'ancient semi-natural grassland' and pasture-related archaeological features of Bodmin Moor. There is a continuous thread of the principal use of the Moor in the long summer, from early May to late October, from sometime in the Neolithic period right through to the present.

To maintain focus on the rough ground and on the pastoral use made of it, those other very important moorland activities related to industry are not covered in detail in this narrative but may be summarised here. Particular types of industrial archaeological monuments are included in Appendix 1 as their remains are affected by the forces for change that this HEAP addresses.

The industries of the Moor were predominantly extractive and usually also involved the dressing of the extracted material. They worked with the granite, elvan, rab and china clay, and the lodes of tin, copper and other metals that were inserted into the hard rocks, and then the shode that was the tin ore dislocated from the lode and gathered by geomorphological processes into deposits. The working of shode in eluvial and alluvial streamworks is likely to have originated in prehistory but probably continued sporadically through all subsequent eras right through to the early 20th century. Where water could not be brought to the shode that lay on higher slopes (like Goonzion Downs) it was dug up dry, in dense shambles of shode pits.

Tin lodes were worked directly from the later medieval period through to the earlier 20th century, first through open works and lode-back pits, then from adits and shafts and finally from deep shaft kept dry by increasingly sophisticate pumping machinery, powered by muscle (horse engines), water (waterwheels) and steam engines.

Granite was largely split from moorstones (the loose boulders scattered across most of the Moor's downs) and outcrops before first proto-industrial quarries and then deeper quarries were dug. The finest quality granite was worked into highly precisely blue-printed shapes from the early 19th century, and a couple of quarries still operate today. The china-clay industry got going on Bodmin Moor in the earlier 19th century and continued till the turn of the 21st. Some of the early workings left here are among the best preserved anywhere because elsewhere they tended to be absorbed by later deeper operations.

4.2 Living within natural woodland or in wood pastures, to c4000 BC, the Mesolithic period

The story of the rough ground of Bodmin Moor begins in the Mesolithic period when communities were hunter-fisher-gatherers, largely drawing their sustenance from essentially wild food, but also starting to make adjustments to a truly natural environment, beginning its journey towards the semi-natural environment that was established by the later Neolithic and which we appreciate and enjoy, and from which we still draw sustenance, today.

Land cover in SW Britain rapidly changed from the late glacial tundra to grasslands, scrublands, and then birch woods over a period of a few hundred years from the later 9th millennium into the earlier 8th millennium BC.

The main Mesolithic period (in Cornwall from c 8000 BC to c 4000 BC) is usually characterised as one with increasingly woodland-dominated land cover. The birch woods were replaced by pine and then around the transition to the earlier Neolithic period to a largely deciduous, oak and hazel-based woodland.

Mesolithic Bodmin Moor was probably sporadically inhabited by perhaps no more than three or four bands of hunter-fisher-gatherers exploiting the Moor on a seasonal basis, mainly during the summer when red and roe deer would move to their summer pasture lands there (Jacobi 1979, 84; Herring and Lewis 1992; Tilley 1995, 9-10).

There has long been debate concerning the extent to which Mesolithic people adapted the natural environment to help meet their needs, beginning the transformation of Britain's natural environment into its present-day semi-natural environment.

Hunter-gatherers, gatherer-hunters, or 'foragers' – archaeologists are uncertain how to characterise them – were probably not entirely passive consumers of nature's gifts. Instead they started to turn it into semi-nature by constructing 'niches' and so changing or even transforming places and the wider environment (Nikulina *et al* 2022). Felling, burning and herding of wild animals may all have been deployed, creating ever larger glades in dense woodland, or encouraging and even controlling animals in wood pasture country. 'The pollen record suggests that there were some small-scale disturbances in the late-Mesolithic [oak and hazel-dominated] woodlands of Stannon Down', which may have included glade creation (Tinsley 2004-5, 64), as was also noticed at Rough Tor itself (Gearey and Charman 1996).

It is likely that if Mesolithic people occasionally, perhaps regularly, gathered in larger numbers, for example to find marriage partners, exchange valuable raw materials, and enjoy the pleasures of company, then they would have done so at distinctive natural places, like cheesewrings and other dramatic tors and outcrops, features that the several groups would recognise. Such places may be regarded as **'natural monuments'** and some of them may have continued to be foci for later prehistoric

communities, especially in the Neolithic period and in the early Bronze Age, down to around 1500 BC.

These may be expected to have included the following.

- The Cheesewring, on Stowes's Hill, Linkinhorne.
- Other cheesewrings, as at Showery Tor (St Breward), Rough Tor (St Breward), and Carbilly Tor (Blisland).
- Dramatic igneous outcrops, as at the quartz-rich granite of Lamlavery Rock (Davidstow) and the basaltic Tolcarne Tor (North Hill). Also, substantial granite rocks, like Elephant Rock (Altarnun), the two outcrops that form Devil's Jump (St Breward and Advent), Jacob's Ladder on Kilmar Tor, the Grey Mare on East Moor and Black Rock on West Moor.
- Logan Stones (as on Rough Tor, Kilmar Tor, Bearah Tor, Louden Hill and others).
- Distinctive tors, as at Devil's Jump, Rough Tor, Garrow Tor, Brown Willy, Catshole Tor, Codda Tor, Carneglos Tor, Alex Tor, Hawk's Tor (Blisland), Temple Tor, Carburrow Tor, Brown Gelly, Hill Tor, Newel Tor, Tregarrick Tor, Stowe's Hill, Notter Tor, Sharp Tor, Bearah Tor, Kilmar Tor, Trewortha Tor, Hawk's Tor (North Hill), Carey Tor, Fox Tor, Trewint Tor, Black Rock and Bray Down.
- Minor tors on otherwise relatively featureless downs, as at Leskernick, Trezibbett and Buttern Hill,

Louden Hill logan stone (Pete Herring, April 2016).

The most famous Mesolithic site on Bodmin Moor is at another kind of noteworthy topographical feature, a small lake, Dozmary Pool, from whose shores thousands of flints have been collected (Wainwright 1960, 197, figs 4 and 5). The Mesolithic flints among the collections that also include Neolithic and Bronze Age flints, are generally early, from the 8th millennium BC, based on the similarity of forms with better-dated sites elsewhere in Britain (Berridge and Roberts 1986).

Dozmary Pool is shallow, less than 3 metres deep, and marshland has formed at its lower south-western end. It seems likely that there were once, and perhaps in the Mesolithic period, other pools on the Moor, especially at the heads of streams, like at Dozmary, that have since become completely choked with peat growth and are now marshlands. Marshes themselves may have been significant gathering places for Mesolithic people as they would have provided opportunities to snare wildfowl and obtain willow for basketry, amongst other things.

Particularly significant marshes, some of them possibly containing pools in the Mesolithic period, may have been at the following (ordered here by size).

- Crowdy Marsh (SX 144835, Advent and Davidstow, now a reservoir, c120 hectares),
- Trewortha and Tresellern Marsh (SX234760, St Cleer and North Hill, c65 hectares)
- Redhill Marsh (SX 169722, St Neot, c42 hectares, now within Colliford lake reservoir)
- Stannon Marsh (SX 129812, St Breward, c40 hectares),
- Tregarrick Marsh (SX232711, St Cleer, c35 hectares, now within Siblyback Lake reservoir)
- Rough Tor Marsh (SX 155 818, Davidstow and St Breward, c30 hectares),
- Langdon / Wimalford Marsh (SX213730, St Neot and St Cleer, c30 hectares)
- Withybrook Marsh (SX 250730, Linkinhorne and St Cleer, c28 hectares)
- Redmoor Marsh (SX230782, Altarnun, c25 hectares)
- Meadows Marsh (SX 183739, St Neot, c23 hectares, now within Colliford lake reservoir)
- Dewey Marsh (SX 156722, St Neot and Warleggan, c22 hectares)
- Menacrin Marsh (SX13740, Blisland and Temple, c20 hectares)
- Merrifield and Great Care marsh (SX 144722, Cardinham and Temple, c18 hectares)
- Scribble/Leaze Marsh (SX 139772, St Breward, c18 hectares)
- Trewint Marsh (SX 217802, Altarnun, c15 hectares)
- Pridacoombe Marsh (SX 160780, St Breward and Altarnun, c15 hectares),

For a comparison, Dozmary Pool itself, at SX194744, in St Neot parish, is 15 hectares, with an additional 5 hectares of marsh at its downstream south-western side.

Mesolithic flint scatters have been found elsewhere on the Moor, including on the shorelines of each of the three modern reservoirs (Siblyback, Crowdy and Colliford), lines that are arbitrary slices through the Mesolithic landscape. That suggests that there are likely to be large numbers of Mesolithic scatters on the Moor, most of them probably areas of very temporary activity. This appears to have been confirmed by the recording of numerous such scatters on the slopes of Butterstor in St Breward after the land was ploughed for forestry planting in the early 1980s.

The Butterstor scatters lay undisturbed in downland that had only ever been used since the Mesolithic period for extensive grazing. The scatters therefore lay undisturbed and were therefore discrete, often covering areas less than 1 metre across, and often only 10 or 20 metres apart. The density was used to calculate that around 140,000 similar scatters might survive on Bodmin Moor. As the period lasted around 4000 years the projected 140,000 scatters would have been created by making just 35 scatters each year (Herring and Lewis 1992), supporting Roger Jacobi's suggestion that there might have been just three or four bands using the Moor (see above). While it seems reasonable to suppose that these people did make changes to their world to better encourage the grazing ungulates that they exploited, it may also be supposed that their overall impact was relatively slight.

4.3 Pastoralisation: the gradual replacement of the woods by grasslands and then their maintenance, the Neolithic period

People living in what is now Cornwall in the Neolithic period (c4000 to c2000BC) may have been new populations entering from continental Europe (as suggested by some genome studies, elsewhere in Britain, where human remains survive better than in Cornwall's more acid soils), or they may have been descendants of the previous Mesolithic people who came into contact with Neolithic people. Whichever it was, and it may have most likely been a mixture of the two, they either brought or adopted new neolithic ways.

These included building rectangular timber-framed houses, making and using pottery (using gabbroic clays sourced from the southern edge of the Lizard peninsula) and creating large open bowls, and manufacturing tools and especially axeheads from greenstone (see Jones and Quinnell 2021, 1-2). The pottery bowls with handles, lugs or carinations to ease handling, were presumably used for containing and processing liquids, perhaps including milk, as evidence of dairy products has been found on sherds of early Neolithic pottery in Britain and many parts of Europe (Copley *et al* 2003; Casanova et al 2022).

The Neolithic people may initially have maintained a broadly similar economy to that of the Mesolithic period and people, moving through extensive territories gathering naturally occurring plant foods, collecting shellfish on the Cornish coasts and fishing in the seas, estuaries and rivers, including the moorland streams and rivers. Neolithic people were famously, of course, the first farmers, but in much of Britain they were associated more with the first domesticated livestock than with growing

crops. Cattle, sheep, goats and then horses were introduced and during the Neolithic period much energy was expended on creating the conditions for them to survive and then thrive, beginning the transformation of the Moor's woodlands and wood pastures to today's extensive open pastures (Pollard and Healy 2007, 88; Herring 2023).

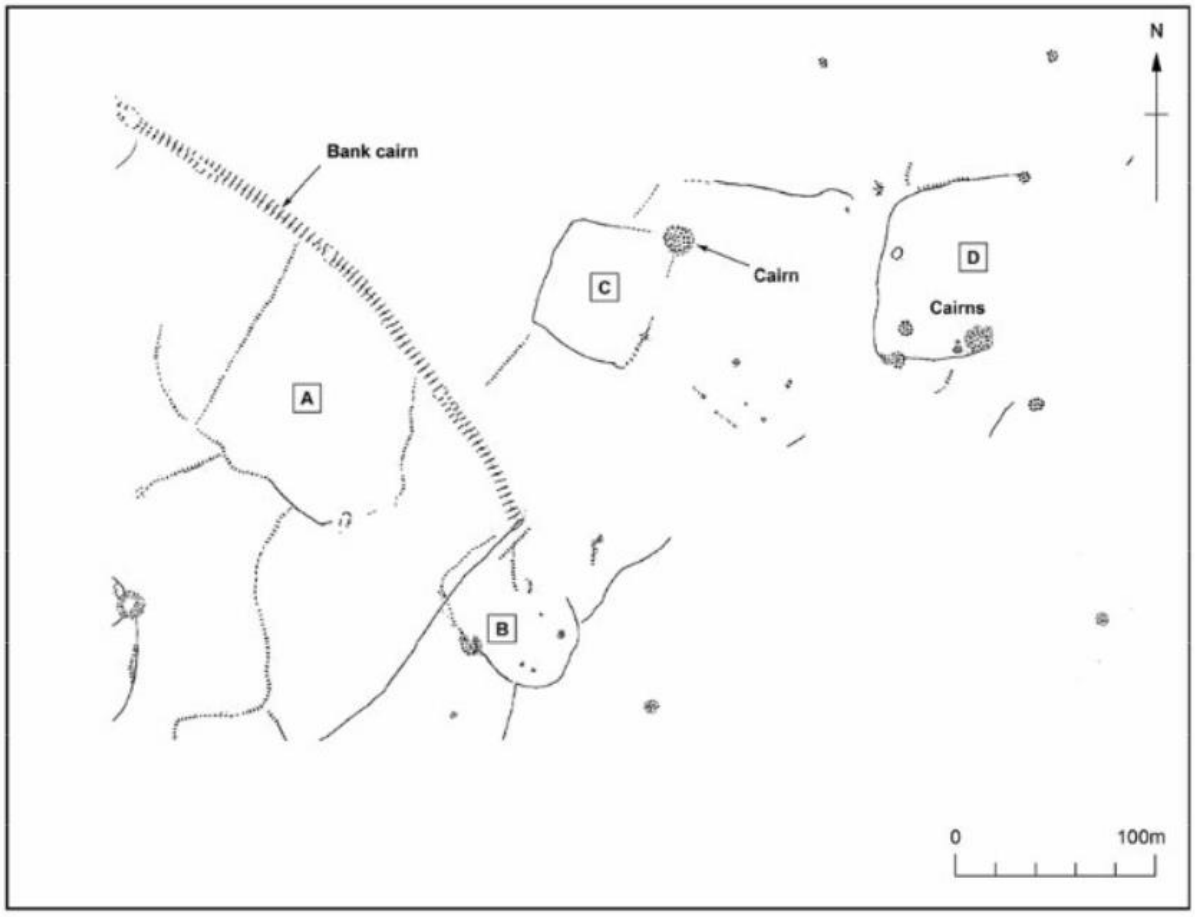
There was also some cultivation, and some grains have been recorded in lowland Cornish early neolithic sites, such as at Tregunnel, Newquay (Jones and Quinnell 2021, 2).

It is likely that Bodmin Moor's most significant hills in early Neolithic times were Rough Tor and Stowe's Hill as each has at its summit the well-preserved remains of what appear to be **tor enclosures**, very substantial gathering places dating, when excavated elsewhere in Cornwall (at Carn Brea in Illogan and at Helman Tor in Lanlivery), to the 4th millennium BC. (See below, Archaeological Site Types, for more information on tor enclosures, and on all the site types highlighted in this account.) Of interest here are the small enclosures or fields that have been recorded on the slopes of each of these two hills that appear early in the relative chronologies of remains.

The tor enclosure on Stowe's Hill, comprises the heavily banked citadel-like enclosure at the southern summit (top right) and also the larger stone-banked enclosure that takes in the rest of the hilltop, and the outer stone bank on the mid-slopes in the foreground. This would have required many thousands of person-days to gather the heavy blocks of granite and then construct. (Steve Hartgroves, Cornwall County Council, c1995, courtesy of CSHER)

A pear-shaped enclosure on Rough Tor underlies and pre-dates the probably Middle Neolithic bank cairn on the western slopes. Others uphill from the pear-shaped field, are squarish and smaller, with pronounced lynchets on their downhill sides indicating cultivation. They are overlain by Early Bronze Age cairns (Herring 2008a, fig 11).

On the west side of Stowe's Hill are fragmentary remains of fields that survive as 'a series of at least ten low broad banks of stone, up to 6m wide and 1m high, running roughly east-west down the hill's gentle lower slope. These comprise material cleared from the intervening areas, which, in the northern half of the field system, contain curving turf-covered banks of earth and stone called lynchets, resulting from soil creeping downhill to the lower boundary of the cleared cultivation plots… Within the cleared areas are numerous small rounded heaps of stone, called clearance cairns, the result of further stone clearance from the cultivated area' (NLHE 1012352, description updated in 1992). While there are ruined roundhouses in the vicinity, it is possible that these fields were associated with the tor enclosure on Stowe's Hill, as suggested by Norman Quinnell (CSHER PRN 1437), and so would be another example of especially early enclosure and cultivation.



Small and possibly early enclosures on the higher north-western slopes of Rough Tor, St Breward. Enclosure A appears (without excavation) to be overlain by the probably Neolithic bank cairn while enclosures B, C and D appear to be overlain by early Bronze Age round cairns. (From Herring 2008, fig 11.)

If both the Rough Tor and Stowe's Hill cultivation is as early as the tor enclosures, then it may have begun in the first half of the fourth millennium cal BC if contemporary with Carn Brea (activity probably began between c3755 and 3560 cal BC and ended around 3400 cal BC; Whittle et al 2011, 509) and Helman Tor (activity between c3850 and 3400 cal BC; Whittle et al 2011, 504).

It is noteworthy that there is an approximately 2000 year long hiatus between this possible very early cultivation at say c3500 BC and the more extensive settlement and establishment of enclosures and fields, some with evidence for cultivation, in the Middle Bronze Age, around 1500 BC. It is possible, of course, that there was some enclosure and cultivation in that long period of the Middle and Later Neolithic period and the Early Bronze Age that either has not survived later overlaying by other land uses or has not yet been recognised if remains do survive.

But in the absence of evidence of such enclosure, two conclusions can be drawn.

1. The fields on Rough Tor and Stowe's Hill may have been part of the initial early Neolithic process of domestication of the Moor, the Neolithic people using these fields and their cultivation, to help demonstrate a radical, almost magical, and certainly powerful new way of being and living by associating a key element of the Neolithic cultural package, cultivation, with the two great gathering places, the tor enclosures. The magic was the harvesting of plants sown and tended by people who hitherto had harvested plants that were provided by the powers of the natural world.
   The fields may have been used for a similar length of time to the tor enclosures themselves, around 400 to 500 years if the Rough Tor and Stowe's Hill tor enclosures and associated fields were used for as long as Helman Tor and Carn Brea (for which, see Whittle et al 2011, 504 and 509) and then have been abandoned alongside the tor enclosures.

2. The two thousand years between the Moor's initial, limited and short-lived cultivation episode and then the more extensive Middle Bronze Age settlement may be explained by **the pastoralisation of Bodmin Moor**. This involved the **concentration of summer grazing in Cornwall in those parts of the peninsula that were most suited to it, the granite uplands**, enabled the removal of livestock from the lowland fields while crops were grown and hay was saved for winter fodder. This would then be, in effect, the period when **transhumance** was established on the Moor (Herring 2008a).

Such a strategic oversight of the use of resources across either all or a large part of Cornwall would be in keeping with the scale and concentration of effort that had been required to create the tor enclosures themselves. Each involved the moving, often lifting, of tens of thousands of tons of granite, much of it as large slabs or blocks. That had been coordinated effort undertaken to achieve a shared vision and

purpose, to create what we consider to be great gathering places that served multiple purposes. These are thought to have included the following.

> ‘One of the functions of such gatherings, whether the larger or more local ones [at smaller monuments like the contemporary chambered tombs], might well have been to establish, organise and control access to shared resources such as the open areas of pasture used by the herds and flocks of the increasingly domesticated animals. These meetings may have also functioned as a form of court used to resolve disputes over such resources’, in addition to the performance of ‘rituals (perhaps relating to the rocks), [and] ceremonies, feasting, partying, socialising, gossiping, and friend and partner finding’ (Herring 2011, 27 and 85).

The control and administration of land use across large swathes of Cornwall would have also required a shared vision, and the ability and authority to engage whole communities in delivering it. It would have been based upon assessment of the qualities and potential of the types of environment and thus land cover available to and required by early inhabitants of Cornwall.

The management of the upland pastures during those two thousand years is likely to have required a social structure that included groups or individuals with the authority to organise the allocation of zones of grazing on the Moor to communities living in the lowlands, – and in the short term, as part of each annual cycle – the seasonal decisions on when to move livestock to the hills, and when to draw them off again.

The times for taking livestock onto and off the upland grazing lands, essentially the beginning and end periods of the year when the herbage there was palatable, would have broadly coincided with the period when the land in the lowlands had to be cleared of livestock in order to grow and harvest crops and to save hay for the winter fodder for the livestock. Such dates could then have become quite fixed and been key dates in the agricultural and social calendar of prehistoric people. In Cornwall, as in much of the uplands of the British Isles, those dates, would have been at or close to May Day and Hallowe’en, or Beltane and Samhain, the 1st of May and the 31st of October.

As mentioned, the creation of enormous monuments in the form of the tor enclosures at Rough Tor and Stowe’s Hill, one at each end of the massif, indicates that the early prehistoric society in what is now east Cornwall was perfectly capable of taking and following through on equally enormous decisions about land use and land management. These involved the creation of undivided and therefore shared grazing lands, effectively commons, as well as the establishment of the practice of seasonal grazing, probably through transhumance, that is the movement to the hills of people with their animals. We can say that this is likely because there is alongside the very visible remains of organisation of labour to create massive structures, the nearly invisible, but nevertheless quite certain, evidence of **dairying**, and in the peats of the

moor's marshes the palynological evidence for the gradual creation of extensive pastures.

A discussion of the potential for early dairying in west Cornwall (Herring 2023, 117-118) is also directly relevant to Bodmin Moor. It was noted that the animals of Britain's wood pastures did not include wild forms of sheep and goat. Therefore, the domesticated animals of the early Neolithic period were not domesticated in Britain but were deliberately introduced, for a purpose.

Domesticated sheep developed from the 'Urial' (*Ovis orientalis*), a native of the mountains of Turkey and Iran, and the goat from the 'Bezoar' (*Capra aegagrus*), also of the Middle East (Yalden 1999, 93-95). The only animal domesticated by Mesolithic times appears to have been the dog (Yalden 1999, 98-100), a vital partner when controlling and moving large herds and flocks.

As noted above, the broad, round-bottomed pots, such as those recovered from tor enclosures like Carn Brea and Helman Tor (e.g. Mercer 1981, figs 66-71; 1997, fig 8), may have had uses in **dairying**. Analyses of lipids (fatty and oily compounds) found on excavated pottery sherds throughout Britain indicate that dairying was widespread by the early Neolithic period and continued to be a significant activity throughout subsequent prehistoric periods (Copley *et al* 2003; Serjeantson 2011, 9).

Reconstruction drawings, by Roger Penhallurick, of bowls found in the Early Neolithic tor enclosure at Carn Brea, Illogan, the nearer possibly designed for processing milk (front cover of Cornish Archaeology vol 30, 1981).

'The specialised skills needed for making cheese include knowing how to obtain the rennet from stomachs of newborn calves as well as how to make the cheese itself. The sheer numbers of new skills makes it much more likely that agriculture [and cheese-making] was initially brought by groups of people, whether large or small, from continental Europe who were familiar with these techniques' (Serjeantson, 2011, 93). The earliest European evidence for dairying comes from French and

German Linearbandkeramik sites dated around 5400 BC (Casanova *et al* 2022), that is long before the Neolithic ways were introduced from the continent into Britain.

The time required for human communities to evolve lactase persistence (LP) as a means of countering lactose intolerance is another indicator of early dairying. LP is 'a genetic condition defined as the continuous production of the enzyme lactase-phlorizin hydrolase after the end of weaning in infancy. The enzyme allows for the digestion of the milk sugar lactose by splitting its beta-glycosidic bond' (Mays 2022, 55). It is known to have developed unusually early in European populations and may have done so in response to the establishment of a dairying culture.

As well as the lipids found on the surfaces of Neolithic pottery

Adopting dairying would have been vital for making a population resilient. By turning milk into cheese people turned the sun's summer energy into their own winter energy, enabling them to survive the winter in the same way that the sun-grown and sun-dried grass (hay) enabled the livestock to make it through the six-month long winter period. Dairying and cheese-making would have been especially important for a population that appears not to have devoted energy and land to the growing of crops. Livestock and dairying made their whole economy and society viable.

4.4 Livestock farming and dairying as a sustainable strategy

Lars Kardell modelled the energy balances on a Swedish summer farm (i.e. one that practices transhumance). This was translated into English and presented in Tunon and Bele 2019, 34 and is summarised here, to show how dairying is an under-appreciated element of the Neolithic transformation of Cornwall.

> The Swedish summer farm (in the mountains) has 6 cows, and the period studied was 100 days. Energy is measured in kilocalories.
>
> Each cow would produce on average 4 litres of milk a day, making 2400 litres over the 100 days. Of this, 100 litres were retained for consumption fresh. The remaining 2300 litres would typically be turned by the transhumant into 102 kg of butter, 245 kg of cheese, and 77 kg of whey butter. Five dry cattle would be kept at the summer pastures to be slaughtered at the end of the year; the creation of their meat was also estimated, as 0.15 kg per animal per day, making 75 kg over the 100 days. Swedish summer farms also curated dung for taking as manure for the home farm and this was estimated as sufficient to produce 1000 kg of hay
>
> That product was then translated into Kilocalories (Kcal) as a measure of the energy it produced.
>
> Fresh milk, 100 litres @ 70 Kcal per litre = 70,000 Kcal
>
> Butter, 102 kg @ 701 Kcal per 100g = 724,200 Kcal
>
> Cheese, 245 kg @ 400 Kcal per 100g = 980,000 Kcal

Whey butter, 77 kg @ 275 kcal per 100g	= 211,750 Kcal
Meat, 75 kg @150 Kcal per 100g	= 112,500 Kcal.
Total	**= 2,098,450 Kcal**

Then Lars Kardell estimated the energy consumed by the woman transhumant over 100 days (300,000 Kcal) and an allocation of 50 days of a man's time (for putting some of his work into transhumance-related activities: like mowing, wood-cutting, transport and site maintenance) (200,000 Kcal).

Total	**= 500,000 Kcal**

The balance is then a **1,598, 450 Kcal 'profit'** in terms of energy.

This equates to a 4.2 to 1 ratio of energy gained over energy spent.

Tunon and Bele conclude that 'This archaic food production therefore produces more than four times as much energy than people consume for the work. The difference is created by the sun and photosynthesis. Today's food production generally consumes several times more energy than it creates' (Tunon and Bele 2019, 34).

Traditional Wrångebäck cheeses, from Sweden, made in mountain pastures (Photo credit: Jesper Anhede).

Photosynthesis, of course, involves the magic of plants using sunlight, water and carbon dioxide to produce oxygen and energy (in the form of sugar). Prehistoric and medieval people may not have known the science, but they would have observed the benefits and acted accordingly.

Consideration of Neolithic land use and land cover therefore needs to accommodate dairying and the conditions for and effects of it. People can be expected to have

observed the types of grasslands and herbage that dairy animals thrived upon, and then how to manage land to encourage such communities (Herring 2023, 117-118).

Pollen analyses of peat from several valley bogs on the Moor allow us to observe vegetation change since the last glaciation. These indicate that the early post-glacial oak and hazel dominated woodlands that extended over the entire Moor except the highest slopes of the highest hills were largely cleared by the end of the third millennium BC (see 3.3). The character of those earlier prehistoric woodlands has been much debated in recent decades, largely in light of the Frans Vera hypothesis that they were not closed canopy forests, as a previous hypothesis had suggested, but instead relatively open, in a form that would now be described as wood pastures, with individual trees and clumps of them interspersed with areas of open ground, dominated by grasses and shrubs (Vera 2000).

Those woodlands, whether densely treed or relatively open, were gradually replaced through the Neolithic period by increasingly open vegetation dominated by the rough grasslands which still survive today, characterised as ‘ancient semi-natural grassland’, to complement the equally important ‘ancient semi-natural woodland’. The components of particular areas of both early wood pastures and later rough grasslands were relatively fluid, as grazing, fire, and other factors resulted in varying amounts of patches of heather, furze, and bracken, all of which appear in pollen records alongside grasses and lower quantities of trees, predominantly oak, hazel, willow and alder.

This pattern has been maintained through later prehistoric, medieval and post-medieval periods through grazing and, in relation to furze and bracken, by cutting for fuel and bedding. From the 16th century this pattern and these land uses are documented by a variety of sources including maps, records and images. For earlier periods, the palaeo-environmental records and the archaeological remains of settlements, fields and pasture boundaries indicate the chronological depth of mixed farming systems, and in particular the use of the downs for rough grazing.

The semi-natural communities cannot therefore be separated from former and present farming communities of the Moor. They are the product of traditional and modern farming systems.

4.5 Pastoralism and ritual monuments, Late Neolithic and Early Bronze Age

By the turn of the second millennium BC, around the later Neolithic and Early Bronze Age cultural periods, the Moor appears to have been a largely unwooded, open landscape. Pollen in soils buried beneath cairns indicated that these monuments were created in grasslands and heathlands and analysis of pollen in bogs at Rough Tor and to the south of East Moor indicate this (palaeo-environmental evidence summarised in 3.3).

Early prehistoric monuments are often in groups or complexes that are set a little way from the areas that later became the sites of settlements and fields, as if they were ‘sacred’ areas. Such areas, however, usually ran as one with the extensive grazing lands, so that livestock would have always passed through and grazed around stone circles, stone rows and cairns and the like. It has been suggested that, ‘the ritual monuments, individually or in complexes, may well mark areas of seasonal grazing associated with particular communities’ (Herring and Rose 2001, 18), perhaps those whose main or winter homes were some way distant, either off the Moor or on its edges and in its deeper valleys, and who would return to the uplands in the late spring of each year when the grass was starting to regrow.

In the 1980s several **stone rows** were recorded on Bodmin Moor, rows that had eluded the attention of earlier archaeologists in part because their stones are so small that until the period of heavy grazing, or ‘over-grazing’, in the 1970s and 1980s they were effectively hidden by longer grasses and shrubs.

Andrew Fleming noticed stone rows were fairly regularly spaced around Dartmoor. He thought that this may have been because they were created by ‘different, contemporary human groups, each working within the framework of beliefs and rituals associated with stone rows to create its own distinctive sacred place’. He also suggested that it may have mean t that ‘most of the fringe zone of the Moor had been claimed’, as proto territories, by the Later Neolithic period (Fleming 1988, 97-8). The spaced-out and moor-edge pattern of rows on Dartmoor is replicated on Bodmin Moor (Johnson and Rose 1994, map i), again suggestive of early territories.

In 1995, Chris Tilley suggested that stone rows’ ‘main purpose would seem to have been mnemonic, to confirm where one was, the margins or centre of a sacred area, and that this area of ritualised geographic space (bog, stream, Tor or area of higher land) was linked to another, providing a tangible cognitive map of Bodmin Moor’ (Tilley 1995, 34). At some rows, Tilley noted ‘perspectival effects’ when the rows were walked along: views of significant features, such as the summit tors of Rough Tor and Brown Willy, poking over the shoulders of intervening downlands, either open up or are closed off as the row is moved along (Tilley 1995, 32-3).

Such effects, though subtle, are simple and effective devices. Similar effects are seen in other historical contexts, such as in contrived approaches to medieval castles, and in the eighteenth-century English landscape parks. Lancelot ‘Capability’ Brown and his followers made full use of the ‘burst’, a sudden opening up when moving along a carefully placed drive or ride of a significant view: the house, a lake, a church tower.

Many prehistoric Cornish monuments appear to have been designed and positioned in a surprisingly similar way. For example, at Buttern Hill, not only does Brown Willy disappear from view as the row is walked along from north to south (Tilley 1995, 32), but a significant burst is experienced precisely when the tallest southern stone, the row’s terminal, is reached. At that moment the early Neolithic propped stone on the

western slope of Leskernick Hill, pops into view on the horizon, having been previously masked by Buttern Hill's flank. The propped stone is only skylined from certain directions, making the Buttern row burst more convincing. It is also incorporated into designed landscapes involving other early second millennium monuments (Herring 1997, 183-4). That the effect only works for people of average adult height (around 1.6m) might even suggest that the set-up was indeed intended for revealing key features of the world (Brown Willy; the ancestral propped stone, created nearly two millennia before the stone row) during an adolescent's rite of passage ceremony (Herring 2008a, 82).

The stone row on Searle's Down in St Neot would not have been discovered if vegetation cover had not been removed by waves lapping the shore of the Colliford Lake reservoir. Large parts of Bodmin Moor are currently scrubbing up due to recent reductions in grazing levels, intended to improve the rough ground's biodiversity. It is hard to imagine the rows whose stones mainly do not exceed 0.2m high (like those at Leskernick, Trehudreth Downs, Craddock Moor and Carneglos) being discovered in today's conditions of thicker taller vegetation.

The significance of this observation is that the stones appear to have been originally set up in conditions where they would have been visible, so that the low levels of vegetation that enabled the discovery of Bodmin Moor's stone rows in the early 1980s should also be modelled for the time when the rows were created. They would have been just as lost then in anything other than cropped grass. Searle's Down row is associated with Early Bronze Age cairns built in open country (as indicated by analysis of pollen preserved in soils buried beneath them; Maltby and Caseldine 1984). The row was not built in a deliberately created clearing in woodland, as some believe monuments may have been (e.g. Emmett 1979) but instead in open country with extensive views, an observation that also applies to other broadly contemporary stone monuments (**stone circles, standing stones, stone settings**, etc) and is of significance when considering the future of these important early complexes.

> **'…the low levels of vegetation that enabled the discovery of Bodmin Moor's stone rows in the early 1980s should also be modelled for the time when the rows were created.'**

Maintenance of open rough ground on Bodmin Moor could only have been achieved in prehistoric and medieval times through fairly intensive grazing with large herds and flocks; at least 5000 dairy or beef cows, or horses, over 8000 yearling cattle or ponies, or 50,000 sheep, of modern breeds (Herring 2008, 81). Numbers would have been higher as livestock were considerably smaller in prehistoric times; early Neolithic cattle had shoulder heights of around 1.2 metres, similar to Dexters (Cummings and Morris 2022, 21).

When we think of Bodmin Moor as a pastoral landscape we should recall that it was not always so, and that its creation would have occurred during a period of profound change that must have affected people's feelings for and association with their place.

The Moor had been subjected to startling transformations. Undivided grasslands in which one could move and see in all directions had been created by replacing woodland with pastures. We are now accustomed to such freedom, but ‘for the people who created this new world, the ability to see downland rolling into downland, with distant tors poking over the backs of closer ones, would surely have been a source of wonder and pleasure. It is not surprising that they worked with this quality of the new world when designing their landscapes’ (Herring 2008b, 86).

The extensive but intensively used pastures, effectively commons, were probably subject to controls on livestock numbers and against trespassers familiar to those with rights on modern commons. If two functions of community gatherings at early Neolithic tor enclosures and cromlechs / quoits and then later on at the stone circles were formal coordination of use of commons, and the settling of disputes between people (Herring 2008a), then these ancestral monuments would retain significance for later commoners. It is especially interesting to note how those who created the field system on Leskernick Hill kept their fields a respectful distance from the northern stone circle there, and the same can be suggested of the creators of the coaxial fields on East Moor and Ridge, whose terminal boundaries were kept back from the Nine Stones stone circle.

Stone rows were placed either on or near the edges of areas of higher ground, already open in the early Bronze Age, but relatively close to valleys (probably still wooded) along which people heading for the downs came. ‘Stone rows, if partly designed for moving along by groups emerging with their livestock from these wooded valleys onto the downlands in the late spring time, when the rough grasses become palatable, would work in several ways.’

- ‘As mnemonics (Tilley 1995), they reminded the people of their rights on the Moor, the areas where their hefted flocks and herds customarily grazed and watered, and the other places where they worked with other communities with whom they shared the Moor.’
- ‘As ceremonial sites, associated with standing stones, cairns, and significant tors like Rough Tor, they enabled young adults to be formally introduced via bursts [and by rituals performed at the monuments] to the communal geographies of their adult world.’
- ‘As monuments they **celebrated several things**: the **transformation of the dark wooded world**; the **herds and flocks** that helped achieve this and which were their companions, wealth and food; and **the increasingly complex communities of which they were part**. Those rows, like Searle’s Downs, with tiny stones, may well have been especially admired, being only visible because the grass was so closely grazed, thus making **the low grassland itself an essential part of the monument**’ (Herring 2008b).

Andrew Fleming, a preeminent archaeologist of Dartmoor, pre-empted some of this when writing 35 years ago: ‘We must… take seriously the possibility that these stone

rows, and the cairns and standing stones associated with them, were placed in areas transitional between zones of different land use, for example on the edge of an upland common' (Fleming 1988, 45).

The later Neolithic and Early Bronze Age stone circle called Trippet Stones on Blisland Manor Common, with the topmost tors of Rough Tor and Brown Willy poking over the horizon when approached from the south (Pete Herring, September 2020).

4.6 Pastoralism and later prehistoric settlements, enclosures and fields

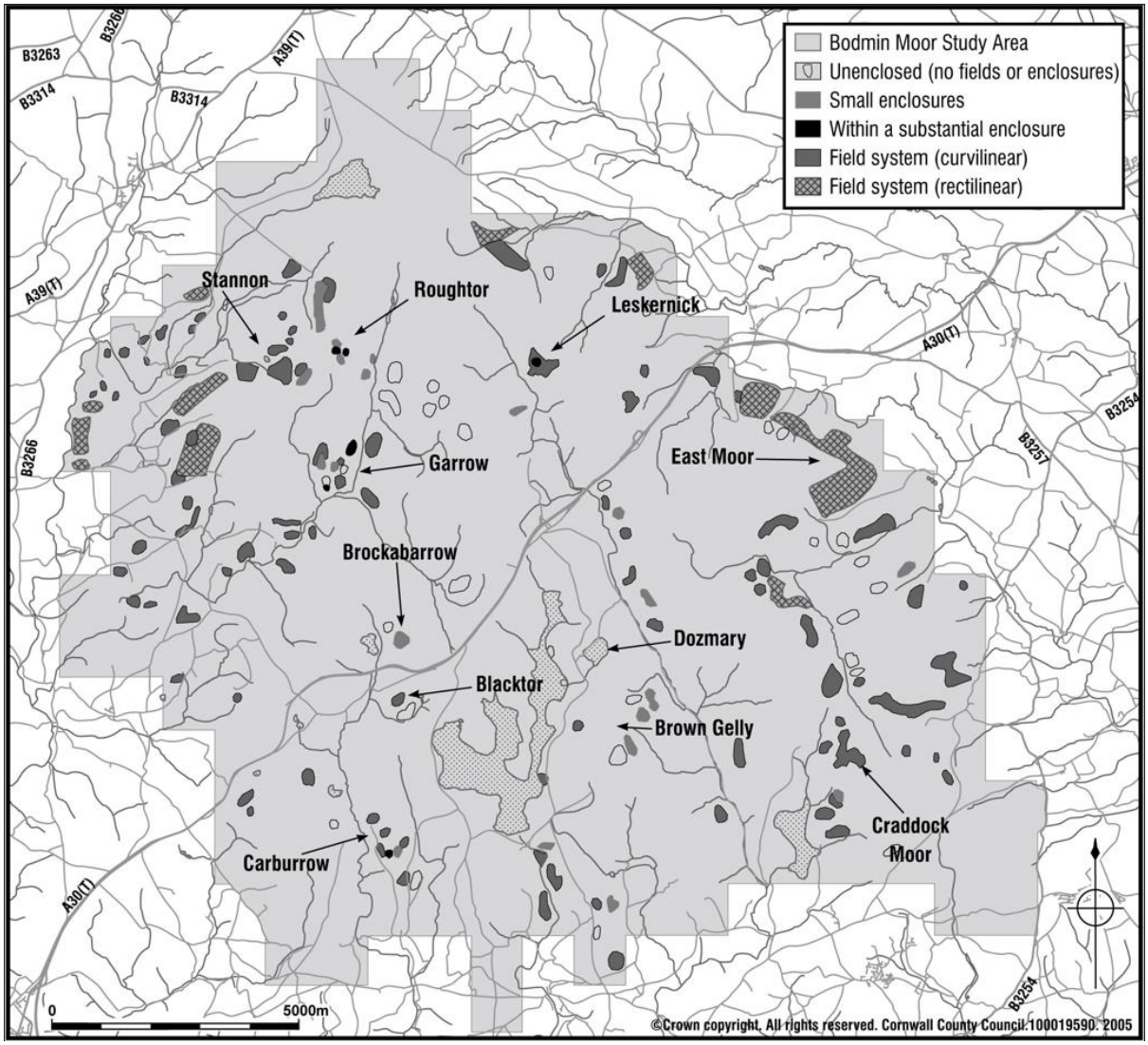
Increasingly extensive traces of later 3rd millennium and 2nd millennium BC (later Neolithic, and Early and Middle Bronze Age) settlement in lowland Cornwall have been discovered in recent decades, as a result of development-led archaeological investigation, indicating that there was a much larger, more widely spread and more diverse population living in Cornwall than previously thought.

The remarkable survival of 'hut circles' (the archaeological remains of roundhouses) set among enclosures and fields on the Moor (West Penwith as well as Bodmin Moor) had led to a belief among earlier generations of archaeologists that people may have settled more on the uplands, where forests were thinner and soils were lighter, than in the more intractable lowlands. That is no longer thought to be the case, and the remains on the Moor are likely to be relatively late compared to those in the lowlands (e.g. Jones and Quinnell 2021).

There is little evidence of permanently occupied roundhouses and associated enclosures and fields on Bodmin Moor before the Middle Bronze Age. Then there was a sudden flourishing of settlement, but this too appears to have been managed to a degree, in order to leave large areas of open commons. Those were probably still used by people living in the lowlands as well as by the new colonists. The terminal boundaries of coaxial field systems provided firm edges to the fields and also to the commons. Some like on East Moor incorporated pre-existing monuments like cairns, suggesting that permissions were given to enclose up to a marked line. The smaller-scale curvilinear and accretive field systems were confined to the lower slopes of valleys, as if restrained not just by the limits imposed by exposure to

weather but also by rules intended to protect the commons (see Johnson and Rose 1994, map 1, and Herring and Rose 2001, 33).

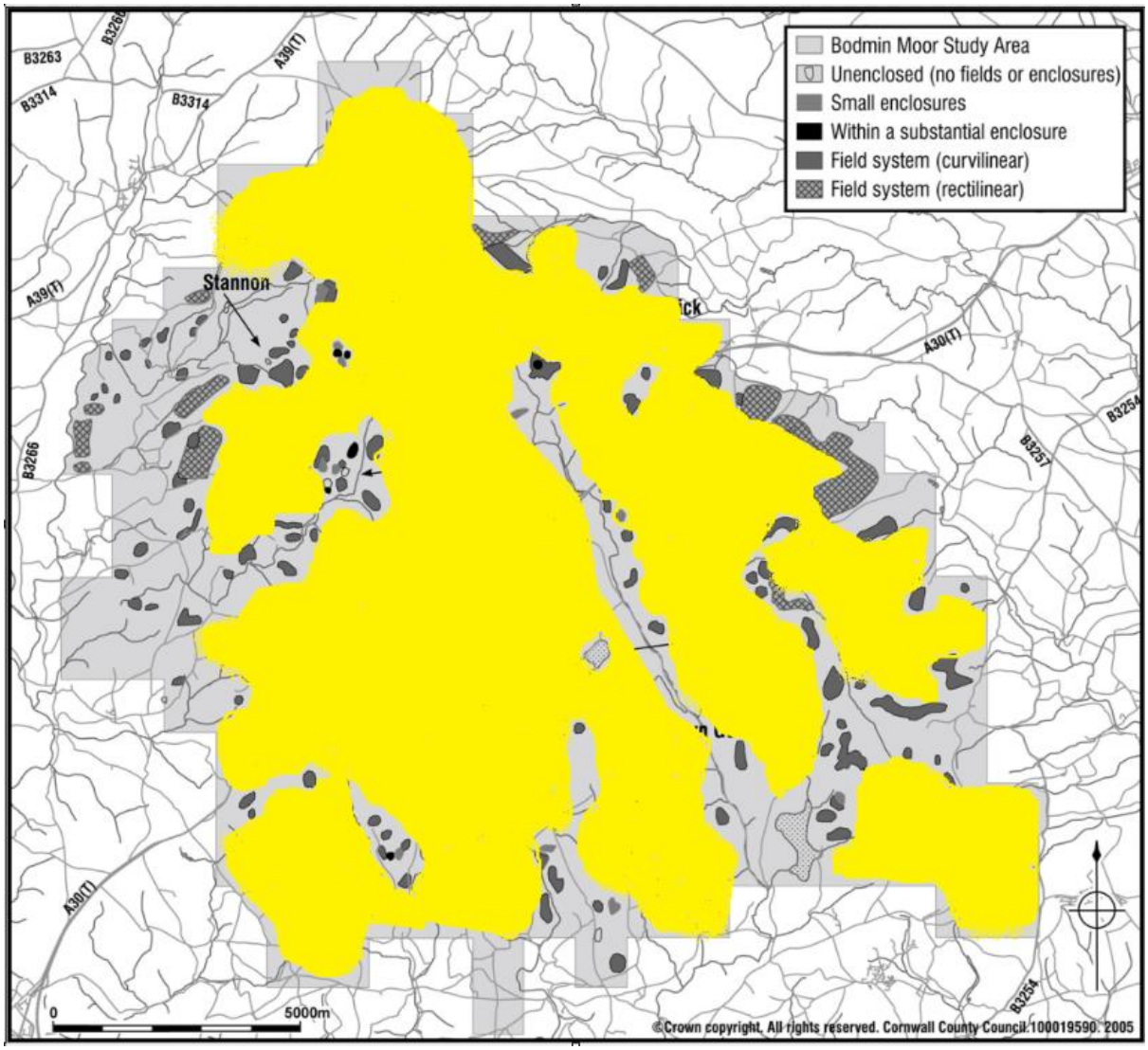
The extents of the commons were still large, more than required of the inhabitants of the moorland settlements. The Moor, and probably also the other granite uplands of Cornwall, like Hensbarrow, Carnmenellis and the Penwith hills, continued to be crucially important elements of Cornish mixed farming systems, in which the balance was firmly in favour of the pastoral element.



Distribution of surviving remains of later prehistoric settlements, based on the Bodmin Moor Surveys (from Herring and Rose 2001, 33). It produces a remarkably clear image of the patterns of land use. The settlements with no fields or enclosures are mainly in the heart of the Moor, in the more exposed areas where pastoral use is most likely, with the settlements with small enclosures in similar areas. Those enclosures are as likely to be pens as cultivated fields. Conversely, the curvilinear and rectilinear field systems of a more mixed farming economy are on the edges of the Moor or are in sheltered valleys. It is possible to use these distributions to identify areas that were probably commons in later prehistory (yellow on version below).

The coaxial and curvilinear field systems do have evidence for cultivation, partly in the lynchets, the scarps created by the gathering of soil at the foot of fields, and the erection of stock-proof walls around them, to keep livestock from trespassing on crops and haying grass. They also have evidence of the importance of pastures and livestock, most vividly demonstrated by the surviving narrow lanes that led through fields and opened onto the unenclosed commons. Good examples can be seen at the Leskernick and Craddock Moor curvilinear field systems, and in the East Moor, Ridge and Carne coaxial field systems, where there are numerous such lanes, each presumably used by a different community living in one of the clusters of roundhouses embedded within the field systems.

Most of the roundhouse settlements and their fields appear to have been either abandoned or cleared around the turn of the 1st millennium BC. Several were reused in a less intensive way by those who repurposed Bronze Age roundhouses in the Iron Age and Roman-British period (as on Garrow; Dudley and Minter 1962-3), or who occupied small huts built into the corners of earlier houses, as on Rough Tor, Garrow, Leskernick, Brockabarrow Common and other sites.



It seems that another major decision had been made around the turn of the 1st millennium BC to increase the extent of the commons again, presumably in response to pressure placed on the vital dairying side of the economy by increasing population levels. Traditional interpretations of the abandonment episodes suggested an external cause or reason, notably deterioration in the climate.

Population levels have been routinely underestimated by archaeologists applying a positivist approach to demography, assuming that medieval calculations (themselves ultra-conservative, being dependent on reading documentation like Domesday Book at face value) can guide estimates of prehistoric populations, when landscape evidence, including the density of the patterns of later prehistoric settlements, the character of those (hamlets of several households) and the extent of field patterns and of commons all suggest figures already around one hundred thousand in later prehistoric Cornwall.

> Say there were 10 later prehistoric hamlets per modern parish, a conservative estimate, then there would have been **c2000 hamlets**. (Where cropmarks survive well there appears to be a density of settlements broadly similar to that of early modern Cornwall.) For comparison, there were 6083 discrete settlements in Cornwall in 1748, just before the modernisation of our society and economy; Herring forthcoming.)
>
> Say each hamlet held 6 households, then **12,000 households**. Again a conservative estimate – the Romano-British settlement at Chysauster, in a marginal location, contained 11 households
>
> Say each household held 8 individuals (all generations, again conservative), then **96,000 individuals**.

4.7 The centrality of transhumance in later prehistoric and early medieval times

There is much archaeological and place-name evidence for the continuation of transhumance in the South West generally and Bodmin Moor in particular during the 2500 years from when the first groups of roundhouse that either had just small pen-like enclosures or no enclosures at all, places like Blacktor and Brockabarrow Common, were established, around 1500 BC, through to the gradual re-colonisation of the Moor from around AD 1000 (Fox 2012; Herring 2012; Fleming 2022).

The whole structure of society and seasonal life on the Moor, as in much of upland Britain, appears to have been built around transhumance: the seasonal movement of a part of the household to the summer pastures with their livestock (cattle, sheep and goats) for the purpose of milking them and producing cheeses, butter, etc.

It created and maintained the Moor's biodiversity and its landscape diversity from Neolithic to Norman times. Transhumants developed and passed on a wealth of what is now termed 'traditional ecological knowledge' and expertise whose application has

created and maintained the beautiful, meaningful and now vulnerable semi-natural environment.

Transhumance was woven into the seasonal round, with May Day and Hallowe'en, Beltane and Samhain, pivotal moments in the rural and pagan year (Herring 2012; Fleming 2022). It was also fixed into the spatial structure of the prehistoric world, with the common and the home farming ground, on the uplands and in the lowlands respectively, being the two great arenas of post-Mesolithic and pre-Norman life. These two arenas are still the principal zones of Cornwall, as represented by the 1993 and 1994 Historic Landscape Characterisations of Bodmin Moor and then the whole of Cornwall (Countryside Commission 1994; Herring 1996): the Rough Ground complementing the Anciently Enclosed Land (Herring 2012).

As such 'transhumance had an inherent stability; it should be seen as a complex, multi-facetted cultural institution, a persistent, relatively stable cultural practice' (Fleming 2022, 54).

Unlike in Cornwall, transhumance has continued into the present day or into thoroughly documented times in some other parts of Britain and north-west Europe and other aspects of its typical practice can be identified from records and from continuing practice (see, for examples, Collis et al 2016; Costello and Svensson 2018; Costello 2020; Bowden and Herring 2021). One of the most significant is that the transhumants were typically women, usually a mix of girls, young adults and elderly women, with the adult women, men and boys largely remaining on the home farms and undertaking the work required there (Costello 2020; Herring 2021).

The great upland areas of south-west Britain, Dartmoor, Exmoor, and Fowey Moor, all named from the rivers that rise on them and then flow through the lowlands that surround them, were vital elements of the agricultural landscapes of later prehistory and the earlier medieval period. Fields in those lowlands could be kept open (rather than enclosed) and be divided into narrow strips to ensure equitable sharing of land, because it was a given that every year the cattle, sheep and goats were always removed to the downs for the long summer.

As the Spring waters flowed down from the rain-soaked uplands, so the herds and flocks flowed up to them along ancient drove-ways, many still clearly visible in the east Cornish landscape, running relentlessly to the Moor. An example is that which starts at Lamellyon beside Bossiney at the estuary of the great river of Fowey Moor, and runs all the way to its other half, Hammett in St Neot, high on the granite upland. The two settlements were glued to each other as a single Manor and Tithing in the later medieval period (Pool 1981, 335), but originated as the two ends of a pre-Norman transhumance system, and were joined by one of those relentless routeways, this one 10 miles long and passing through Lanteglos Highway, Trecangate, and Middle Taphouse on its way.

4.8 The operation of the commons and the necessary administrative structure and infrastructure.

Access to the upland herb-rich grasslands was shared and these pastures were largely undivided – some possibly later prehistoric pasture boundaries on Rough Tor and Louden Hill appear to be secondary to curvilinear field patterns (e.g. Johnson and Rose 1994, fig 45); they may be Iron Age or later.

The extensive unbroken pastures would then have been used as a form of 'common pool resource' (Earle 2000, 51; Oosthuizen 2013, 1). Normally such common pool resources are or were restricted to a closed or exclusive group of individuals, a form of community, usually associated with a defined territory. Various rights and responsibilities are or were applied to the use of the resource, the basis of shared custom, maintained through adherence to and the policing of communally agreed rules (Ostrom 1990).

The detail of the customs and rules of Dartmoor have been closely studied (Fox 2012) and were probably closely matched by those for Bodmin Moor. They protected the rights of tenants of all those manors with ancient associations with the Moor, and imposed levancy-couchancy types rules that ensured that the Moor could not be over-grazed or abused. The aim was to provide equitable access to a vital resource which should itself maintain its heart indefinitely. Levancy-couchancy rules, based on the French for getting up and putting to bed, meant that a person could only get up on to the Moors in the summer only those animals he or she could maintain alive through the winter. It ensured a carrying capacity was understood and never stretched or exceeded.

Susan Oosthuizen has studied the ways that communities used such custom and rules to sustain commons in Britain from prehistory through to the medieval period (e.g. 2013). Both Elinor Ostrom and Oosthuizen identified universal requirements for stable, certain and sustainable use of common pool resources. Early farming communities, such as those of prehistoric and early medieval Bodmin Moor, would have organised themselves and their shared extensive resources, like common pastures, along the lines of a 'Common Property Regime'.

A common property regime used those customary and universally accepted set of rights, responsibilities and rules when allowing access to and managing use of shared summer grazing, or lanes, or wells, woods, the coast, the sea and the like. Such custom probably developed from the bottom-up, established to meet the reasonable needs of all commoners and, equally importantly, the needs of the common itself.

To ensure that the shared resources remained in good heart, they had to be used in indefinitely sustainable ways by limiting rights and policing them. Collective and consensual institutions, culminating in a 'king' (or equivalent) as ultimate authority for making decisions that all would accept as final, were also crucial for maintaining the

custom and would also probably have been established from the bottom up; the kings thus designed and expected to serve the people (Oosthuizen 2013, 1-5).

It has been suggested that the creation in early prehistory of places for gatherings, such as the Early Neolithic tor enclosures, and the more local cromlechs and then the later communal monuments like stone circles was connected, in part, to the need to bring people together to administer the rights of individuals and communities to run their livestock on that rough ground. Such gatherings would deal with breaches of the customs, trespasses, depletions of commonly held resources and the like (Herring 2011), the mundane but vital operation of the Common Property Regime would then have been intermingled with those other uses of such gathering places – ceremonies and rituals, astronomical observations, feasting, partner-finding and trading.

From the Middle Bronze Age (around 1500 BC) there is field archaeology evidence for management and use of the commons: terminal boundaries of coaxial field systems (see below) delineated them, shared lanes led to them, and groups of small transhumance huts were established within them.

On Bodmin Moor there are also ‘pounds’ that would have been used to distrain or effectively hold until returned on payment of a fine those livestock found to be grazing without rights to do so (their owners having either no rights or exceeding the numbers allowed). Occasional ‘drifts’ were held when all grazing livestock were rounded up and checked. Bodmin Moor’s rules were administered by the ancient Hundreds, believed to have prehistoric origins (Thomas 1964). Four of them fairly equitable subdivide the rough ground and each has a good candidate for an early pound.

- East Wivelshire, Stowe’s Pound, reusing the upper part of the Neolithic tor enclosure.
- West Wivelshire, Crow Pound, a rectangular enclosure on Goonzion Downs.
- Lesnewth, a rectangular enclosure helpfully called Drift Pound at Higher Town in Advent parish.
- Trigg, King Arthur’s Hall, an early prehistoric ‘sacred enclosure’ reused from at least as early as the Iron Age (see Herring 2012).

The place-names of transhumance in Cornwall were shared by the Welsh language and as they are slightly unusual word formations it is presumed that they relate to the period before the westward expansion of the Anglo-Saxons separated the two nations, cultures and languages of Wales and Cornwall in the 7th century (Herring 2012), apparently confirming the ancient naming of the main places associated with the practice, and thus the antiquity of the practice itself. The summer dwellings were called *havos*, a compound of *haf* ‘summer’ and *bod* ‘dwelling’, and the home or winter farm was *hendre* from *hen* ‘old’ and *tre* ‘farming estate’, the Welsh forms being *hafod* and *hendref* (Padel 1985, 127 and 129).

Name	Ref	Overlord	Ploughlands: Ploughs	Slaves: villeins: smallholders	Wood	Pasture	Demesne livestock
Hamatethy	5.3.22	Mortain	6:4	3: 4: 8	2a	5l x 2l (6,400a)	6 unbroken mares, 6 cattle 40 sheep, 6 goats
Helstone	5.1.4	Mortain	15:12	18: 20: 15	10a	3l x 2l (3840a)	18 unbroken mares, 10 cattle, 150 sheep, 5 pigs, 12 goats
Trenuth	5.6.3	Mortain	4: 2.5	5: 4: 6		30a	1 unbroken mare, 4 cattle, 8 pigs, 73 sheep
Treglasta	5.1.5	Mortain	20: 14	15: 24: 20		300a	4 unbroken mares, 4 cattle, 50 sheep
Rosebenault	5.6.4	Mortain	3: 1.5	3: 0: 6		20a	1 unbroken mare, 8 cattle, 100 sheep
Bowithick	5.13.6	Mortain	2: 0	0: 1: 2			
Penpont	5.13.8	Mortain	16: 2.5	5: 4: 18		60a	30 sheep
Trewint	5.26.1	Mortain	1:1	1: 0: 4		2a	10 sheep
Tredaule	5.6.7	Mortain	8: 6	8: 7: 20	1a	2l x 2l (2560 a)	3 unbroken mares, 12 pigs, 10 cattle, 100 sheep
Tregrenna	3.4	Tavi. Ch.	4: 3	2: 9: 0		2a	3 cattle, 12 pigs, 108 sheep
Trevague	5.6.8	Mortain	6: 4.5	6: 8: 18	1a (u)	2l x 1l (1280 a)	6 unbroken mare, 7 cattle, 12 pigs, 50 sheep
Tolcarne	3.6	Tavi. Ch.	1: 0	0: 0: 2		1a	Smallholders have 2 oxen
Treveniel	5.14.4	Mortain	2: 1	2: 2: 4	2a (u)	20a	3 unbroken mares, 2 cattle, 30 sheep
Trebartha	5.4.20	Mortain	4: 3.5	0: 2: 6			
Rillaton	5.1.13	Mortain	15: 10	12: 15: 24	60a	300a	15 unbroken mares, ? cattle, 60 sheep
Caradon	5.4.11	Mortain	2: 0	4: 0: 6	10a	100a	6 sheep, 5 goats
Caradon	1.8	King	30: 20	20: 43: 17		1l x 1l (640a)	6 cattle, 180 sheep
Rosecraddock	5.5.9	Mortain	15: 4.5	6: 7: 16	6a	3l x 2l (3840a)	4 unbroken mares, 7 cattle, 20 sheep, 10 goats
Fursnewth	4.17	St Mich.	8: 4	1: 8: 8		30a	
Draynes	5.20.2	Mortain	1: 0.5	0: 2: 2	3a (u)	30a	1 cattle, 10 sheep, 10 goats
Draynes	5.24.1	Mortain	2: 1	1: 2: 3	3a	30a	2 cattle
St Neot	5.14.2	Mortain	5: 1	3: 3: 6		60a	2 cattle, 2 pigs, 30 sheep
St Neot	4.28	St Neot		0: 0: 4			1 ox, 20 sheep, 10 goats
Fawton	5.1.1	Mortain	30: 21	20: 30: 20	200a	7l x 4l (17,920a)	33 unbroken mares, 23 cattle, 287 sheep, 7 pigs, 15 goats
Cabilla	5.22.1	Mortain	6: 1	3: 3; 7	40a	50a	10 goats
Trezance	5.3.3	Mortain	12: 7	6: 5: 11	1l x 0.5l (320a)	3l x 2l (3840a)	3 cattle, 1 wild mare, 35 sheep, 8 goats
Trehudreth	5.17.4	Mortain	2: 1	0: 2: 4		100a	2 cows, 15 sheep
Blisland	1.6	King	30: 19	12: 40: 20	1l x 0.5l (320a)	3l x 1.5l (2880a)	3 cows, 70 sheep
Totals			**250 ploughlands: 141.5 ploughs**	**156 slaves: 245 villagers: 287 smallholders**		**44,435a, if league = mile**	**95 unbroken mares, 101 cattle, 1473 sheep, 86 goats, 58 pigs, 1 wild mare, 3 oxen** on demesne holdings

Summary of Domesday Book (1086) entries for manors encircling Bodmin Moor. Data drawn from Thorn and Thorn 1979; summary by Pete Herring.

4.9 Later Medieval re-settlement

Gradual re-settlement of Bodmin Moor had begun before 1066 as three of the manorial centres recorded in the Domesday Book, prepared in 1086 but with back-references to 1066, were on the granite (Hamatethy, Halvana and Draynes). Many other farming hamlets would have been established besides these, mainly on the sheltered valley sides, places with pre-Norman Cornish names. Significantly, one of the three mentioned in Domesday Book, Hamatethy, contains the *havos* place-name element as its first element (Padel 1985). So, a *havos* had been established, and then become permanently settled, and then developed the status of an estate or manor centre, all by 1066, another confirmation of the antiquity of Bodmin Moor transhumance.

The Moor seems to have been like a smaller equivalent of Dartmoor in later prehistory and through most of the pre-Norman early medieval period, that is entirely open, with farmers from numerous lowland settlements having rights upon it (see Fox 2012 for details of the Dartmoor arrangements). But by the time of the Domesday Book, Bodmin Moor or Fawymore (Fowey Moor) had been divided into a number of smaller commons, attached to particular manors or estates whose manorial centres were a short way off the Moor, in the more sheltered and more fertile lowlands close to the great upland. Some of these ran into each other, with no built boundaries, as some still do, as on West Moor and East Moor.

Those manors that had the largest areas of pasture on the Moor had their extents expressed in Domesday Book as lengths and widths, using the unit the league; the remainder had their pasture described in acres. The league was an imprecise, or variable length, differing across the country. In later medieval times it was apparently regarded as 1.5 miles, or 12 furlongs. If that measure were applied to the Domesday manors around Bodmin Moor the area ascribed to pasture would be roughly twice the fullest extent of the Moor. But if it were regarded as equivalent to a mile then the figures work out quite well, with the 44,435 acres of pasture recorded for the manors closest to the Moor being remarkably close to the Moor's area of rough ground, around 46,000 acres.

It is then possible to ascribe the main blocks of Domesday pasture to particular parts of the Moor. Starting at Hamatethy and progressing clockwise around it:

Hamatethy 5 leagues by 2 leagues = 6400 acres

This broadly equates to the rough ground within St Breward parish, extending beyond Rough Tor in the NE. A sliver of the parish is within Blisland manor.

Helstone 3 leagues by 2 leagues = 3840 acres

This broadly equates to the rough ground within Advent parish, including and extending beyond Crowdy Marsh in the NE.

Treglasta 300 acres

This broadly equates to the rough ground within St Clether parish, in its SW corner.

Tredaule 2 leagues by 2 leagues = 2560 acres

Trevague 2 leagues by 1 league = 1280 acres

Together Tredaule and Trevague may account for most of East Moor, including Ridge and Carey Tor, largely in Altarnun but extending into North Hill.

Rillaton 300 acres

Included Stowe's Hill, and Rillaton Common. The figure is surprisingly low as the several hills making up Twelve Men's Moor in North Hill and Linkinhorne were in Rillaton manor.

Caradon (1) 100 acres

Caradon (2) 1 league by 1 league = 640 acres

As well as Caradon Hill, this manor, in two parts in 1086, included some of Twelve Men's Moor a century after Domesday Book (Henderson 1935, 125-6).

Rosecraddock 3 leagues by 2 leagues = 3840 acres

Broadly equates to the rough ground of St Cleer parish.

Fawton 7 leagues by 4 leagues = 17,920 acres

By far the largest area of pasture, nearly three times the extent of the next largest (Hamatethy). Its name derives from the River Fawy, or Fowey, and it extended as far N as Brown Willy and may have included much of West Moor, through which the river Fawy flows, plus most of the rough ground of St Neot parish.

Trezance 3 leagues by 2 leagues = 3840 acres

Broadly equates to the rough ground of Cardinham parish.

Trehudreth 100 acres

Probably just Trehudreth Downs.

Blisland 3 leagues by 1.5 leagues = 2880 acres

Broadly equates to the rough ground of Blisland parish.

The Domesday Book also records the numbers of livestock that belonged to the demesne, that is the lord of the manor's own farm. Almost all manors adjacent to the Moor had multiple types of livestock, most had unbroken mares, cattle and sheep, but some also had pigs and goats, and Fawton and Helston had all five types.

On demesne farms alone there were in total 95 unbroken mares, 101 cattle, 1473 sheep, 86 goats, 58 pigs, 1 wild mare, 3 oxen. To get a sense of the total numbers of livestock we may draw on the numbers of villagers and smallholders recorded in manors adjacent to the Moor and consider the scale of longhouse and outhouse accommodation in deserted hamlets surviving on the Moor. Most had the capacity for 6 to 8 cattle. Farmers would probably have left unhoused the sheep, goats and unbroken mares. If we imagine the 245 villagers recorded on Moor-edge manors (see Table) had, say, 6 cattle each, and the 287 smallholders had 3 each, we may suggest there were an additional 2231 cattle, and 2332 in all. That is 22 times as many animals on the tenants land as on the lords.

If we apply the same multiplier (22) to the other livestock types we might model 2090 unbroken mares, 32,400 sheep, 1892 goats, 1276 pigs, 22 wild mares and 66 oxen.

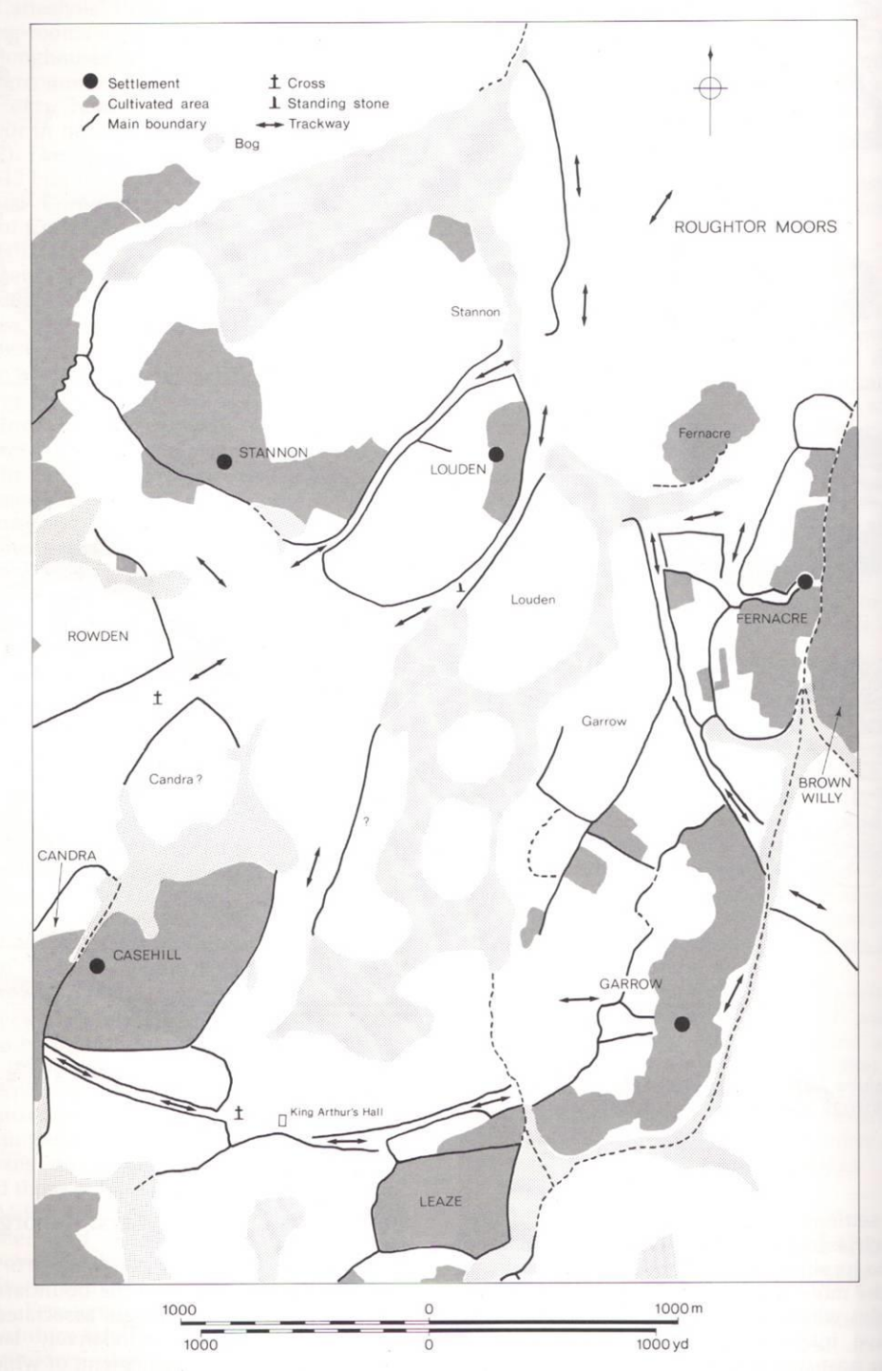
In addition, it is likely that the tenants of manors further from Bodmin Moor also had rights to graze on the commons there, as was the case in Devon on Dartmoor (Fox 2012). We might therefore envision total livestock numbers approaching modern ones (see 4.12).

The lands of the new medieval farming hamlets were usually enclosed by curving stock-proof ring-fences, substantial Cornish hedges with ditches on the moorland side (see Austin et al 1989 for detailed analysis of the settlements of St Neot parish). Within the ring-fence were areas of arable fields, usually organised as strip fields that enabled the land to be shared equitably between the several households who made up the hamlet. Several unusually well-preserved strip field systems survive on the Moor, some within PALs, like Brown Willy, Garrow and Brown Gelly. These arable fields were worked using convertible husbandry that meant that at any one time only around a quarter of the fields would have been cultivated; the remainder used for hay or as meadow-like pasture. Cultivation in many parts of the Moor was by hand, using spade and shovel, rather than by plough. The farmers created ‘lazybeds’ around 2.5 metres wide and separated by ditches. Much survives on the Moor as corduroy-like earthworks. The remainder of the ground within the ring fence, which could be very substantial, in places at least two-thirds of the hamlet land’s total area, would be rough pasture, used as a hamlet or home common, shared only between the hamlet’s households.

One of the effects of this re-settlement was, of course, the gradual shrinkage of the manor commons, starting the fragmentation of the once fully open moorland that continued through the whole of the medieval period and right through to the early 20th century.

The principles that guided medieval use of the commons continued to be based on keeping it in good heart. This was mainly through ‘levancy and couchancy’, putting out in summer only those animals that could be kept through the winter, for which see above. In those manors for which we have evidence (principally Fawton and

Blisland; Maclean 1868 and 1886), it seems that tenants paid a money rent for their land, and a payment for each head of the animals turned out onto the commons.



Ring-fenced tenements or townlands of medieval hamlets in St Breward, showing how they took in land from the formerly entirely open Hamatethy Common, and left passages between them for commoners to continue to reach surviving elements of the common, such as ta Roughtor Moors in the NE. King Arthur's Hall (near the bottom) was located where several such passages met (Johnson and Rose 1994, fig 66).

There are rectangular stock-proof enclosures at Highertown, Advent and on Bray Down in Altarnun that were called Drift Pound. These would have been used for holding animals that had been found ‘trespassing’, that is grazing when their owners did not have rights, or where rights were exceeded. All the animals grazing the Moor, or a portion of it would be rounded up and checked in a raucous day when people on ponies would have been rushing around the Moor, gathering the animals into checking areas.

King Arthur’s Hall in St Breward, on the boundary between Hamatethy and Blisland manors was probably used as a manorial pound. The long thin enclosure in which it was built was known as Penny Park when the 1695 Lanhydrock Atlas was created. We know from the Elizabethan custumal of Blisland manor published by Maclean in 1868 that tenants paid one penny per head for cattle (Maclean 1868, appendix).

Black-faced sheep on the ancient commons of Twelve Men’s Moor being rounded up by farmer on a pony and two sheep dogs; NW slope of Sharp Tor. Brown Willy and Rough Tor the distant mountains (Pete Herring, August 2012).

4.10 An overview of post-medieval agriculture on Bodmin Moor, 19th and 20th centuries

This account of the more recent development of pastoral agriculture on the Moor is a summary of that prepared in 2008 for Volume 2 of the Bodmin Moor archaeological survey (Herring and Giles 2008).

Poor drainage, thin granite-based and peaty acid soils (Staines 1976), exposure to wind and rain and susceptibility to fog or low cloud, all contribute to making Bodmin Moor agriculturally marginal. Post-medieval mixed farming on the Moor continued to adapt to these conditions, in ways recognisable to earlier farmers, including prehistoric ones. The emphasis was always on the pastoral in terms of relative acreages in various land uses (arable, meadow, rough pasture). Oats, pillas, rye and dredge, tolerant of poor soils and able to ripen in this climate, were grown rather than wheat and barley.

Router Moor, by Thomas Rowlandson, 1822 (Courtesy of The Metropolitan Museum of Art, New York). A flock of sheep is being herded from the great tor, with distant rolling downlands coloured predominantly green, suggestive of grasslands.

Availability of extensive rough grazing was important in determining the form taken by agriculture on Bodmin Moor. Livestock were moved onto it during the summer to allow fodder crops (grain, roots and hay/silage) to be grown in inbye fields. ‘In the north part of the parish there are immense wastes, used only in the summer months for the pasturing of cattle, producing turf fuel for nearly the whole population of St Neot’ (Michell 1833).

The patterns of the commons, the field systems and most of the lanes and routes to and through them were largely inherited from the medieval period except, of course, in those areas where there were extensive 19th-century intakes. Those intakes, encouraged by local lords keen to improve returns from their land and driven by the need to accommodate industrial labourers, inevitably reduced the area available for

rough grazing, resulting in higher stocking levels and gradually increasing pressure on the commons. A shift during the interwar agricultural depression from purely summer grazing to overwintering on the commons significantly altered the character of many areas, whilst hardy Scottish breeds of cattle and sheep largely replaced local Cornish ones (Herring and Giles 2008, 20).

The land is largely treeless and exposed (the granite Moor a massif standing 100m above the surrounding slate lowlands). It is wet and windy (Brewster 1975, 152–6) and most of it is quite remote from centres of population, markets and services.

By the 19th century Bodmin Moor had numerous landowners and even more tenant farmers. No estate dominated; the Duchy of Cornwall owned land in the north-west (Helstone-in-Trigg) and south-east (Rillaton) and other large estates with upland holdings included Trebartha, Pencarrow, Rosecraddock and Glynn. Farms varied greatly in size. Some were smallholdings; two farms at Littleworth in St Neot were each just 18 acres (7.2ha) in 1842 (St Neot Tithe Apportionment). Most had between 40 and 200 acres (16 and 81ha), and a few were larger; Carkeet in St Cleer had 467 acres (189ha) in 1840, while nearby Siblyback was nearly 900 acres (364ha). Much of the acreage of these large farms was downland used for rough grazing.

Post-medieval stock-proof Cornish Hedge separating pasture enclosures imposed on the medieval field system of Brown Willy. Beyond are similar hedges on Fernacre, with former strip field banks visible. The commons of Hamatethy, including Rough Tor, lay beyond (Pete Herring April 2017).

Resources available to these 19th-century farmers also varied enormously. Large farms had the capital to purchase farm machinery, and employ agricultural labourers, but many 19th-century intakes were worked by men in time spare after doing their principal jobs in local mines, quarries or clayworks. Much of the work on these small, poor farms, in the most marginal locations, would have been done either by hand or using simple hand tools (breast spades/ploughs, biddaxes, visgays, hoes, shovels and scythes) and would probably have been done mainly by children and women (*Commission* 1867, 177–80).

On Bodmin Moor in the 19th and early 20th centuries the straw of oats was also important for supplementing hay as fodder and bracken (or 'ferns') were used as bedding (*see* Marshall 1796, Vol 2, 6 and Herring 2004). Bodmin Moor's main agricultural product in this period was fatstock cattle, sold on for further fattening and some destined for the Navy victualling yard at Plymouth (Worgan 1811, 138). Most Bodmin Moor farms had enclosed blocks of rough pasture beyond their arable fields and many enjoyed rights of grazing on the unenclosed commons. Sheep were also important, especially as a way of gaining a return from the poor moorland grazing.

Trends towards amalgamation of holdings and greater specialisation in Cornish agriculture, developing by the late 19th century, were emphasised and accelerated in the dark inter-war years. Some debt-ridden farmers sold up to neighbours, allowing farmland to be amalgamated and farmsteads to be abandoned, or turned battery poultry farming or dairying. The latter, with the security of a monthly cheque from the Milk Marketing Board (Leigh 1937, 85), was the most widespread development, being adopted to some degree by most farms. Cow houses were concreted out for dairying, and outhouses fitted up with coolers. Ranching, however, was the longer-lasting development.

Margaret Leigh, whose book Harvest of the Moor *gave a vivid account of her life establishing a farm at Newton in Blisland in the 1930s. From* The Bookseller*, 14 April 1938, 432.*

Most post-war farmers on Bodmin Moor concentrated on extensive beef and sheep farming, with more holdings thrown together, the arable element dropped, silage replacing hay, and the commons being more intensively exploited. The practice of wintering cattle on the Moor was not entirely a 20th-century development: 'The Heaths support the cattle in summer, and great part of the winter months' (Marshall 1796, Vol 2, 6); but it has nevertheless been so greatly increased through the use of supplementary feeding that it can now be termed over-wintering. Associated developments flowing from ranching have seen the neglect and removal of internal field boundaries, the abandonment of small-scale stone farm buildings or their replacement with large prefabricated covered yards, and the abandonment of many dwellings. The consequent depopulation of the Moor contributed to the decay of services, notably the closure of schools and chapels. In the late 20th century many abandoned farmhouses were rescued, restored and turned into commuters' homes or holiday homes.

4.11 Recent history of pasture

In a pasture-biased mixed farming economy like that of post-medieval Bodmin Moor, providing sufficient grazing and winter feed for livestock was of paramount importance. Saving the hay mattered as much as harvesting the oats, and the few meadows and the arable's or inbye land's ley grass were carefully husbanded. Access to summer grazing (May to October), whether as a shared right to medieval-derived commons or as enclosed and privately held rough ground, was also essential, as much to get stock off the hay ground as to exploit a seasonal resource. The rough ground was also vital in supplying fuel, both turf and furze, and also bracken for bedding.

Common land on Bodmin Moor was considerably reduced by the 19th-century intakes described above, all of which were achieved without Acts of Parliament (Brewster 1975, 209). The 1876 Commons Act made further enclosure costly and difficult, and the extent of Bodmin Moor commons has been effectively frozen since that date at *c* 75sq km.

The new farm of Camperdown, St Breward, an 80-acre holding with rectilinear fields cut out of Hamatethy Common between 1880 and 1906 (Pete Herring, April 2013).

Bodmin Moor's commons were and are mainly the property of moorland fringe manors of medieval origin; so, some tenants or freeholders with common rights, as registered for the purposes of the 1965 Commons Registration Act, also lived and continue to live just off the Moor (Brewster 1975, 224–32; Herring 1986, vol 1, fig 29). Most modern intakes were provided with common rights but sometimes confined to turbary, denying pasture rights – perhaps to appease the ancient tenants whose rough grazing had already been reduced by the enclosure.

In June 1936 the Cornwall Commoners Association was established to take over responsibility for managing the commons from the manorial courts, by then defunct. Amongst other practical improvements, such as the prohibition from the commons of stallions over one year and bulls over nine months old, they have organised the fencing of certain dangerous bogs (Rough Tor Marsh, Newton Marsh and Kenniton Bog), the provision of fencing against the A30, and the installation of a number of cattle grids (Brewster 1975, 233–5).

During the 20th century the privately held rough pastures were greatly reduced through improvement, falling from 160 to just 46sq km between 1938 and 1975 (*ibid*, 213).

Farmers from lowland Cornwall had from at least the 15th century paid to turn their animals out onto Bodmin Moor's commons (Maclean 1886, 33) and privately held rough grazings, from 2 to 21 shillings per head of cattle and 1 to 3 shillings per score of sheep in 1811 (Worgan 1811, 106). Local newspapers regularly took advertisements from moorland landowners in the 19th century. For example, in February 1812 there appeared in the *West Briton* the following. 'Farms and summer pastures to be let … Hawke's Tor, Kerkees [Carkees], Druglets and Scrible [Scribble

Downs] in the parish of Blisland, all inclosed and contiguous to each other, containing upwards of 800 acres of the best summer pastures for cattle and sheep in Cornwall, constantly supplied with large streams of fresh water, to which cattle always have access. A considerable sum has lately been laid out in clearing the leats draining and fencing these pastures. There is a dwelling house for a herd on these premises' [probably the ruin at Druglets, SX 141761; *see* Johnson and Rose 1994, fig 75] (Barton 1970, 26). Three years later in 1815 the same pastures were advertised again but this time it was announced that 'Proper herdsmen have been appointed' (*ibid*, 57). Such herdsmen were an important element of the moorland population; the 1851 census returns record herdsmen at Ninestones and Wimbleford (Wimalford) in St Cleer and Trezelland, Tober, Goodaver, Zebet (Trezibbett) and Dryworks in Altarnun.

Livestock were predominantly cattle and sheep, the former being the most visible archaeologically through the cow houses and shippons of the farmsteads but there are also a number of sheep creeps, allowing sheep movement between fields whose walls and hedges controlled cattle and horses. Horses were kept on every farm, for traction and for use on the downs (rounding up, etc); there were between two and six stalls on every farm in 1910 (PRO, IR58/72021). Virtually every farm had pigs, converting surplus or waste from the dairy, garden and house into meat. Geese and goats were also important, the former shut up overnight in stone-lined gooseholes built into the bases of yard walls (good examples at Codda, SX 18037841), the latter turned out onto the moors – the 'large herd' on Brown Willy giving 'quite an Alpine touch to the mountain scenery' (Breton 1912, 18). 'Troops of unbroken and half-wild ponies … roaming at large on the moor' (Leigh 1937, 149) can still be seen and over 700 were sold at Five Lanes market alone in 1973 (Brewster 1975, 258).

Pair of goose-holes in base of yard hedge at Codda, Altarnun (Pete Herring, 1984).

Cattle in the 19th and 20th centuries were predominantly beefstock although there was a period when dairying was more than at a subsistence level and became commercial, largely during the 1930s depression. This was the heyday of milkstands, the Excelsior Milk Co and the Milk Marketing Board, when cow houses were fitted out for milking (*see* Leigh 1937). Milking before the expansion was usually done by the women and girls, by hand, often in the open yard, as at Codda (SX 180784) in the early 20th century, when Gladys Sleep and her sisters helped her mother (Sleep 1984). The bulk of the milk produced at Codda then was consumed on the farm. Butter was made every two days from scalded cream and some was sold, along with cream, eggs and other small-scale farm produce via the regrator. Most of the milk, however, was fed to pigs and other livestock (*ibid*).

Bodmin Moor sheep are and were hardy, 'the mongrel flocks … not nice in feeding, for I have seen them cropping the furze and the heath, as well as depasturing the grass', but they yielded 'very good' mutton and fleeces 'of moderate quality' (Worgan 1811, 151).

A typical holding of about 50 acres (20ha) on Bodmin Moor in 1941 could be expected to support about 8 or 10 Devon cows and their young stock, and about 20 Longwool ewes and their lambs. Most farmers with sufficient capital would also run hardier animals entirely on the downs (ie over-wintering): Galloway or Scotch cattle and Scotch or Cheviot sheep (Roberson *et al* 1941, 451). When Margaret Leigh took over the 44 acre (18ha) holding at Newton in 1935 she inherited 5 Devon cows in milk, 3 heifers, 3 yearlings, 8 Longwool ewes, 9 lambs and 25 hens, together with a cart mare and pony (Leigh 1937, 62).

The forms of post-medieval pasture boundaries, like those in the contemporary fields, reflect materials to hand. So ditched turf banks can become drystone walls or Cornish hedges as they enter stonier areas (good examples of variability on Butterstor and Tolborough Tor). Lines are often perfectly straight, determined by surveyors (eg on Pridacoombe Downs and Smith's Moor in Altarnun).

Management of the rough pasture was minimal beyond occasional swaling, or controlled burning, aimed at promoting fresh growth of heather and gorse in the 1940s (Roberson *et al* 1941, 450), but in the 1970s the attention was on burning the molinia (purple moor grass). It was prohibited then between March 31 and November 1 (Brewster 1975, 159). Less than a decade later, in 1981, Charlie Tapp of Pridacoombe told Pete Herring that he swaled every two years those areas that needed it.

Swaling on the north side of Temple, 1997 (Pete Herring)

Livestock were removed from the Moor to lowland farms for about a month each year, usually in the spring, as, ‘a remedy against Moor sickness … which checks the progress of immature beasts and lowers the yield of milk cows’ (Leigh 1937, 102), now recognised and treated on the Moor as cobalt deficiency (Brewster 1975, 244).

The farmer would always try to save as much hay as possible as this was the basic fodder on which the winter well-being of the cattle (housed from October or November till May; Karkeek 1845, 452) depended. In the first week of May the meadows and as many ley fields as could be spared were hained, that is cleared of stock, sometimes manured, and left to grow the grass which was to be the hay. This was mown in late June or July, traditionally with a long-bladed scythe (Jack Parkyn, pers comm) but, from the late 19th century, with a horse and then tractor-drawn ‘grass machine’ or mower. When dry the hay was saved in a horse-drawn lathed wain and ricked in the mowhay, an enclosure near the threshing barn, usually with two wagon entrances, one for entering, one for leaving. The rick was built on a haystead, a rectangular stone-lined platform (eg at Leaze, St Breward, across the mowhay from the staddle stones of the corn rickstand). Pikes and prongs were used to throw the hay up to the ricker; they were briefly replaced on a few farms (e.g. Wimalford and Gillhouses) by the horse-operated hay pole, a four-guyed pole with pulley through which ran the rope which, when pulled by horses, lifted a large grab of hay from the wain onto the rick (Jack Parkyn and Tony Blackman pers comms, and Davey 1994). This device was in turn made redundant by balers and Dutch barns. Hay ricks were thatched with rushes scythed from nearby marshes, bundled and laid stubby ends down (Davey 1994).

Sir John Maclean described Blisland in the mid-19th century as ‘purely pastoral’. ‘The land, generally, is better adapted for the pasturage of cattle than for the cultivation of corn; nevertheless, corn is grown to a considerable extent, especially on the western side’ [i.e. in the medieval farmlands on the lower slopes of the granite and on the more sheltered slatestones to their west]. ‘Wool is one of the staple productions of the parish, as the extensive commons admit of large flocks of sheep being kept at a

comparatively trifling expense. A great number of horned cattle also are grazed on the moors' (Maclean 1873, 23).

Livestock were often sold at the end of the summer, such as in the Blisland where 'an ancient fair for the sale of horses, cattle and sheep is held at Blisland Church town on the Monday within the octave of St Probus' (Maclean 1873, 48). The feast day of St Protus (patron saint of the parish church) falls on September 11th; therefore the octave would have ended on September 19th, close to Michaelmas (29th September) regarded as marking the end of the harvest, and one of the administrative and financial quarter days when rents were due. Selling livestock would therefore have been timely as the summer grass waned on the downs and as cash was needed.

4.12 Modern livestock grazing on Bodmin Moor

Livestock grazing is the predominant and traditional practice that influences vegetation structure and biomass on both the commons and the in-bye farmland of Bodmin Moor. This has been driven by agricultural practice and cultural tradition which is encapsulated in modern governance frameworks. The action of grazing maintains species-rich habitats and suppresses aggressive species which would otherwise dominate with potential implications for the historic landscape.

A variety of factors can influence vegetation structure and floristic composition from species preference to seasonal grazing pressure. These include the following.

Physiological and Behavioural Drivers of livestock grazing

Livestock behaviour is underpinned by a range of physiological mechanisms and nutritional needs that drive animal grazing choices. The grazing behaviour and decisions taken by an animal is a direct effect of the quality and quantity of forage available within any space or time period. This is influenced by the relationship between body size and metabolic requirement and has a fundamental effect on the foraging strategy, degree of selectivity and the scale at which this takes place. This is clearly evident in seasonal grazing patterns with flocks and herds roaming wider areas in spring and autumn in order to source sufficient forage (Jarman and Sinclair 1979; Schwartz and Ellis 1981). Other factors such as age, physiological status (for example, pregnant, lactating), digestive physiology (ruminant, hind-gut fermenter) and environmental conditions may further influence the degree of selectivity exhibited. On Bodmin Moor the practice of three species grazing creates greater heterogeneity in grazed swards and may increase ecological benefits as a direct result.

Geo-spatial Influence

Livestock will not range evenly over areas of moorland or indeed large new-takes. Distribution is heavily influenced by the location of preferred vegetation type which is heightened in sheep who display stronger selectivity preference. On Bodmin Moor

the commons tend to be small and fragmented so the practice of ‘learing’ or ‘hefting’ is not as strongly defined as on Dartmoor or in the north of England. Management zones are more likely to be influenced by the location of the home farm or key access points rather than the distribution of vegetation types. On some larger areas such as West Moor home ranging behaviour may have a role in spreading grazing along with active shepherding. The degree of ‘faithfulness’ is influenced by the farm system, but older sheep are likely to have stronger associations with a home range imprinting behaviour on their offspring. Other practices such as winter supplementation may also introduce a spatial bias with animals ‘loafing’ in zones associated with regular feeding.

North Devons wintering on the in-bye, near Temple. Summer grazing lands in the distance (David Attwell).

The foundation for any grazing system is the relationship between forage, shelter and water. Over time livestock will develop strong ‘rituals’ or patterns of behaviour linked to these three attributes. This will vary over the course of a year and will be greatly influenced by environmental conditions. Species such as sheep show seasonal differences in vegetation patch selection and may preferentially target certain species in the autumn and winter period. The degree to which stocking rates impact outcomes is influenced by the size and distribution of patches of preferred grazing by livestock type.

Grazing Adaptions, Preference and Local Adaption

The PALs are on common or rough enclosed moorland and these tend to be grazed by cattle, sheep or ponies either as single species groups or in various combinations.

Each of these species behave and graze in slightly different ways, as follows.

Cattle

Cattle are herd animals, and most graziers tend to keep ‘naturalised’ groups on the common. These animals have been born or reared on the moor and through exposure to the environment have developed greater resilience to animal health and welfare challenge (see below). They tend to be in either spring or autumn calving herds, a mix of suckler cows and calves and some dry cows. Some graziers turn out in-calf heifers and on grassier commons small numbers of slow finishing traditional steers. Animals tend to be out from April till November but on some areas they may graze year-round. Most of the cattle are what can be described as native breeds either pure bred or hybrid cows with Galloway, Shorthorn and Highlands a common sight. Increasingly pure-bred cows are put to a Charolais bull to maximise suckled calf values.

Cattle graze by using their tongues to ‘rasp’ or pull tufts of vegetation into the mouth (Tolhurst & Oates, 2001). Due to the broad nature of their mouths they tend not to be selective, and grazing is therefore generalised on sward patch as opposed to individual plants. This action results in an uneven tussocky sward in semi natural grasslands where stocking densities tend to be lower. Traditional breeds are often described as ‘foragers’ as opposed to ‘graziers’ and will browse some trees and shrubs preferentially in search of minerals and trace elements. As the grazing season progresses, they will take sedges along with other herbage helping to create more diverse swards.

Cattle breeds are varied but include Galloways, Highland, Beef Shorthorn and various crossbreds including Angus and Charolais (David Attwell).

As ruminants, cattle may spend up to 16 hours a day resting to allow ingested food to be digested by rumen microfauna. In larger open landscapes resting places may be randomised or influenced by degree of exposure and environmental factors at key times of the year e.g. flies. Many herds will habitually use the same locations as part of learnt behaviour over generations of grazing a common. Cattle are sociable graziers and will tend to stay together focusing grazing effort on localised patches during the summer period whilst displaying greater mobility in the spring and autumn (Attwell D. 2023). They have evolved natural behaviours to reduce parasitic burdens and avoid grazing within 10 – 20cms of a dung pat.

Cattle grazing patterns favour grass which can encourage sward diversity, with potential to influence the abundance and range of different taxa. Evidence suggests that diets selected by different breed types of cattle are similar, and that breed influence on diet is much less than between breeds of sheep. Cattle tend to graze less selectively than sheep, and will utilise less palatable species such as Purple moor grass *Molinia caerulea* (Fraser et al 2011). The weight and trampling of cattle helps to suppress and open up the sward and has been shown to encourage heather seedling regeneration at light levels of poaching. It can also be beneficial in suppressing problematic plants such as Bracken *Pteridium aquilinum*. Conversely, they can have detrimental impacts on vegetation including damage to woody stems of heather.

Overall cattle grazing can increase the proportion of preferred grasses in the sward and improve the quality of semi-natural grassland for sheep and mixed grazing. It is worth noting that a lactating cow will drink on average around 15 gallons of water a

day so access to water supplies and shelter will influence the size of the foraging range on the common.

Sheep

Sheep are flock animals and there are 60 native breeds in Britain, many of which are associated with the uplands. Most of the animals grazed on the commons tend to be hardier types of which Scottish Blackface, Swaledale, Cheviot and Glamorgan Welsh are amongst the most popular. Sheep tend to lamb from late March through to early May with weaning taking place from July through to September. Dependent on whether an agri-environment scheme is in place (or a SSSI consent) sheep are often grazed throughout the year or with short removal periods for management tasks such as tupping.

Sheep graze in a very different way to cattle. This reflects their characteristic and agile lips which allows them to move slowly over the sward 'nibbling' the grass creating a tight even sward where conditions allow. Their preference for selecting forage is reflected in their ability to leave coarse grass stems and by preferential grazing of particular areas within a larger moorland mosaic. Sheep do favour flowering heads and buds of a broad range of herbaceous plants and their diet will change throughout the year. In upland settings rushes and sedges become an increasingly important dietary choice in late summer though to winter. There is some evidence that heather utilisation by sheep is influenced by the choice of grazing and resting areas within the home range with a seasonal bias towards autumn and winter. Research found that impacts on heather and other dwarf shrubs is greatest in a narrow zone around favoured grass patches. The size and distribution of grass patches, along with the proportion of preferred grass species, greatly influences the overall impact of grazing and its effects. Sheep will favour Bilberry and young regenerating heather in preference to older heather and some breeds will browse saplings (Salix etc.) and light scrub preventing new growth. Even at high (60%) covers heather has been shown to only form a small proportion of a sheep's diet and this may depend on breed specificity. Investigations suggested that Scottish Blackface sheep increased the proportion of heather in their diet in the autumn whereas intakes for Welsh Mountain ewes remained static.

In general sheep find it harder to graze taller vegetation or to penetrate some types of scrub communities in combination with a high density of bramble. They can provide a degree of Molinia control and help to diversify the sward where dead or rank vegetation has been removed by cutting, rolling or swaling. However, unlike cattle their ability to trample coarse vegetation is limited.

It is likely that historically Bodmin Moor supported significant numbers of sheep, as it had become the main centre of the wool - textile industry in Cornwall by 1700. Mills were located around Bodmin Moor at St Breward, Blisland and Advent and there were yarn markets at Bodmin, Liskeard and Launceston. By the late eighteenth century, a factory industry had developed at Camelford and Bodmin but this was

short-lived according to Brewster (Brewster 1975). The wool trade in the West Country declined rapidly as a result of the Napoleonic Wars and increasing competition from other areas of the country notably, Yorkshire and Lancashire. Margaret Leigh (1937) refers to sheep in her book Harvest of the Moor and implies that in the early 20th century cattle were the predominant animal grazing the commons.

Hardy traditional breeds are grazed on the commons and PALs which includes Scottish Blackface (above) alongside Cheviot, Welsh and Swaledale (David Attwell).

Equines

There are no recognised native ponies associated with Bodmin Moor in contrast to the other south west moorlands. They tend to be composite breeds and as a rule are bigger larger framed animals than those associated with Dartmoor. The estimated population on the commons is around 7-800 head which are owned by multiple graziers and managed on a low input extensive system. Breeding mares foal in the spring with offspring weaned in the autumn with the majority sold at dedicated sales at Hallworthy livestock market or Chagford.

Equines graze in a different way to cattle and sheep with teeth that point slightly forward allowing them to crop grass as close to the ground as rabbits (Tolhurst & Oates, 2001). This creates areas of shortly grazed ‘lawns’ amongst taller vegetation. They are selective grazers and are monogastric with fast throughput stomachs and will ideally graze for up to 16 hours within every 24-hour cycle. They are strongly grass based and preferentially graze sweet grasses associated with botanically rich areas avoiding the flowering spikes. Diet may vary throughout the year and most

herds receive minimal supplementary feeding except in exceptional weather events. In moorland settings they will often browse scrub and saplings (leaves and bark) and can forage on species such as rush, bracken and even ‘furze’ or Gorse. Ponies are likely to have more of an impact in wet heath, valley mire, gorse banks and bracken-dominated communities than cattle and sheep.

Moorland ponies tend to be well adapted to their environment and exhibit problem solving behaviours such as breaking ice on frozen water. They will often roam widely in small herds and tend to be more mobile than other livestock in open grazed landscapes. If breeding groups are kept on adjacent lears or commons, they will often form territories which encourages them to regularly roam the boundaries leading to a well dispersed grazing effect. This behaviour can also be seen in sub groups of young colts or fillies where numbers of equines is high.

Livestock Composition and Numbers on Bodmin Moor

Livestock numbers have ebbed and flowed with the story of transhumance, settlement and de-population over thousands of years. Since the 1940s there have been accounts of what is described as ‘over grazing’ often linked to incentives or agricultural subsidies which have catalysed grazing. During the period from 1940 to 1973, sheep numbers increased from 570 to 21.679 (x38 increase). Cattle numbers doubled between 1945 and 1975 and from 1953 to 1974 cattle numbers increased from 2669 to 9503 (x3.5 increase) according to Caroline Brewster in her Synoptic Study of Bodmin Moor. Figures from the Dartington Institute (1984) confirm the increasing numbers of animals on the open moor. In 1953, the stocking density was one cow for every 3.2 HA; in 1964, it was one cow for every 2 HA and by 1969 it was one cow for every 1.6 HA. Cattle numbers have stayed relatively constant over the last 30 years with approximately 8-10,000 suckler cows in the Less Favoured Area (LFA) today. However, sheep numbers have increased from 18,000 breeding ewes to between 30-40000 in the last 30 years (Stewart 2022). There are thought to be about 7- 800 ponies on Bodmin Moor although these numbers fluctuate according to the market for equines.

Cattle and sheep breeds have changed over time and since the turn of the 19th century hardier hill breeds have become increasingly common. Hill sheep such as Scottish Blackface and Cheviots replaced flocks of Devon Longwools, and hardier cattle breeds of Scottish ancestry such as Highland, Aberdeen Angus, Galloway and their crosses replaced Red and Broad-homed Devons. The introduction of hardier breeds and the relaxation of grazing controls at key periods resulted in a seasonal change in stocking practice.

Today the grazing levels are determined by a range of factors not least land entered into an agri-environment agreement or areas with protected site status (SSSI). On Bodmin Moor the picture is complex resulting in a patchwork of grazing levels and periods which by default has created a naturalised mosaic of habitats and vegetation heights (Defra, 22.03.25).

The role of Swaling in grazing management

Burning or 'swaling' of vegetation is often described as a 'traditional' management practice associated with mountain moor, down and heath. It comes from the old English 'swaelan' which loosely translates to 'burn' and is the commonly used term on the south west moorlands (Greeves 2006). The extent of rotationally burned 'heathland' is unique to Britain and Ireland. Contrary to some narratives we know that regulated burning extended back into the medieval period challenging the notion that swaling is a 19th invention associated with sheep grazing and grouse moors. Archaeological evidence suggests that charcoal found in peat profiles on blanket and raised mires may be the result of activity over centuries or even millennia. Published palaeoenvironmental work on Dartmoor analysed peat cores and identified periods of burning form the Mesolithic period to 9th and 10th centuries. More recent records for the Forest of Dartmoor dating from the 14th century refer to fines for illegal burning implying some form of early regulation was used for prescribed practice.

The act of swaling reduces rank and woody vegetation (gorse, saplings etc.) whilst regenerating grassland resulting in a flush of fresh vegetation in the spring following the burn. It also has the perceived benefit of 'cleaning' the ground of ticks and other disease vectors whilst creating a mosaic of vegetation age and type across the common. The practice is overseen by Natural England (on protected sites and agri-environmental schemes) with input from various regulatory agencies and consultees. A set of regulations issued by the Government provides a framework for delivery with activity in the uplands restricted between October 1st and the 15th April The Heather and Grass etc. Burning (England) Regulations 2021 each winter. A best practice guide has been produced by NE for burning in south west England to reflect local environmental conditions. This suggests that burning should aim to cease by 31st March in a normal year to reduce the risk to early nesting birds fdc287_f686c783c4c3428d83469f8daec38cf9.pdf.

The new Labour Government plans to tighten the legislation governing swaling reducing the depth of peat over which burning takes place from 40 to 30cms. They plan to protect all deep peat regardless of protected site status and this should increase protection from 222,000 to 368,000 hectares of England's total 677,250 hectares of deep peat. The approach is being supported by evidence provided by Natural England and it is suggested that prescribed burning would need to be carried out under strict licence issued only where there is a clear need i.e. to reduce wildfire risk. A consultation is planned by Defra, but the timeframe is at present unclear. Peatland burning ban aims to protect wildlife and England's carbon stores | Environment | The Guardian

There are many benefits to swaling in combination with grazing over and above habitat management. These can influence both the presentation of the historic environment and its physical and visual accessibility. Creating a mosaic of vegetation on a common rotates grazing pressure allowing livestock to spread naturally. It can also be used to draw animals into ranker areas of vegetation by 'sweetening' the

grassland and removing the build-up of thatch. This is particularly useful where dominant elements such as Molinia are present which at low densities become unpalatable to livestock for much of the year. There are also wider societal benefits through structured management such as wildfire control and interpretation of surface features such as cultivation ridges. On commons with low stocking levels and where swaling has been banned vegetation structure and loading can be significant. With climate change predictions for drier summer periods wildfire could become a heightened risk for Bodmin Moor. In March 2025 there were over 100 reported wildfires in England alone.

The Role of Three Species Grazing

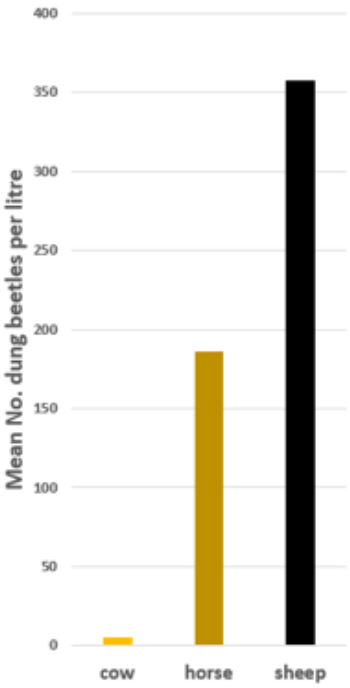
A relatively unique feature of the south west moorlands is the mixed grazing of common land with cattle, sheep and ponies. This practice stretches back until at least the Doomsday period where records highlight that in addition to the three main groups there were also rights to de-pasture pigs and goats.

Name	Ref	Overlord	Ploughlands: Ploughs	Slaves: villeins: smallholders	Wood	Pasture	Demesne livestock
Hamatethy	5.3.22	Mortain	6:4	3: 4: 8	2a	5l x 2l (6,400a)	6 unbroken mares, 6 cattle 40 sheep, 6 goats
Helstone	5.1.4	Mortain	15:12	18: 20: 15	10a	3l x 2l (3840a)	18 unbroken mares, 10 cattle, 150 sheep, 5 pigs, 12 goats
Trenuth	5.6.3	Mortain	4: 2.5	5: 4: 6		30a	1 unbroken mare, 4 cattle, 8 pigs, 73 sheep

Extract from the summary of the Domesday Record for Demesne Livestock de-pastured on the common (see 4.9).

The combination of three species grazing leads to greater complexity in vegetation preference and intensity across both grassland and scrub communities. This can deliver enhanced outcomes dependent on ratios and habitat types. A key factor is the different herd and flock traits between the three species which dictates spatial and forage preferences. An example is how cattle and sheep tend to graze localised areas in comparison to equines who are more mobile and easily dispersed. This leads to greater adaptability and is accentuated by seasonal variation in both habitat use and diet.

Recent research on Dartmoor has also demonstrated the value of three species grazing for dung fauna on common land. A large field study looked at dung beetles on in-bye and commons and quantified the number of beetles per litre of dung by species type. This highlighted the important role of sheep and ponies in bio-abundance and confirmed that dung beetles are specialists with clear preferences for different forms of livestock dung. The implication of this work is the importance of livestock as drivers for wider ecosystem services and the role that heterogeneity plays in livestock management systems. There was also a clear correlation between the use of veterinary medicines and species diversity and abundance in the sampled dung.



The number of dung beetles per litre of dung was established for the three species of herbivore in the study.

- Sheep dung was shown to hold the greatest number of dung beetles at a mean of 358 beetles per litre. Horse dung was next at a mean of 186 and cow 6 per litre.
- These results were from the control site where there is increased likelihood of natural representation. The study site data affirms that this hierarchy is replicated across in the wider data set.

Table showing the total dung beetle abundance for each species of dung

Three species grazing Twelve Men's Moor: cattle (distant), ponies (left) and sheep (foreground and right), Kilmar to left rear (Pete Herring, August 2012).

5 Premier Archaeological Landscapes

5.1 Bodmin Moor's Historic Environment

The Historic Environment resource available to inform and support decision-makers on Bodmin Moor comprises four principal elements.

1 The Cornwall and Isles of Scilly Historic Environment Record (CSHER).

A rich database maintained by the Strategic Historic Environment team at Cornwall Council. Cornwall and Scilly Historic Environment Record

It includes the following.

- Records for individual sites (above and below-ground archaeological remains, buildings and structures, finds locations), each given a unique MCO, Monument Cornwall, number.
- Events records (of archaeological and other related investigations) often with links to reports.
- Both of those linked to and displayed on a GIS map base containing a number of spatial datasets, including
    - a series of aerial photo layers,
    - Aerial Investigation and Mapping plots of archaeological remains detected on aerial photos, Lidar plots and similar sources,
    - historic mapping (Ordnance Survey, 1840s Tithe Apportionment mapping, etc),
    - Historic Landscape Characterisations (Bodmin Moor, Lynher catchment and Cornwall HLCs all include or touch on Bodmin Moor).

2 Statutorily designated heritage assets

These include Scheduled Monuments, those 'added to the Schedule if the Secretary of State [of DCMS] considers that they are of national importance and that the protection which comes with scheduling would assist the monument's conservation'. The Schedule of Monuments is on the National Heritage List for England (also known as 'the List', or the NHLE) (Historic England 2025).

There are hundreds of Scheduled Monuments on Bodmin Moor, many of them added in the 1990s and 2000s as part of the Monument Protection Programme (MPP), which was closely informed by the results of the Bodmin Moor Survey. The process of Scheduling has changed through time so many SMs are discrete sites, like cairns or roundhouses, but others are quite extensive blocks of land where the density of remains regarded as nationally important is such that a single scheduling is more helpful to owners, and decision-makers. Such places on Bodmin Moor include Garrow Tor, the west and south sides of Rough Tor, the extensive prehistoric fields on East Moor, and the mining palimpsests on the northern and southern slopes of Caradon Hill.

The programme of scheduling on Bodmin Moor was closed before completion, leaving large areas un-assessed, and thus lacking statutory protection. Much of the south-western third of the Moor was not included in the MPP, leaving gaps in the southern half of St Breward parish including Brown Willy, and most of Blisland, Cardinham, Warleggan and St Neot parishes see below (6.8), for more on this issue.

Other statutorily designated heritage assets are Listed Buildings (some crosses, boundstones, bridges, industrial remains, etc) and Conservation Areas (those at Minions and Henwood reach onto Bodmin Moor).

3 Cornwall and West Devon World Heritage Site

A World Heritage Site with 10 discrete but thematically linked areas that include, as Area 9 the Caradon Mining District, in the south-eastern corner of Bodmin Moor. It was added to the WHS List in July 2006. The rationale supporting ascription of the WHS status is summarised thus.

'Much of the landscape of Cornwall and West Devon was transformed in the 18th and early 19th centuries as a result of the rapid growth of pioneering copper and tin mining. Its deep underground mines, engine houses, foundries, new towns, smallholdings, ports and harbours, and their ancillary industries together reflect prolific innovation which, in the early 19th century, enabled the region to produce two-thirds of the world's supply of copper. The substantial remains are a testimony to the contribution Cornwall and West Devon made to the Industrial Revolution in the rest of Britain and to the fundamental influence the area had on the mining world at large. Cornish technology embodied in engines, engine houses and mining equipment was exported around the world. Cornwall and West Devon were the heartland from which mining technology rapidly spread' (UNESCO 2006).

4 Premier Archaeological Landscapes (PALS)

The Bodmin Moor Premier Archaeological Landscapes (PALs) were created specifically for the Bodmin Moor Vision and are the result of discussions between heritage professionals working in Cornwall (see 1.1 for 'a short history'). The PALs are coherent landscapes rather than individual features, blocks of land with continuous significant archaeological value with important interrelationships with the topographical landscape and the semi-natural environment of the Moor.

They are all in areas of open access land, as defined by the CROW Act 2000 mapping of open access, which in the main (but not always) equates to common land (see below).

In many cases, the features and landscapes which are demonstrated within the PALs also extend into enclosed land 'inbye' and give the landscape its coherence, by linking it to historic and contemporary pastoral farming practice. The brief for the current project notes a separate aim is to address the management opportunities inherent in reinforcing that link with the inbye land and farming practice through further mapping in the future.

Several discussants have noted that the whole of Bodmin Moor might have been recognised as a single Premier Archaeological Landscape.

- All parts contribute to the character and meaning of a highly important and coherent upland historic environment, that includes the enclosed land (either later medieval ring-fenced tenements or post-medieval intakes) alongside the rough ground.
- The apparently emptier parts (in terms of density of archaeological remains) are important as the prehistoric and historic common lands that were crucial to the communities who lived in the ruined settlements and worked the now abandoned fields.
- And the 'natural', or more accurately the semi-natural environment, principally the ancient semi-natural grassland, is itself fundamentally historic, the 'special qualities' of the Sites of Special Scientific Interest (SSSIs) being derived from prehistoric and historic land use in an area that people had started to transform in the Mesolithic period, more than 6000 years ago.

While it will always be useful to consider the future of Bodmin Moor's pastoral and farming landscape as an historic one, the identification of the 22 individual PALs helps target specific actions at areas that each have a particular history. Developing strategies for both – pan-Moor and PAL-specific – will produce two benefits, a coherent strategy for Bodmin Moor on the one hand and the heterogeneity that the variety of more local histories and futures provides on the other.

It will be noticed that in section 9 that Bodmin Moor is much more heterogenous than its larger eastern neighbour, Dartmoor, where a uniform or homogenous approach has simplified land management and consequently homogenised the character of both landscape and semi-natural environment.

The criteria for selection of the final 22 PAL were, as noted in the Brief, 'based on those adopted by Exmoor National Park in 2004'. They are set out below, with each original criterion in **black and bold**, *and the 2025 commentary in green and italics. This includes aligning each criterion with Heritage and Semi-natural Values (see Section 6 of this report)*.

All the criteria remain sound and so have been retained, though no. 7 has been extended and strengthened. This also means that the delineation of PALs still largely works well, though the review of the PALs' extents has led to suggestions of some adjustments, quite large in just a handful of cases, minor tweaks of boundaries in more, and no-change in the majority. No PALs are recommended for removal. See Appendix 4 for details.

1. Numbers - areas which contain a concentration of a particular type of monument or monument group.

This criterion aims to include areas that are relatively dense with archaeological remains, and to exclude from PALs mapping those areas with few known remains so that the management of those parts of the Moor can be guided primarily by other interests, such as pastoral farming, the semi-natural environment, landscape, and public amenity.

Individual sites beyond PALs would still be protected according to their designation (e.g. Scheduled Monuments, Listed Buildings, Conservation Areas) and their significance, including those sites identified as being of National Importance in the 1990 MPP Appraisal (Rose and Herring 1990). Also, it is expected that a Bodmin Moor Vision informed by the overarching Historic Environment Action Plan will regard the whole of Bodmin Moor as significant for its history, archaeology, pastoral tradition and culture and thus its historically shaped semi-natural environment.

Heritage Values: Evidential; Historical.

2. Associations - where monuments can be shown to be associated with other groups of monuments.

Prehistoric people, in particular, often placed their monuments and their homes in relation to other places that had special meaning to them. They include earlier monuments whose meanings and stories were still important to them, such as Neolithic tor enclosures, or later stone circles and stone rows.

They could also include 'natural monuments' such as distinctive tors, especially Rough Tor and Stowe's Hill, and also Caradon, Brown Gelly and Brown Willy at the pan-Moor level, but also more local tors, like Carburrow, Fox Tor and Kilmar Tor, and others.

Associations could be quite long-range or distant when referencing places that were important to wider communities, such as when people considered the whole of Bodmin Moor or all of east Cornwall, but they could also be more local and so closer.

Medieval people also placed chapels and crosses in key places in the landscape, helping us to appreciate what elements of it they considered especially significant, and how they too had coherent conceptions of the whole landscape.

All of this helps people today to understand how different people of the past were to us, but sometimes also how similar we are to them. We learn about ourselves as well as about our predecessors when we explore the Moor, and it is important that the PALs help people continue to do that.

Heritage Values: Aesthetic; Historical; Evidential.

3. Completeness - areas where the survival of archaeological features is such that a relict landscape of a particular period is preserved in a largely undamaged form.

One of the unusual qualities of the historic environment of Bodmin Moor, where people made full use of the hard-wearing granite, is the excellent survival of above-ground remains that are essentially contemporary with each other and were originally used in conjunction with each other. For example:

- *Suites of early prehistoric ritual or ceremonial monuments, sometimes including dozens of discrete elements.*
- *Prehistoric, medieval and post-medieval farming complexes where houses, farm buildings, fields, pasture boundaries and trackways all survive and enable past ways of making livings from the Moor to be seen and understood. We can enter and leave ruined prehistoric houses through their surviving doorways and walk through their fields and out onto their shared common pastures.*
- *Industrial complexes in which whole processes can be worked out and appreciated, as in tin streamworks, mines, china-clay workings and granite quarrying.*

Heritage Values: Evidential; Historical; Aesthetic.

4. Complexity - where the survival of archaeological features is such that sites of different time periods are preserved, creating a chronology of human use and/or occupation.

This is what archaeologists sometimes call 'time-depth', and the overlapping of remains from different periods creates complexes that landscape archaeologists call 'palimpsests', a word that also means over-writing, from the days when paper was scarce, and people would write in a different hand or colour across earlier texts. In the landscape the writings are the structures and earthworks created at different times as different coherent complexes.

These palimpsests are important because they allow the sequence of distinct episodes of use of the Moor or smaller parts of it to be established and thus the story of human use of the place to be better understood.

Heritage Values: Evidential; Historical; Communal.

5. Special degree of preservation - where the degree of survival of archaeological remains is unusually high.

The condition of remains is often extraordinarily good on the Moor, because of the use of granite and the generally non-intensive use of the rough ground in recent centuries.

But there are still some complexes where the degree of preservation is exceptional, especially for types of place that have typically been swept away in less marginal and thus more intensively changed parts of Cornwall and Britain. Examples include the early prehistoric ritual and ceremonial monuments and the later prehistoric and medieval settlements, fields and pasture boundaries.

And they also include industrial complexes: there are very few coherent patterns of early tin streamworks (with their leats, dams, cuttings, heaps, drains and tinners' buildings) alongside the prospecting and shode working, elsewhere in Cornwall, and hardly any china-clay works that have all their components laid out still, as on the Cardinham Moors.

The remains of stone-splitting, granite quarrying, and turf (peat) cutting and storing all survive so well that explorers can seem to step back into past lives, when they encounter a millstone, almost finished but left when a flaw was found, or where the sharp edges of turf cuttings show them where local farmers came to get their farmhouse fuel.

Heritage Values: Evidential; Historical; Communal.

6. Special or unique to Cornwall - areas which make a special contribution to telling the story of Cornwall's past.

The Cornish are a recognised National Minority and Cornwall is a place that is well-known as being especially distinctive, with a Celtic language and a particular way with the English language, and with an unusually diversified economy in prehistoric and historic times, compared with most other parts of Britain. This may be most obvious in the long practices of metal mining and working, and other extractive industries, but it also extends to particularly Cornish ways of farming, including the emphasis on pastoral farming from at least as early as the later Neolithic period, and more recently in particularly Cornish ways of laying out fields and working within them, and our ways of building boundaries, or hedges, and Cornish and Devon practices of convertible husbandry that intimately integrated the arable and pastoral strands of agriculture.

Recent work on Cornish Distinctiveness has identified two principal strands of distinctiveness. The first is those practices and their remains that are particular to Cornwall or peculiar to it. And the second are those that are typical of it, the ones that Cornish people take for granted as being just normal, but which are the things that contribute most to their sense of place and their sense of identity.

Including both forms of distinctiveness in the identification and celebration of PALs continues to be important.

Heritage Values: Communal; Historical.

7. Contributing significantly to the character of the landscape - where the nature of the archaeology contributes directly to the landscape character.

This is the only criterion for which adjustment is proposed. The relationship between landscape and environment is recognised internationally as being strong – landscape being 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (European Landscape Convention 2000). The PALs criteria address well the two ways that people are

involved in landscape, in the actions that create it and in the perceptions that turn a place into something meaningful.

This criterion reflects the ways that the humanly perceived character of certain places on the Moor is dominated by archaeological remains, and their meaning. Cardinham Moor East, for example, is a landscape dominated by the remarkable remains of china-clay working, and Caradon and parts of the St Cleer commons by copper and tin mining, and West Moor by medieval and later tin streamworking, while Rough Tor, East Moor and several other PALs cannot be enjoyed other than through the filter of the dense scatters of largely prehistoric remains. Still others, like Brown Willy, Garrow and Brown Gelly, have large areas where visitors sense they are in a medieval farming world.

This is also the criterion where more might be made of the role of perceptions of nature, or semi-nature, in establishing a place's character, and, by extension, the role of people in shaping that nature, turning it from nature into semi-nature.

The suggestion is, therefore, to include in the documentation of PALs, if not in the process of their delineation, the significant semi-natural communities that have developed from human actions. Doing so will ensure that our understanding of the development of each PAL can help guide the sustainable management of the semi-natural environment and landscape of it and of the whole Moor.

Heritage Values: Aesthetic; Communal; Semi-Natural.

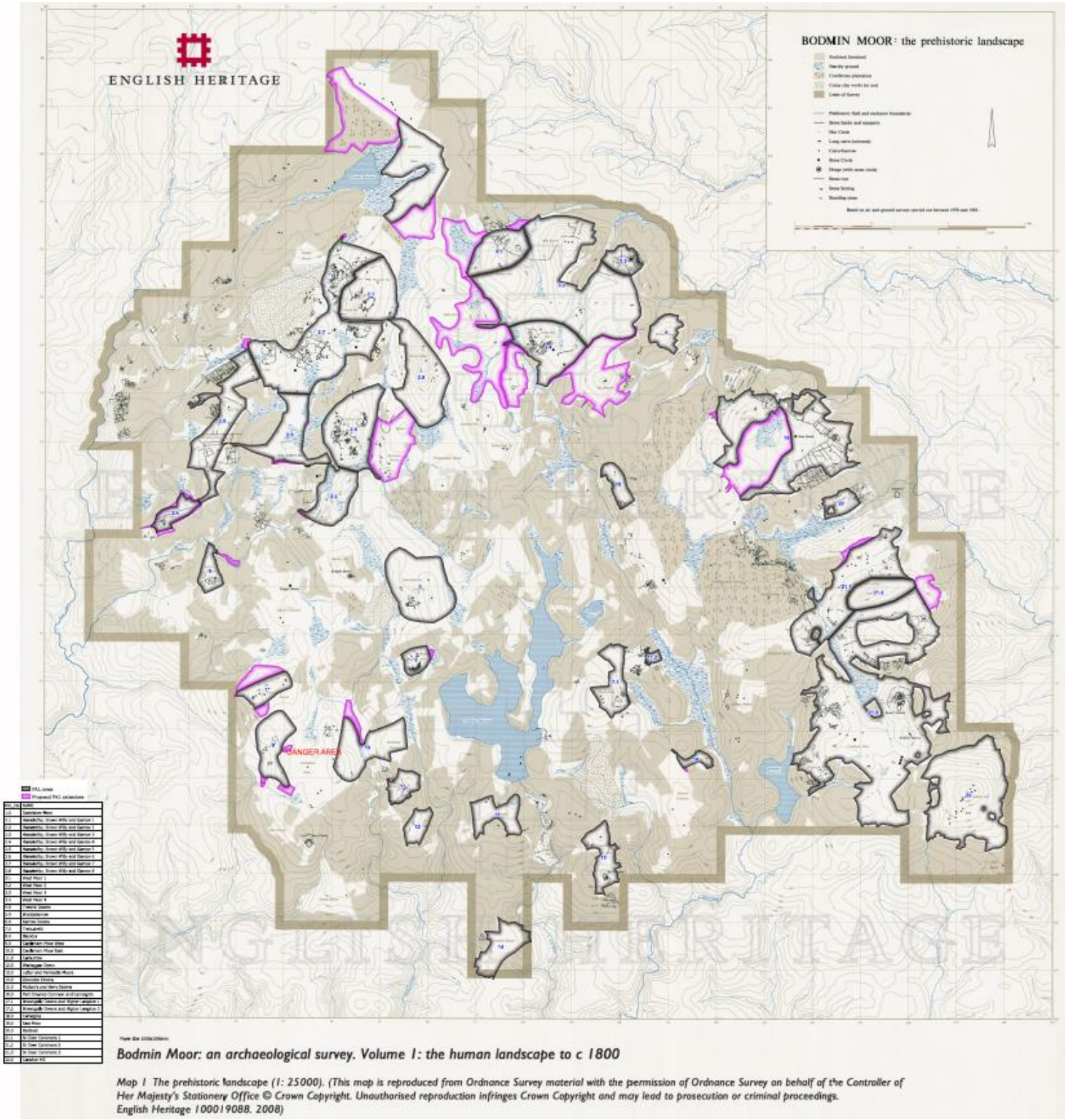
8. Accessibility - where the sites are particularly popular and well known with visitors, school groups and local people.

As noted, all PALs are in Countryside and Rights of Way Act 2000 (CROW Act) open access land, where people have the right to roam. Virtually all the rough ground of Bodmin Moor is such Access land. As this PAL criterion implies, there are some places on the Moor that have become especially popular for visitors, including for educational visits, which often focus on either the archaeological remains or on the semi-natural communities of the Moor. Sometimes known as honey-pot sites, like Minions, Rough Tor, and Delphy Bridge.

As a criterion for identifying PALs, this works well; popular sites are by their nature well-known. It can also work as a stimulus for encouraging wider exploration to parts of the Moor that are rarely visited but which contain fascinating and beautiful places.

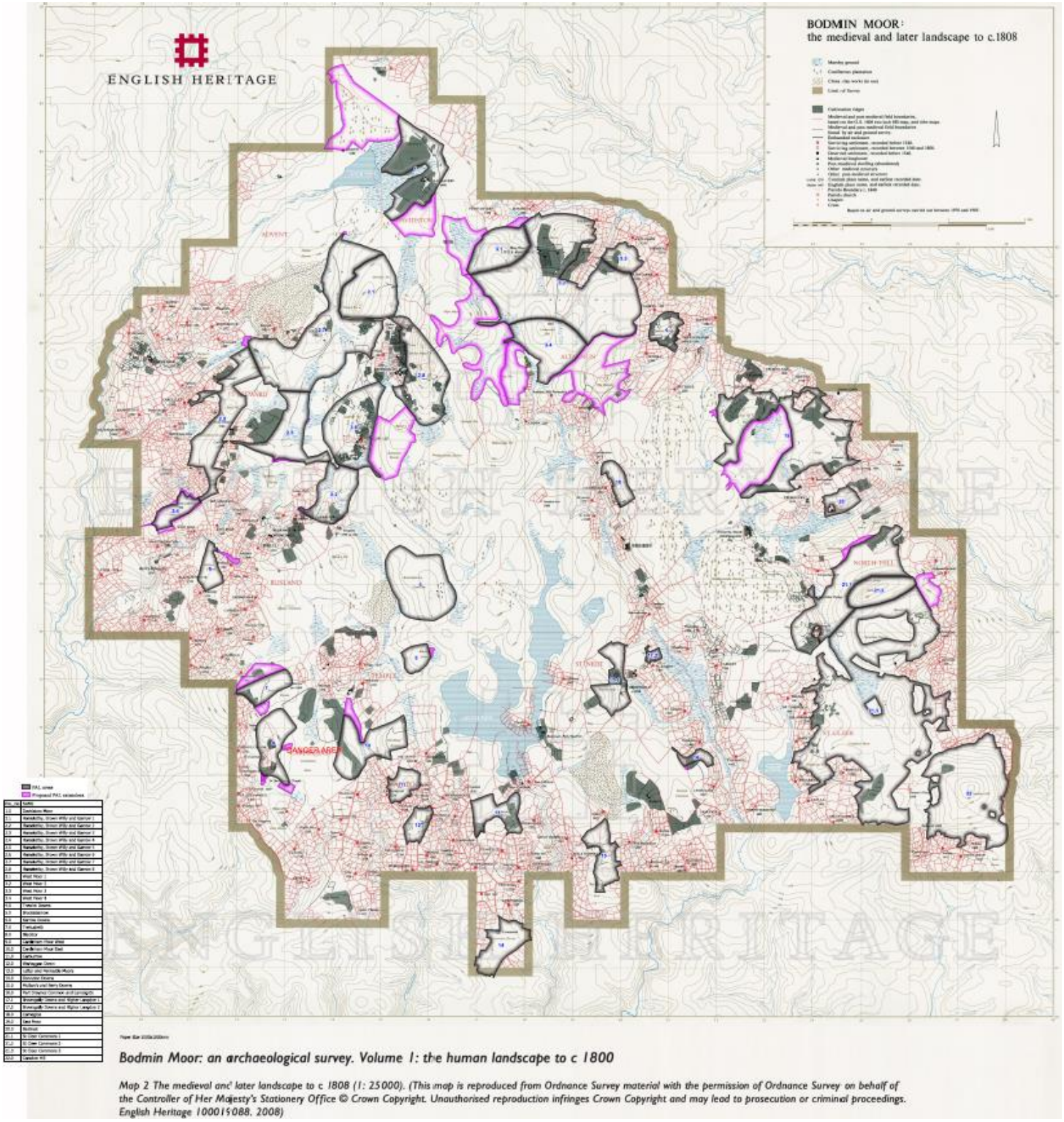
Heritage Values: Communal; Historical.

The three maps that follow show the PALs (polygons with grey outlines) plotted onto the 1:25,000 maps of the archaeology of Bodmin Moor published with the *Bodmin Moor Survey* (Johnson and Rose 1994; Herring et al 2008). They cover the Prehistoric, Historic to c1800, and the Post-medieval and Industrial periods and the maps indicate how PALs include variably dense areas of archaeological remains. Proposed extensions to PALs are shown as pink polygons.



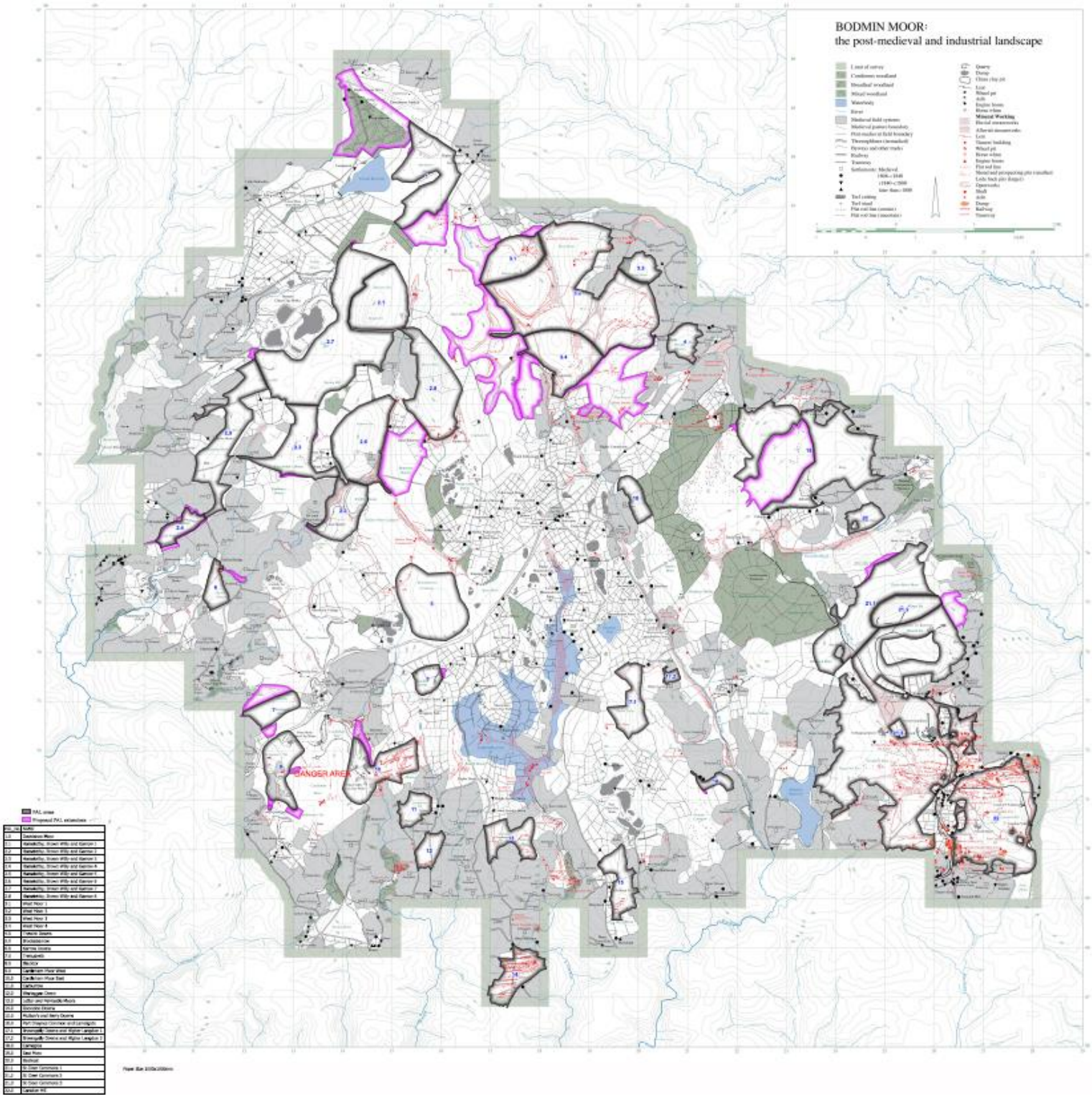
Bodmin Moor: an archaeological survey. Volume 1: the human landscape to c 1800

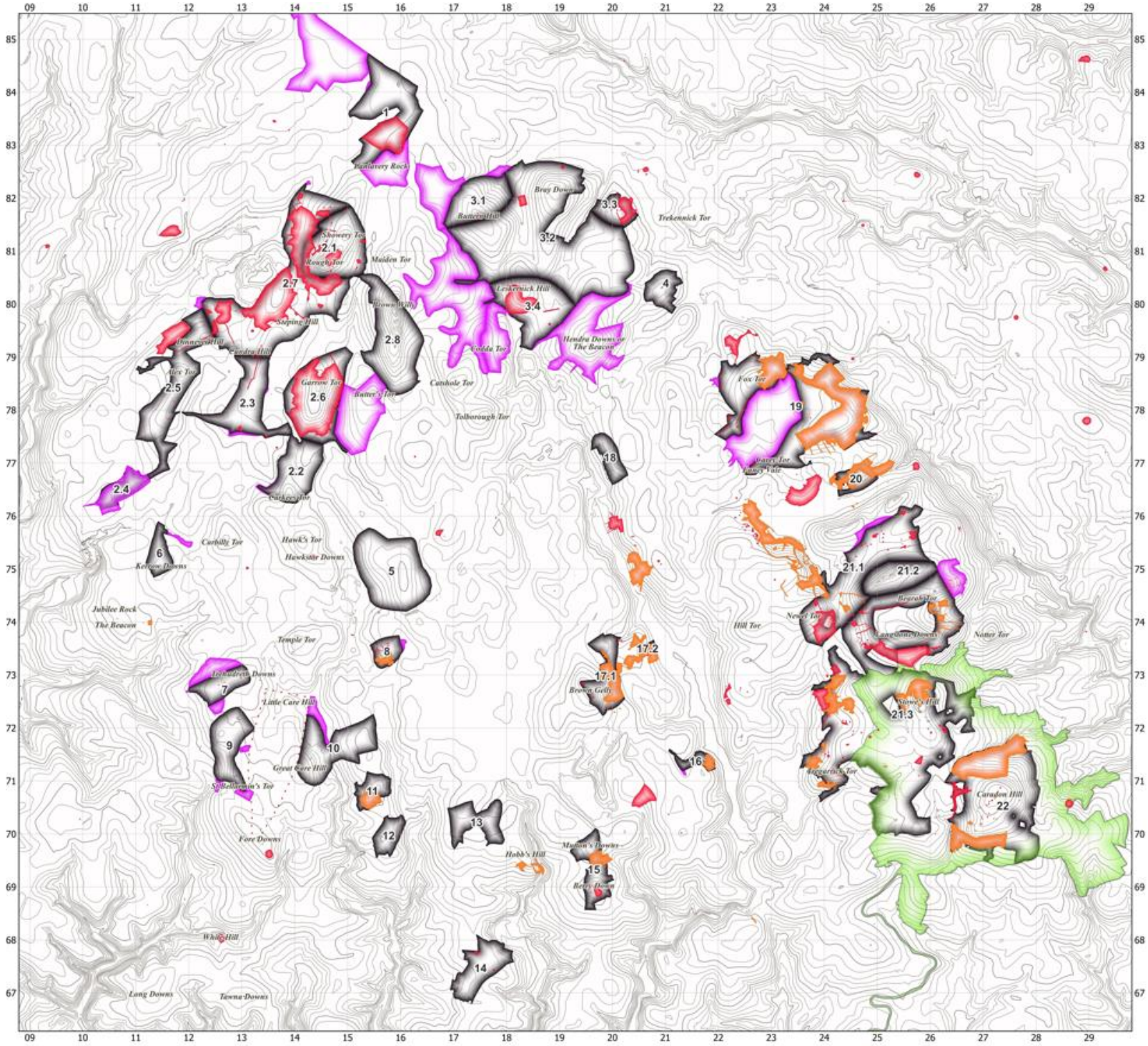
Map 1 The prehistoric landscape (1: 25000). (This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or criminal proceedings. English Heritage 100019088. 2008)



Bodmin Moor: an archaeological survey. Volume 1: the human landscape to c 1800

Map 2 The medieval and later landscape to c 1808 (1: 25000). (This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or criminal proceedings. English Heritage 100015088, 2008)


BODMIN MOOR:
the post-medieval and industrial landscape
RANGER AREA



BODMIN MOOR:
Premier Archaeological Landscapes (PALs):

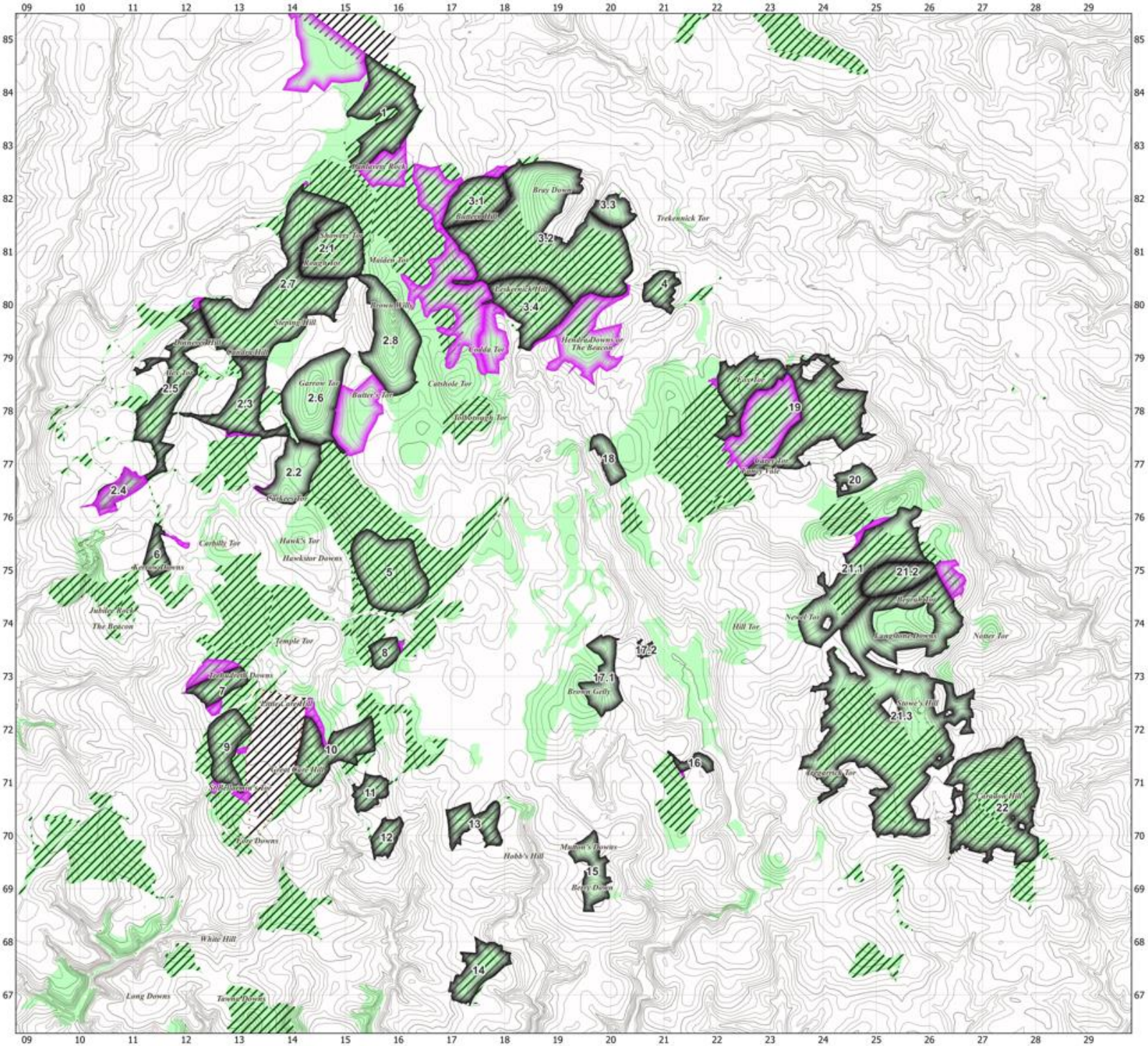
PALs and designated heritage assets (areas)

- PAL Areas
- Proposed PAL extensions
- Scheduled Monuments
- World Heritage Site
- Scheduled Monuments at Risk

0 1 2 3 4 5 6 km

PAL_No	NAME
1.0	Davidstow Moor
2.1	Hamatethy, Brown Willy and Garrow 1
2.2	Hamatethy, Brown Willy and Garrow 2
2.3	Hamatethy, Brown Willy and Garrow 3
2.4	Hamatethy, Brown Willy and Garrow 4
2.5	Hamatethy, Brown Willy and Garrow 5
2.6	Hamatethy, Brown Willy and Garrow 6
2.7	Hamatethy, Brown Willy and Garrow 7
2.8	Hamatethy, Brown Willy and Garrow 8
3.1	West Moor 1
3.2	West Moor 2
3.3	West Moor 3
3.4	West Moor 4
4.0	Trewint Downs
5.0	Brockabarrow
6.0	Kerrow Downs
7.0	Trehudreth
8.0	Blacktor
9.0	Cardinham Moor West
10.0	Cardinham Moor East
11.0	Carburrow
12.0	Warleggan Down
13.0	Letter and Penkestle Moors
14.0	Goonzion Downs
15.0	Mutton's and Berry Downs
16.0	Part Draynes Common and Lamelgate
17.1	Browngelly Downs and Higher Langdon 1
17.2	Browngelly Downs and Higher Langdon 2
18.0	Carneglos
19.0	East Moor
20.0	Bastreet
21.1	St Cleer Commons 1
21.2	St Cleer Commons 2
21.3	St Cleer Commons 3
22.0	Caradon Hill

Mapping designed by www.statement-heritage.com



BODMIN MOOR: Premier Archaeological Landscapes (PALs):

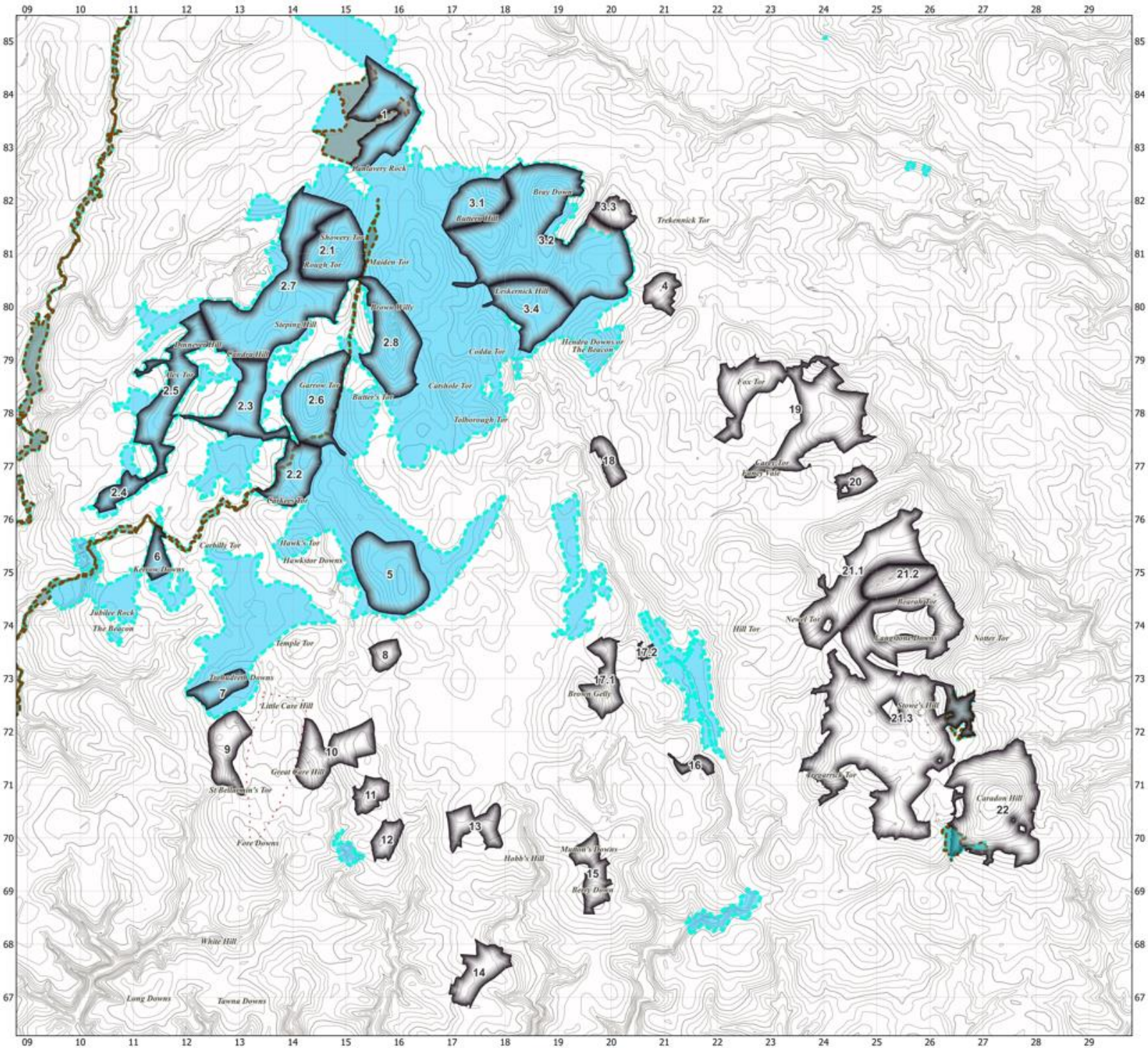
PALs, Access Land and Registered Commons

- PAL Areas
- Proposed PAL extensions
- CRoW Access Land
- Registered Common Land

0 1 2 3 4 5 6 km

PAL_No	NAME
1.0	Davidstow Moor
2.1	Hamatethy, Brown Willy and Garrow 1
2.2	Hamatethy, Brown Willy and Garrow 2
2.3	Hamatethy, Brown Willy and Garrow 3
2.4	Hamatethy, Brown Willy and Garrow 4
2.5	Hamatethy, Brown Willy and Garrow 5
2.6	Hamatethy, Brown Willy and Garrow 6
2.7	Hamatethy, Brown Willy and Garrow 7
2.8	Hamatethy, Brown Willy and Garrow 8
3.1	West Moor 1
3.2	West Moor 2
3.3	West Moor 3
3.4	West Moor 4
4.0	Trewint Downs
5.0	Brockabarrow
6.0	Kerrow Downs
7.0	Trehudreth
8.0	Blacktor
9.0	Cardinham Moor West
10.0	Cardinham Moor East
11.0	Carburrow
12.0	Warleggan Down
13.0	Letter and Penkestle Moors
14.0	Goonzion Downs
15.0	Mutton's and Berry Downs
16.0	Part Draynes Common and Lamelgate
17.1	Browngelly Downs and Higher Langdon 1
17.2	Browngelly Downs and Higher Langdon 2
18.0	Carneglos
19.0	East Moor
20.0	Bastreet
21.1	St Cleer Commons 1
21.2	St Cleer Commons 2
21.3	St Cleer Commons 3
22.0	Caradon Hill

Mapping designed by www.statement-heritage.com



BODMIN MOOR: Premier Archaeological Landscapes (PALs):

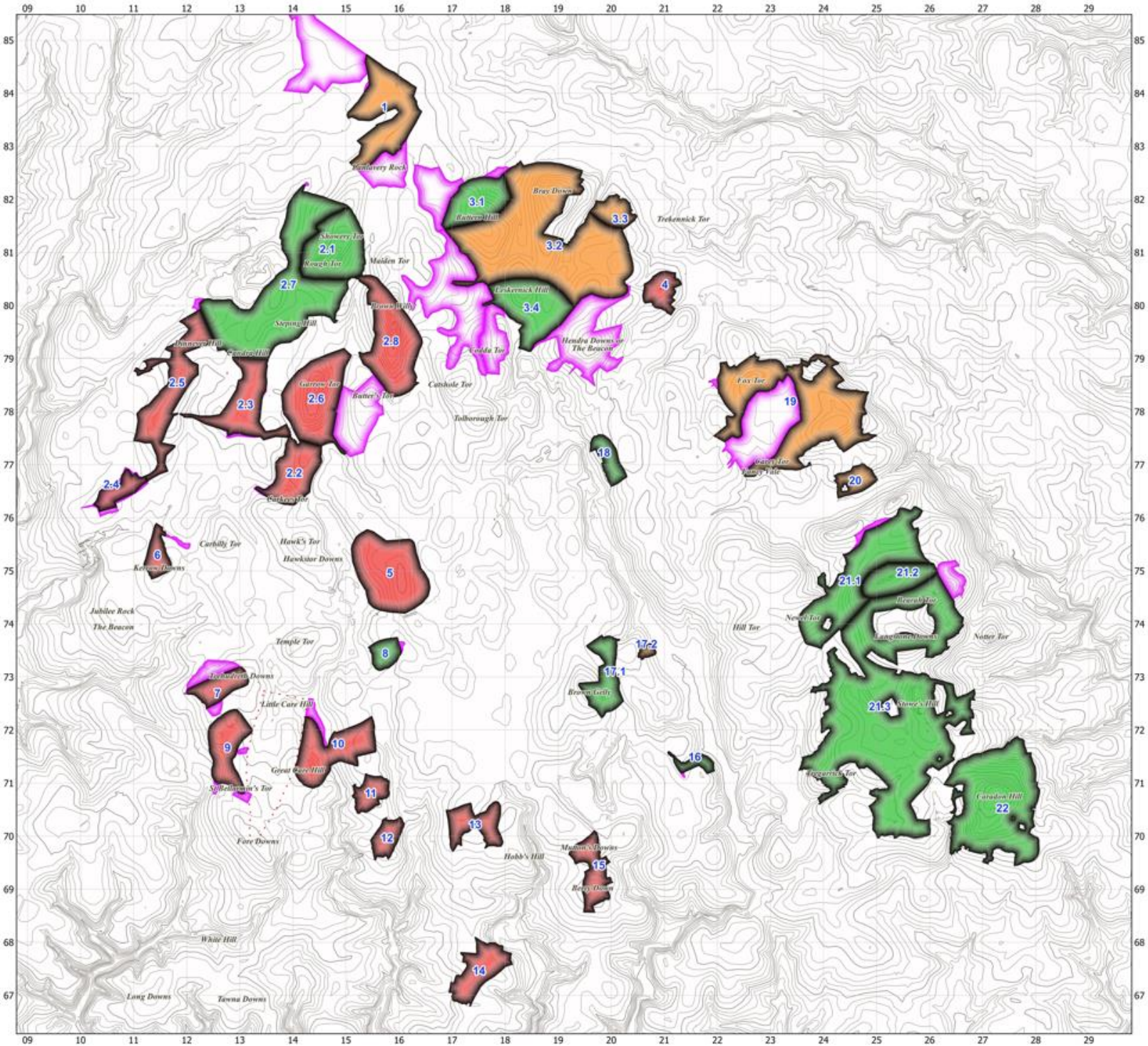
PALs, SSSI and SACs 1:50000 (A2)

PAL Areas
Sites of Special Scientific Interest
Special Areas of Conservation

0 1 2 3 4 5 6 km

PAL_No	NAME
1.0	Davidstow Moor
2.1	Hamatethy, Brown Willy and Garrow 1
2.2	Hamatethy, Brown Willy and Garrow 2
2.3	Hamatethy, Brown Willy and Garrow 3
2.4	Hamatethy, Brown Willy and Garrow 4
2.5	Hamatethy, Brown Willy and Garrow 5
2.6	Hamatethy, Brown Willy and Garrow 6
2.7	Hamatethy, Brown Willy and Garrow 7
2.8	Hamatethy, Brown Willy and Garrow 8
3.1	West Moor 1
3.2	West Moor 2
3.3	West Moor 3
3.4	West Moor 4
4.0	Trewint Downs
5.0	Brockabarrow
6.0	Kerrow Downs
7.0	Trehudreth
8.0	Blacktor
9.0	Cardinham Moor West
10.0	Cardinham Moor East
11.0	Carburrow
12.0	Warleggan Down
13.0	Letter and Penkestle Moors
14.0	Goonzion Downs
15.0	Mutton's and Berry Downs
16.0	Part Draynes Common and Lamelgate
17.1	Browngelly Downs and Higher Langdon 1
17.2	Browngelly Downs and Higher Langdon 2
18.0	Carneglos
19.0	East Moor
20.0	Bastreet
21.1	St Cleer Commons 1
21.2	St Cleer Commons 2
21.3	St Cleer Commons 3
22.0	Caradon Hill

Mapping designed by www.statement-heritage.com



BODMIN MOOR: Premier Archaeological Landscapes (PALs):

PALs and habitat change

Proposed PAL extensions

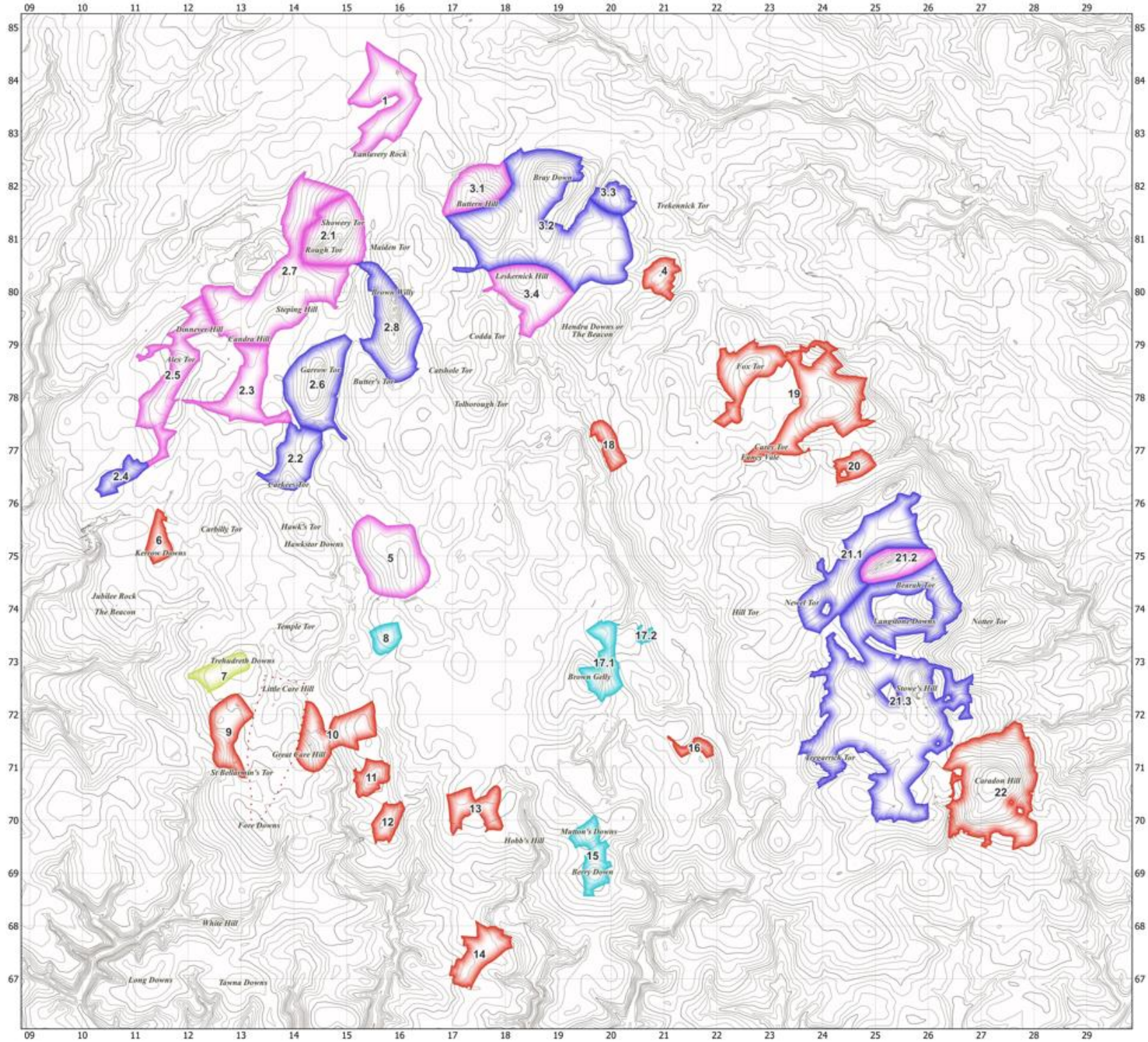
Habitat Change

- Considerable
- Medium
- Little

0 1 2 3 4 5 6 km

PAL_No	NAME
1.0	Davidstow Moor
2.1	Hamatethy, Brown Willy and Garrow 1
2.2	Hamatethy, Brown Willy and Garrow 2
2.3	Hamatethy, Brown Willy and Garrow 3
2.4	Hamatethy, Brown Willy and Garrow 4
2.5	Hamatethy, Brown Willy and Garrow 5
2.6	Hamatethy, Brown Willy and Garrow 6
2.7	Hamatethy, Brown Willy and Garrow 7
2.8	Hamatethy, Brown Willy and Garrow 8
3.1	West Moor 1
3.2	West Moor 2
3.3	West Moor 3
3.4	West Moor 4
4.0	Trewint Downs
5.0	Brockabarrow
6.0	Kerrow Downs
7.0	Trehudreth
8.0	Blacktor
9.0	Cardinham Moor West
10.0	Cardinham Moor East
11.0	Carburrow
12.0	Warleggan Down
13.0	Letter and Penkestle Moors
14.0	Goonzion Downs
15.0	Mutton's and Berry Downs
16.0	Part Draynes Common and Lamelgate
17.1	Browngelly Downs and Higher Langdon 1
17.2	Browngelly Downs and Higher Langdon 2
18.0	Carneglos
19.0	East Moor
20.0	Bastreet
21.1	St Cleer Commons 1
21.2	St Cleer Commons 2
21.3	St Cleer Commons 3
22.0	Caradon Hill

Mapping designed by www.statement-heritage.com



BODMIN MOOR: Premier Archaeological Landscapes (PALs):

PALs by Dominant Habitat

Dominant Habitat
- Dry Acid Grassland
- Dry Acid Grassland and Heath Mosaic
- Dry Acid Grassland with extensive bracken cover
- Purple Moor Grass
- Western Heath Mosaic

0 1 2 3 4 5 6 km

PAL_No	NAME
1.0	Davidstow Moor
2.1	Hamatethy, Brown Willy and Garrow 1
2.2	Hamatethy, Brown Willy and Garrow 2
2.3	Hamatethy, Brown Willy and Garrow 3
2.4	Hamatethy, Brown Willy and Garrow 4
2.5	Hamatethy, Brown Willy and Garrow 5
2.6	Hamatethy, Brown Willy and Garrow 6
2.7	Hamatethy, Brown Willy and Garrow 7
2.8	Hamatethy, Brown Willy and Garrow 8
3.1	West Moor 1
3.2	West Moor 2
3.3	West Moor 3
3.4	West Moor 4
4.0	Trewint Downs
5.0	Brockabarrow
6.0	Kerrow Downs
7.0	Trehudreth
8.0	Blacktor
9.0	Cardinham Moor West
10.0	Cardinham Moor East
11.0	Carburrow
12.0	Warleggan Down
13.0	Letter and Penkestle Moors
14.0	Goonzion Downs
15.0	Mutton's and Berry Downs
16.0	Part Draynes Common and Lamelgate
17.1	Browngelly Downs and Higher Langdon 1
17.2	Browngelly Downs and Higher Langdon 2
18.0	Carneglos
19.0	East Moor
20.0	Bastreet
21.1	St Cleer Commons 1
21.2	St Cleer Commons 2
21.3	St Cleer Commons 3
22.0	Caradon Hill

Mapping designed by www.statement-heritage.com

No.	PAL Name	acres	hectares	Common?	SSSI?	HAR?	Veg change since 2005
1	Davidstow Moor	384	155	Yes	Yes	No	Medium
2.1	Hamatethy, Rough Tor	309	125	Yes	Yes	No	Little
2.2	Hamatethy, Carkees and Scribble	217	88	No	Yes	No	Considerable
2.3	Hamatethy, King Arthur's Downs	274	111	Yes	Yes	No	Considerable
2.4	Hamatethy, Lady Down	87	35	Yes	Yes	No	Considerable
2.5	Hamatethy, Alex Tor and Treswallock	379	153	Yes	Yes	No	Considerable
2.6	Hamatethy, Garrow	384	155	No	Yes	No	Considerable
2.7	Hamatethy, Roughtor and Louden	868	351	Yes	Yes	No	Little
2.8	Hamatethy, Brown Willy	394	159	No	Yes	No	Considerable
3.1	West Moor, Buttern Hill	212	86	Yes	Yes	No	Little
3.2	West Moor, West Moor and Bray	1272	515	Part	Yes	No	Medium
3.3	West Moor, Carne Downs	90	36	No	Yes	No	Medium
3.4	West Moor, Leskernick and Beacon	320	130	Yes	Yes	No	Little
4	Trewint Downs	95	38	Yes	Yes	No	Considerable
5	Brockabarrow	412	167	Yes	Yes	No	Considerable
6	Kerrow Downs	81	33	Yes	Yes	No	Considerable
7	Trehudreth	112	45	Yes	Yes	No	Considerable
8	Blacktor	68	28	Yes	No	Yes	Little
9	Cardinham Moor West	198	80	Yes	No	No	Considerable
10	Cardinham Moor East	289	117	Yes	No	No	Considerable
11	Carburrow	86	35	Yes	No	Yes	Considerable
12	Warleggan Down	79	32	Yes	No	No	Considerable
13	Letter and Penkestle Moors	149	60	Yes	No	No	Considerable
14	Goonzion Downs	182	74	Yes	No	No	Considerable
15	Mutton's and Berry Downs	156	63	No	No	Yes	Considerable
16	Part Draynes Common and Lamelgate	45	18	Part	No	No	Little
17.1	Browngelly Downs	172	70	No	No	Yes	Little
17.2	Higher Langdon	20	8	No	No	Yes	Medium
18	Carneglos	83	34	No	No	No	Little
19	East Moor	802	324	Yes	No	Yes	Medium
20	Bastreet	79	32	No	No	Yes	Medium
21.1	St Cleer Commons, Twelve Men's Moor	547	221	Part	No	Yes	Little
21.2	St Cleer Commons, Kilmar	161	65	Yes	No	No	Little
21.3	St Cleer Commons, Bearah, Craddock, etc	1966	796	Part	Part	Yes	Little
22	Caradon Hill	764	309	Yes	Part	Yes	Little

Summary table of the Bodmin Moor Premier Archaeological Landscapes. Most are commons; many include Sites of Special Scientific Interest; some have Scheduled Monuments that are on the Heritage at Risk Register, and most saw changes since 2005.

5.2 The 2025 review – overview mapping of the PALs

Dan Ratcliffe has deployed Cornwall Council GIS layers to produce a set of overview maps of the PALs, described and discussed here and included above (large format versions are delivered separately with the outputs of this project).

All show the PALs edged in dark grey and most also show the extent of CROW access land.

PALs and Designated Heritage Assets

This map shows the PALs, Scheduled Monuments (SMs), identifying those SMs that are currently on the Heritage at Risk Register, and the Caradon Mining District part of the Cornwall and West Devon Mining Landscape World Heritage Site. It also shows the proposed extensions to the PALs.

It indicates that the PALs include all the significant clusters of SMs that are on Open Access land on the Moor. Only a small number of SMs in Access land are not within a PAL.

The map also shows in a generalised way the areas that were reached by the English Heritage Monument Protection Programme (MPP) campaign on Bodmin Moor (in the 1990s and early 2000s), and those that were not.

Most of the monuments identified as being of National Importance (in Rose and Herring 1990) in the eastern half and north-western fifth of the Moor had been reached, but most of those in the west and south-west had not. The following are the PALs where there is substantial under-representation. The individual PALs texts list all those heritage assets regarded as being of National Importance that have not yet been Scheduled. NB Some of these PALs do include some ‘legacy’ SMs designated prior to the Bodmin Moor Survey.

2.2 Carkees Tor and Scribble Downs
2.4 Lady Down
2.5 Alex Tor and Treswallock Downs
2.8 Brown Willy
3.1 Buttern Hill
3.2 West Moor
4 Trewint Downs
5 Brockabarrow Common
6 Kerrow Downs
7 Trehudreth Down
9 Cardinham Moor, West
10 Cardinham Moor East
11 Carburrow
12 Warleggan Down
13 Letter and Penkestle Moors
14 Goonzion Downs

Through liaison with the CSHER team copies of the mappings prepared to support Rose and Herring 1990, identifying sites regarded as being of National Importance using the then current criteria for Scheduling were supplied to the project team and the relevant entries are listed within the updated PALs texts.

As well as the uneven-ness in the reach of Scheduling on Bodmin Moor, the map shows uneven-ness in the distribution of Heritage at Risk, recorded by Historic England. All of the Heritage at Risk within PALs is south of the A30 and mainly east of the Fowey valley. The efforts of Historic England in improving the condition of Scheduled Monuments that coincide with the northern SSSI led to the removal from the HAR register of Garrow Tor and The Stripple Stones.

PALs in relation to common land and CROW access land

This map indicates that most PAL land is within Registered Common Land. This is important for establishing agency in past and ongoing management. Land outwith the commons is usually in the hands of a single business while that on commons may have separate ownership from occupancy, and the latter is usually multiple, in that most commons still have multiple commoners turning livestock out and having other rights, such as turbary.

The areas that are not in commons are listed below.

- PAL 2, ‘Hamatethy’. Around 75% of the area is common land (Hamatethy Common), but the lands within the ringfences of Brown Willy, Garrow and Carkees and Scribble Downs are not commons.
- PAL 3, ‘West Moor’. Over 75% is common, but those areas within the ringfences of Bray, Cannaglaze and Carne are not.
- PAL16, ‘Draynes Common and Lamelgate’. Most of this land is actually in Lamelgate and is not a common, though the part on Draynes Common is.
- PAL 17, ‘Brown Gelly Downs and Higher Langdon’. These lands are within ring fences and are not commons.
- PAL 18, ‘Carneglos’. This is within a ring fence and is not a common.
- PAL 20, ‘Bastreet’. This is not a common.
- PAL 21. ‘St Cleer Commons’. Around 50% is not registered as common land, on Langstone Downs and Stowe’s Hill, though it had been recorded as Common Pasture on the Linkinhorne Tithe Map.

The mapping of PALs was confined by the base criteria to land that was CROW Access land, so there is a 100% coverage of CROW within PAL. But large parts of Bodmin Moor’s CROW land are not PALs, especially the smaller areas in the centre of the Moor.

Note how the area of modern common meshes well with the modelled commons of early prehistory, the yellow area on the map of prehistoric settlements.

PALs in relation to designated semi-natural environment

Just as there is uneven-ness in the coverage of the Moor in terms of Scheduled Monuments, so there is in relation to statutorily designated and protected natural or semi-natural environment.

See Section 9.13 for discussion on negotiating decision-making where there are multiple statutory designations that indicate national importance or significance.

Almost all of the rough ground to the north of the A30 is a single very large **Site of Special Scientific Interest, Bodmin Moor North** (its notification text is included here as Appendix 3). In summary the significance of this area which extends to 4957 hectares, or 12,248 acres, as drawn from the notification's preamble, is as follows.

'The site is of particular importance as the only upland massif in Cornwall and for the extensive area of semi-natural vegetation, which includes examples of a range of upland plant communities: wet heath, dry grassland, valley bogs, blanket bogs and crags. The area incorporates several catchments each with a range of wetland communities supporting a number of rare and local plants.'

That 'semi-natural vegetation' is, as shown in this report, largely the outcome of several millennia of pastoral practice, and especially of summer grazing.

There are also six smaller SSSIs to the south of the A30, two of which overlap with PALs. Crow's Nest (partly in PAL 22, Caradon Hill) and Phoenix United Mine (partly in PAL 21, St Cleer etc), are SSSIs designated to protect lower plants that have become established on the sites of the two greatest mines of the Caradon Mining District

Crow's Nest SSSI 'is of special interest for its lower plants. Much of the site occupies a small valley in the headwaters of the River Seaton catchment on the edge of the Bodmin Moor granite. The valley and adjacent hillsides are traversed by a series of east-west trending mineral lodes, rich in copper, and some tin ores. Copper mining here dates from about 1830 and continued for over 50 years leaving behind a legacy of old mine buildings, shafts, adits, mine spoil tips, a disused railway and tramways.'

'The mine spoil tips, associated mine buildings, tracks and the stream banks support a specialised flora of rare mosses and liverworts which are tolerant of the high levels of toxic metals, particularly copper. This contamination has severely restricted the growth of vascular plants, favouring colonisation by specialised mosses and liverworts. To date a total of three nationally rare mosses, three nationally rare liverworts and one nationally scarce liverwort have been recorded at Crow's Nest.'

Phoenix United SSSI 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'.

The other SSSIs on Bodmin Moor are **Upper Fowey Valley**, **Dozmary Pool**, **Cabilla Manor Wood** and **Draynes Wood**, the last two being oak woodlands with important shrub layers and lower plants, like liverworts, mosses and lichens, but the Upper Fowey Valley and Dozmary Pool and their surroundings form important areas of semi-natural environment, to varying degrees affected by pastoral farming.

Dozmary Pool SSSI 'an ancient natural moorland lake unique on Bodmin Moor in having shown very little natural succession to bog and marsh. The largest natural freshwater lake in Cornwall and is at an altitude which makes it without parallel in the south-west. The underlying granite yields a nutrient-poor soil which supports a mosaic of acid grassland and heathland in the surrounding areas.

'Dozmary Pool provides an important palynological record of Flandrian vegetation history and environmental change in south-west England. It is a reference locality not only for Bodmin Moor but also as part of a network of key sites for reconstructing wider regional patterns of vegetation history. The pollen record from Dozmary Pool allows important comparisons, and demonstrates strong similarities with other areas on the Atlantic fringe of Europe.'

'The Pool itself is oligotrophic and hence supports a limited but very interesting flora.'

'To the north is Dozmary Downs, an extensive area of wet and dry acid grassland and heathland. It consists of a mosaic, dominated equally by purple moor-grass *Molinia caerulea* and heather *Calluna vulgaris*, with cross-leaved heath *Erica tetralix* in in wetter parts. Other species occurring frequently include lousewort *Pedicularis sylvatica*, western gorse *Ulex gallii*, heath rush *Juncus squarrosus*, carnation sedge *Carex panicea*, green-ribbed sedge *C. binervis*, sheep's fescue *Festuca ovina* and bilberry Vaccinium myrtillus.'

'To the south of Dozmary Pool on steeper drier slopes, the vegetation is dominated equally by bristle bent *Agrostis curtisii*, purple moor-grass, heather and tormentil *Potentilla erecta* with frequent common bent *Agrostis capillaris*, brown bent *A. vinealis*, bell heather *Erica cinerea* and heath milkwort *Polygala serpyllifolia*.'

'In addition, there is to the south-west of the Pool an area of species-rich mire consisting largely of deer grass *Trichophorum cespitosum*, heather, purple moor grass and cross-leaved heath but with an unusually large flush containing abundant bog asphodel *Narthecium ossifragum*, carnation sedge, and the bog mosses *Sphagnum fallax*, *S. palustre* and *S. rubellum*. Associated species include marsh violet *Viola palustris*, common cottongrass *Eriophorum angustifolium*, hare's-tail cottongrass *E. vaginatum*, and the insectivorous round-leaved sundew *Drosera rotundifolia*. Of particular interest is the occurrence of small-fruited yellow-sedge *Carex serotina* and bottle sedge *C. rostrata* both of which species are uncommon in Cornwall.'

‘In a county with few inland pools, Dozmary has considerable value for wildfowl on passage, and as winter visitors. It attracts considerable numbers of coot *Fulica atra*, wigeon *Mareca penelope*, and teal *A. crecca*, and dunlin *Calidris alpina* have nested there. The surrounding moorland provides habitat for breeding stonechat *Saxicola rubicola*, curlew *Numenius arquata*, snipe *Gallinago gallinago* and lapwing *Vanellus vanellus*. Two rare invertebrates have strong populations in the pool, a copepod Diaptomus vierzejskii and a cladoceran Drepanothrix dentata.’

The **Upper Fowey Valley SSSI** lies ‘between Harrowbridge and Westerlake Farms, [where the River Fowey’s] valley widens for some three kilometres. This flood plain has a mosaic of vegetation communities including wet heath, valley mire, acid grassland and willow carr. A high diversity of flowering plants supports a wide range of invertebrates and there is a large number of breeding bird species’ (all quotations taken from SSSI descriptions available through https://mappp.co.uk/search_site/).

See Section 8.1 for discussion of the importance of SSSIs in designing and delivering agri-environment schemes.

5.3 The 2025 review – individual PALs maps and texts

A major element of this project has involved reviewing, updating and elaborating on the relatively brief PALs texts that were rapidly prepared in 2007. Section headings in 2007 were as follows.

- ‘Historic Environment’, a brief summary of the main historic environment features and interest in the PAL. Not comprehensive, and written in a narrative style.
- ‘Natural Environment’, usually a transcription of ‘notified features’ from any relevant SSSI documentation.
- ‘Designations’, confined to national statutory designations, and also confined to historic and natural environment. So, no mention was made of the then AONB, now National Landscape.
- ‘Vision’, sadly usually left blank.

The PALs were also mapped onto GIS in 2007 by Cornwall Council’s Historic Environment Service, but the clipping to base polygons, such as those showing CROW Access land, was variable in its accuracy.

The 2025 review has drawn in supporting data or material to help users of PALs better understand why they were delineated, what they contain in terms of historic environment and how they relate to the environment around them. The texts now provide more comprehensive and detailed material that can be used for guiding decision-making involving PALs. Tightened and enhanced PALs mapping complements and informs the texts and by being created and edited in GIS can be mounted within partner organisations’ own GIS so that richer representations of the 22 PALs inform understanding, thinking and decision-making.

5.4 PALs maps

To underpin and support the 2025 review of the PALs, GIS-based mapping for each PAL was prepared by Daniel Ratcliffe of Statement Heritage. This collated material from the CSHER and other sources, such as the plotting of remains visible on aerial photos and on Lidar, through the Aerial Investigation and Mapping (AIM) layer that serves as a form of base-mapping. To this is added archaeological detail and links to written records via either points or polygons, including the newly created polygons of 'feature groups' in which coherent complexes of contemporary and functionally related items were grouped together. These feature groups were colour coded.

- Red for prehistoric
- Green for medieval
- Dark blue for post-medieval

Individual heritage assets are shown as small circles, again colour-coded by period, as above.

Scheduled monuments are shown with a scarlet surround, or orange if they are currently on Historic England's Heritage at Risk register (see below, section 9.14). Some designations have been omitted as inclusion would make the maps over-busy; for example the World Heritage Site that covers PAL 22 (Caradon) and some of PAL 21, and the Conservation Areas of Minions and Henwood that cover much the same area, though these are delineated on the overview map of heritage designations.

One of the objectives of the review was to make suggestions for adjustments to the extents of PALs, and these proposals were also mapped (see Appendix 4).

5.5 PALs texts

The 2025 texts are arranged as follows.

First a representative photograph, mainly ground photos, but occasionally aerial.

Location, geology and topography

This allows users to get a sense of the marginality of the PAL, and its potential for resilient pastoralism.

Centred

National Grid reference.

Extent

Hectares and acres

Geology

Brief summary, largely drawn from the British Geological Survey Online Viewer.

Topography

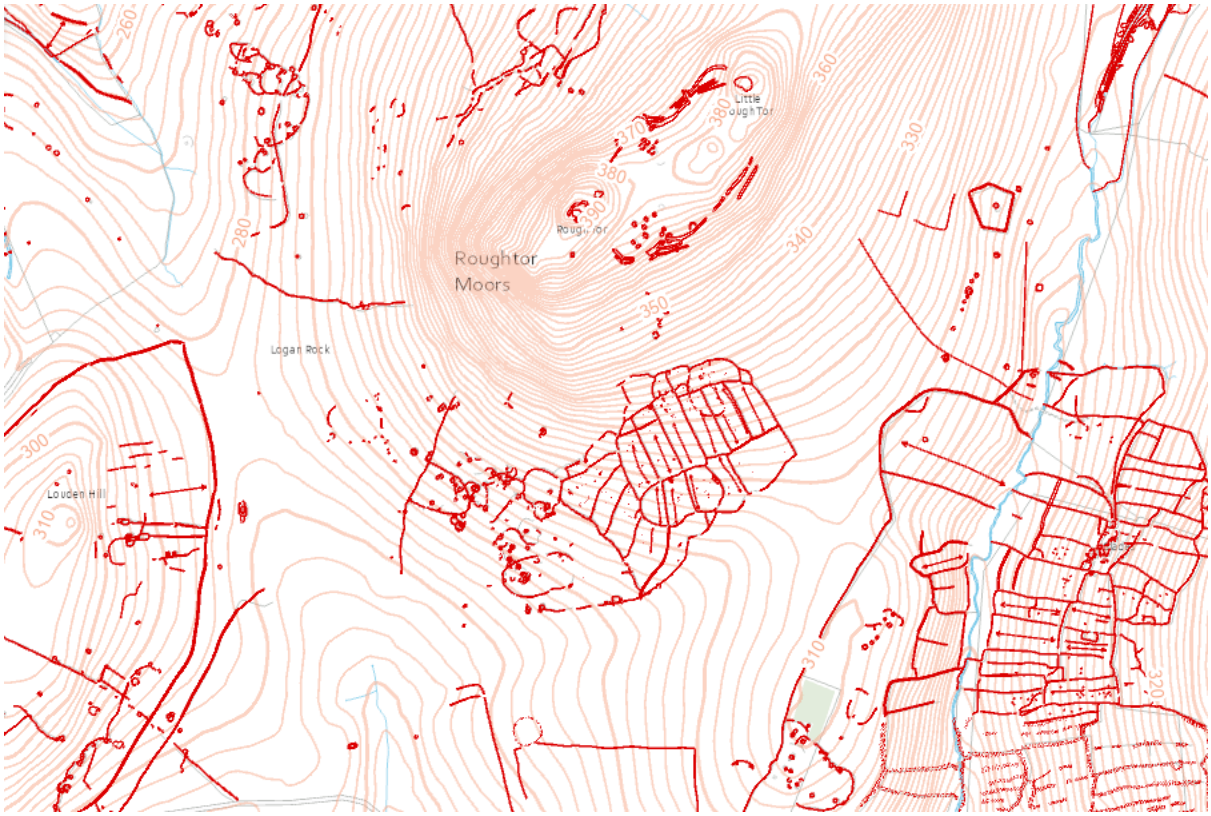
Brief summary, identifying main hills, their summit altitudes, their steepness, whether they include tors, clitter and moorstones, drainage including streams and marshes.

Land use history

An overview of the specific land use history of the part of Bodmin Moor covered by the PAL, contextualised by the narrative presented in Section 4 of this HEAP report. It helps users understand how the archaeological remains and historic character of the APL were developed. The text is structured around the sources drawn from, and has the following subsections.

Pre-1748

Based on archaeological remains, medieval and early post-medieval documentation and place-names, and other relevant sources. This summarises what conclusions about land use can be drawn from archaeological remains, and from place-names and any accessible early documentation. It touches on industrial activity and mixed farming as well as pastoralism.



Extract from the Aerial Investigation and Mapping layer of the CSHER showing an early Neolithic gathering place, the tor enclosures made of closely spaced stony banks, on the summit of Rough Tor. A later Neolithic gathering place in the form of a stone circle stands to its south, and later prehistoric roundhouse settlements with curvilinear enclosures and field systems are on the middle slopes of hills. To the east at Fernacre and Brown Willy there are extensive medieval; strip field systems where crops like oats and rye were grown, and the downlands were also divided into management blocks by long pasture boundaries, also in the medieval period. All

these remains provide direct and indirect evidence for prehistoric and medieval land use, most of which was either purely pastoral, or involved grazing in a pasture-heavy mixed farming economy.

Thomas Martyn's 1748 map

Information on open-ness, hills, places drawn from the meticulously accurate and complete 1-inch to 1 mile map of Cornwall prepared by Thomas Martyn (freely available online via Harvard University).

Extract from Thomas Martyn's 1748 map of Cornwall, drawn at 1 inch to 1 mile (Courtesy of Harvard University). Here the tor topped and clitter strewn hills of Louden and Rough Tor are shown in profile. The open-ness of the land is indicated by the trackways crossing the downs being shown fence-less. This is the first record of the Fernacre stone circle, and the farm houses of Fernacre and Stannon were shown.

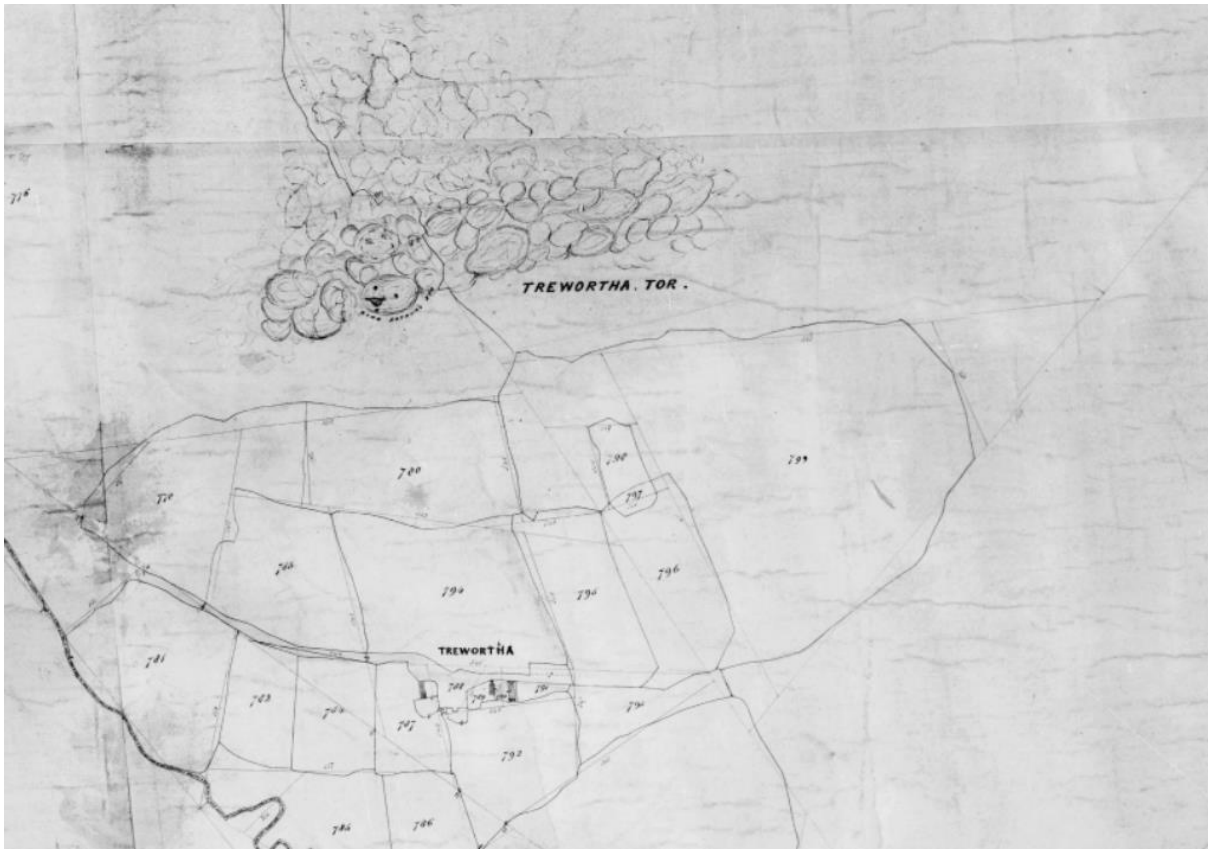
c1810 OS drawing

A second early accurate map of the Moor, at 2 inches to 1 mile, so rather finer-grained than Martyn's map, and undertaken when industrialisation was under way and some intakes were in place. Shows land cover (e.g. rough grassland), settlements, topographical features, names, trackways, industrial complexes, etc.

Extract from the c1810 OS two-inch to 1 mile surveyor's drawing of King Arthur's Downs and Garrow. Showing the textures and tones indicating different forms of coarse pasture, including marshes and downlands. Trackways are shown unfenced and ring fences of farmland impinge on the open moorland. A stone circle is shown being sliced by the field near the centre.

c1840 Tithe Map

Very detailed mapping linked to a detailed apportionment schedule that gives information for each numbered plot on land use (including pasture, coarse pasture, meadow, etc.), owners, occupiers, and whether it was used in common.



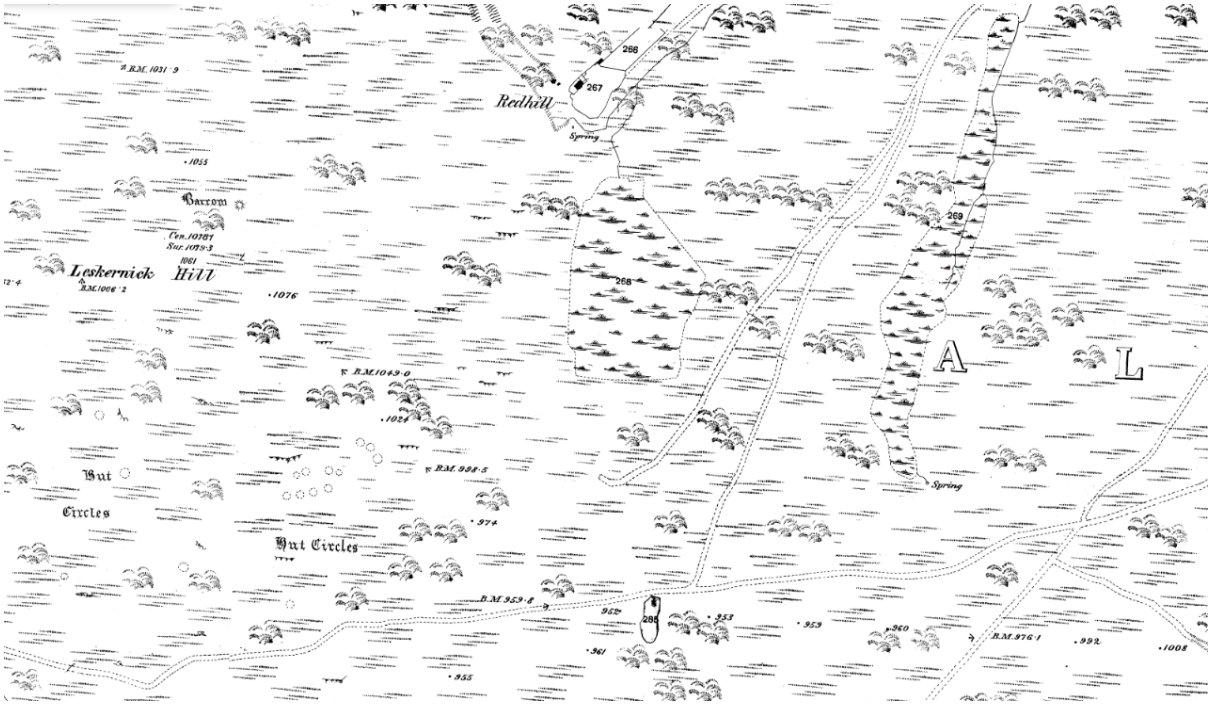
Extract from the North Hill Tithe Map of 1834 showing Trewortha Tor as a mass of boulders and the fields of Trewortha farm, formerly a medieval hamlet. Each field, and each block of rough ground is numbered and links to a detailed description in the accompanying Tithe Apportionment schedule.

c1880 OS map

The first edition of the large-scale, 1:2500 Ordnance Survey mapping. It shows boundaries and structures accurately, including those used by pastoralists and in many cases was the first source to record some of the Moor's prehistoric archaeological monuments, including sites whose low remains would suggest that the land was then quite open for them to have been noticed (roundhouses, or 'hut circles' for example).

Its surveyors and draughtsmen applied national conventions and for all the rough ground on Bodmin Moor they showed a base of coarse grassland, with heath, furze and marshland imposed on this, as would be reasonable for ancient semi-natural grassland. Areas of furze and scrub within that grassland appear to have been reasonably accurately plotted, with some commons having certain areas with mainly grassland and others where the furze is shown in dense clumps. Sometimes those patterns have continued till today.

Depicts tors and clitter and thus portrays the landscape in which people were working and living.



Extract from the 1st edition OS 1:2500 map for Leskernick and part of West Moor in Altarnun. Unfenced trackways, tin streamworks and prehistoric roundhouses are recorded as is the variability in the rough pasture, mainly coarse grassland, but also with variably dense clumps of furze, the variability probably fairly accurately represented.

c1906 OS map

Often little change from the 1882 edition, but records industrial developments and some further intakes form rough ground. Depiction of furze and other vegetation types is less subtle than in 1882.

Modern

Changes since 1906, including those visible on maps, 1946 RAF aerial photographs, more modern ones and on ground photos. Includes memories and oral history.

Historic Environment

Summary of main heritage assets

This draws on the CSHER to list all recorded remains, organised under the following headings, which reflect the principal phases and themes of Bodmin Moor's surviving archaeological remains. References to individual monuments use the MCO (i.e. Monument Cornwall) number of the modern HER. Brief introductions to the types of archaeological sites found on Bodmin Moor, arranged by broad period and theme, are found in Appendix 1.

Prehistoric ceremonial and ritual

Includes sites from these Types:

Early Neolithic: Tor Enclosure, Propped Stone, long Cairn, Bank Cairn, Sacred Enclosure.

Later Neolithic and Bronze Age: Stone Circle, Stone Row, Stone Setting, Menhir, Embanked Avenue, Cairn.

Prehistoric domestic and agricultural

Includes sites from these Types:

Roundhouse Settlement, Prehistoric Field System, with no enclosures or a few small ones, Curvilinear Prehistoric Field System, Rectilinear and Coaxial Prehistoric Field System.

Prehistoric Pasture Boundaries, Iron Age Hillfort, Iron Age or Romano-British Round.

Medieval

Includes sites from these Types:

Pastoral: Transhumance Hut, Drift Pound, Pasture Boundary, Ring Fence, Corn Ditch, Beehive Hut.

Mixed farming: Medieval Farming Hamlet, Longhouse, Corn-drying Barn, Strip Field System, Lazy Beds.

Others: Wayside Cross, Inscribed Stone, Chapel, Holy Well.

Industrial

Includes sites from these Types:

Shode working, Openwork, Lode-back works, Alluvial Streamwork, Eluvial Streamwork, Tinner's building, Mine, Shaft, Adit, Engine house, Wheelpit, Horse Engine Platform, Flat Rod System, Stamping Mill, Crusher, Calciner, Magazine, Smithy, Tramway, Blowing House, Prospecting pit, Dimension Stone Quarry, Proto-industrial Quarry, China-Clay Works,

Post-medieval and modern

Includes sites from these Types:

Turf Stead (group), Turf Cutting, Airfield.

Significance of landscape visibility

For most PALs observations are made on the importance of visibility of features and for complexes of contemporary features the intervisibility between them. This is one of the areas of the PALs texts that requires further work, ideally informed by further field visits.

Semi-natural environment

For most PALs this reiterates the material in the 2007 description. Further work would make clearer the link between the habitats and species with the practice of pastoralism.

Designations

To help decision-makers understand the constraints imposed by designations made by the statutory agencies responsible for aspects of our environment and landscape.

NB As all of the PALs are within the area of the Bodmin Moor part of the Cornwall National Landscape (formerly known as the Cornwall Area of Outstanding Natural Beauty), that designation is regarded as a given. However, its importance needs to be always recognised when working in any of the PALs.

Historic Environment

World Heritage Site

Applies only to PALs 21 and 22 as the WHS on Bodmin Moor is confined to the Caradon Mining District.

Scheduled Monuments

Each is given with their unique identifier, the NHLE number.

Sites considered to be candidates for Scheduling

For those parts of the Moor that were not reached by the Monument Protection Programme project on the Moor, the assessment that was being used to inform it can be drawn from to present those sites that have been assessed as being nationally important (and thus candidates for scheduling) through using the MPP criteria (presented in Rose and Herring 1990).

Conservation Area

Like the WHS the only Conservation Areas that include PALs are in the far south-east of the Moor at Minions and Henwood and include parts of PALs 21 and 22.

Natural Environment

Sites of Special Scientific Interest

See above for details

Special Areas of Conservation

There are just three of these on Bodmin Moor, the streams that form tributaries of the River Camel (including the De Lank River that runs through PALs 1, 2 and 6), and the two areas of mining spoil that are also SSSIs, at Crows nest and Phoenix United Mine.

Common Land

Not a designation as such, but a land status and subject to the customs and rules of the common and the measures introduced through the 1965 Commons Registration Act and the Commons Act 2006.

Public access

CROW land (which all PALs are in by default) and Registered Rights of Way (Footpaths and Bridleways).

Change between 2005 and 2025

Primarily covers changes to land cover as seen when comparing the very clear 2005 Cornwall County Council aerial photography, available via the CSHER online mapping, with the remarkably clear and up-to-date Airbus satellite imagery created in March 2025 as viewed from Google Earth aerial photos.

Also includes signs of erosion (such as from vehicles, livestock and recreation), and any indications that the practice of swaling (burning of molinia and furze to encourage palatable new growth) is increasing or decreasing.

Historic Environment Action Plan

Issues

As identified by the consideration of changes between 2005 and 2025 and the outcomes of David Attwell's discussions with owners, commoners, agencies and others.

Opportunities

How the work undertaken for the HEAP and PALs review can be aligned with other strategies and initiatives, including available ELM prescriptions, to identify opportunities that meet the needs of the historic environment, semi-natural environment and resilient pastoral practice within the PAL under consideration. For most PALs this requires further work and consideration in liaison with agencies, owners and commoners as appropriate.

Recommendations

General approach

Most PALs will be informed by this aim: to retain open ancient semi-natural grassland with easy movement in all directions and especially to keep especially significant archaeological remains clear of invasive, obscuring and damaging vegetation, such as furze and bracken.

Adjusting the extent of the PAL:

Review of the boundaries of the PAL, adhering to the criteria for identifying the PALs with adjustments recommended where appropriate. Most PALs remain unchanged but some have quite significant extensions recommended (Pals 1, 2.6, 3, 6, 7, 19 and 21.3), and many of the remainder have minor tweaks.

Specific ELM options

This subsection has not been included for most PALs as the ELM schemes themselves are still in process of being designed. And it is important to specify ELM options in liaison with owners and as a result of closer attention to issues and opportunities than was possible in this rapid review. Hazarding possibilities on the basis of inadequate information would be more problematic than leaving this until there can be greater certainty.

5.6 Changes to PALs between 2005 and 2025

This rapid review of changes concentrated on alterations to the semi-natural vegetation. It was largely undertaken using desk-based sources. This was largely by comparison of CCC 2005 aerial photography, available as a basemap on the Cornwall and Scilly Historic Environment Record, and the Airbus 2025 satellite imagery as viewed from Google Earth aerial photos, with grateful thanks to all these sources.

1 Davidstow Moor

- Spread of low furze into areas previously dominated by *molinia* grassland, especially to the SW of the medieval fields, between them and Lamlavery Rock.
- Reducing signs of heath fires over the period, contained in places by farmers' tracks.

2.1 Roughtor summit

- Little change on the common.

2.2 Carkees Tor and Scribble Downs (in Blisland)

- Significant increase in furze cover on NW and NE slopes of Carkees and on the west and east slopes of Scribble. Much is now nearly closed canopy on the NW slopes of Carkees, obscuring important archaeological remains and causing livestock to follow narrow passages causing erosion. Becoming nearly closed canopy on the NE slopes too, close to the important medieval settlement remains.

2.3 King Arthur's Downs

- Extensive development of low furze to the NW, N and E of King Arthur's Hall.
- This may develop into dense furze cover, as elsewhere on the Moor.

2.4 Lady Down

- Significant increase in furze cover on all slopes of Bray Down. Much is now nearly closed canopy, obscuring important archaeological remains and causing livestock to follow narrow passages causing erosion.
- Small clumps established by 2005 are now larger and higher, and forming small areas of closed-canopy furze.
- Many small furze plants have emerged in the spaces between and the trajectory appears to be towards closed-canopy furze over much of the down.

2.5 Dinnever Hill, Alex Tor and Treswallock Downs

- Little change on the northern common, N of Alex Tor.
- Significant increase in Western heath cover on all slopes of Treswallock Downs. Some European furze as well as mainly Western Gorse.
- Obscuring archaeological remains.

2.6 Garrow

- Significant increase in European furze lower and middle slopes of western side.
- Smaller areas on southern slopes.
- Some patches cover important archaeological remains.
- Some reduction on roundhouses on western slopes as part of a FiPL project in early 2025.

2.7 Roughtor slopes, Fernacre, Louden Hill and Stannon

- Some increase in furze cover on NW slope of hill with Stannon stone circle.
- Otherwise a complex mix of ancient semi-natural grasslands on one of the archaeologically most significant parts of the Moor.

2.8 Brown Willy

- Some increase in furze cover on NW, E and SW slopes. Some dense, and closed-canopy, obscuring archaeological remains and causing livestock to follow narrow passages causing erosion.
- Furze is also becoming established in many other parts of the hill

3.1 Northern Buttern Hill

- Little change.

3.2 The main part of West Moor

- Little change on the common.
- Significant increase in furze cover on west and north slopes of Bray Down. Much is now nearly closed canopy, obscuring important archaeological remains and causing livestock to follow narrow passages causing erosion.

3.3 The northern part of Carne Down

- Some increase in furze cover.

3.2 The southern part of Leskernick Hill, and parts of Hendra Down and West Moor

- Little change.

4 Trewint Downs

- Increase in furze cover on north slopes of hill, and the merging of its bushes to create closed canopy furze in several places.
- Bracken covers the SE half of the hill now.

5 Brockabarrow Common

- Significant increase in furze cover on west slopes of hill.

- Unfortunately, this is worst at the site of the excellent Bronze Age roundhouse settlement, where there is also significant increase in soft rushes, including in the interiors of several of the roundhouses.
- Hundreds of small furze bushes between the roundhouse settlement and the streamworks to the north. Can expect these to grow and merge and eventually crowd out the grassland.
- Still largely grassland (molinia) on the north and east slopes.

6 Kerrow Downs

- Significant increase in furze cover throughout, despite several campaigns of cutting it back (visible in the 20 years of aerial photography.
- Some of the furze is merging to create a close canopy, preventing livestock moving other than through narrow passages, causing erosion.
- Unfortunately, the worst growth is in the area of prehistoric roundhouses and fields.

7 Trehudreth Downs

- Some increase in furze cover on the NW and W slopes, despite some recent cutting on the W side.
- Some of the furze in the NW slope will soon merge to create a closed canopy, preventing livestock moving other than through narrow passages, causing erosion.
- The stone row is being lost to vegetation, including thousands of small low furze plants. Possibility of extensive furze inundation in a few years' time.
- The growth of the furze is concentrating animal tracking, leading to increased erosion.

8 Blacktor Downs

- Relatively little change; possibly some increase in bracken cover on the prehistoric roundhouse settlement, which is almost totally obscured in summer, but dies back well in winter.
- Possibly more bracken on china-clay works' finger dumps.

9 Cardinham Moor West

- Significant increase in furze cover throughout.
- Some of the furze on the W slope is merging to create a closed canopy, preventing livestock moving other than through narrow passages, causing erosion.
- The stone row is in danger of being lost to furze.
- Many areas appear to have dense low furze, which may become an extensive furze inundation in a few years' time.
- The growth of the low furze is concentrating animal tracking, leading to increased erosion.
- Burn Heath clayworks is becoming overgrown with furze

10 Cardinham Moor East

- Considerable increase in furze cover on the NE slopes of Great Care Hill, and the establishment of dense cover of low furze on other slopes of Great Care,

as well as on lower western slope of Hardhead. Possibility of extensive furze cover in a few years' time.
- Some of the furze on Great Care will soon merge to create a closed canopy, preventing livestock moving other than through narrow passages, causing erosion.

11 Carburrow

- Considerable increase in bracken cover on the lower and midslopes on all sides of the hill.
- Furze cover has not changed greatly.

12 Warleggan Down

- Considerable increase in furze cover in the western half, and the establishment of dense cover of low furze on central ridge. Possibility of extensive furze cover in a few years' time.
- Some of the furze on the west side of the road will soon merge to create a closed canopy, preventing livestock moving other than through narrow passages, causing erosion.
- Trees are continuing to encroach, especially on the lower W,S and E slopes.

13 Penkestle and Letter Downs

- Furze cover on the streamworks and medieval fields in the southern half of Penkestle Moor is so dense that there is extensive closed canopy, preventing livestock moving other than through narrow passages, causing erosion. The streamworks and fields are barely visible, even in winter.
- Some increase in furze cover on western slopes of Letter Moor and that in the northern half has also expanded. Possibility of extensive furze cover in a few years' time, to the great detriment of the semi-natural vegetation and the visibility and condition of the archaeological remains.

14 Goonzion Downs

- Furze cover in all parts of the PAL is increasing rapidly, to the great detriment of the semi-natural vegetation of the ancient semi-natural grasslands that were still significant in 2005, but which were already appearing threatened. And to the detriment of the visibility and condition of the archaeological remains.
- Tif the current trajectory is maintained the common will become largely covered with impenetrable furze, obscuring archaeological remains, its roots affecting below-ground remains and its closed canopy blocking light to other plants. A heterogenous biodiversity will be replaced by a homogenous blanket of furze that makes resumption of grazing difficult and provides few benefits to those who enjoy exploring the common.

15 Mutton's and Berry Downs

- Furze cover on higher and middle slopes of Mutton Down's has increased considerable and on NW and SW slopes has formed a closed canopy. The same applies to the SW slopes of Berry Down.
- Bracken cover has increased considerably on Berry Down
- Tree cover in SE corner of Berry Down increased.

- Area of ancient semi-natural grassland has greatly diminished.

16 Draynes Common and Lamelgate

- Relatively little change.
- Furze in streamworks on Draynes Common has increased.

17 Brown Gelly Downs and Higher Langdon

- Relatively little change on Brown Gelly compared with most other PALs.
- Still largely grassland (molinia) on the higher slopes of Brown Gelly.
- Some poaching of ground immediately N of the extended covered yard at Higher Langdon.

18 Carneglos

- Furze is concentrated on the two prehistoric round house settlements and unfortunately has thickened on both in the last twenty years.
- Otherwise relatively little change.
- Still largely grassland (molinia) on the higher slopes.

19 East Moor

- The establishment of dense stands of furze on the W and E slopes of Fox Tor, on the NW slopes of Ridge, and NW of Startafolds had occurred prior to 2005. The subsequent 20 years has seen them thicken up, becoming closed canopy in parts of Fox Tor and N of Startafolds. Erosion is being caused by livestock tracking through the remaining passages.
- Archaeological remains of important and extensive complexes, such as the two best-preserved Bronze Age coaxial field systems in Cornwall, that had been easily visible in the 1980s, are now obscured and coherent patterns are difficult to observe.
- The stone row and stone circle are also being encroached upon by furze growth.
- Significant increase in erosion caused by vehicles at Industry / Tresellern access to the downs.

20 Bastreet Downs

- The post-war incursion of furze (largely open grassland shown on 1946 RAF photo) has further consolidated in the last 20 years. Large parts of the eastern half of the PAL are now closed canopy furze.
- Livestock numbers and winter grazing have increased the pressure on remaining areas of ancient semi-natural grassland, causing localised poaching, and increasing the erosion caused by heavy livestock forcing their way through narrow passages in the furze and scrub.
- Trees continue to invade in W, S and E parts.

21 St Cleer Commons, Stowe's Hill and Twelve Men's Moor

Twelve Men's Moor

- Relatively little change though furze areas have thickened (especially to E and N of Kilmar)

- Bracken covers much of the eastern third, including Bearah and Sharp Tors and has extended slightly.

Newel Tor

- Some increase in furze cover on south slopes of hill.
- Hundreds of small furze bushes on NW and SE slopes. Can expect these to grow and merge and eventually crowd out the grassland.
- Still largely grassland (molinia) on the N and SW slopes, and grazed grassland in the fields of the post-medieval farmstead.

Craddock Moor

- Relatively little change though furze areas have thickened (especially to SW of Minions around Long Tom).
- Bracken covers much of the slopes of Tregarrick Tor and has extended slightly.

Rillaton Common

- Relatively little change though furze areas have thickened (especially in the Prince of Wales engine house area of Phoenix United mine).

22 Caradon Hill

- Very little change in the extents of bracken and furze, except for a significant incursion of furze on the SE slopes, south of East Caradon Mine, into an area previously dominated by grassland.
- Reducing signs of heath fires over the period, contained in places by farmers' tracks.

6 Character and Significance, HEAP Stage 2

6.1 Introduction

This stage of the development of a Historic Environment Action Plan (HEAP) involves assessment of its subject's character and significance.

This may involve consideration of aspects such as coherence, condition and survival, rarity, evidence for time-depth (phases) and relationships with other features and types including other components of the historic landscape, such as the semi-natural habitats that were formed or influenced by past land use.

For the Bodmin Moor rough ground HEAP such assessments can be nested within each other. For example, we might consider the whole of Bodmin Moor as an entity, as an internationally important historic landscape (see below, 6.9), then each PAL (as is done in the individual PAL documents) and then elements within those, or types of place (like marshes, open commons, enclosures of rough ground, etc) and types of site (as in Appendix 1).

6.2 The Conservation Principles Heritage Values

It is important to consider collective, public and personal perceptions of landscape alongside more expert views when gathering evidence to support decision making. This can be difficult to achieve with limited resources, but the four Heritage Values identified in *Conservation Principles*, a re-working by English Heritage of the main principles in the *Burra Charter* created by ICOMOS Australia provide a reasonably comprehensive, inclusive and manageable approach.

The Heritage Values apply better to landscape and semi-natural environment than the heritage expert-led criteria used in statutory designation (for which see below), and as mentioned they are open and inclusive, allowing non-experts to recognise the way they value places and things. They also enable other concerns, such as recognising and nurturing distinctiveness and character to be accommodated in plans, strategies and policies.

We may explore the four of them through a single place in the heart of the Moor where a modest but possibly medieval clapper bridge crosses the De Lank River between Brown Willy and Butterstor, its primitive structure and its setting, and what we know of them, affect the way we value it, and through it perhaps the whole of Bodmin Moor, aesthetically, historically and communally. And we can also appreciate the evidential value of it, how its function and date help us understand the narrative of this part of the Moor and the whole Moor (see Herring 1986 Vol 2, 65 for details on this bridge).

The bridge between Brown Willy (right) and Butterstor, taken in November 1988 (Pete Herring).

6.3 Aesthetic Heritage Value, and the significance of visibility and intervisibility on Bodmin Moor

'Aesthetic value derives from the ways in which people draw sensory and intellectual stimulation from a place.' CP para 46. **Sensory** is itself inclusive, or plural. When standing on the bridge, we can deploy not just **sight** to appreciate the structure, the stream and the valley it has carved, the hills, the rolling downs, the distant view of the great tors of Rough Tor, but also **hearing** (cattle and sheep, curlews and jet planes, silence), **smell** (clean air, camomile, sheep dung) and **touch** (the rough granite of the laid stones, the rasping coarse grasses and prickling furze) and **feeling** (the wind, the wind, and the wind).

On Bodmin Moor a crucial and relatively rare quality of the place is the freedom of movement that is still there in areas where the ancient semi-natural grassland survives. Here we can still strike out in any direction and enjoy the constantly changing view and the discovery of archaeological and natural features.

We may find what we sense exciting, beautiful, dreary (as such scenes were routinely described in the 18th century), frightening, familiar, boring, and more, all influenced to a degree by what the place means to us. The **intellectual** stimulation can therefore be informed by such **feelings** as well as by what we **know** or are learning about a place's history and its role in **understanding** our personal or

communal past. The Aesthetic shows how all the four Heritage Values interweave and overlap, the Historical and the Communal being particularly relevant here.

The aspects of a place that we find ourselves responding to and valuing may have been **designed** to work in that way, such as in monuments that were carefully formed to work in and with a place, like a circle of stones placed in a ring 4000 years ago on the plain at the foot of the great mountain of Rough Tor, i.e. Fernacre stone circle, less than a mile from the bridge, beyond Fernacre farmhouse.

Or '…they can be the **seemingly fortuitous outcome** of the way in which a place has evolved and been used over time.' CP 47, or '…as the result of **a succession of responses within a particular cultural framework**. They include, for example, the **seemingly organic** form of an urban or rural landscape.' CP 51.

For example, people may be stimulated by the bridge itself, placed here simply because it was on a direct line between A and B, a now ruined farmhouse on Brown Willy and another now-ruined farmhouse at Butterstor beside another bridge that crosses to Garrow and ultimately leads to St Breward churchtown, and by the cascading stream it crosses and the way the first stretch of its passage across the streamside marsh, once used as summer grazing, and containing the low heaps left by medieval tin streamworkers takes the eye towards Rough Tor on the skyline.

Thinking about Aesthetic values in conjunction with the Historical and Communal values also helps us to recognise **the great contribution of the historic environment and historic practices to Bodmin Moor's highly valued landscape character**.

And here and elsewhere consideration of Aesthetic values helps us give weight to the significance of various forms of **intervisibility** within and between complexes, and between those and the landscape and skyscape beyond. Some of the intervisibility of features was **carefully designed** by the creators of monuments. For example, if we walked a couple of miles to the north-east of our bridge, we would be on the plain at the southern foot of Leskernick Hill in Altarnun. Here, if we look carefully, we might find the remains of an Early Bronze Age stone row, 317 metres long, that is rapidly becoming overgrown as a result of recent relaxation of grazing levels.

A few years ago, the line of low stones stood out quite clearly from the closely cropped grass when visited in the early Spring, the time of the year that prehistoric people would have returned with their flocks and herds to the summer grazing land. The stones could still be seen running away from you when walking along it, as they surely were when it was first built, otherwise people would not have been able to use it. The recent vegetation growth has removed an experience of great intensity for those many people with an interest in how prehistoric people in Britain 4000 years ago responded to sites and to landscape.

Archaeologists have walked along the Leskernick stone row and seen how it was carefully designed to produce other visual effects as you do so. Moving from the eastern end to the western, the walk ended where three much larger stones, now fallen, had been set in a row so that they ended at the highest stone, which was set transversely to the line (excavated in the 1990s; Bender et al 2007, figs 4.3 and 4.5). The end stone's jagged top would have mimicked the profile of Brown Willy which rises beyond it. The topmost tors of Rough Tor had emerged over the skyline ahead as a small stream was crossed about 90 metres from the end (Tilley 1995). When the three stones are reached the large cairns on top of Brown Gelly 'suddenly appear from behind rising ground' (see *The Stone Rows of Great Britain* website, Leskernick).

The work of landscape archaeologists over the last 30 years, since the publication of Chris Tilley's *A Phenomenology of Landscape*, a discussion of the importance of re-experiencing the phenomena that earlier people experienced, or created through landscape design, in order to better understand their relationship with place, has transformed our understanding, appreciation and enjoyment of prehistoric Bodmin Moor. All ritual and ceremonial monuments were carefully placed in relation to other meaningful features, either other monuments or significant natural features, like tors, streams, and astronomical events.

Similar arrangements can be seen for **medieval Bodmin Moor**, when wayside crosses were erected alongside ancient trackways, like Long Tom near Minions, and Middlemoor Cross, at the centre of the great Hamatethy Common, or when hilltop chapels were built at the very summit of Rough Tor and St Bellarmin's Tor, and so those who came to pray could also gaze across the whole of the farming landscapes they worked. Early clapper bridges also survive, for example those crossing the De Lank at Brown Willy (above) and the Bedalder at Hardhead, allowing people today to literally follow in the footsteps of predecessors, and see the shape of the medieval or post-medieval world they saw.

Intervisibility is also important for understanding the **functional connections** between parts of complexes, such as farming systems, the positioning of transhumance huts to allow their occupants to look over extensive pastures; the views across strip fields from the longhouses that their farmers lived in; the arrangements of industrial complexes, where good visibility allows people to follow the stages of extraction, dressing and transportation of ores, granite and china-clay.

It is therefore important to ensure that the ability to see and understand these connections or to re-experience prehistoric and medieval designed landscape are not now lost.

6.4 Communal Heritage Value, including the Intangible values and Distinctiveness

‘Communal value derives from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values, but tend to have additional and specific aspects’ and can ‘reflect the meanings of a place for those who draw part of their identity from it, or have emotional links to it’ (English Heritage 2008, paras 54 and 55).

In addition, ‘Social value [a form of Communal Value] is associated with places that people perceive as a source of identity, distinctiveness, social interaction and coherence. Some may be comparatively modest, acquiring communal significance through the passage of time as a result of a collective memory of stories linked to them. They tend to gain value through the resonance of past events in the present, providing reference points for a community’s identity or sense of itself. They may have fulfilled a community function that has generated a deeper attachment, or shaped some aspect of community behaviour or attitudes. Social value can also be expressed on a large scale, with great time-depth, through regional and national identity’ (English Heritage 2008, para 56).

Little imagination is required to appreciate how a bridge that was routinely crossed as part of a person’s, or family’s work, or when going to a parish school, church or chapel, would become filled with significant meanings and memories.

‘The social values of places are not always clearly recognised by those who share them, and may only be articulated when the future of a place is threatened. They may relate to an activity that is associated with the place, rather than with its physical fabric. The social value of a place may indeed have no direct relationship to any formal historical or aesthetic values that may have been ascribed to it’ (English Heritage 2008, para 57).

It will be clear from all of the foregoing that the whole upland area now called Bodmin Moor, and also the distinguishable places within it, like individual commons, hills, or valleys, or home parishes have very considerable communal value as places filled with meanings, with associations that reinforce attachment, distinctiveness (both the typical and the particular forms of **cultural distinctiveness**: see Cornwall Council 2019) that instil senses of place, identity and pride. It is partly through the Communal Value of the Moor, and of its parts, practices and communities of ownership, work and inheritance and ownership that the rich intangible culture of the Moor is recognised and can be expressed and used to guide care, management and conservation.

The customs and rules associated with commoning help to reinforce attachments and to unify practices in that they are applied to all commoners, and so ensure a

degree of conformity in and with traditional knowledge and traditional ways of going about working in and perceiving the essence of the Moor and its component places.

In addition, 'Spiritual value [another form of Communal Value] is often associated with… wild places with few obvious signs of modern life. Their value is generally dependent on the perceived survival of the historic fabric or character of the place, and can be extremely sensitive to modest changes to that character, particularly to the activities that happen there.' (English Heritage 2008, para 60).

'To provide a sound basis for management, the people and communities who are likely to attach heritage values to a place should be identified, and the range of those values understood and articulated, not just those that may be a focus of contention. This involves engaging with owners, communities and specialists with a sufficient range of knowledge of the place, subject to the need for proportionality' (English Heritage 2008, para 66).

There may be three principal communities who would attach considerable Communal Value to Bodmin Moor, in the past, now and into the future.

Communities of Practice, and especially those who maintain or appreciate the culture of pastoralism: the farmers, commoners, landowners, vets, auctioneers, livestock hauliers, and others with an interest in the sustainable economy of grazing.

Communities of Place; those with interest and affection for the Moor as a whole and for those parts of it that are especially significant for them, whether through personal or family connections, forms of work and practice, or through study, knowledge and experience.

Communities of Concern and Sympathy; those who may not have any personal stake in the Moor or parts of it, but who care about the threats to it and the opportunities for improving its condition and resilience, so that the ancient pastoral story it is part of continues to be understood and appreciated, and so that it continues to contribute to sequestering carbon, reducing flood risk, and supporting to biodiversity.

Distinctiveness

Returning to Distinctiveness, we should note that a full assessment of the cultural Distinctiveness of Bodmin Moor is beyond the scope of this report, but the following initial comments may be made.

Two strands of cultural distinctiveness were identified in the recent study: the **Particular** and the **Typical** (Cornwall Council 2019).

Particular Distinctiveness, homes in on those elements of the historic environment that are peculiar to an area within Cornwall or Britain and play a key role in establishing senses of place and identity. The Brown Willy bridge itself, a clapper bridge, itself a local term, is distinctive to the Moor, using the ubiquitous granite slabs as a means of crossing streams. But stepping back from the bridge, we can see

numerous other types of site or structure or landscape that are rare elsewhere in Cornwall, but common to the Moor, particularly distinctive of it.

These range from early prehistoric tor enclosures, stone circles, long cairns, stone rows, standing stones to later prehistoric roundhouses settlements and their enclosures and fields, to early medieval transhumance huts, and later medieval longhouses, streamworks and beehive huts. More recent heritage can also be particular to Bodmin Moor. Turf steads, for example, are also found on the Lizard downs in south Cornwall but hardly anywhere else in the British Isles, and structures like butterwells, sheep creeps, drift pounds, and local styles of stiles and hedging are also peculiar to the Moor.

There is overlap between the two forms of distinctiveness, so that some of the Particularly Distinctive aspects of the Moor are also Typical of it.

Typical Distinctiveness recognises that which is representative of an area, again whether a type, quality or character. Public discourses on what contributes to Cornishness can be resolved into five broad themes that can also be applied to the rough ground of Bodmin Moor.

Language, **Spirit**, **Economy**, responses to **natural topography**, and responses to the **natural environment**.

The following are initial observations on each.

Language

This is most immediately visible in the place-names, which are in both Cornish and English, the former usually the older ones, but the latter no less distinctive of the place. Many relate to the use of the Moor's pastoral economy and practice, and the distinction between commons and more privately held and worked rough ground.

The terms used for areas of shared rough grazing include the most explicitly communal, 'Common' (as in Brockabarrow Common or Draynes Common), but also Downs (as in Roughtor Downs, Scribble Downs and Emblance Downs, which we all commons), Moor (as in West Moor, East Moor, High Moor and Fowey Moor itself, all of which were commons). Some hills were simply called Hill, again when they were also parts of commons, such as Caradon and Louden Hills (both of which also contain the word Down), Stowe's Hill, Buttern Hill, and Leskernick Hill. Other hills, once parts of commons, have names based on Cornish words, like *bron*, 'breast, hill' (Brown Willy, Brown Gelly) or *bre* 'hill' (Bray Down).

Rockpiles on Bodmin Moor were normally named in the English language as tors, though there are a few that derive from the Cornish equivalent, *carn* (Carne, Carneglos) and a few were simply called Rock (as in Greymare Rock, Lamlavery Rock and Black Rock).

Another form of locally distinctive language is the spoken word, the dialect, usually on Bodmin Moor based on the English language, and often related to practice, including that around pastoralism, as well as the various forms of industry. This extends to the words used for equipment, tools and infrastructure.

Spirit

‘The ways we have of relating to place, to each other, to our culture and that of others. From maintaining customs to gathering for ceremonies, festivals, feastings and pleasures, partaking in rituals and religious practices, engaging in raucous and more disciplined sports, composing and retelling stories, creating art and literature, making music and dancing wildly; all these contribute tangibly and intangibly to what it is that makes Cornwall distinctive’ (Cornwall Council 2019).

There is much to be done in retrieving the evidence for such practices on and around Bodmin Moor. Many may be expected to relate to the important times of the pastoral year, when livestock were turned out on the commons and then when they were brought back, around May Day and Hallowe’en.

In addition, there is the spirit that comes from the character created by a local culture, such as that which develops from daily checking of livestock on exposed downlands, encountering or avoiding neighbours, experiencing more vividly than most people in Cornwall do the force of the elements and the distance from comfort and warmth.

Economy

Historically, the Moor has had a fairly simple economy, largely and most continuously based on pastoral agriculture, at times (usually quite short times) more or less thoroughly mixed with arable. Then there have been bursts of industrial activity, usually very short-lived, mainly enterprises that lasted less than a generation, but which have left more vivid traces on the historic environment than practices like summer grazing that have endured for thousands of years. Someone who did not know the Moor’s long story might see ruined mines, great echoing quarries and wide and deep streamworks and believe that this was an industrial landscape, rather than a fundamentally pastoral one. Nevertheless, those industrial remains contribute much to the economic distinctiveness of the Moor, especially the mines, streamworks and the well-preserved clayworks and quarries.

Responses to natural topography

The shapes of hills affects the run-off of water and this means that hills with convex profiles are wetter, peatier and thus usually avoided by those creating fields and settlements (from early prehistory right through to the modern period), where as they are the basis of many of the commons, the dampness contributing to the resilience of grasslands in dry summers. This division of the hills by past and present populations contributes to the Moor’s distinctiveness. Some of its highest and

apparently more marginal hills have the drier concave slopes that have supported roundhouse and longhouse hamlets, places like Rough Tor, Brown Willy and Garrow.

Where they could, people did what would be expected and located their dwellings away from the prevailing winds, but where that was not possible they still sought the subtle folds in the sides of hills that afforded some shelter, exemplified by the roundhouses of Brockabarrow being placed in the only indent on the long western side of the down.

On Bodmin Moor, this form of distinctiveness also reflects the extractive industry's exploitation of the geology's potential, the metalliferous minerals, the granite and elvan and the china clay as well as the rab and hedging stone.

Power too was drawn from the natural topography: the fast streams meant that quite short leats were needed to generate power through overshot water wheels, leading to a different balance between steam and water power to drive the industrial enterprises compared with other industrialised areas of Cornwall.

Responses to the natural environment

The human response to the natural environment of Bodmin Moor has been profound, turning it from wood pastures into ancient semi-natural grasslands four, five six thousand tears ago and then maintaining it as a sustainable resource by levancy-couchancy rules for the following period, until modern pressures took pastoralists away from the strait and the narrow ways that the grasslands required.

From all of this it will be apparent that Bodmin Moor's value lies in part in its distinctiveness, both in itself, and in the particular elements within itself, and as the finest surviving example in Cornwall of a distinctively pastoral landscape, and on eof the most important in the British Isles, given the longevity of that distinctiveness as demonstrated by the rich archaeological remains from all prehistoric, medieval and post-medieval periods.

6.5 Historical Heritage Value

'Historical value derives from the ways in which past people, events and aspects of life can be connected through a place to the present. It tends to be illustrative or associative' (English Heritage 2008, para 39).

'The idea of illustrating aspects of history or prehistory – the perception of a place as a link between past and present people – is different from purely evidential value. Illustration depends on visibility in a way that evidential value (for example, of buried remains) does not' (English Heritage 2008, para 40).

'The historical value of places depends upon both sound identification and direct experience of fabric or landscape that has survived from the past, but is not as easily diminished by change or partial replacement as evidential value. The authenticity of a place indeed often lies in visible evidence of change as a result of people

responding to changing circumstances. Historical values are harmed only to the extent that adaptation has obliterated or concealed them, although completeness does tend to strengthen illustrative value' (English Heritage 2008, para 44).

'The use and appropriate management of a place for its original purpose, for example as a place of recreation or worship, or, like a watermill, as a machine, illustrates the relationship between design and function, and so may make a major contribution to its historical values. If so, cessation of that activity will diminish those values and, in the case of some specialised landscapes and buildings, may essentially destroy them' (English Heritage 2008, para 45).

On Bodmin Moor, the continued use of the commons and other areas of rough grassland for pasture, especially in the summer, and in conjunction with other agricultural uses of inbye land reinforces the Moor's historical value. It does so not just for those who undertake the practice as farmers and commoners and others, but also for those who observe it and see the life it brings to places, and the benefits it provides to ensuring the heterogeneity and health of the semi-natural environment, and in keeping archaeological remains open and visible.

The bridge is also a vivid link to other earlier ways that pastoralist predecessors did things; building a structure apparently without splitting the stones from which it was built, but using skill with stones, and good judgement of the force of the stream and the strength required to withstand it in order to create a bridge that carried and carries large cattle across a stream for several hundred years. And it belonged to those long millennia and centuries when people did not use wheeled vehicles to get around the Moor, but instead walked or relied on taming and riding the native ponies.

6.6 Evidential Heritage Value

‘Evidential value derives from the potential of a place to yield evidence about past human activity’ (English Heritage 2008, para 35).

‘Physical remains of past human activity are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them. These remains are part of a record of the past that begins with traces of early humans and continues to be created and destroyed. Their evidential value is proportionate to their potential to contribute to people’s understanding of the past’ (English Heritage 2008, para 36).

As mentioned, Bodmin Moor contains numerous outstandingly well-preserved and coherent complexes of prehistoric, medieval and industrial archaeological remains.

‘Bodmin Moor is outstanding for the excellent quality of survival of large numbers of monuments representing a wide range of monument classes, with the importance of many of the monuments being enhanced by their context in relict landscapes, or by other associations. Consequently, the area has great potential for providing information about the past, and also has high amenity value’

‘Monuments generally survive well on Bodmin Moor because of the use of granite and because of the relatively non-intensive land use. As a result, the archaeological potential of the monuments is well preserved, and furthermore, detailed information is available from air photography and field survey alone. Because of the quality of survival, some of the best examples of monuments from a range of classes in Cornwall are those found on Bodmin Moor’ (Rose and Herring 1990, 9).

‘Very often, the survival is complete over sufficiently large an area that it is possible to identify "relict landscapes" in the recurring patterns of monuments. In many areas, a succession of monuments of different periods demonstrates the character of the changing land use history. The effect of these associations is cumulative, so that the importance of the whole is greater than the sum of the parts’ (Rose and Herring 1990, 10).

In addition to the archaeological remains, the evidential value of Bodmin Moor resides partly in the survival since the late Neolithic period of a mosaic of largely unchanged and stable semi-natural communities, founded on ancient semi-natural grassland.

There are clear functional relationships between the archaeological remains, those semi-natural communities, and the present-day farming communities. To understand the forms of prehistoric, medieval and modern pastoralism, we can draw evidence from the archaeology and the vegetation communities together. And to plan a sustainable and resilient future for the semi-natural vegetation, today’s and tomorrow’s pastoralists will benefit from a close understanding of the histories of the species of plants and the flora and fauna they support and depend upon.

6.7 Services drawn from the Moor: Ecosystem and Cultural

Additional to the alignment of the historic and semi-natural environment of Bodmin Moor with those four Heritage Values are the several 'services' that the rough ground of Bodmin Moor continues to provide society and contribute to making human life both possible and worth living**.** The Millennium Ecosystem Assessment grouped ecosystem services into four broad categories:

Supporting services, such as nutrient cycling, oxygen production and soil formation. (These underpin, or support, the provision of the other 'service' categories.)

Provisioning services, such as food, fibre, fuel and water. On the Moor these are now largely meat, conifer plantation timber and water (from the three reservoirs and abstracted directly from several streams). But historically the Moor provided a wide variety of goods from varied livestock, crops (oats, pillas, rye), milk, cheese, butter and other dairy products, plus fuel (turf and furze), bedding (ferns, or bracken), basketry (willows), dyes (lichens), bilberries, game, fish, etc.

Regulating services, such as climate regulation, water purification and flood protection. It is increasingly recognised that grasslands and heathlands are substantial sinks for carbon (Plantlife 2023). The bogs, morasses, coarse grasslands and woodlands all contribute to both purifying water and reducing its run-off, reducing the risk of flooding.

Cultural services, such as education, recreation, and aesthetic value. Many people, both local and visiting greatly appreciate or love the ability to explore, find and contemplate the stories and meanings of archaeological remains and the varied and beautiful ecosystems of the ancient semi-natural grassland. That joy is compounded by being able to do so in an open landscape, where intervisibility of remains and contemporary or earlier features and natural monuments like tors is important.

Linked to that, and another aspect of the Cultural services, the Moor is an increasingly valuable educational resource, of importance for showing children (and adults) how people lived in and responded to a landscape at different periods from six, five or four thousand years ago to the 19th century, and for showing how those people created and maintained the semi-natural habitat we manage now.

Much of the value represented by these services is recognised in the numerous statutory and non-statutory designations that reflect the interests of the historic and natural environment and landscape bodies.

6.8 Heritage designations and non-designated heritage assets

The criteria used to establish the 'National Importance' of monuments and sites that is recognised through Scheduling include the following.

- Age and period(s),

- Rarity,
- Documentation,
- Group value,
- Survival/condition,
- Fragility/vulnerability,
- Representativity,
- Potential for future study.

These informed the assessment for English Heritage's Monument Protection Programme (MPP) of the archaeological remains recorded in the Bodmin Moor Survey (Rose and Herring 1990).

The implementation of the MPP was not completed (due to closure of the programme by English Heritage) leaving an uneven-ness in the Scheduling of monuments on Bodmin Moor, with much of the south and west of the moor not being formally assessed by MPP Archaeologists (see 5.2). The ways that complexes of remains were Scheduled also changed during the course of the MPP, so that in some PALs there are scores of small Scheduled areas, each a different monument with its reference number and individual document, such as on Twelve men's Moor, Craddock Moor and Caradon Hill, while elsewhere whole hills or slopes of hills were included as a single monuments, such as Garrow and Louden Hills and the western slope of Rough Tor and the East Moor and Ridge coaxial field system.

The importance of non-designated heritage assets

While it is unfortunate that the whole of the Moor was not completed in the MPP, the comprehensive and systematic assessment, using Scheduling criteria, of the whole of the archaeological resource as recorded by the Bodmin Moor Survey in Rose and Herring 1990 provides the material for identification of 'non-designated heritage assets' (NDHAs) that 'are demonstrably of equivalent significance to scheduled monuments.'

Such 'non-designated heritage assets' (NDHAs) 'should be considered subject to the policies for designated heritage assets' (MHCLG 2024; NPPF para 216 and Footnote 75). Such sites are now sometimes referred to as Footnote 75 sites. Those NDHAs were mapped by Peter Rose and Peter Herring and have been scanned by CSHE and geo-referenced by Dan Ratcliffe and will be supplied back to the CSHER as part of this project's outputs.

It is reasonable for this planning requirement that NDHAs be treated equally to Scheduled Monuments to also apply to the management of the sites by owners, occupiers, commoners and agencies, and especially so in such an important historic landscape as Bodmin Moor.

The mapping of NDHAs on Bodmin Moor should therefore be made available to all those who make decisions regarding the Moor, including owners, commoners, and agencies.

6.9 Bodmin Moor: a statement on the importance of its historic landscape and historic environment

Bodmin Moor is a remarkable historic landscape that may be regarded as being of international significance, in terms of its survival, coherence, and relevance to ongoing environmental issues.

The commons and other rough pastures of Bodmin Moor are among the handful of places in Europe where extensive and clearly visible prehistoric, medieval and post-medieval settlements, fields and pasture boundaries survive alongside contemporary ceremonial and ritual monuments, and also alongside large areas of open or undivided grazing land, the ancient commons.

The ability of the Moor's increasing numbers of visitors to relate these to the natural worlds of tors, hills, marshes and downlands that their Neolithic, Bronze Age and Iron Age creators also experienced further enhances the enjoyment of the historical landscape, especially as these complexes also still stand within the stable semi-natural community of 'ancient semi-natural grassland' whose origins are also found in the Neolithic period, when a wood pasture was transformed into a grassland pasture.

There are then the clear and surprisingly direct functional relationships between the archaeological remains, the semi-natural communities, and the present-day farming communities.

The Moor's archaeological remains and the historic environment they are part of form a highly valuable educational resource, of importance for showing children (and adults) how people lived in and responded to a landscape at different periods from six or five thousand years ago to the 19th century, and for showing how those people created and sustainably maintained the semi-natural habitat we manage now.

Much of this is recognised in the numerous statutory and non-statutory designations that reflect the interests of the historic and natural environment and landscape bodies.

When considering the importance and significance of this all-encompassing historic landscape we can work from the definition of significance given below, drawn from *Conservation Principles* (English Heritage 2008) rather than deploying the more traditional and narrower, expert-led assessment of significance and importance of heritage assets as used in the statutory designation schemes.

'The significance of a place embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it. These values tend to grow in strength and complexity over time, as understanding deepens and people's perceptions of a place evolve.'

7 Changes affecting Bodmin Moor's pastoral landscape, HEAP Stage 3

7.1 Forces for change

1. Changing farming systems and support mechanisms. Two principal outcomes would be either to increase grazing levels or reduce them. Both can be variable, and if as seems likely there will be support for reduction in grazing then the scale of the reduction and the mechanisms for achieving them can be assessed.
2. Externally developed strategies, targets and initiatives driven by the Climate Change and Biodiversity emergencies. And by increased public awareness and pressure re conservation issues.
    a. Tree and woodland planting
    b. Peatland restoration
    c. Wilding, including via Biodiversity Net Gain 'habitat enhancement', managed reserves.
    d. Natural flood management
3. Abandonment and Neglect and ceasing working agriculturally marginal land. Neglect for example on holdings where agriculture is no longer the primary land use. Link to Wilding. Loss of rights to common.
4. Increased public access and recreation. Leading to grazing being abandoned.
5. Development (agricultural improvement, housing, roads, forestry, water provision, sustainable energy)

7.2 Grazing and the Historic Environment

Grazing of the commons and upland rough ground is the main management tool for the Premier Archaeological Landscapes. This is influenced by a broad range of factors which in combination dictate the degree of grazing pressure and the outcomes (positive and negative) for the historic landscape. Some of these are clearly defined, such as administrative or governance tools, whilst others are less predictable including climatic factors and the commodity markets.

The effects of stocking rates based on estimates of vegetation productivity will vary between different sites and years and by region. This will be influenced by factors such as rainfall, soil fertility, habitat communities and management interventions such as swaling. Utilisation of forage as a proportion of biomass on a common is perhaps a more useful metric when determining the appropriate livestock numbers. However, this is rarely used as agri-environment agreements utilise stocking calendars defined by livestock units rather than grazed outcomes. This does not reflect the ways that different grassland types vary in biomass production levels so grazing pressure and seasonal variation are important considerations when setting management objectives.

The Impacts of Lower Grazing Pressure

Low stocking levels in large landscapes can accelerate change in vegetation communities where other management tools are not present, e.g. swaling. This can lead to a zonation of the common and preferential grazing of specific patches where more palatable forage persists. Changes in livestock numbers can also impact the traditional balancing of different herds and flocks creating natural 'vacuums' which draw animals away from sub optimal areas into more favoured sub compartments.

The impacts of lower stocking levels can be summarised as:

View of a Bronze Age roundhouse within the Garrow PAL (2025) showing heavy inundation of western gorse and bracken. Low grazing pressure has not only caused scrub development but resulted in narrowing access tracks with localised erosion (David Attwell, 2025).

Scrub growth

One of the impacts of lower grazing pressure is vegetation change and over time the creation of successional communities such as scrub. Whilst some elements may always be present on a common the relaxation of grazing management allows an opportunity for certain species to become established. On Bodmin Moor the scrub seed-bank includes both European *Ulex europaeus* and Western gorse *Ulex galli* which can dominate large areas and quickly establish in favourable conditions. These blocks then form nursery crops for other woody species including Blackthorn *Prunus spinosa*, Hawthorn *Crataegus monygana*, Grey willow *Salix cinerea* and

Rowan *Sorbus acuparia* often in association with Bramble *Rubus fruticosa* and Ivy *Hedera helix*. Sheltered by the gorse these woody shrubs can take a number of years to establish before expanding into new areas of grassland as a recognised community in their own right.

The speed of establishment is influenced by environmental conditions as well as by soil type and viability of the seed bank. This has narrowed the range of 'successful' scrub species to those that can tolerate acidic conditions often in poor waterlogged soils. There is also some correlation between spatial distribution of certain scrub types and the hydrology of the soil. An example would be European gorse which seems to favour shallow podzolic soils which are characterised by short acidic grasslands.

Other factors which impact on scrub development include species tolerance to low temperatures (frosts and snow) and grazing impacts. At Ivey and Hawkstor Farms both climatic conditions and a large population of Red Deer (Cervus elavus) have contributed to the composition and extent of the scrub community. Conversely the presence of Song and Mistle Thrushes (Turdis viscivorus & philomeles) may well have benefitted from the spread of some shrub species such as Hawthorn and Rowan which remain strong landscape features.

Examples of some of the main scrub communities associated with the PALs areas include the following. (National Vegetation Classification system NVC | JNCC - Adviser to Government on Nature Conservation.)

W23 Ulex europaeus (European gorse) - Rubus fruticosus (Bramble) Scrub

This scrub is dominated by European gorse *Ulex europaeus* with its dark-green, spiny shoots and golden, coconut-scented flowers. In some stands European gorse is replaced by Broom *Cytisus scoparius*. Beneath the gorse and broom there is usually just a sparse and species-poor flora of plants such as Bramble *Rubus fruticosus*, Common bent *Agrostis capillaris* and Bracken *Pteridium aquilinum*. There are three sub-communities (Rodwell 1991).

W25 Pteridium aquilinum (Bracken) - Rubus fruticosus (Bramble) Underscrub

These are stands of Bracken *Pteridium aquilinum* in which the bracken is entangled with Bramble *Rubus fruticosus*. In south-west England Ivy *Hedera helix* is common in this community. There are two sub-communities: one herb-rich, the other species-poor. The Bluebell *Hyacinthoides non-scripta* sub-community W25a is the more herb-rich of the two, and is characterised by woodland species, including Bluebell *Hyacinthoides non-scripta*, Nettle *Urtica dioica*, Hogweed *Heracleum sphondyliu*, Red campion *Silene dioica*, Ground ivy *Glechoma hederacea* and Angelica *Angelica sylvestris*, and tall grasses, such as Creeping soft grass *Holcus mollis* and Cocks foot *Dactylis glomerata*. The less species-rich Wood sage *Teucrium scorodonia* sub-community W25b is distinguished by Wood sage *Teucrium scorodonia* and Cocks

foot *Holcus lanatus*, and there can be some Foxglove *Digitalis purpurea*, Common bent *Agrostis capillaris* and Sweet vernal grass *Anthoxanthum odoratum*.

Bracken supports important populations of Pearl-bordered Fritillary (*Boloria euphrosyne*) and Small Pearl-bordered Fritillary (*Boloria selene*) butterflies.

W22 - Prunus Spinosa (Blackthorn) - Rubus Fruticosus (Bramble) Scrub

Prunus spinosa is generally the sole woody constant and almost always dominant in a consistently species poor canopy. Occasionally found with Ulex europaeus the height of the canopy is rather variable, but generally quite low, well-grown Prunus in sheltered situations typically attaining no more than 4 m and scrub in very exposed places having a cover often less than 1 m. Usually the canopy is closed being especially dense where the trees are wind-pruned. Under shrubs can include Rubus fruticosus agg. and the field layer is characteristically species-poor with plants such as Pteridium aquilinum and sometime a ground carpet of Hedera helix.

Impacts of Scrub Development

Scrub development has a number of potential impacts for the historic environment. These can vary from individual feature condition to inter-visibility at a landscape scale and can be accentuated by interactions with grazing livestock. These can be summarised as:

Trees and Scrub

The character of the relationship between tree roots and archaeology, including the degree of damage caused, depends on a range of context specific factors and the type of archaeological remains. Recent research by the Forestry Commission established the evidence base that tree roots can sometimes damage archaeology. This is characterised by displacing and diminishing the preservation of artefacts and ecofacts, blurring stratigraphic relationships, altering the soil matrix and burial environment and making areas inaccessible for further archaeological study. These impacts tend to be localised and therefore unlikely to negatively affect the overall archaeological interpretation of a site.

Although rooting depths are variable across species most tend to occur within the upper metre of the soil profile. On poorer upland soils (outside the deep peat zone) these horizons can be narrow making archaeological features more susceptible to damage. Tree roots will naturally seek out features such as infilled pits and ditches which are more susceptible to rooting and are often organically enriched relative to the surrounding ‘natural’ sediment (Booth, Champness & Kay, 2024). They actively seek out water sources following the principle of hydrotrophism, which may include targeting organic-rich deposits with enhanced water retention properties.

Tree roots can also ingress masonry structures which are a limited feature of the Bodmin Moor PALs and particularly the historic mining legacy. Typical woodland species such as Clematis *C. vitalba* and Ivy have ‘strangling’ impacts and freely

seeding ruderals such as Sycamore, *Acer pseudoplatanus* and Ash *Fraxcinus excelsior* can establish on wall heads. Conversely tree roots may actively reinforce loose soils, particularly on slopes, through both tensile strength as well as frictional and adhesional properties. Some archaeological sites located on steep, fragile slopes, or which themselves feature sloped deposits vulnerable to erosion (e.g., henge monuments, barrows, hillforts and linear banks), the stabilisation of slopes through the presence of tree cover can lead to increased preservation of the archaeology concerned. This is especially true for fine roots (i.e., those <2mm in diameter) which form a wide spreading root mat within the soil.

The establishment of trees over time, particularly broadleaved species, may increase the number and density of below-ground faunal populations, many of which are highly effective bioturbators. Larger mammals such as Badgers *Meles meles* and Rabbits *Oryctolagus cuniculus* tend to create burrow networks through multiple soil layers causing displacement and upcast and often utilise woodland settings. Conversely, smaller invertebrates, through their far greater numbers will have a much larger effect on soil mixing, in particular the turnover of the whole profile as opposed to the reordering of discrete areas.

The presence of trees and scrub will also attract livestock for the purposes of browse, loafing / shelter and for rubbing. These impacts will be spread where a mosaic of scrub type and age is found on a common or conversely concentrated where not. This can accentuate erosive forces on vertical stems as well as damage to surface monuments, walls and soils. Uprooting events caused by large herbivores or high winds can be particularly disruptive of underlying sediments, in some cases removing large quantities of soil as well as mining rock fragments from the deeper subsoil and bringing them to the surface.

Bracken

Bracken is the most common fern in Britain. It is a long-lived invasive and extensively spreading plant that can grow up to 2.5m in height. This species van form a monoculture which suppresses other vegetation and creates a layer of decomposing litter that is toxic to many other species. Bracken can also impact water quality and contains the toxin *ptaquiloside* which is a carcinogen (NE, TIN047).

Bracken has existed as a component in the landscape for millennia and tends to form either continuous uniform stands or is present as distinct patches in a mosaic with other vegetation types. Factors such as elevation, degree of exposure and hydrology can limit spread alongside its spatial relationship with other habitat types such as woodland and in-bye farmland. On moorland the shape of the upper limit may be defined by topography and exposure whilst the lower limit is defined by the more intensively managed land.

Bracken grows best on deep well drained soils but it will invade acidic grassland with negative impacts on structure and diversity. It has an extensive underground system of rhizomes which is equivalent to the canopy and can penetrate deep into the

ground. Livestock tend to avoid grazing bracken although ponies and cattle will eat young shoots in the spring when forage is short (Fera, 2024). Bracken, when eaten by both humans and livestock, causes its own serious health issues too and is the only higher plant known to cause cancer naturally in animals. It also harbours ticks which spread a range of animal and zoonotic disease taking advantage of the plants humid micro climate in the spring and summer. Livestock will trample fronds and break up litter through the action of foraging which can help to reduce vigour and encourage greater floristic diversity. At certain levels of grazing grassland can be maintained beneath bracken without a significant build-up of litter. These areas can be of value in late summer when other grasslands have become scorched and at certain densities Bracken can have wider biodiversity benefits. In particular, on Bodmin Moor this relates to invertebrates such as the Pearl Bordered fritillary *Boleria eupheosyne* and Small Pearl Bordered fritillary *Bolaria selene* butterflies and some important upland birds such as Whinchat Saxicola rubetra and Small Pearl Bordered fritillary butterflies and some important upland birds such as Whinchat *Saxicola rubetra*.

Bracken has two major impacts on archaeological sites. The first relates to penetration by rhizomes on sub-surface archaeological evidence and the second is its ability to obscures sites. The latter can significantly reduce visual access and interpretation and can result in unintended collateral damage from vehicle or machinery operations.

View of Mutton Down showing an area cleared of bracken following treatment with Asulox in 2014. Note the density of bracken on the slope above (David Attwell).

A heavily bracken infested hut circle on the downs prior to chemical treatment. It's likely that rhizomes will have caused disturbance to soil layers and the paleo environmental record (David Attwell).

Research undertaken by Dr Sandy Gerrard on a roundhouse on Dartmoor proved that that the rhizome system can develop a dense mat at between 20 cm and 40 cm below ground surface (Gerrard and Quinnell 2002). He found that rhizome activity focussed on horizontal layers with the most intense activity at the interface between the archeologically sensitive layers and the topsoil. Beneath this there is a thinner riddling effect between 40 cm and 90 cm. This indicates that all deposits near the surface may be completely destroyed, while the palaeo environmental integrity and content of the underlying deposits will increasingly be compromised. In total 1532 metres of Bracken rhizomes were removed and measured from seven successive layers within a single trench inside the round house.

Molinia

Molinia caerulea is a beneficiary of lower stocking rates and has seen a significant expansion in cover over the past thirty years. The increasing dominance of purple moor-grass Molinia caerulea in heathland ecosystems in the UK is of growing concern due to its detrimental impact on plant and animal diversity on sites of nature conservation interest. Its invasive potential was first noted on abandoned peat bogs in the 1970s as an impediment to their restoration as peat-forming ecosystems. Communities in which Molinia is cited as achieving more than 50% cover include water tracks, wet heaths, blanket mires, valley mires, certain types of grassland and even woodland. In blanket mire it can become dominant in very wet peaty but not anaerobic soils and is described by Rodwell (Rodwell et al 1991-2000) as a

component of M17 blanket mire. It forms its own suite of grasslands listed under the National Vegetation Classification systems as M24, M25, and M26.

Evidence suggests that as well as reduced grazing pressure Molinia responds to air pollution which has an important influence on ecology and landscape in many parts of Britain (Caporn and Emmett, 2009). Nitrogen in particular acts as a fertiliser causing eutrophication (excess nutrient supply), threatening the species balance within those ecological communities that are well adapted to and dominate on poor nutrient soils (Bobbink and Hettelingh, 2010). It is estimated that over the UK, the rate of atmospheric nitrogen deposition ranges from around 5 to over 30 kg N ha-1 y-1. Research into Molinia expansion on bogs and heaths in Netherlands and Germany provides evidence that nitrogen deposition has played a significant role in the invasion of this species into a number of nutrient-poor habitats.

Molinia is only palatable for a short period of time each year in the spring and early summer (May and June) after which its ME value declines rapidly. In situations where grazing stops or is reduced *Molinia* swards can quickly become rank and unattractive to sheep (Taylor et al., 2001) who tend to be more selective. In response to this there is an increasing focus on cattle (Rook et al., 2004), and this is reflected in historic and evolving schemes such as ELM through targeted payments. Body mass and associated allometric relationships with food intake and digestibility mean cattle are more dependent on quantity than quality of vegetation when compared to sheep, and they are less able to graze selectively at a fine scale. In contrast, the selective grazing by sheep of preferred species growing within inter-tussock areas is thought to exacerbate the dominance of invasive species such as *Molinia*. Cattle also tend to trample and damage vegetation more than sheep, which can open up grass-dominated swards and create favourable conditions for seed establishment (Mitchell et al., 2008). Although there is a focus on traditional breeds for conservation grazing research in 2011 by Fraser et al established that utilisation of *Molinia* was similar for the traditional and modern breeds of cattle. There is also evidence from Dartmoor (2017-2019) that concentrated (use of salt block attractors) grazing by moorland ponies reduced the percentage occurrence of Molina and increased the germination of heather Calluna vulgaris seedlings (Lunt et al_FINAL_for circulation.pdf).

A turf stead on the edge of a mire community. These small-scale features are easily lost in Molinia dominated grasslands (David Attwell).

The effects of Molinia on PALs and the historic environment revolve primarily around visibility linked to soils and hydrological conditions. As the grass establishes and becomes rank grazing pressure declines and vegetation bulk and density increase. This quickly obscures slight surface features and in wetter areas where tussocks form can even mask stone settings and low banks. There is no specific evidence for damage through root systems but we do know that Molinia can form a dense mat preventing water infiltration and drying soils. On a number of PAL sites, it is now a dominant community with areas such as King Arthurs Downs and parts of Shallowater badly affected.

Cultural Heritage

Lower grazing pressure is reflected in lower livestock numbers which has implications for commoning and traditional upland farm systems. This includes incentives to modify three species grazing with less sheep and more cattle to tackle evolving issues such as Molinia. The relationship between livestock, commons and the wider community forms part of the intangible heritage on Bodmin Moor and has a

value in its own right. Livestock numbers have been cut significantly over 30 years to levels where allocations to graze within agreements are for some graziers marginal. Balancing environmental and social outcomes is key to retaining heterogeneity within the current pastoral community grazing the PALs.

Visual and Physical Access to the Historic Landscape

One of the main impacts of scrub development is the masking of historic elements by an increase in vegetation height and canopy. The degree of degradation depends on the type and setting of the features but at scale can impact whole field patterns including settlement features.

On Bodmin Moor this is particularly relevant where gorse is present either as single species stand (i.e. European gorse) or as part of a heathland community where Molinia is the dominant grass. The density and height of this community is sufficient to cloak pre-historic boundaries, hut circles and a range of ceremonial monuments including stone rows. Subtler surface features such as turf steads, ridge and furrow and clearance cairns are also compromised in situations where grazing or swaling has ceased. Due to the impenetrable nature of gorse livestock and people tend to utilise narrow access corridors which concentrates footfall. As a consequence, erosion often occurs which can cause damage to archaeological features and in particular on specific soil series. In wet peat conditions this can be significant leading to surface erosion and the creation of permanent scarring. Other communities with a similar impact includes Bracken which can form dense single stands up to 2 metres in height obscuring hill sides in summer and forming a dense ground litter in winter.

Visual interpretation is also compromised by scrub development and this can be at the immediate or local scale. This is particularly relevant for the PALs in the context of the Neolithic period where sight lines between key monuments or tors may be impacted by trees, scrub and other external drivers such as woodland creation on the in-bye farmland.

Erosion, including stone displacement, caused by cattle funneling through narrow passages in European gorse at Bastreet (PAL 20) (Pete Herring, February 2025).

Impacts of Higher Grazing Pressure on PALs

The impacts of higher grazing pressure were best witnessed on Bodmin Moor during the 1970s and 1980s with increased livestock numbers driven by headage payments. Animals were wintered and fed on the commons resulting in poaching and surface damage with localised erosion of some monument types. Since the early 2000's a large area of the designated PALs has been entered into agri-environment schemes. This has regulated livestock numbers through stocking calendars primarily designed to promote great diversity of vegetation composition, age and structure. Undesignated commons which remain outside agreement have continued to be stocked heavily throughout the year allowing a comparison to be made. These include Redhill Downs, Black Tor and East Moor.

Livestock impacts at density are influenced by climatic conditions, seasonality, soils and hydrology, forage and contextual issues (Natural England 2013). These might include proximity to the in-bye and daily management such as supplementary feeding. Changing climatic patterns will greatly influence animal behaviour with periods of drought and intense rainfall likely to increase.

The impacts can be summarised as follows.

Vegetation Structure

As discussed under low grazing scenarios vegetation clearly responds to the degree of pressure and the attributes of the different species involved. Higher density grazing will suppress grasslands and can have impacts on key elements such as dwarf shrub heath. Through the action of trampling larger animals such as cattle and ponies can reduce scrub and bracken and reduce foliage of problematic species such as Molinia. Sheep and ponies will create tightly grazed swards at higher stocking densities in contrast to cattle who will forage and browse over wider areas. There are also impacts for trees and woodlands depending on species and density of stocking. It would be fair to say that the PALs generally benefit from lower tighter swards and in particular certain monument types that are easily lost as vegetation loading increases.

Surface Erosion

This can be very damaging for some archaeological typologies and in particular historic field systems. Cattle and ponies tend to cause greater damage than sheep although all three species can have localised impacts. This is often noticeable in landscapes with mosaics of expanding scrub where livestock are forced to use narrow corridors through dense Gorse. Impacts include deep erosion channels in peaty soils but also damage to above and below ground features with impacts for the historic record. Regular movements to access drinking supplies can over time damage features such as streamworks and industrial workings. There are also localised issues where stock ‘loaf’ often in association with food or access to the in-bye.

Feature Erosion

This usually relate to upright features such as standing stones, relict hedges, stone circles, stone rows and boundstones but may include built features such as walls and mine buildings. Erosion is caused by the action of rubbing causing surface disturbance and in some cases undermining the structural integrity of the feature. Ponies in particular will repeatedly use favoured rubbing posts often creating three-sided erosion patterns as a result. Over the years a number of monuments have been impacted with Victorian antiquarians noting this management issue from the mid 1800s onwards. Where fallen stones are restored to an upright position, they are still vulnerable to erosion of the top soil and turf capping. Animals tend to use specific

The Nine Stones Circle on East Moor with ponies in the background. Livestock 'rubbing' has eroded soils and caused some stones to fall. Lower image shows a stone circle on Emblance Downs where peaty waterlogged soils has accentuated the degree of erosion (David Attwell).

Stone circle on Emblance Downs where peaty waterlogged soils has accentuated the degree of erosion (David Attwell).

locations and these often mirror the daily grazing cycle and movement between forage, water and shelter.

Vehicle Erosion

Many commoners check livestock either on quad bikes or using 4 x 4 vehicles. Pickup trucks and tractors can cause surface damage on well used routes or in locations with regular supplementary feeding. Animals will tend to gather at locations they know they will be fed at resulting in extended periods of ‘loafing’ accentuating ground disturbance.

The impact on PALs outside of scheme agreements tends to be localised and often as a result of ‘ignorance’ as opposed to intentional damage. This might include feeding on historic settlements and field systems or driving a route which impacts surface features. On balance when assessing the issues listed in the Heritage at Risk Register there are more impacts associated with scrub than there are for erosion. This suggest that reducing livestock density generally reduces the PALs condition over time.

Animal Health & Welfare

Semi natural landscapes create a unique set of challenges for both graziers and livestock and particularly in shared spaces with nose to nose contact.

Many of these can be managed by good husbandry, collaboration and the development of resilient traits built up in livestock over generations of exposure to challenge. Others are harder to predict or manage either through direct impacts such as scheme stocking rates or external drivers linked to climate change. This includes the Sheep Tick *Ixodes ricinus* which is a beneficiary of vegetation changes in the past twenty years. In Britain ticks become active as temperatures rise above 7 °C and this varies spatially dependent on a range of factors. They require high humidity levels when off their hosts (85%) and are generally found in denser vegetation mats with two waves of activity with a spring and autumn ‘rise’. They carry a range of disease threat which can impact all three grazing species as well as wildlife and people using the commons. These can be summarised as follows.

Louping Ill (LIV) - the Louping Ill virus (LIV) causes a febrile illness in a number of species including sheep, cattle, grouse, equines, deer, dogs and Mountain Hares. It gets its name from the neurological response in sheep causing a ‘leaping’ behaviour. LIV is recognised as a zoonotic agent with occasional reports of farmers falling ill.

Sheep are susceptible to LIV infection and develop an encephalitis which is usually fatal. The majority of cases in sheep are reported in weaned lambs where maternal-derived antibody has waned. The disease is characterized by a high fever eventually impacting the nervous system with characteristic signs of muscle tremors, incoordination, circling and ataxia. Animals quickly lose appetite and eventually mobility. Paralysis leading to death quickly follows.

Concurrent infection of LIV with *Anaplasma phagocytophilum* (Tick Borne Fever – TBF) in sheep increases the production of pathogens (Moredun, LIV).

Tick Borne Fever (TBF) is widespread and commonly found in sheep ticks on Dartmoor. Most outbreaks of TBF occur among flocks of sheep and herds of cattle after introduction to tick-infested pastures. It is also found in deer, dogs, cats, horses and some small mammals. Infected animals display clinical signs attributable to secondary infections. TBF variants are immunosuppressive, resulting in several disease syndromes including tick pyemia, abortions, pasteurellosis, and septicemic listeriosis. Studies suggest that up to 30% of TBF-infected lambs may develop Tick pyemia a crippling infection resulting in lameness, paralysis, ill thrift and death. A significant proportion of infected sheep may also die from secondary infections with further losses due to abortion. TBF is caused by the injection of bacteria most commonly Staphylococcus aureus, Pasturella and Mannhemia which leads to abscesses in various parts of the body (Bianchessi et al 2023).

Other challenges for graziers on commons and PAL sites can include Bovine Tuberculosis (bTB), Neospora, Bovine Viral Diarrhoea (BVD), Strangles (equines) and dependent on the setting and livestock type various endoparasites and ectoparasites (fluke, scab, lice etc.). Transmission between herds and flocks can be rapid and collective awareness and treatment is essential to manage down risk but can be challenging in shared spaces. There are also additional issues with public access which can lead to stress, sheep worrying and confrontation between people, dogs and livestock.

Currently the Government has an Animal Health and Welfare pathway for individual businesses but there is no collective model for share space grazing such as common land.

7.3 Wilding, rewilding and ‘habitat enhancement’, including via Biodiversity Net Gain

Biodiversity is in a state of crisis in Britain. The 2023 State of Nature report ‘lays bare the stark fact that nature is still seriously declining across the UK, a country that is already one of the most nature-depleted in the world. The data show that since 1970 UK species have declined by about 19% on average, and nearly 1 in 6 species (16.1%) are now threatened with extinction. This is a timely reminder, if we needed it, that the nature crisis isn’t restricted to far-off places like the Amazon or Great Barrier Reef’ (Brotherton 2023; Natural England 2023).

Historic England, as the government’s statutory adviser on the historic environment, works closely with Natural England and other agencies responsible for the country’s natural or semi-natural environment. They all recognise that integrated working, in partnership, is likelier to produce good outcomes for all interests in the environment, including the natural.

‘Biodiversity and native ecosystems play a double role in mitigation and adaptation to climate change: they help our resilience to the threats affecting heritage including overheating, flooding, drought, soil erosion, etc, but also participate in the sequestration of carbon. Protecting and restoring biodiversity, also referred to as nature recovery, is therefore essential and should not be overlooked when making a commitment to become more sustainable (Historic England statement on ‘Enhance Biodiversity’, 20 May 2024).

Rewilding, or wilding, are approaches to enabling nature to have space to develop as unencumbered by human actions as possible. Wilding generally involves allowing plants to grow as they will, though people may still control non-native species. Re-wilding involves more actively restoring an area to what is considered to be its ‘original’ or natural state, and is often attached to a desire to re-introduce plants or animals that have become locally extinct. Both approaches are practical and hopeful, responding to the biodiversity crisis on the one hand and inviting nature to perform its healing on a disturbed and impoverished place.

Connected in some ways to wilding is one of the less directed forms of change on the Moor, that of the suspension of traditional land use, by abandonment: turning the key on a gate and walking away. This applies more to privately owned and enclosed or ring-fenced land than the open moor where commoning still continues, ensuring some level of grazing. It is usually consequent on the acquisition of land by those who are unable or unwilling to turn animals out on it. Sometimes land is acquired for the dwelling rather than the ground.

Sensitivities

Inevitably wilding and rewilding has its own effects on other aspects of a place, including semi-natural environments that have developed as people have used places in different ways, mainly through forms of agriculture, including, as on Bodmin Moor, through pastoral farming. On the Moor, the long and sustainable practice of summer grazing from the neolithic period to the early modern enabled a rich mosaic of scrubs and woodland to develop against a backdrop of the ancient semi-natural grassland that succeeded or morphed from the preceding wood pastures. Care needs to be taken not to replace this unusual and valuably diverse semi-natural ecosystem with others that may initially appear more natural but may become less diverse.

Rewilding initiatives vary in scale, from fenced enclosures to whole estates, and are expected to be permanent. They normally transform land cover both in terms of communities of plants and animals and in terms of obscuring the legibility of former more managed land uses. It often reflects and is integrated with historical tenurial arrangements (the rewilding taking place within single property units) but usually cuts across historical patterns of land use.

Opportunities for developing resilient and environmentally sustainable pastoral practice

There is no reason to believe that the wood pastures of the Mesolithic period were not grazed by large ungulates, and most native plant species of the British downlands are adapted to being grazed, so to rewild without some form of grazing would be peculiar, not natural (Vera 2000; Harvey 2001; Tree 2018, 56-96).

Rewilding rather than wilding would therefore seem to be the more appropriate of the two approaches to take on Bodmin Moor. While there might be an urge to go wild wherever, it would be more reasonable to integrate rewilding with other land use that is designed to also be sustainable and to increase biodiversity, such as the resilient and sustainable pastoralism that might be the foundational aim of a Bodmin Moor Vision. It might be suggested that wood pastures could form the basis of any rewilding on the Moor's rough ground. The deeper and steeper sided valleys on the moorland edge, generally beyond the PALs, would be especially attractive areas for such initiatives, as they are also for woodland creation.

The PALs would then be a valuable tool for a land use framework that included opportunities for rewilding in those areas where negative impacts (loss of visibility, damage from roots and rhizomes, etc.) would be less pronounced.

7.4 Natural Flood Management

Climate change coupled with the effects of accelerated drainage from some forms of infrastructure is leading to more frequent and more damaging incidences of riverine flooding, especially in lowland parts of Cornwall. The uplands have a role in addressing this issue. First more rain falls on the uplands than in the lowlands, and second, there are opportunities to decelerate water flow from the moors.

- Peatland restoration (see below, 9.7) should hold back more water in the marshes at the heads of streams and alongside them.
- Retention and management of woodlands in the steep valleys of the moorland edge will also contribute to deceleration.
- In addition, there may be opportunities to deploy existing structures and earthworks in 'offline flood storage'. This is preferable to the new excavation of earthwork holding tanks for excess water when rivers are in full spate as they would have more substantial impacts on important archaeological remains found in or beside the moorland streams.
    - Most extensive of those are the alluvial streamworks, some of which may have prehistoric origins and were used throughout Cornish mining history, some until the early 20th century.
    - Alluvial streamworks include diversion channels, and dumps that may serve as means of temporarily slowing or storing flood water.

Note that the Monument Protection Programme Assessment identified 47 separate alluvial streamworks that should be regarded as nationally important non-designated

heritage assets (Herring and Rose 1990, 357-359). These may be regarded as of sufficient importance to be carefully avoided in such works.

7.5 Development (agricultural improvement, housing, roads, forestry, water provision, renewable energy)

While it may generally be regarded as unlikely that CROW land, SSSIs, and the Bodmin Moor part of the Cornwall National Landscape, and the extensive Scheduled Monuments, will be subject to damaging development, the possibility remains, so it is necessary to briefly review in the most general of terms the effects and impacts of them and thus the sensitivity of the rough ground archaeology, landscape and environment to the main forms. It should be clear that all of these types of development would need to follow established assessment and decision-making processes that include assessment of impacts on the historic and semi-natural environment.

Agricultural improvement

Effects and impacts

- Would normally involve, amongst other things, the clearing of rocks, both moorstones and archaeological remains
- Above ground remains formed of prehistoric, medieval, industrial and post-medieval banks, upright stones, ditches, etc would be either removed or severely damaged and below-ground remains would be considerably degraded or destroyed.
- Deep or chisel ploughing required to breach iron pans and enable adequate drainage.
- Destruction of ancient semi-natural grassland and its attendant scrub and heathland communities.
- Replacement by simpler often non-native or non-local species of crops and grass, and the creation of wholly new fences or hedges and infrastructure.
- It would also reduce the extent of commons and ringfenced rough pasture available and undermine the sustainability of the remainder.

Residential development, housing

Highly unlikely to occur, though a few new isolated dwellings have been built in recent years (e.g. Halvanna View), and a handful of abandoned dwellings have been reoccupied, and their steadings extended, with farm buildings converted (Leskernick, Cannaglaze, Outer Butterstor). The sensitivity with which such works have been undertaken has varied. It seems unlikely that whole new hamlets and villages will be created on the rough ground of Bodmin Moor, but new farmsteads have been, though not on the rough ground.

Effects and impacts

- Earth moving in preparation.

- Often require trackways to be installed.
- Bring activity and light to dark remote places.
- Distract from important remains and affect the open character of the moorland landscape.

Roads

While there may not be many or any new roads on the rough ground of the Moor in the near future, the improvement of those that are there may result in changes to their character, for example if fencing were to be introduced to separate vehicles form grazing livestock.

Effects and impacts

- Roadside fencing would impact on the sense of open-ness and would affect the ability to undertake targeted grazing of key areas of the Moor.

Conifer plantations

Several extensive areas of coniferous plantation exist on Bodmin Moor. A Plan for those either owned or leased by the Forestry Commission (Davidstow Woods, Lower Moor and Rough Tor plantations, Halvana Plantation, North Hill and Stonaford) envisages felling and restocking, but with some small areas left open. Care will be taken to avoid disturbance to known archaeological features (Robinson 2018).

It is possible that further plantations may be considered. Note that the Bodmin Moor Survey was undertaken partly to inform our understanding ahead of various forms of development, of which coniferous forestry was one.

Effects and impacts

- Conifer plantations have substantial impacts on the landscape character – dark homogenous blocks interrupting views.
- And on below ground remains, ploughing and ridging to create beds for planting, the effects of root systems, and then disturbance when felling and clearing.

Water provision (reservoirs)

Three reservoirs were constructed on Bodmin Moor in a period of 21 years, Siblyback in 1965-1969, Crowdy in 1969-1973 and Colliford finished in 1986. Water was also abstracted directly from rivers, including The Allen at Lower Moor, the Withey Brook at Bastreet, its main structures being surrounded by PAL 20, and the De Lank at Leaze.

Effects and impacts

- Destruction and disturbance during construction works, especially as landscape principles now lead to clearing away of evocative features around their edges.

- Submergence of remains, and their erosion by wave action around their edges.
- Covering of remains with silt.
- Loss of historic landscape integrity and interruption of views.

Renewable energy

It is unlikely that renewable energy generation will be proposed for Bodmin Moor's rough ground. Wind, solar, geothermal and hydroelectric may all be technically feasible but it is expected that the impact on landscape character would outweigh the benefits gained, as implied or stated in the *Cornwall and Isles of Scilly Local Area Energy Plan* (Cornwall Council 2024).

Individual wind turbines may be the most likely installations.

Effects and impacts of wind power

- Physical impacts of tower and foundations and of cable trenches, etc. on known and predictable below-ground archaeological remains and on semi-natural components.
- Affects perceptions of the coherence and completeness of the historic landscape and of its contribution to overall landscape character.

8 Evolution of Agri-Environment Agreements and Support for the Uplands

8.1 Previous agri-environment initiatives

Management of PALs has been largely achieved through the delivery of agri-environment schemes and accompanying policy drivers. This section explores the evolution of scheme design pre and post Europe and the Governments latest iteration under the Environmental Land Management schemes.

It is important to note that management of the historic environment at a landscape scale is through agri-environment schemes often using generalised prescriptions. These deliver primarily for the natural environment but can usefully coalesce with archaeological features through beneficial grazing practices or land management tasks (such as scrub clearance). Use of targeting statements and Rural Payment Agency processes (RPA) such as the Historic Environment Farm Environment Record (HEFER) help to flag and prioritise PALs features and significance. Often these are weighted in balance with other designations of which Sites of Special Scientific Interest remain a priority consideration. These are then considered by NE and other consultees during the development of a scheme which may include specific actions or capital works to address site needs. This system of co-design and 'nesting' of the PALs within broader objectives has formed the backdrop to the past twenty years.

A key aspect of PALs management is the relationship with grazing and pastoralism that remains today the primary tool for their care and maintenance.

A number of key designations, support mechanisms and agri-environmental schemes are relevant to the evolution of the farmed landscape on Bodmin Moor.

IACS, SPS and BPS – Direct Payments

The recent history of agricultural support in the uplands dates back to 1993 with the development of the Integrated Administration and Control Systems commonly known as IACS. This replaced subsidy dependent on production with area headage payments underpinned by quotas and included the Beef Special Premium, the Suckler Cow Premium and the Sheep Annual Premium. This was replaced in 2005 by the Single Payment Scheme (SPS) linked to meeting environmental, public, animal and plant health and animal welfare standards. The overarching aim was to keep land in good agricultural and environmental condition. The new scheme was intended to change the way the EU supported its farm sector by removing the link between subsidies and production of specific crops. It introduced the concept of crops compliance which was adopted in later iterations of agricultural support. Common land was eligible under the scheme and commoners activated their entitlements against a 'notional area' of a common in proportion to the number of rights they held to graze animals on the common

In 2015 the Basic Payment Scheme (BPS) was introduced in England, Scotland, Northern Ireland and Wales as a replacement for the old Single Payment Scheme. The big change was that 'greening' requirements were incorporated within the BPS, which meant that farmers had to comply with certain agricultural practices to be able to claim their full payment. There was also an 'active farmer' test and a recognition of investment in young farmers. As with the SPS applicants had to have relevant entitlements and to activate interest with associated payment structures based on land type. This allowed a 25% top-up on the direct payment paid on the first 90ha of their farm, for each of the first five years of the operation of the business for those under 40 years of age. In terms of the uplands Defra took a decision as part of BPS to allocate more money in the budget 'up the hill' and to increase payments for moorland farmers as part of the new scheme. Once again common land was included adopting the principles set out in the Single Payment Scheme.

A number of key support mechanisms and agri-environmental schemes are relevant to the evolution of the farmed landscape on Bodmin Moor. These include the following.

Less Favoured Area

Support for Less Favoured Areas (LFA) has been a long-standing component of agricultural policy in the UK and the European Union (EU) and the designation survives post Brexit. Under the Community's LFA Directive (75/268/EEC2) Member States were required to identify certain areas used for hill farming or less-favoured areas defined by natural physical handicap, and in particular, altitude, slope, infertility or 'low productivity of the environment'. Direct income payments could be made to farmers within these LFAs for 'the continuation of farming, thereby maintaining a minimum population level or conserving the countryside'.

In England the LFA is mainly located in the north and south west, and small areas near the Welsh border. Designation as LFA refers to the physical handicaps faced by farmers: high rainfall, low temperatures, poor soils, steep gradients, and to low or declining populations with a higher than normal dependence on agriculture. Historically in Britain there have been two categories of disadvantage – Severely Disadvantaged (SDA) and Disadvantaged and these have been applied in 'upland' and 'moorland' categories.

In addition to the LFA there is also the Moorland Line (Defra, 2023) which is a boundary that encloses land within England that has been defined as predominantly semi-natural upland vegetation, or predominantly of rock outcrops and semi-natural vegetation, used primarily for rough grazing. It is described by Defra as a further designation of land within the LFA, and is used under domestic legislation to better target support for the uplands. The Moorland Line encloses land within England which has been defined as predominantly semi-natural upland vegetation, or predominantly of rock outcrops and semi-natural vegetation, used primarily for rough grazing. It was drawn up in 1992 to assist the development, implementation and

evaluation of policy in the English Uplands and the moorland line encloses some 42% of LFA land. Today there are concerns that it may well be a constraint on opportunity and income for those with land above the Moorland Line.

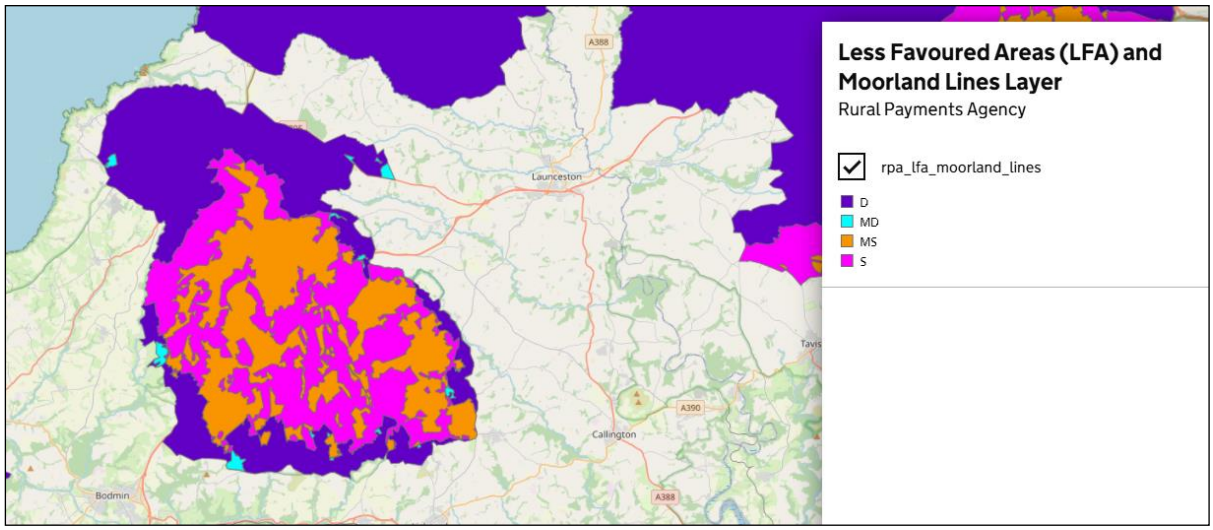


Figure : Bodmin Moor LFA and Moorland Line (Source: Defra data Services)

Hill Livestock Compensatory Allowance Scheme (1976-2001)

This scheme was designed to provide compensatory costs associated with farming in the uplands and to inject investment to maintain the social fabric of the community. Payments were made on a per head basis for eligible breeding sheep and breeding cows. The rate of allowance in the Disadvantaged Area was lower than the Severely Disadvantaged Area. Compensatory allowances were paid only on extensively grazed beef and /or sheep flocks, and dairy cows were excluded. Maximum payments were fixed per ha of eligible land and restricted to a maximum stocking rate of 6 ewes (SDA) or 9 ewes (DA), and 1.4 LUs in total per ha. For stock in excess of these limits no payments were made.

Hill Farming Allowance (2001-2010)

The Hill Farming Allowance (HFA) scheme was introduced in 2001 (Natural England 2012) and was a politically challenging transition in England from the HLCA due to concerns over issues with a switch to a scheme based on area payments. Such redistribution was both politically and socially undesirable so a differentiation of payments, using moorland and common land as additional criteria, was used to limit the extent of the redistribution. The re-design was perceived as a compromise between creating a scheme that was credible in terms of delivering the LFA objectives whilst at the same time avoiding too great a redistribution of payments. The essential characteristics of the HFA related to the eligibility criteria, payment rates and their differentiation. There was also a nod to environmental enhancement with payments increased by 10 or 20% for farmers who met various criteria including % of cattle (LU's) and stocking rates below 1.2 LUs per ha.

Countryside Stewardship Scheme (1991- 2005)

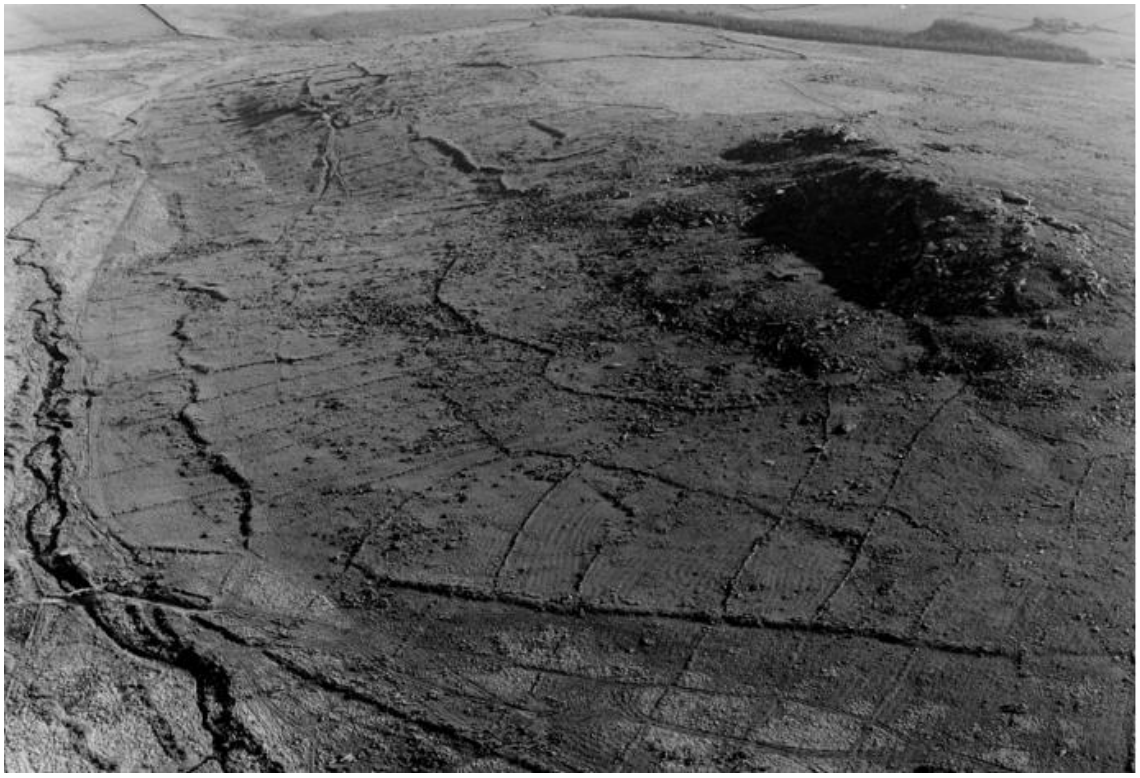
In its first guise, introduced as a five-year pilot project by the Countryside Commission in 1991, the scheme aimed to improve the environmental value of farmland throughout England. The administration of the scheme was taken over by the Ministry of Agriculture, Fisheries and Food (MAFF) in 1996 and latterly by English Nature and then Natural England from 2006. The scheme was latterly incorporated under the umbrella of the European Community's 'agri-environment' which enabled grants to be part-funded through the Community. The Countryside Stewardship Scheme closed to new applications in 2004 with the introduction of the Environmental stewardship (England) Scheme.

Natural England was formed as the Government's statutory advisor on the natural environment established under the Natural Environment and Rural Communities Act 2006. This replaced English Nature and under the new Act the natural environment was considered to encompass not only biodiversity but related disciplines of 'geodiversity and landscape conservation, and the study, understanding and enjoyment thereof, including through access and open-air recreation'. This inter dependency between the environment and wider social and economic benefits were recognised and embedded within the design of the new schemes form 2006 onwards.

The Sheep and Wildlife Enhancement Scheme (2000 – 2005)

The Sheep and Wildlife Enhancement Scheme (SWES) (enabled by s. 15 of the Countryside Act 1968) was funded by Defra but administered by English Nature. The scheme's aim was to encourage sustainable grazing on Sites of Scientific Interest (SSSIs) such as Bodmin Moor North covering Blisland, Hamatethy, Altarnun and Davidstow. As well as livestock reductions and winter removal the scheme supported shepherding on SSSIs in poor condition through historic heavy grazing. Conversely if the SSSI was under grazed then the scheme could contribute to restoring adequate stock numbers. The scheme ran till 2005 and towards the end its annual budget was around £3 million with roughly two thirds going to upland sites and one third to lowland sites with variable payments depending on stocking density. Priority farms were approached by English Nature and the scheme closed to new applicants in 2005. Successful applicants undertook a five-year agreement (English Nature, 2024).

On Bodmin Moor a number of agreements were in place especially north of the A30. These were tailored to the individual farm business and required capitalised 5 years' stock reduction for a specific amount of grazing rights. On commons they were issued with a description of the payments and the restrictions imposed and the agreements included a Management Plan which described the nature conservation importance of the land and the positive management measures to be undertaken. The document also set out clearly the management objectives English Nature required to achieve 'favourable conditions' on the land and any steps necessary to achieve positive management. Importantly SWES could be used alongside other



Aerial view of the Garrow PAL in the 1970's looking south. Agricultural support mechanisms and higher stocking densities allowed subtle features such as historic field cultivations to stand out (CAU).

View of Garrow looking north west in 2008 following stocking reductions linked to environmental stewardship schemes. Both bracken and gorse are more visible with subtle changes in the visibility of field systems and boundary features (CAU)

agreements including Environmental Stewardship agreements as an additional tool to achieve desired changes in practice.

The take up on Bodmin Moor by a few key graziers saw a significant shift between sheep, cattle and pony numbers. The payments were in the region of £30 per ewe and were paid up front for the five-year period. This represented a significant financial incentive and alongside other factors resulted in a re-balancing of grazing preference and seasonal pressures.

Environmental Stewardship (2005 – 2013)

This scheme replaced CSS and generated the first significant uptake of agreements on common land across Bodmin Moor. It was made up of a Higher Tier (HT) Stewardship offer that included SSSIs as well as an Entry Level (EL) Stewardship scheme designed to be broad, shallow and accessible. Importantly the offer was predicated by key themes which included the historic environment, climate change and resource protection alongside biodiversity outcomes. A points-based system applied to ELS with five year agreements in contrast to a combined HT and ELS scheme which generally lasted for 10 years. It introduced the concepts of 'maintenance' and 'restoration' options with linked 'indicators of success' and a national targeting framework which set out the environmental priorities in a particular area based on Natural Character Areas. On Bodmin Moor this was NCA153 NCA Profile:153 Bodmin Moor - NE415 which referenced: 'a rich and important historic environment tracing the occupation of the land from 4,000 years ago to the present day, underpinned by a high concentration of prehistoric monuments and features of international importance.'

The ELS element was a whole farm offer with acceptance guaranteed and was a pre-requisite to a HT application. This was expanded for upland farms in 2006 with the addition of payments for maintenance of traditional buildings and for mixed stocking with cattle and sheep. Mirror options were added to Higher Tier along with a cattle grazing supplement and payments for livestock on the native breeds at risk register. Commons were addressed in terms of governance and the scheme required a Farm Environment Plan (FEP) to be completed with reference to an Environmental Information Map (including the historic features on the holding). Various supplements were included such as 'small fields' and capital works were eligible as a combined package with delivery in the first two years of the agreement.

OPTIONS FOR HISTORIC AND LANDSCAPE FEATURES				**45**
ED2	Take archaeological features currently on cultivated land out of cultivation	ha	460	46
ED3	Reduce cultivation depth on land where there are archaeological features	ha	60	47
ED4	Management of scrub on archaeological sites	ha	120	48
ED5	Archaeological features on grassland	ha	16	49

Historic environment options	Code	Page
Arable reversion by natural regeneration	HD7	68
Crop establishment by direct drilling (non-rotational)	HD6	69
Maintaining high water levels to protect archaeology	HD8	69
Maintenance of designed/engineered water bodies	HD9	69
Maintenance of traditional water meadows	HD10	70
Restoration of traditional water meadows	HD11	70

Examples of Historic Environment options under ES (Source: Defra Handbook)

Upland ELS (2010)

Uplands ELS was launched in 2010 as a successor to the Hill Farm Allowance (HFA). It was aimed at rewarding hill farmers and land managers in SDAs for the delivery of environmental and landscape benefits, through a series of specially designed upland options. It framed the offer as 'custodians of the upland landscape' and specifically stated it would 'reward food production systems that underpin these landscapes'. Payments were designed to recognise the expansive nature of many upland holdings and the unique challenges of managing large areas. This was reflected in what NE described as higher value payment rates. Certain eligibility criteria were applied with a minimum area threshold of at least 10 hectares and commons were included with similar terms and conditions to ELS and HT. Importantly at this juncture Defra recognised the challenges involved in commons agreements by paying an additional £5 per ha to recognise the costs of drawing up and operating a collaborative agreement. As with ELS a points based system applied which included some historic environment elements.

Land Category	Existing ELS payment rate per ha	New Uplands ELS payment rate per ha (includes existing ELS rate)	New Uplands Organic ELS payment rate per ha (includes existing OELS rate)
SDA moorland parcels 15 ha or larger	£8	£23	£23
SDA moorland parcels smaller than 15 ha	£30	£62	£92
SDA land below the Moorland line	£30	£62	£92

New Options for Uplands ELS	Moorland parcels 15 ha or larger	Moorland parcels smaller than 15 ha	Grassland and arable below the Moorland Line
Maintenance of weatherproof traditional farm buildings in remote locations 4 points per m^2 of ground floor area	■	■	■
Maintaining visibility of archaeological features 53 points per feature (one or more item within a radius or length of 50m)	■	■	

Examples of Historic Environment options under Uplands UELS (Source: Defra Handbook)

Environmental Stewardship Improvement and Update (2013)

As part of the 2010 Government Spending Review Defra Ministers undertook to make Environmental Stewardship more effective (MESME) and better

targeted. MESME was initially made up of 5 strands of work some of which were themed (water quality and climate change), but all intended to make HLS and ELS more effective. As a result of the MESME work over sixty individual proposals were developed some of which were introduced to the scheme from 1 January 2013 whilst other were rolled out as part of a new Rural Development Programme in 2015. These focussed on a change to the point of value for some prescriptions and a move towards a more outcome focussed approach for others. A total of five new options were added to the menu to address specific environmental concerns not currently met by the existing options. The use of PA1 and PA2 capital items (Implementation and Feasibility studies) was encouraged to shape scheme outcomes and the use of Historical and Archaeological Feature Protection Grants funded at 100%.

Under the ELS / UELS menu options for management of scrub on archaeological features and moorland were introduced for the first time at a set payment per hectare of land in agreement. These were accessible and relevant to many upland farms as well as eligible commons land.

In February 2025 the Government announced it would increase historic payment rates for HLS options in order to better manage the agricultural transition and roll out of ELM An update on Higher Level Stewardship and Countryside Stewardship Higher Tier – Farming. It stated this reflected the contribution and support for the continued protection and management of sites. All HLS agreement holders are eligible, but the change to payment rates in 2025 will depend on the options contained in the actual agreement. Importantly it doesn't include UELS options so the financial value of this amendment for upland farms remains unclear. Based on inflation the original HLS rate are now likely to be at least 50% of the adjusted value.

Code	Option	Payment	Unit	Page
Options for historic and landscape features				
HD6	Crop establishment by direct drilling (non-rotational)	£70	ha	24
HD7	Arable reversion by natural regeneration	£500	ha	24
HD8	Maintaining high water levels to protect archaeology	£240	ha	25
HD9	Maintenance of designed/engineered water bodies	£295	ha	25
HD10	Maintenance of traditional water meadows	£350	ha	25
HD11	Restoration of traditional water meadows	£350	ha	25
Additional supplements				
HL16	Shepherding supplement	£5	ha	48
HR1	Grazing supplement for cattle	Up to £35	ha	48
HR2	Grazing supplement native breeds at risk	Up to £70	ha	48
HR4	Supplement for control of invasive plant species	£60	ha	51
HR5	Bracken control supplement	£35	ha	51
HR6	Supplement for small fields	£35	ha	51
HR7	Supplement for difficult sites	£50	ha	51
HR8	Supplement for group applications	£10	ha	51

Summary of Sample ES and UELS Options Revised in 2013 (Source: Defra Handbook)

	Code	Payment	Unit
Option for mixed stocking on grassland			
Mixed stocking	HK5	£9	ha
Options for grassland and moorland inside the Severely Disadvantaged Areas (SDAs)			
Take field corners out of management in SDAs	HL1	£100	ha
Permanent grassland with low inputs in SDAs	HL2	£35	ha
Permanent grassland with very low inputs in SDAs	HL3	£60	ha
Management of rush pastures in SDAs	HL4	£60	ha
Enclosed rough grazing	HL5	£35	ha
Unenclosed moorland rough grazing	HL6	£5	ha
Uplands Entry Level Stewardship options (Uplands ELS)			
(nb These codes are formed by replacing the 'U' with 'UH' at the start of the relevant Uplands Entry Level Stewardship option)			
Woodland livestock exclusion	UHC22	£75	ha
Maintenance of weatherproof traditional farm buildings in remote locations	UHD12	£4	m^2
Maintaining visibility of archaeological features on moorland	UHD13	£53	feature
Winter livestock removal next to streams, rivers and lakes	UHJ12	£35	ha
No supplementary feeding on moorland	UHL17	£4	ha
Cattle grazing on upland grassland and moorland	UHL18	£30	ha
Haymaking	UHL20	£60	ha
No cutting strip within meadows	UHL21	£250	ha
Management of enclosed rough grazing for birds	UHL22	£35	ha
Management of upland grassland for birds	UHL23	£37	ha

Countryside Stewardship (2015 – 2024)

In 2015 Defra introduced Countryside Stewardship (CS) as its new flagship agri-environmental scheme, to replace ES. Countryside Stewardship was designed to be better targeted with a lower – though still wide - geographical coverage and to deliver better value for money in delivering the government's priorities. It was aimed at long term multi annual agreements and split into a new offer of Mid and Higher Tier with stand-alone capital grants. It reflected the Governments aims to improve biodiversity, water quality and flood protection and due to European Union requirements was squeezed into a tight annual application window. The historic environment although not a priority was referenced as a key outcome. A Heritage Environment Record (HER) was used as part of the application process in the early days before the introduction of the Historic Environment Farm Environment Record (HEFER). The HEFER was a document that provided specific advice on known historic and archaeological features on a land holding and helped shape agreements. Additional guidance was supplied through the Selected Heritage Inventory for England, or SHINE which is a national dataset of non-designated historic and archaeological features from across England. SHINE was developed in a partnership between

Historic England and Natural England and forms an important data set to help scope agreement priorities and prescriptions. A key role is in agreement processing flagging incompatibilities between proposed field options and historic features.

The Mid-Tier offer (5 year agreements) was designed to be broadly accessible to most farms and was particularly suited to a combination of revenue and capital investment. A scoring process was utilised to achieve best environmental outcomes thereby introducing a competitive element to the scheme. A simplified bundle of options for different farm landscapes evolved over time commencing with a Wild Pollinator and Farm Wildlife package. An Uplands offer Countryside Stewardship: Upland Offer overview - GOV.UK was developed towards the end of the scheme which required applicants to select from a menu of base options and supplements. This included some limited historic environment actions (HS1 & HS5) with the aim of a simpler application and determination process. Mid-Tier also set out maximum stocking rates across the whole holding set at 2.5 LU/HA on non SDA and 2.0 LU/HA on SDA. This was mirrored in Higher Tier.

Page	Code	Item Title	Higher Tier	Mid Tier
Historic Environment and Landscape				
134	HS1	Maintenance of weatherproof traditional farm buildings		
138	HS2	Take historic and archaeological features out of cultivation		
141	HS3	Reduced-depth, non-inversion cultivation on historic and archaeological features		
144	HS4	Scrub control on historic and archaeological features		
147	HS5	Management of historic and archaeological features on grassland		
150	HS6	Maintenance of designed/engineered water bodies		
154	HS7	Management of historic water meadows through traditional irrigation		
157	HS8	Maintenance of weatherproof traditional farm buildings in remote areas		
161	HS9	Restricted depth crop establishment to protect archaeology under an arable rotation		

Summary of the Historic Environment options under CS (Source: Defra Handbook)

Higher Tier (5 – 10 years) was targeted at significant environmental sites, commons and woodlands and due to resource implications was primarily through invite or targeted approaches by NE. As with MT it was competitive and scored with historic environment elements being evaluated on a per parcel as opposed to per hectare level. Although supported by dedicated NE staff, applicants were encouraged to use feasibility studies to scope works often with the input of HE or local authority staff. As with previous iterations of ES commons Common land and shared grazing form: Countryside Stewardship - GOV.UK were encouraged to apply but required to have landowner consent. A separate application process requested applicants to go to reasonable lengths to contact and include all active and non-graziers and provide

The restored Stripple Stones at Hawks Tor undertaken using a HAP grant funded through HLS (David Attwell).

Capital grants have allowed re-investment in traditional boundaries such as Cornish hedges and drystone walls across Bodmin Moor (David Attwell).

opportunity for them to comment on the proposed scheme. A full list of rights holders (from the register) and their rights had to be included with the application identifying those that were active.

Capital works were available for both offers with some caps on values but also included specific options for the historic environment of which HE1 funded works to 100% of costs. A new offer of stand-alone capital grants initially focussed on hedgerows was broadened over time to include other categories such as water. Initially these were capped at £5K but over time expanded to £60 K based on a maximum of £20K from the three prescribed categories. These thresholds were lifted in 2024 resulting in Defra over committing the budget and closing the scheme without notice that November with a re-designed offer due summer 2025.

Historic Environment and Landscape				
80	HE1	Historic and archaeological feature protection		
82	HE2	Historic building restoration		
85	HE3	Removal of eyesore		

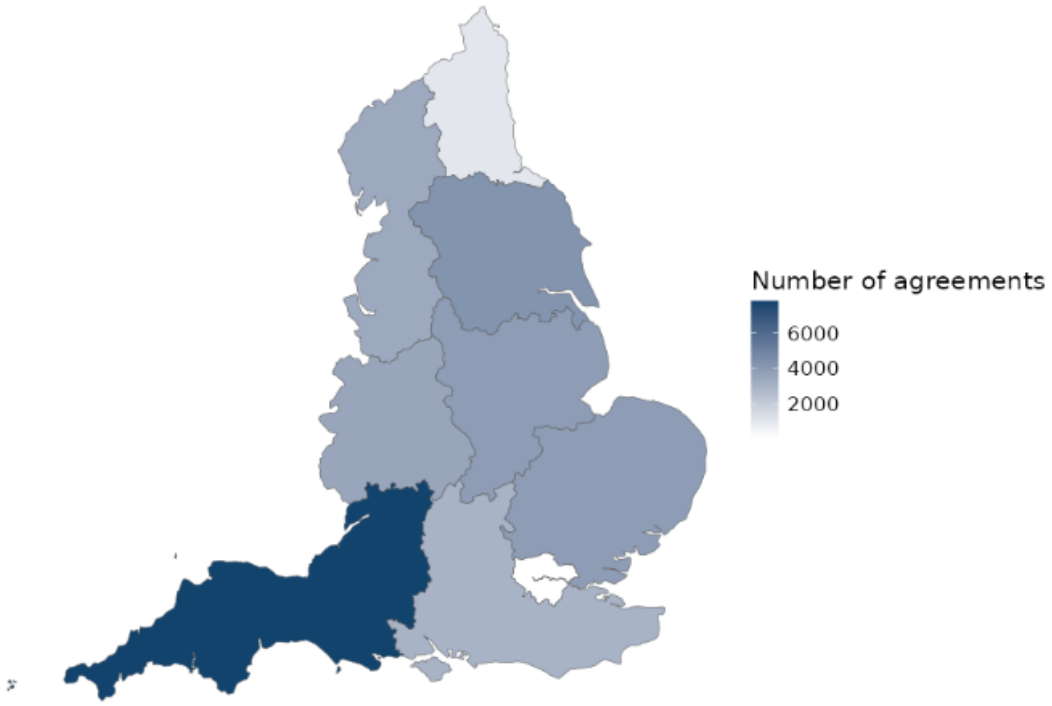
Summary of capital works available in CS for the Historic Environment (Source: Defra Handbook)

The Sustainable Farming Incentive – Environmental Land Management Scheme (2023-2025)

Sustainable Farming Incentive scheme: expanded offer for 2024 - GOV.UK

This is the most developed of the Government's flagship schemes meant to be broad, comprehensive and to form the 'entry level' of the Environmental Land Management scheme (ELM) offer. The land management actions were designed to have benefits for both the environment and agricultural productivity. Developed though a pilot working with farmers from different sectors SFI evolved over two years from a limited offer to over 102 options with plans for a further 14 more in the summer of 2025 (endorsed by Natural England). It encompassed a range of themes linked to the 25-year Environment Plan (see below) from soils and water to climate change and nature. In March 2025 the Government unexpectedly closed the scheme which had over 37,000 agreements in place including 800,000 hectares of arable land, 280,000 hectares of low-input grassland and 75,000 km of hedgerows.

The scheme worked on a system of base actions, supplements and the principle of 'stacking'. Applicants were able to have a Countryside Stewardship or Environmental Stewardship agreement and an SFI agreement at the same time. There was also a useful shift towards a management payment (capped at 50ha) which recognised costs of applying and was weighted towards smaller family farms. Other key changes were quarterly payments windows and a simplified on-line application process. Agreements were either 3 or 5 years depending on the actions selected.



Heat map showing the distribution of SFI agreements in England (7600 in the South West)

A number of dedicated options were included for the historic environment. This included lower payment rates for maintaining archaeology in grassland settings (HE6 - below the moorland line) and for scrub clearance (HE5 – above & below the moorland line). There were also some of the recycled CS options for maintenance of traditional buildings depend on setting and location. Any SFI actions on land with historic or archaeological features require a SFI HEFER from Historic England.

SFI for upland farms was considered less attractive than mixed lowland units largely due to a combination of actions, payment levels and the moorland line. Options for commons were eventually more restricted with the RPA computer system unable to provide an on-line application process for commons. MOR1 (Assess Moorland and Produce a Written Record) was the only action with meaningful take up. This was a ‘recording’ action compatible with ES schemes and included a supplement per HA for commons to reflect the additional time and costs involved. In terms of actions above the moorland line these were predicated by very low stocking rates for base actions (0.16, 0.08, 0.04 LU/HA) with modest incentives. Supplements were available for grazing with cattle and ponies, native breeds at risk, shepherding and management of fire risk. There were also incentives for peatland, re-wetting and for dry stone wall and stone faced earth bank maintenance. Significant concern over the offer was expressed to Defra by industry representatives and an Uplands Task and Finish group was formed in early 2025 to review the offer prior to the scheme closing.

A reformed SFI scheme, with a budget to be confirmed in the Spending Review (June 2025) was announced by Defra in March 2025. This is planned to direct funding where there is greatest potential to deliver for nature and where there is the least ability to access decent returns from agricultural markets. In this context the uplands should be a beneficiary of any new model dependent on levels of investment.

Code	SFI actions for heritage	Annual payment	Action's duration
HEF1	Maintain weatherproof traditional farm or forestry buildings	£5 per square metre	3 years
HEF2	Maintain weatherproof traditional farm or forestry buildings in remote areas	£8 per square metre	3 years
HEF5	Control scrub on historic and archaeological features	£215 per hectare	5 years
HEF6	Manage historic and archaeological features on grassland	£55 per hectare	5 years
HEF8	Maintain designed or engineered waterbodies	£2,512 per hectare	5 years
***CMOR1**	Assess moorland and produce a written record	£10.60 per hectare and £272 per agreement	3 years

*Summary of dedicated Heritage actions in SFI. *Also available if in HLS UELS*

Countryside Stewardship Higher Tier (Summer 2025)

Countryside Stewardship Higher Tier: preview guidance - GOV.UK

In February 2025 the Government announced a new Countryside Stewardship Higher Tier offer (CSHT) as part of the suite of ELM schemes. The scheme sits between SFI and Landscape Recovery and is focussed on delivering ambitious and targeted environmental outcomes to protect, restore, or enhance the environment, whilst helping mitigate climate change. Unlike SFI it is supported by Natural England and Forestry Commission (FC) advisers to help develop applications with woodland management and creation a core feature of CSHT.

Defra state the new scheme can be applied to various types of land, including woodlands, farmland and land managed for nature, or a combination of these. It is intended to cover important environmental and historic sites, such as Sites of Special Scientific Interest (SSSIs), scheduled monuments (SM) and common land. As with SFI it will initially open through a controlled rollout on an invitation only basis and NE teams are developing a 'pipeline' which will prioritise existing or mixed schemes and others who have undertaken preparatory works ending in 2025. This will be delivered through pre-application visits in readiness for the first applications.

As part of the management of demand and to ensure continuity, farmers whose existing CSHT agreements expire in 2024 will be offered mirror agreements lasting 5 or 10 years. Those with Higher Level Stewardship (HLS) agreements expiring in 2024 will be offered two-year extensions, while those expiring in 2025 will be offered

one or two-year extensions. It should be noted that the RPA apply claw back penalties if surrendered ahead of the end date and that payment rates are likely to be lower than in CSHT.

A total of 99 revenue based actions and 33 supplementals are available in CSHT and unlike SFI it includes 151 capital items (delivered in first 3 years) as an integral part of the scheme. Agreement lengths vary dependent upon base actions between 5, 10, 15 and 20 years. Defra have made significant changes to delivery with quarterly payment windows, rolling monthly agreement start-dates rather than singular annual start-dates and a simplified online application process and payments through Rural Payments Agency. The inference in Defra communications has been that CSHT is targeted and was seen as stackable with SFI creating multi-layer agreements for farm holdings. Many of the SFI options appear in CSHT under different codes but it is unclear if it can be used a 'whole farm' approach. With the withdrawal of SFI in 2025 it is likely that this will be tested and it may come down purely to fiscal controls.

To help develop applications a range of stand-alone capital study and plan items are available (PA1 – PA7) and NE intends to use these options to shape outcomes. In particular, there are payments for implementation plans and feasibility studies and a new moorland mapping option (PA5). These are relevant to the historic environment and along with some capital items such as scrub management and HE1 (Historic and Archaeological Feature Protection Grant) which are useful tools in relation to PALs management. An on-going requirement of the scheme is an up-to-date CS HEFER covering all the land parcels on a holding.

As with predecessor ES and CS offers there are various land management options Countryside Stewardship Higher Tier actions - GOV.UK for the uplands alongside the standardised actions dedicated to the historic environment. Many are complementary in terms of grazed outcomes but the same low stocking rates specified in SFI relate to the moorland options in CSHT (0.16 – 0.04 LU/HA). Various supplements apply to stock removal periods, shepherding and traditional breeds and a positive bias towards cattle and pony grazing. There are also options that reflect the 25-year Environment Plan in terms of climate change resilience. Regrettably many of the useful boundary options (formerly in SFI) so relevant to upland farms are missing in CSHT.

One specific option of note for PALs could be CSG21 (manage grassland for target habitats, species or feature) which is available above the moorland line at the discretion of the NE officer. This refers to 'target features' and is grassland based and the description references 'features, such as *historic sites* and ditches of high environmental value'.

Code	CSHT actions for heritage	Annual payment
CHS2	Take historic and archaeological features out of cultivation	£613 per ha
CHS3	Reduce cultivation depths on historic and archaeological features	£115 per ha
CHS4	Control scrub on historic and archaeological features	£215 per ha
CHS5	Manage historic and archaeological features on grassland	£55 per ha
CHS6	Maintain designed or engineered waterbodies	£2,512 per ha
CHS7	Manage historic water meadows through traditional irrigation	£863 per ha
CHS9	Restrict crop establishment depth on historic and archaeological features	£257 per ha

Summary of CSHT options for the Historic Environment with payment rates.

Landscape Recovery – Environmental Land Management Scheme (2022 – present day)

Landscape Recovery: round two - GOV.UK

Landscape Recovery (LR) scheme is the top level of the 3 new environmental land management schemes in England. Launched by the Government as a pilot in 2022 there have been two competitive rounds to date with a third anticipated in 2025. The scheme is targeted at radical and large-scale change where environmental and climate goods are central to land management over a 20-year period. It is seen by the Government as a new approach to 'supporting long-term, significant habitat restoration and land use change of the sort that will be essential to achieve our environmental ambitions'.

The first competitive round (22 projects) focussed on two themes covering native species (priority habitats, habitat quality and species abundance) and water (water quality, biodiversity and adaption to climate change) with land areas 500 – 5000 hectares. Whilst the second round (34 projects) focussed on projects (500 hectares plus) targeting net zero, protected sites (SSSIs, SACs etc.) and habitat creation. Projects were assessed for a wide range of benefits from water quality to social outcomes and are required to go through a funded 2-year development phase. This looks in detail at land management options, stakeholder engagement, consents, governance arrangements, monitoring plans and the collation of baseline data. Most projects employ dedicated staff to deliver this phase of activity and have a lead officer to liaise with either form NE or the Environment Agency. Other statutory bodies such as the FC and HE also have dedicated leads for LR.

A fundamental aspect of LR is that Defra works with projects to negotiate bespoke agreements requiring participants to identify, model and cost outcomes. There are no financial limits set for the size of budgets which will be profiled against the Government's commitments under various national and international objectives. At the end of the development period successful schemes need to offer 'good value for money by delivering significant outcomes and attracting private finance to support the project.' The requirement for private sector funds is unique to LR and aligns with

the Government's direction of travel in their 25-year Environment Plan and more recent legislation in the Environment Act.

Although the historic environment does not feature as a headline objective it is considered within the scheme framework and can be addressed through delivery of wider management that meet the programme outcomes. Within the scoring and selection criteria ('longevity' selection criterion) Defra assesses how suitable projects are in a local environmental context requiring applicants to demonstrate an understanding of the local area 'including its character, heritage, and historic features'. A number of round 1 and 2 projects have embraced this theme such as 'the Hadrian's Wall Recovering Nature project' and the Walkham Valley on Dartmoor.

There have also been multiple commons associations that have signed into delivery phases of LR of which the Central Dartmoor Cluster includes around 66,000 HA of which 95% is registered commons. As yet no projects have been approved so it is too early to evaluate how PALs or heritage landscapes may benefit in the longer term.

Farming in Protected Landscapes Scheme

The Farming in Protected Landscapes programme Farming in Protected Landscapes – Cornwall National Landscape is a part of Defra's agricultural transition offer. It provides funding to farmers and land managers in National Landscapes such as Cornwall (Bodmin Moor Section), National Parks and the Broads. It is not an agri-environment scheme as such but supports areas of work covering nature recovery, climate change, public access and enjoyment, heritage and improvements to the quality and character of the landscape or place. Grants are administered by local teams with a prescribed Board of local representatives who oversee awards from £10 to £50K with lower levels approved by the National Landscape Officers. As well as capital (linked to CS rates where they apply) it can fund revenue and provides a 'gap filling' role in allowing research, innovation and transitional arrangements for farm businesses.

In Cornwall it has funded a number of heritage and archaeological projects as well as supporting intangible cultural heritage such as Cornish hedging skills. The budget for each area is set using a Defra formula and the programme was extended recently by the Secretary of State and will run until March 2026.

Sites of Special Scientific Interest (SSSIs)

SSSIs were introduced as a statutory designation through the National Parks and Access to the Countryside Act 1949 with the notification undertaken by local planning authorities. Since then, various legislative changes have resulted in powers being vested under sections 28 to 28S of the Wildlife and Countryside Act 1981 (WCA), as amended by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006. The WCA also sets out the role and responsibility for what is now NE to designate and manage SSSIs. As amended, the WCA allows for directly negotiated management agreements

on SSSIs although NE has tended to use agri-environment agreements instead. The designation of a SSSI can also provide the foundation for other site-specific legislation in the UK and most other conservation designations are based upon them.

The Government is currently reviewing the role of environmental legislation as a barrier to delivering its ambitious plans for the economy and house building. It is however committed under the Bern and Ramsar Conventions to maintaining key elements which are legally binding and to commitments made at St. Ives as part of the COP15 UN Nature Summit to protect 30% of its land and sea by 2030 https://www.cbd.int/gbf (30 x 30). Legal targets to encourage environmental improvement and increase biodiversity are contained in the Environment Act 2021. The 2023 Defra Environment Improvement Plan set the target to bring 75% of English protected sites into favourable condition by 2042, with interim targets for 2028. Protected landscapes such as Bodmin Moor are seen as a focus for the targets with PL's nationally containing around half of England's priority habitats.

SSSIs can be notified for their biological or geological interest and then to be based on individual units which are generally representative of the best examples of significant habitats. The designation can also include various taxonomic groups with each group having its own set of selection guidelines. On Bodmin Moor there are ten sites in total of which Bodmin Moor North is by the far the largest at 5000 hectares covering the commons of Blisland, Hamatethy and West Moor. There are a few Special Ares of Conservation of which the River Camel and Tributaries is the most extensive along with Crowdy Marsh. To the south of the A30 there are just a handful of sites covering woodlands, the Upper Fowey Valley and a couple of mining sites around Caradon Hill. As with scheduling of the historic environment this geo spatial bias probably reflects resource allocation and prioritisation over time.

Site Name	Condition	SSSI	SAC
Bodmin Moor North	Mainly Unfavourable Declining or Unfavourable Recovering	x	
River Camel & Tributaries	Unfavourable Recovering or Unfavourable Declining	x	x
Crowdy Marsh	Mainly Unfavourable Recovering or Unfavourable No Change	x	x
De Lank Quarries (Geological)	Favourable	x	
Hawks Tor Pit	Unfavourable Declining	x	
Dozmary Pool & Downs	Mainly Unfavourable Recovering or Unfavourable No Change	x	
Upper Fowey Valley	Mainly Favourable or Unfavourable Recovering	x	
Cabilla Woods	Favourable	X	
Draynes Wood	Favourable	X	
Phoenix United Mine & Crows Nest	Unfavourable Recovering	x	x

Summary of Bodmin Moor SSSIs and Unit Condition (Source: Magic MAGIC)

When land is to be designated as a SSSI, NE must notify a long list of interested parties which states all 'owners and occupiers' of the land concerned. The Countryside Rights of Way Act 2000 made it explicit that commoners with grazing rights are included as 'occupiers', but prior to this the picture was 'grey' and notification of commoners inconsistent. Before this date a leading legal work on the law relating to common land and town or village greens (Gadsden and Cousins on Commons and Greens 3rd Ed. 2020) suggests the position is unclear. The Act does allow NE to serve a new notice at any point which would only allow a commoner to turn out once should they decide to pursue a legal route. Any owner or occupier failing to obtain consent, or anyone convicted of damaging or destroying any of the features of special interest of an SSSI, may be fined up to £20,000 in a Magistrate's Court, or an unlimited amount in the Crown Court. On Bodmin Moor it is extremely unlikely that everyone was notified of a SSSI designation and it is unknown if this position has been formally challenged by a grazier or landowner.

The act of grazing in relation to SSSIs is dealt with via Operations requiring Natural England Consent (ORNEC) which is a list of operations that can only be carried out with their permission. Operations are defined as those which can impact negatively on the notified features of the site and may only be carried out by the 'owner or occupier' of the land in a specified range of circumstances. These are assessed by NE before giving consent and are often incorporated into the terms and conditions of an A-E agreement.

Natural England has a rolling programme of assessment for the condition of SSSIs targeted at every 6 years but often over a much longer duration. This has four set categories based on a standardised condition monitoring framework Common Standards Monitoring | JNCC - Adviser to Government on Nature Conservation. They include:

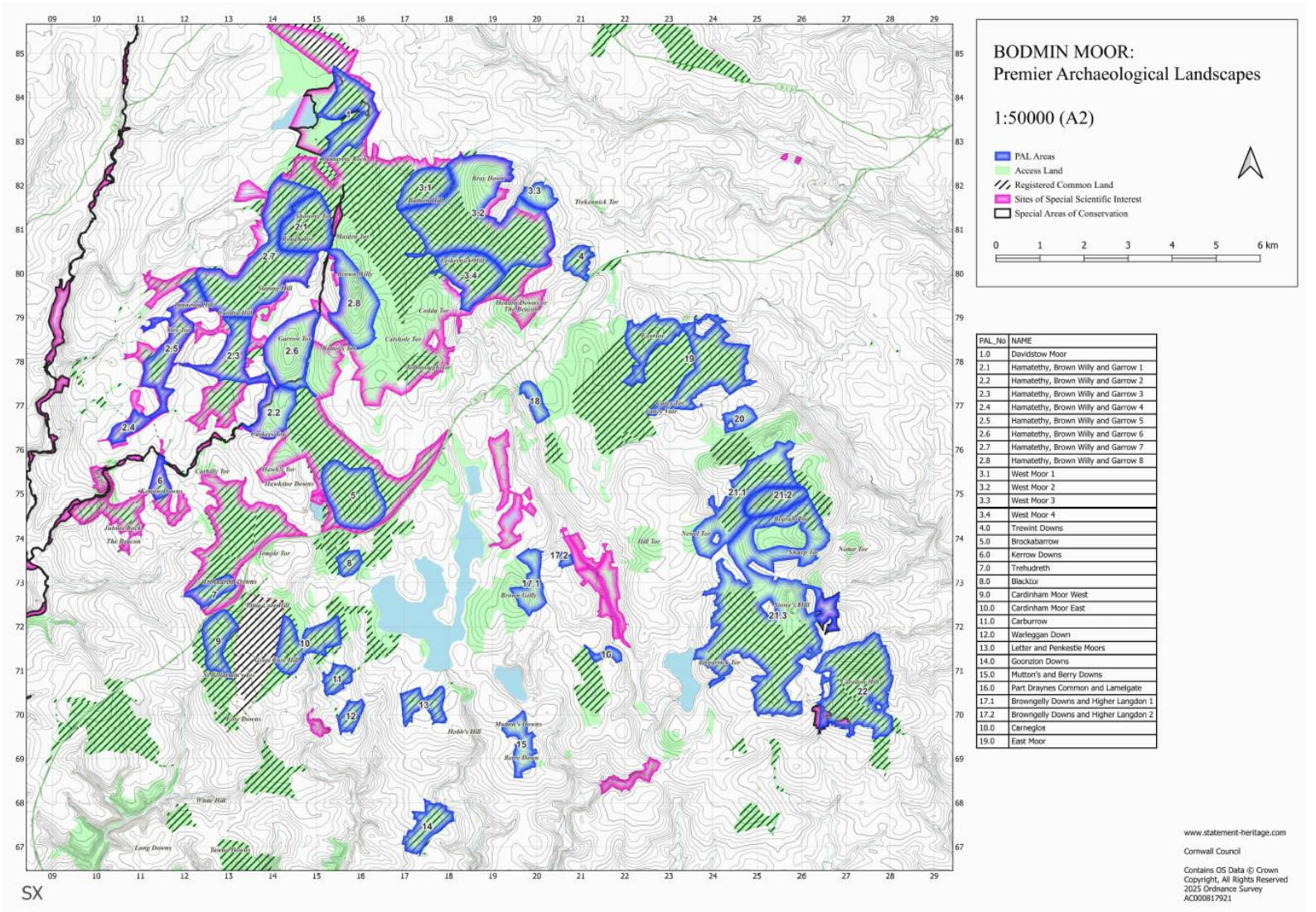
- Favourable - habitats and features are in a healthy state and are being conserved by appropriate management.
- Unfavourable (recovering condition) – if current management measures are sustained the site will recover over time.
- Unfavourable (no change) or unfavourable (declining condition) - special features are not being conserved or are being lost, so without appropriate management the site will never reach a favourable or recovering condition.
- Part destroyed or destroyed - there has been fundamental damage, where special features have been permanently lost and favourable condition cannot be achieved.

Special Area of Conservation (SACs)

As well as SSSI there is also an overlapping structure of European designations of which Special Areas of Conservation (SACs - EU Habitats Directive 1992) is the most relevant to the moor. The Directive is currently implemented in England

through the Conservation of Habitats and Species Regulations 2017, as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

The Conservation of Habitats and Species Regulations 2017 require a Habitats Regulation Assessment (HRA) to be undertaken for any actions impacting a SAC. Broadly, when an SSSI is also situated in a SAC, any operation requiring SSSI consent as an operation requiring Natural England consent (ORNEC) will also require NE to carry out a HRA. In these instances, decisions are made on a precautionary principle (so NE must not grant permission for an action unless it can be shown positively not to have negative consequences).



Overlap between the PALs, registered common land, SACs and SSSIs on Bodmin Moor

The extent of the Bodmin Moor North SSSI on the commons has a significant implication for grazing levels and therefore for the management of vegetation and the condition of the PALs. The density of the PALs sites north of the A30 and in

particular on Hamatethy Common was a factor in setting the original stocking rates for the current HLS UELS agreement.

8.2 Uplands Policy, Brexit to the Present Day

The post-Brexit landscape frames the policy context for the English uplands and the various support mechanisms for environmental land management. Although political leadership has changed the original objectives and ambitions set out by Michael Gove as the Defra Secretary of State in 2018 broadly remain today.

The main policy documents or statements relevant to PALS include the following.

The 25 Year Environment Plan: A Green Future (2018)

At a glance: summary of targets in our 25 year environment plan - GOV.UK

The 25 Year Environment Plan set out the Government's action for climate and nature and called for an approach to agriculture, forestry, land use and fishing that put the environment first. It was seen as a 'once-in-a-lifetime chance' to reform agriculture and fisheries management and to enhance nature, land management, rivers and seas. It set out how the Government would tackle the effects of climate change, which was framed as the most serious long-term risk to the environment.

The plan set out nine (later 10) individual goals with associated targets. This made reference to improving environmental values while being 'sensitive' to considerations of its heritage.

Goal 10: Enhancing beauty, heritage and engagement with the natural environment

'We will conserve and enhance the beauty of our natural environment, and make sure it can be enjoyed, used by and cared for by everyone. We will do this by:

- safeguarding and enhancing the beauty of our natural scenery and improving its environmental value while being sensitive to considerations of its heritage.
- making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing
- focusing on increasing action to improve the environment from all sectors of society.'

Health & Harmony: the future for food, farming and the environment in a Green Brexit (2018)

future-farming-environment-consult-document.pdf

This command paper consulted on the Government's post-CAP domestic settlement for agriculture setting out a vision post the Common Agricultural Policy by advocating fundamental reform. Defra embraced a more dynamic, self-reliant agriculture industry that could compete internationally by supplying products of the highest standards to the domestic market whilst increasing exports. Central to the paper was

a ‘reformed agricultural and land management policy to deliver a better and richer environment in England’.

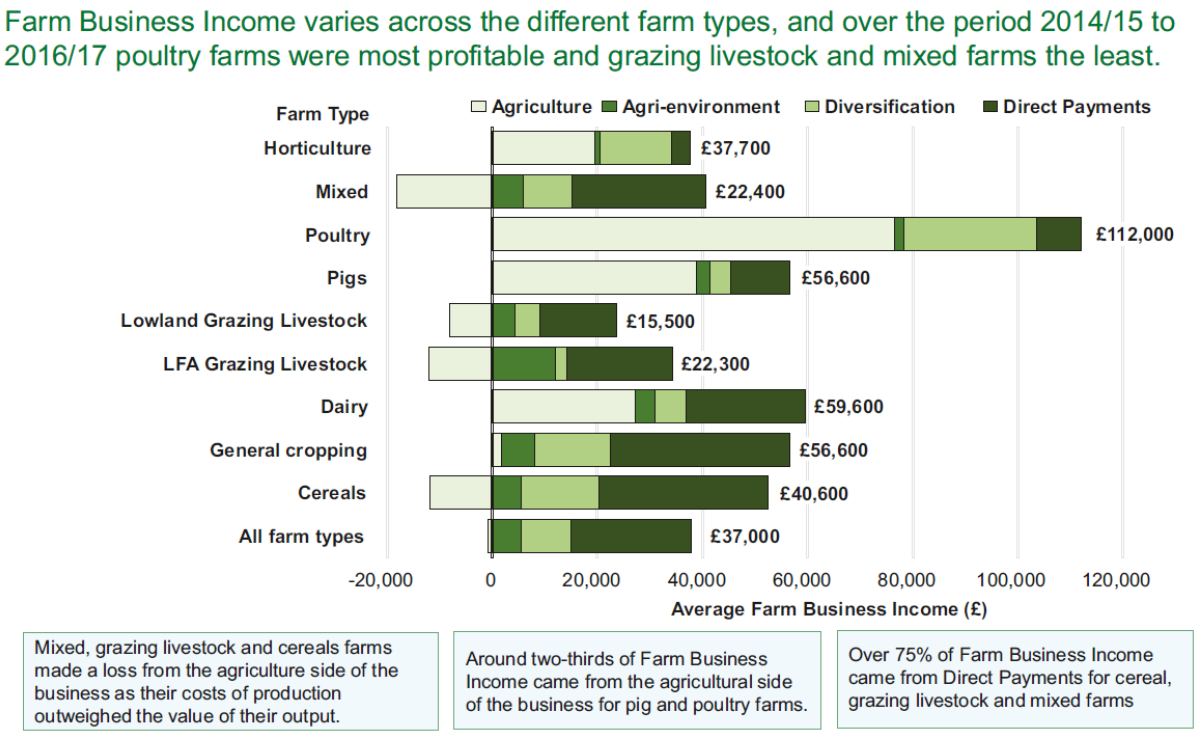
Health and Harmony introduced the notion of ‘public payment for public goods’ and the idea of natural capital values. It defined this as ‘ensuring that public money is spent on public goods, such as restoring peat bog and measures which sequester carbon from the atmosphere; protecting dry stone walls and other iconic aspects of our heritage; and reducing disease through new initiatives that better monitor animal health and welfare’. The paper recognised the environmental and cultural value of upland landscapes and their potential to benefit from new environmental land management schemes referencing biodiversity, flood risk mitigation and carbon sequestration. It also set out a timescale for a new environmental land management (ELM) system as the cornerstone of agricultural policy and mentioned ‘protecting our historic environment’.

The Agriculture Bill (2020)

The Agriculture Act 2020 - House of Commons Library

The Government introduced its Agriculture Bill in 2020 as a replacement for the Common Agriculture Policy. It set out a seven-year transition period to adapt to a new agricultural system. Central to this was the principle that farmers and land managers in England would be rewarded in the future with public money for ‘public goods’. This was defined as ‘better air and water quality, thriving wildlife, soil health, or measures to reduce flooding and tackle the effects of climate change’. These incentives were seen as key to achieving the goals of the government’s 25 Year Environment Plan and the national commitment to reach net zero emissions by 2050.

The Bill confirmed that the new system would replace the Basic Payment Scheme and in future reward farmers for any specific public benefits. Direct Payments were to be phased out over an agricultural transition period, starting with the 2021 Basic Payment Scheme year and running until the end of 2027. Transitional support arrangements were put in place to allow a range of new and historic schemes to help support farmers to adjust to the post Brexit landscape. There was a recognition that change would be challenging for livestock farms with LFA units heavily dependent on direct support and agri-environment income.



Summary of viability of agricultural businesses by sector (Source: Defra)

The Environment Act (2021)

Environment Act 2021

The Environment Act was passed by Government in 2021 and was described at the time as the most ground-breaking piece of environmental legislation in years. It replaced or incorporated former EU regulations to introduce a legal framework for environmental governance in the UK. This included the Environmental Protection Act 1990 and the Water Industry Act 1991

The Acts sets out clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste. A key part of the legislation were new targets to reverse species decline by 2030 empowering Natural England and others to support this ambition. The legislation introduced the framework for biodiversity net gain creating a new market place for private sector investment in nature. It also introduced strategic tools such as Local Nature Recovery networks to deliver against the 2030 targets.

The first part of the Act put in place measures to allow the Government to set and meet long-term targets related to the natural environment and people's enjoyment of the environment. It also required the collation and publication of data related to measuring progress for improving the natural environment and meeting their targets. The changes to statute were based on new legally binding environmental targets, and are enforced by the creation of an independent Office for Environmental Protection (OEP) intended to hold government and public bodies to account on their environmental obligations.

Included in the targets for nature were:

- Strengthened biodiversity duty
- Biodiversity net gain to ensure developments deliver at least 10% increase in biodiversity
- Local Nature Recovery Strategies to support a Nature Recovery Network
- Strengthen woodland protection enforcement measures
- Conservation Covenants
- Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature.

Along with other measure the Environment and Agriculture Acts formed the foundation of the Governments Agricultural Transition Plan Agricultural Transition Plan 2021 to 2024 - GOV.UK.

The Fursdon Review (2023)

Independent review of protected site management on Dartmoor - GOV.UK

This report commissioned by the Secretary of State for Defra was an independent review of protected site management on Dartmoor, carried out under the chairmanship of David Fursdon. The background to the review was significant concern amongst graziers on Dartmoor that Natural England were applying punitive grazing restrictions to common land. This related primarily to common land entered into long running agri-environment (A-E) schemes on SSSIs at the point of being offered a roll over extension. Proposed measures included winter de-stocking of sheep and widespread cuts to both winter and summer grazing levels. The changes were justified by Natural England over concerns that agreements were failing to meet SSSI condition standards referenced in the agreements. Local concerns led to Devon MPs sponsoring a Westminster Hall debate which led to the commissioning of the review.

The review took extensive evidence from a wide range of bodies and made a series of recommendations for ministers to consider on the future management of Dartmoor's SSSIs, and the Dartmoor Special Area of Conservation (SAC), created under the Habitats Regulations. Panel members sought to balance the objective of bringing protected sites into favourable environmental condition with providing a range of other priorities. Amongst others this included agricultural production, public access and both cultural and natural heritage.

As part of the submissions received by the review Historic England (HE) noted that, while legislation exists to prevent damage to historic monuments, the conservation of the historic environment is mostly incentive-based. Achieved in collaboration with other government departments, principally Defra through A-E schemes. They stated that initially HLS agreements were robust on the need to deliver outcomes for the historic environment but went on to say that they were much less confident that

agreements had since been maintained by NE with that initial ambition in mind. The review panel addressed this point by suggesting that NE and other statutory bodies, including both HE and the Rural Payments Agency (RPA), should look to play a higher profile and more proactive role in the management of A-E agreements on Dartmoor. This included negotiations with commons associations for short term roll over extensions.

The Government responded Government response to the independent review of protected site management on Dartmoor: by recommendation - GOV.UK in spring 2024 and recommended the formation of a Dartmoor Land Use Management Group (LUMG) funded through Defra Terms of reference for the Dartmoor Land Use Management Group - GOV.UK. In its response it referenced the historic environment in two specific statements:

- 'The relationship between A-E scheme prescriptions and the management of protected sites must be transparent and an agreed balance struck between achievement of different objectives in the future.'
- 'A balance needs to be struck between the condition of the site and other objectives that are required to support farming practice and the natural and historic environment, and any actions that support mitigation should be considered carefully and constructively, to ensure a holistic management of Dartmoor.'

The LUMG met for the first time in early 2025 and is tasked with addressing 25 of the original 42 recommendations set out in the review. A key objective is the development of a local land use framework whilst other tasks will include exploring a Dartmoor-wide grazing scheme.

Environmental Improvement Plan 2023

Environmental Improvement Plan 2023 - GOV.UK

In 2023 the Government issued The Environmental Improvement Plan (EIP) as the first revision of the 25-year Environment Improvement Plan. It developed the original vision with a new plan setting out how it would work with landowners, communities and businesses to deliver the original goals for improving the environment. The document set out interim targets to measure progress which included heritage under Goal 10. Alongside a number of objectives, it set out an aim to extend the delivery of the Farming in Protected Landscapes programme, using lessons learned to inform future farming schemes

Land Use Framework Consultation 2025

Land Use Consultation.pdf

In January 2025 the Government set out the framework for a new consultation on a Land Use Framework. This reinforced the objectives to create a thriving natural environment and a stable climate as the foundations of the economy, key to food security and profitable farm businesses. Land use change is now deemed essential

to ‘reverse the decline of the natural environment, help absorb greenhouse gases, adapt to the impacts of climate change, and increase the resilience of food systems, infrastructure, homes and communities’.

In his foreword to the consultation the Secretary of State mentioned how the ‘stories’ of our ancestors are embedded in the rich heritage of our land. He went on to state: ‘In the ridges and furrows in our fields, and the stone walls of enclosures, that give a glimpse into the lives of millions of farmers who’ve worked our land for tens of thousands of years’. Implicit within the consultation are questions around the allocation of different land uses where outcomes are more likely to be achieved. This is referenced in the context of climate change and biodiversity as well as agricultural land use. In the uplands the inference is an emphasis on public goods with a reduced focus on pure agricultural production.

Under a section titled ‘Making Space for Nature’ the consultation refers to Protected Landscapes which cover nearly a quarter of England’s land area and include half England’s priority habitats and Sites of Special Scientific Interest (SSSIs). There is an acknowledgement that these are working landscapes and key to biodiversity commitments and that the Government has committed to make them ‘greener, wilder and more accessible while recognising their culture and heritage’. Amongst the questions asked of respondents are:

- What changes are needed to accelerate 30by30 (SSSI condition etc.) delivery, including by enabling Protected Landscapes to contribute more?
- Strengthened Protected Landscapes legislation (around governance and regulations or duties on key actors) with a greater focus on nature
- Tools: such as greater alignment of existing Defra schemes with the 30by30 criteria
- Resources: such as funding or guidance for those managing Protected Landscapes for nature

Closure of the Sustainable Farming Incentive Scheme in March 2025

Record farmers in SFI schemes as government successfully allocates sustainable farming budget - GOV.UK

In March 2025 the Government unexpectedly and without warning closed the SFI scheme. The underlying justification was that the highest ever level of participation meant the maximum budget limit was reached. It stated that Environmental Land Management scheme agreements would remain in place and that a new and improved SFI offer would be announced with details in the Spending Review (June 2025). In Ministerial statement reference was made to capping future funding and to better target SFI ‘in a fair and orderly way, towards the priorities set out on food, farming and nature’. Defra have indicated they plan to direct funding where there is greatest potential to do more on nature and where there is the least ability to access decent returns from agricultural markets, or other sources of investment, as set out in the Land Use Framework (see above).

The inference from this statement suggest that upland areas are therefore likely to be better targeted and rewarded in the new scheme based on their ability to deliver against the Government's agenda. This would also align with investment in the less profitable agricultural sectors such as Less Favoured Area livestock farms.

25 Year Farming Roadmap (2025)

Government announces reforms to boost profits for farmers with a cast iron commitment to food production - GOV.UK

The Government recently announced a reshape of the agricultural landscape of England in a 25-year farming roadmap. It marks a significant shift in focus towards an environment that supports agricultural growth, ensures food security, and restores natural ecosystems. At the heart of the plan is a vision that places food production at the forefront of agricultural policy with a renewed commitment to domestic food production. Key components of this vision include:

- Enhancing food production capabilities
- Ensuring business viability through diverse income sources
- Supporting nature restoration as a cornerstone of sustainable food production

The roadmap places a strong emphasis on agri-environmental schemes stating they are 'essential' for long-term agricultural sustainability. As well as payments for ecosystem services provided by farmland the plan will support habitat restoration and creation whilst providing incentives to reduce agricultural pollution. The Government is keen to promote biodiversity and the interdependence of food production and ecological health. There is also recognition of the close ties between agriculture and the rural community with commitments to rural development strategies. This cross-references infrastructure, education and skills and the vital role played by cultural heritage in supporting tourism.

Component	Primary Focus	Estimated Impact
Precision Agriculture	Optimizing resource use through technology	20% increase in crop yields
Climate-Smart Farming	Adapting to and mitigating climate change	30% reduction in carbon emissions
Agri-Environmental Schemes	Balancing production and conservation	15% increase in biodiversity on farmland
Income Diversification	Enhancing farm business resilience	25% increase in average farm income
ADOPT Fund	Supporting innovation and technology adoption	500 farmer-led trials funded annually

Key Components of UK's 25-Year Farming Roadmap

Defra Policy Design Lab – Development of Future Uplands Policy

At the request of the Secretary of State an internal Defra Policy Lab team has been commissioned to review existing and design future long-term policy for the uplands. As well as staff the team includes Hilary Cottam OBE (15) Hilary Cottam | LinkedIn who is an internationally acclaimed author, innovator and change maker. She was voted UK Designer of the Year in 2005 for her pioneering approach to social design and recognised by the World Economic Forum as a Young Global Leader for her work in the field of social change. The group are currently in a desktop phase and have visited various upland areas from Dartmoor to the North York Moors meeting farmers, graziers and interested parties to inform their thinking. It is anticipated that this will be a new and innovative approach to rural communities within upland settings.

8.3 Current factors framing future PALs management

As well as the current Government policy and fiscal backdrop, other factors are also relevant to the delivery of future PALs management on Bodmin Moor. Some of these are social and governance issues whilst others relate to external drivers such as climate change. In combination with the current ELM offer they form the backdrop to the next twenty years and the recommendation's set out in this report. They include the following.

Value of Historic ES Agreements and PAL's Condition

With 74% of PALs within designated commons the importance of maintaining and establishing new agreements as a management tool cannot be under estimated. Most of these are ES agreements drawn up between 2012 and 2014.

A review of the most frequently used Higher Level Stewardship options is summarised in the table below based on four large agreements north of the A30 plus a single agreement on private land (enclosed moorland). In addition, a further commons agreement south of the trunk road was also analysed. The results show that a standard group of HT options were used across all the agreements in different combinations of actions and supplements. The Native Breeds at Risk supplement (HR2) was only available off the common but at £70/HA made a substantial difference to revenue values for eligible farms.

A consistent theme was the use of HK16 (Maintenance of Grassland for Target Features) as a mechanism to incentivise management of key habitats and archeologically rich areas. As well as mires and species rich wet grassland HK16 was used over field systems and Neolithic settlements sometimes in combination with capital works (HAP – Heritage & Archaeological Feature Protection Grant). Other supplements used included cattle grazing, shepherding and management of heather and gorse providing a higher baseline value to agreements. Averaged out these varied from £90 to £180/HA with the higher sums tending to represent a lower percentage of the physical area. Again, this varied dependent on the site and level of feature interest. On the enclosed moorland where HR2 was available payment rates

per ha could reach £250 for the better-quality habitats or archaeologically rich zones such as PALs.

Code	Description	Rate (HA)	Inflation (3.35% pa)
HR1	Cattle Grazing Supplement	£35	£57.40
HR2	Native Breeds at Risk Grazing Supplement	£70	£114.8
HR7	Supplement for difficult sites	£47	£77.08
HR8	Supplement Group Actions	£10	£16.40
HL9	Maintenance of Moorland	£20-£40	£65.60
HL10	Restoration of Moorland	£40	£65.60
HL12	Heather gorse & grass supplement	£7	£11.20
HL15	Seasonal Livestock Exclusion Supplement	£10	£16.40
HL16	Shepherding supplement	£5	£8.20
HK15	Maintenance of grassland for target features	£130	£213.20
HK16	Restoration for target features	£130	£213.20

Summary of popular HLS Codes (2008 – 2014) used for PAL areas on Bodmin Moor. Inflation based on change since 2010)

Allowing for inflation at 3.35% per annum over the lifetime of the current agreements there is significant financial stagnation of revenue. Global uncertainties and volatility for input values since 2019 have substantially increased expenditure for farm businesses whilst the true costs of commoning are not adequately addressed within current payment structures (see below). Allowing for the adjustment for inflation payment values per hectare for commons agreements (including PALs) would be in the region of £147.60 to £295.20. This could be higher on the in-bye for some farms where a traditional breed supplement is used adding a further £70/hectare.

In terms of stocking calendars these varied dependent on the type of agreement, features of interest and any protected site status. Table ?? summarises the summer and winter livestock units for 5 large common agreements and three areas of private moorland set in 2014. The stocking rates are based on grazing periods (calendars) and allocations of livestock numbers per unit based on grazing species. A single livestock unit (LU) therefore equates to 10 hill ewes, 1 cow and calf (<6 months old) or 1 pony per. It should be noted that these are historic allocations and will have been adjusted over time.

The summer results vary from an outlier at 0.40LU/HA to most sitting between 0.22 to 0.26LU / HA with the average at 0.269LU/HA. Explanatory text in the agreements notes adjustments for targeted grazing of Molinia and in one case for winter sheep grazing to maintain a PAL. In line with actions selected in the HLS UELS agreements (HR1 Grazing with Cattle) numbers of cattle, sheep and ponies are specified. Adjustments are also made for sheep exclusion and grazing periods and for ponies who are present in the commons agreements year round. It should be noted that in

terms of three species grazing cattle and sheep make up between 80 and 90% of the grazing allocation with ponies averaging around 10% of the livestock units.

The stocking rates are of interest when compared to those being promoted in the new CSHT offer. These range from 0.16 GLU (CUP8 – Moderate livestock grazing on moorland) down to 0.08 GLU (CUP9 – Low Livestock Grazing on Moorland) and 0.04 GLU (CUP10 - Limited livestock grazing on moorland). It would appear these are to be applied as a static rate and that seasonality captured in grazing calendars may be restricted. At the current time local NE staff are unable to confirm to what extent they can 'tailor' stocking rates to suit individual agreements. Given the geospatial and climatic variations across the English uplands a prescriptive approach is unlikely to work and especially not on Bodmin Moor with its milder oceanic climate. Defra appears unwilling to consider regional interpretation at present although the scheme is yet to go live.

If the maximum moderate grazing rate of 0.16LU/HA is applied, then the impact on the majority of PALs sites will be an increase in vegetation height and density. This needs to be agreed with NE but given the condition of many of the SSSI's on the moor there must be real concerns that issues such as Molinia dominance and scrub development will be threats to the visibility and condition of the historic landscape, as well as to the heterogeneity and biodiversity of the semi-natural environment.

Code N°.	Common (C) Private Land (PL)	Summer Period – April to October							Average Summer LU/HA	Winter – November to March							Average Winter LU/HA
		A	M	J	J	A	S	O		O	N	D	J	F	M	A	
1	C								0.265								0.105
2	C								0.21								0.06
3	C								0.40								0.17
4	C								0.17								0.09
5	C								0.225								0.1
6	PL								0.35								0.17
7	PL								0.269								0.17
8	PL								0.269								0.17
									Average Summer LU/HA **0.269**								**Average Winter LU/HA** **0.129**

Summary of HLS UELS stocking calendars and LU/HA for commons and private moorland agreements (2014)

Climate Change

The Met Office predicts that we will continue to see a warming of the planet with associated climate change impacts. This is likely to present as warmer and wetter winters, hotter and drier summers and more frequent and intense periods of extreme weather. By 2070 winters will be 1 to 4.5^{O}C warmer (30% wetter) and summers 1 to 6^{O}C warmer (60% drier) What is climate change? - Met Office.

Climate change is considered one of the key drivers of nature-loss with significant impacts on wildlife and habitats. These include stress and damage to species and ecosystems, biodiversity loss and increases in invasive pests with an erosion of natural capital. Examples such as the pathogen *Phytophthora ramorum* have also

benefitted from warming and extreme rainfall allowing them to establish and spread. Many of the natural systems, plants and animals on Bodmin Moor thrive in mild, damp oceanic conditions and will be vulnerable to change. The new ELM schemes are designed to conserve nature and restore ecosystems as part of the Government's efforts to reduce socio-economic vulnerability and increase resilience to climate change.

Climate change also has implications for grassland and grazing livestock. In particular, warmer drier summers place a greater emphasis on shade and water resources. This could see non-agreement commons being pressured in summer as the in-bye land dries and more livestock are turned out to relieve pressure on the home farm. Animal health and welfare will become an increasingly important issue. Diseases such as Bluetongue spread by midges and previously considered a peripheral issue will probably increase. We will also see disease vectors such as ticks benefitting from milder and wetter winter conditions.

Commons Governance

This is an aspect of PALs management which is often overlooked but is key to the understanding of the historic environment and the successful delivery of outcomes. Of the 6.35 million HA of English farmland included in schemes only about 5% of the area is thought to be common land. In the context of PALs on Bodmin Moor however 74% of their physical area is covered by designated commons.

On Bodmin Moor the SSSI north of the A30 represents a significant proportion of the PALs which are entered into three different HLS UELS agreements. In this instance the commons form around 75% of the total SSSI area (3,553 HA out of 4,889 HA) and represents more than half the total area of common land which covers 6,687 HA in 30 different units of land.

These are by nature complex negotiations and involve many stakeholders with different property rights (landowners, tenants and common right interests). Each agreement needs to reflect local practices and to achieve consensus in order to deliver against the outcomes the agreement is seeking to achieve.

In line with historic guidance most associations have an agreement between all the legal interests on the common supported by an internal agreement which outlines the distribution of monies received under the AES. Typical parties include landowners, active graziers and in many cases non-graziers. Many associations retain a general commons group and a dedicated trust or limited company to issue payments and manage any scheme agreements. Increasingly the latter body has become the dominant grouping on commons with associations tending to hold fewer meetings or just a single Annual General Meeting.

There is huge variation in approaches although many tend to be 'localised' and embedded in communities of practice. An historic survey (Short and Walden 2013) by the Foundation for Common land suggested that active graziers benefitted in 89%

of agreements and collectively received on average 77% of the monies. Landowners were rewarded in over half the agreements at around 18% of the financial scheme value with some non-graziers acknowledged but at lower values than graziers. Unlike Wales (Glastir) which defined 'inactive' graziers with associated guidance Defra prefers to leave the apportionment of funds to the agreement holder.

Managing agreements and dealing with multiple bodies and interests requires time and effort. Whilst some associations pay key officers there is no standard formula and clearly each common is unique. The role of the Secretary and Chairman requires a level of skill and knowledge that should be properly remunerated and potentially ongoing investment and up-skilling as policy, legislation and the community changes. There is a clear argument to suggest that all interests in the common should contribute to management if they are rewarded (owner, grazier and non-grazier) whether that is grazing or assisting with management tasks such as scrub clearance or swaling. Current payment mechanisms from Defra recognise the additional burden (MOR1 supplement in SFI for commons) but there is a lack of formal guidance which would help strengthen these roles.

Recent events such as the collapse of the Bodmin Moor Commons Council highlight the vulnerability of governance models despite good intentions. These bodies and potentially members can be open to other challenges as witnessed on Dartmoor (Dartmoor Commons Councils and Wild Justice - Wild Justice challenges Dartmoor Commoners' Council in High Court to tackle deterioration of wildlife habitats - Wild Justice) and reinforces the need for new Governance models and support for the future delivery. Importantly flagship schemes such as Landscape Recovery require participants to form a single legal entity (SLE) and to address these issues as part of their development phase.

Succession and Next Generation

A large percentage of the PAL's are covered by live agri-environment schemes, of which the majority are historic HLS UELS agreements. These agreements (and their predecessors in some instances) were negotiated by a generation of farmers exposed to various forms of direct support including headage payments. Many were younger or middle aged and encouraged to reduce livestock numbers by a combination of financial incentives (HLS and SWES) which together formed a viable package.

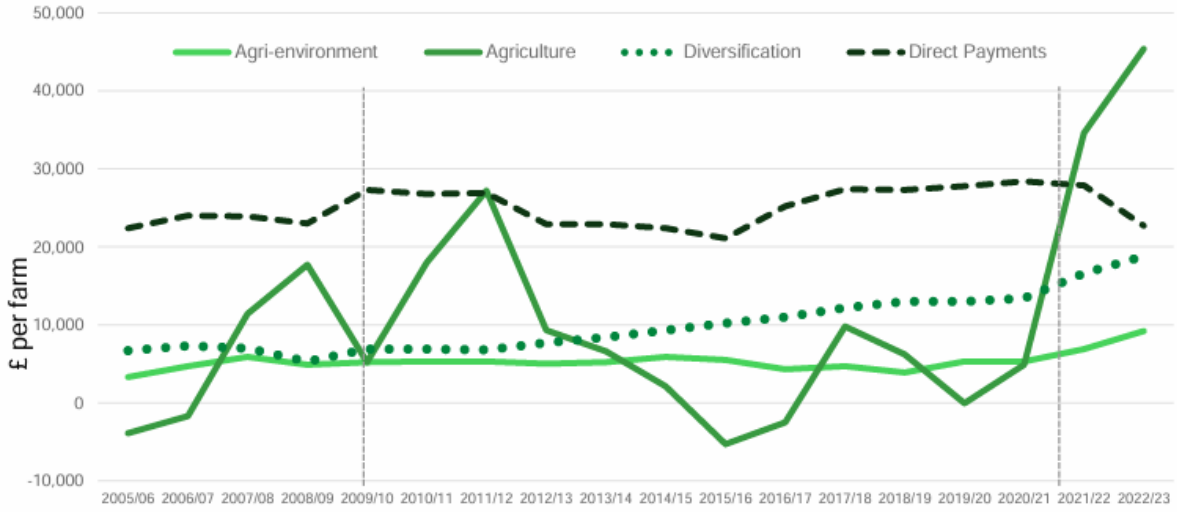
Since 2005 these groupings of active graziers have largely remained steadfast with a number of Commons Secretaries and Chairmen continuing in their roles to the present day. Whilst a few commoners have re-activated their right to graze, the status quo has largely been maintained between active and non-graziers, by conditions of the agreements and financial compensation. However, 20 years is a long period and the next generation is now coming forward wishing to utilise the commons. Few of these younger farmers have any ownership or knowledge of the current agreements and see little value (financial or motivationally) in persisting with

them at current financial levels. Those that have had limited access to BPS or direct support are more closely aligned to ‘price taking’ and encouraged by red meat values in the past few years.

This potentially represents a ‘pivot’ point for current agreements and is an important consideration for future scheme discussion. Issues such as viable grazing allocations and the role of sheep systems in establishing new entrants needs to be carefully evaluated against scheme objectives. Other contextual issues include last year's autumn budget which placed a 20% inheritance tax liability on farms with agricultural assets over £1 million (due April 2026). There were also changes to Agricultural Property Relief (APR) and Business Property Relief (BPR) leading to concerns over land sales in order to finance Inheritance Tax bills.

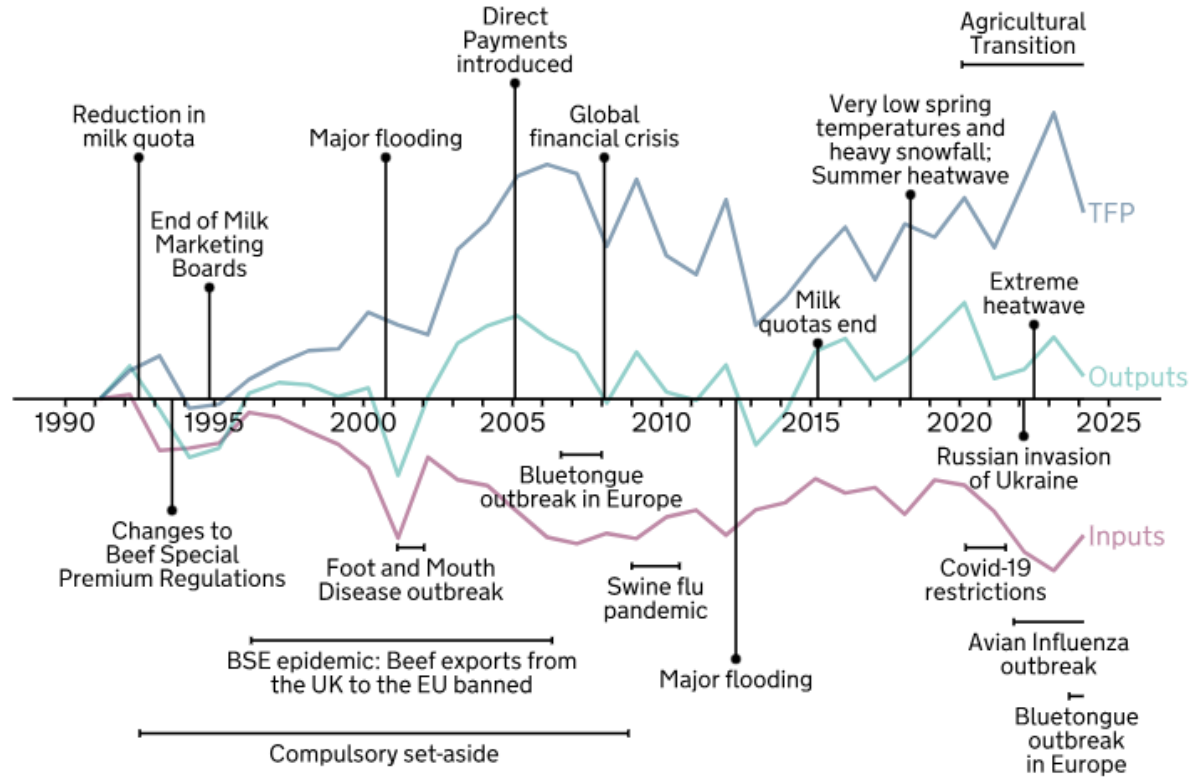
Viability of LFA Upland Farm Units

A key factor for the next 20 years of PALs management is the viability of the farming businesses that deliver the grazed outcomes primarily on the commons. This is particularly challenging for Less Favoured Area livestock farms who have seen income levels fall significantly in line with the withdrawal of BPS and stagnation of ES and CS payment rates.



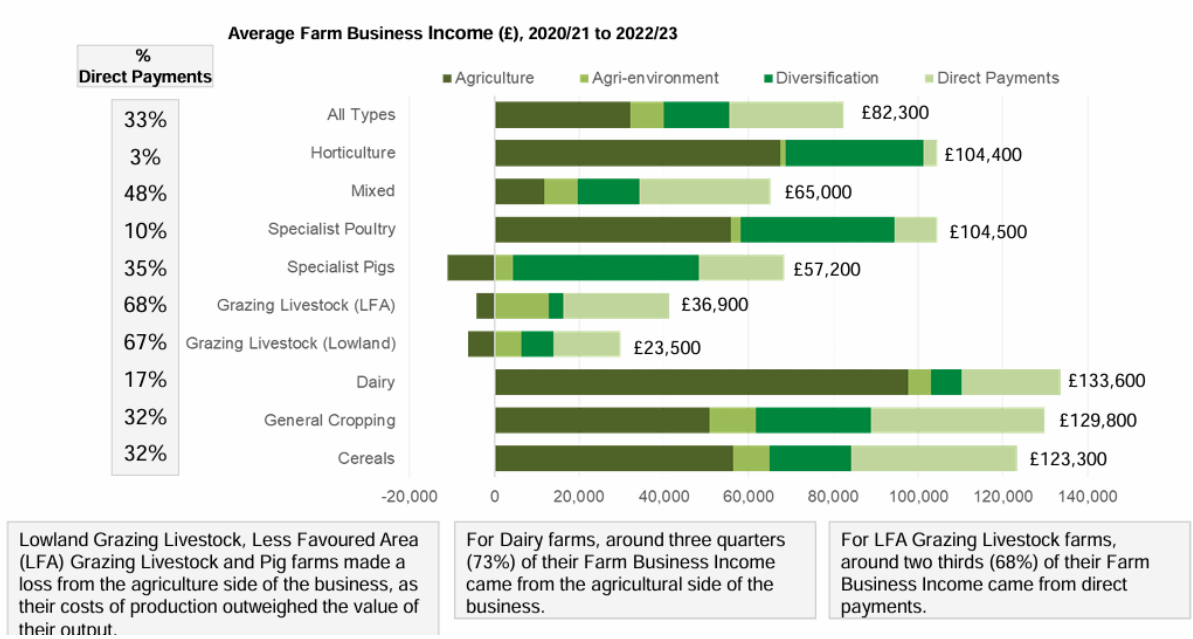
Marginal hill units have relied for many years on a combination of direct support and agri-environment income to underpin the business. In many cases they have sought additional income streams through diversification, outside contracting or work off the farm (partner non-farm income). Recent statistics and data from the Farm Business Survey (2022-23) highlights the challenge faced with pure agricultural production making a loss. It is likely this synopsis remains true despite exceptional prices over the past two years for red meat which has buffered the impacts of the agricultural transition.

Figure 2: Timeline of events affecting agriculture in England, 1990/91 to 2023/24

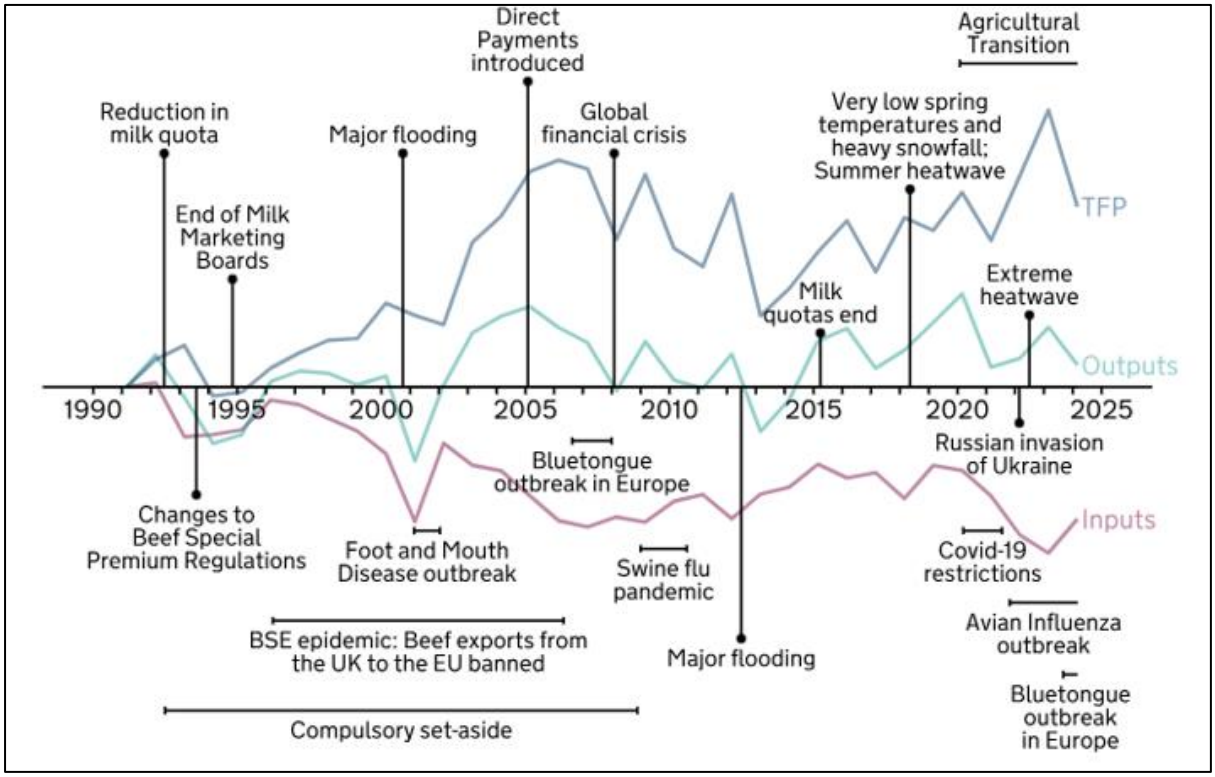


Source: Defra, Farm Business Survey

The longer term outlook for beef and sheep is unclear but we are seeing a gradual reduction in the national suckler cow herd and a slow consolidation in breeding sheep. Commodity markets are notoriously volatile and subject to the vagaries of demand, supply and political instability. Livestock farmers are essentially ‘price takers’ and are therefore vulnerable to peaks and troughs in red meat values. It is considered unlikely at the current time that we will see the percentage of income through agricultural sales shift sufficiently to offset the loss of direct support. These figures are further compounded by the increased costs associated with farming which have seen inputs rise whilst output and farm profitability has fallen. Although the funding pot for agriculture in the UK has remained constant since 2019, farm input costs have increased by 44%. To account for the effect of inflation the Agriculture and Horticulture Development Board suggests the farming budget would therefore need to increase by 44% without considering any other spending required to support the farming sectors.



Summary of average farm business income per farm type 2021 – 2023 (Source: Defra Farm Business Survey)



Timeline of events affecting English agriculture 1990-2024 (Source: Defra Farm Business Survey)

The importance of ELM moving forward is therefore key to upland farms given the loss of direct support. In order to close 'the gap' in income this will require a level of investment significantly higher than historic schemes. This represents a challenge for commons above the moorland line and emphasises the need to develop an appropriate SFI offer for the uplands, one which better reflects the type, scale and

limitations of hill farms and targets investment effectively. New models for common schemes and adaption to the animal health and welfare pathway are examples which could support revenue flows moving forward. The Government has set out a slight decrease in the overall budget for Defra in 2025-26 at 4.8 billion down 0.2 billion on 2024-25. It's not clear how these reductions will be accounted for in expenditure or departmental priorities over the coming year Update on the farming budget – Farming.

Department - £ billion (current prices)	Outturn 2023-24	Plans 2024-25	Plans 2025-26
Environment, Food and Rural Affairs	4.7	5.0	4.8

Figure : Resource Departmental Expenditure Limits (DEL) excluding depreciation (Source: HM Treasury 26.07.25)

The Cost of Commoning

A subset to the viability of upland holdings is the 'cost of commoning'. This is an aspect of farm accounts which is less understood and often considered within the whole farm business as opposed to a separated set of cost headings. Extracting figures can also be challenging for fixed costs and attributing expenditure for items such as breeding replacement livestock.

There has been some recent work in this area looking at the south west uplands. This includes the Cost of Commoning (Our Upland Commons). This study The Cost of Commoning on Dartmoor — Foundation for Common Land collected data from sixteen farms who graze livestock on Dartmoor Common land over a three year period. This was based on a cohort of 2,217 suckler cows and 12,624 ewes (in 2023) of which 69% of the cows and 79% of the ewes grazed the Commons. As the animals only grazed the moor for part of the year estimates were used to address periods grazing in-bye land and when feeding on winter forage. The costs recognised that due to the environmental schemes (HLS UELS) and other regulations livestock needed to be removed for the winter months hence higher costs for labour, machinery and buildings. The results highlighted that over a three-year period the margin for suckler cows was a loss of £325 per cow per year with sheep similarly showing a loss over the same period of £16.90 per year. The only species to be profitable was ponies at £7.00 per mare per year but this figure was based on a small cohort and some bias due to herd size.

The report highlighted the significant costs for hill cows at £780/ head of which feed accounted for £314.00 per year. Sheep and mares were attributed a cost of £53 and £50/ head of which £7.10 was ewe feed and mares at £10 / head. Given cattle were off the moor from November till May much of the financial expenditure related to the agri-environment scheme regulations.

In a recent report for a Defra Test and Trial on Dartmoor the Countryside and Community Research Institute (CCRI) compared the Cost of Commoning figures

with a comparable farm on Exmoor (Dwyer and Lenormand, 2022). This appraised accounts for an upland unit which out wintered Galloways on the common and found the costs per cow to be much lower. The grazier was spending 0.57 of the Dartmoor farms' average level of feed costs (2021 figures) which may be influenced by variations in costs but implying a saving from out wintering cattle of £375 per cow per year. Clearly this is very dependent on the common, location and other variables but suggests winter feed costs are a key part of suckler cow margins. Work by Duverne and Pages (2023) based on data across a range of Dartmoor farms suggested a potential saving with winter cattle grazing of as much as £150/LU based in 2021 prices. Their costings indicated an average net cost of commons management in which out wintered cattle were permitted, of £550 per LU per year based on targeted rates of stocking averaging around 0.25-0.3 LU/hectare. This suggests a management cost somewhere in the order of £137-165 /HA

It should be noted that these accounts are indicative and that other fixed and variable costs may greatly influence the bottom line. On Bodmin Moor the small-scale nature of the commons and their general proximity to home farms differs from Dartmoor and is likely to reduce some costs such as fuel and time. However, accurately capturing costs of commoning and ensuring these are represented in ELM payment calculations (profits forgone) is a key consideration in making these enterprises viable in the longer term. This is particularly relevant now that direct support has been removed.

Commoning, Environmental Change and Societal Change

Since the 1970s we have seen a period of transformation in the uplands driven by a combination of Government policy, grants and societal change. In combination they have implications not only for PALs management but for the culture and traditions associated with pastoral communities.

On the back of headage payments and the Basic Payment Scheme we have seen a gradual consolidation of hill farms in a relatively small number of farm businesses. Often the house and few acres are sold off with the land forming elements of larger units or contiguous holdings. This often consolidates grazing rights in the hands of a few larger farming families resulting in a reduction in the number and diversity of active grazers on the common. This practice may influence a variety of management issues from governance, animal health and welfare, livestock and vehicle movements to preferential grazing and loafing. Other issues pertain to the quality and integrity of the in-bye, particularly where farms are ring fenced and run as single units as opposed to field parcel systems. We know that heterogeneity in the commoning community has many benefits both from a management perspective and wider social cohesion. Retaining viable numbers of active graziers will be a challenge moving forward accepting that these appear above average based on the size of common land units. Key to this will be the next generation coming through and the opportunity for new entrants.

March and April 2025 saw a spate of wildfires on Bodmin Moor including Cardinham and Manor Common. These types of incidents are predicted to increase with implications for biodiversity and the historic environment (David Attwell).

The Met Office has indicated we can expect longer periods of drought and higher temperatures as witnessed I recent years. Reservoirs such as Colliford and river systems are under increasing pressure and livestock will be impacted by these changes (David Attwell).

As set out in the policy context section in this report, the Government has embarked on an ambitious plan to address both climate change Powering up Britain - GOV.UK

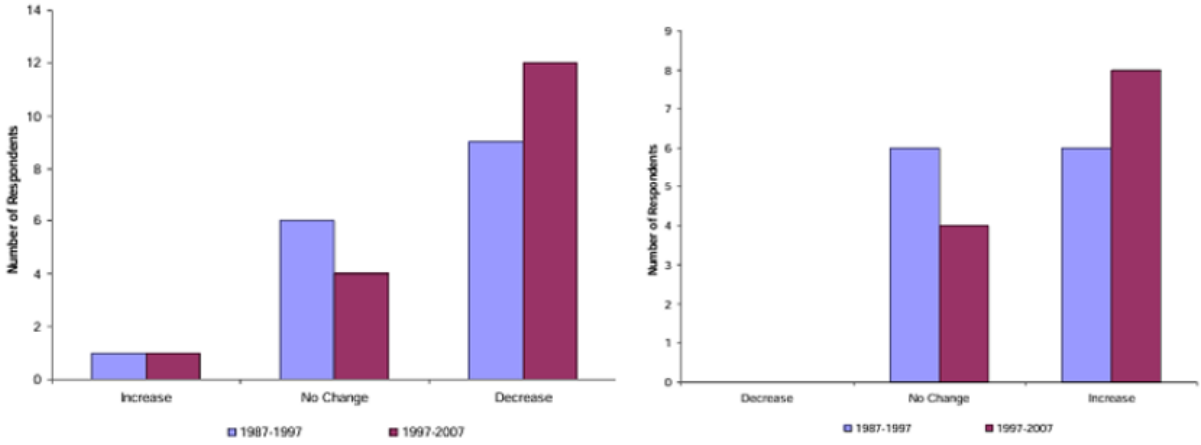
and the biodiversity crisis. It sees reform of support mechanisms and incentives for agriculture as a key driver for change and a tool to achieve its commitments against various national, European and international agreements (COP15 etc.). Farmers are seen as important in reducing and sequestering emissions from the land use sector with a focus on activities such as tree planting, peatland restoration and agroforestry. Defra recognises that reducing greenhouse gas emissions will require a combination of incentives and regulation linked to market-driven innovations. These policies will be delivered through ELM and a number of new grants and investment mechanisms in partnership with the agricultural sector.

A key focus in recent years, and one that is likely to increase, is protected site condition. Driven by Government targets it is often enshrined in outcomes within agri-environment agreements and assessed by a standardised evaluation framework. There has been much debate and concern over the efficacy and lack of resources aligned with SSSI monitoring in the uplands resulting on Dartmoor in the recent Fursdon Review. With a focus on land use management frameworks and local nature recovery strategies Cornwall and Isles of Scilly Local Nature Recovery Strategy | Let's Talk Cornwall there is likely to be greater focus on Bodmin Moor for its public goods potential. Ensuring the historic environment is carefully considered in evolving schemes will require greater knowledge and ownership amongst the Defra family and local delivery teams.

A recent trend and an indication of societal change is the notion of ‘wilding’ or ‘re-wilding’. This is partly driven by the biodiversity crisis and climate change and partly by ethos, fashion and new money markets. The Environment Act introduced the idea of Biodiversity Net Gain and other emerging markets such as carbon Carbon Budget Delivery Plan , green finance and tax incentives. Many larger corporates now recognise the direct links between ecosystem services and business viability and the opportunities for biodiversity enhancement as a route to new markets, sustainable products and resilience to environmental and regulatory changes. This is manifested in new statue such as the European Union’s Corporate Sustainability Reporting Directive (CSRD), which came into effect in 2024. The CSRD requires companies to report not only on the financial risks posed by biodiversity loss but also on the impact their operations have on the environment – a concept known as double materiality. In order to regulate the marketplace Defra has recently announced new industry standards by which nature markets can be monitored A standard to support fair and transparent nature markets – Farming.

These types of measures are likely to see businesses invest more readily in land, environmental schemes and off-setting initiatives (carbon, net gain etc.). Recent examples on Bodmin Moor include Oxygen Conservation Siblyback - Oxygen Conservation who acquired Siblyback Farm near Common Moor. This large farm is seen as an opportunity for extensive woodland creation and eco-tourism and a move away from the traditional livestock systems associated with upland farming. The impacts of these types of initiative can be mixed with implications for long term

pastoral communities and the semi ancient grasslands they are linked with. Often common rights formerly seen as central to a farm are ‘frozen’ with knock-on effects for the commoning community and for anyone wishing to forge a career in farming (see above, next generation and new entrants). There can also be implications for agreements where common land is purchased with other motivations influencing cessation of traditional practices such as swaling. Finally, the level and depth of funds emerging in this sector are such that local people cannot compete for land resulting in a gradual dilution of local culture and pastoral heritage.



Left hand table shows changes in active graziers and the right table changes in farm size over the same period. Based on 18 commons across England (Source: NE2009 Trends in Pastoral Commoning)

Public Access and Recreation

Bodmin Moor has until recently been an overlooked and under explored landscape that people then to pass through or around on the main arterial routes such as the A30 and A39. Numbers of walkers has traditionally been low and with the exception of a series of parish booklets (1990 – 1995) there has been little formal coordination or promotion of access to date.

The designation of the commons and large areas of semi natural habitat under The Countryside and Rights of Way (CROW) Act 2000 added to an already extensive network of public rights of way.

The use of Bodmin Moor as a place for recreation – walking, riding, off-road cycling, etc. has consequently increased greatly in recent years. The (CROW) Act extended public access to the whole of the rough ground of Bodmin Moor, including many of the ring-fenced private areas of rough grassland and heathland. Previously a number of so-called honeypot sites had satisfied much of the demand for an exploration of relative wilderness. Many of these were sites of historical and archaeological interest, including several prehistoric complexes.

- Minions for the Hurlers, Stowe’s Hill and the Phoenix mine complexes.

- Rough Tor Car Park, for Showery Tor and Rough Tor itself, and for the summit of Brown Willy beyond.
- Delphy Bridge for the bridge itself and Kerrow Downs.
- Near De Lank Waterworks for King Arthur's Hall, Garrow and Bedrawle bridge.
- Caradon Hill summit for Caradon Hill.
- Crowpound for Goonzion Downs.

Now there are numerous informal parking areas at points where people can gain access to the downs and tors, including but not confined to the following.

- Bowithick bridge for West Moor via Buttern Hill.
- Davidstow airfield for the airfield itself, Lamlavery and the West Moor.
- Trewortha Lane for Kilmar and Twelve Men's Moor.
- Westmoorgate for West Moor.
- Eastmoorgate for East Moor.
- Hawk's Tor lane (Blisland) for Hawk's Tor, Trippet Stones and Manor Common.
- Stannon Circle for Stannon, louden, Fernacre.
- Alex Tor for Treswallock Downs and Dinnever Hill.

The scale and nature of Bodmin Moor is that it is a smaller more intimate landscape than its larger neighbours of Dartmoor and Exmoor. The complex relationship between small 'home' commons and the in-bye creates an illusion of scale which in reality is only really found on the more extensive tracts of Hamatethy and West Moor.

Whilst there are some promoted cross moorland routes most walkers tend to utilise the CROW land which also forms a focus for school groups participating in The Duke of Edinburgh Award or training for Ten Tors. Since Covid numbers of walkers and visitors has risen with an increase in both dogs and family groups. This is clearly evidenced on areas such as Manor Common by the use of highway passing places for parking to gain access to adjacent moorland. Other drivers for change has been a general increase in the resident population aligned to housing development in major towns and villages. In particular, Bodmin, Camelford, Launceston and Liskeard have seen significant growth resulting in increased use of the peri-urban fringes of these key settlements.

This access is beneficial for individuals and groups, for their health and well-being, including their senses of attachment to place and identity.

The impacts of recreation in upland areas depends on the type and intensity of use and how people access the area. This can be physical obstruction through poor vehicle behaviour or localised erosion of soils on heavily used routes. On small commons regular disturbance particularly by dog walkers can cause stock to stray or preferentially graze areas in response to recreational pressure. Although by law dogs should be on a short lead (2 metres) between 1st March and 31st July to protect

ground nesting birds, this is rarely followed. There are also health and welfare impacts with increasing issues of livestock worrying and conflicts between walkers and animals at lambing and calving time. On Dartmoor (2024) in some heavily used zones the Health and Safety Executive has been involved due to the number of cattle attacks. These incidences are often linked to dogs but also to runners and cyclists in bright clothing and larger scale recreational events. Although the pressure is much less on Bodmin Moor there are no established mechanisms to manage these conflicts or to regulate level of access.

These types of scenarios are likely to increase over the next twenty years and require careful thought when considering commons management. Given the relatively small size of many of the commons on Bodmin Moor the scale of recreational impact is accentuated even at relatively low levels.

Other problems are the dropping of litter, the parking of cars in places and ways that disturb and compact the ground, or prevent commoners gaining access to pastures, etc. There is also a diminution of the sense of remoteness and wildness that occurs when brightly dressed people make their way across previously rarely visited areas of the Moor.

Heterogeneity – A Diverse Landscape

The history of agri-environment support on Bodmin Moor is very different to that on neighbouring inland areas such as Dartmoor and the Penwith Moors. In these cases, an Environmentally Sensitive Area formed the foundation of significant engagement (84% on Dartmoor) followed by evolution into ES and CS schemes. This was supported by dedicated staff and by the framing of existing forums such as the National Park or District Councils. In contrast on Bodmin Moor apart from a brief period under the Rural Development Programme funded Bodmin Moor Livestock Initiative there has been little focus on building consensus or collaboration in landscape scale schemes.

The result is interesting when contrasted to habitat condition and protected site change. On more collegiate areas such as Dartmoor entry into large scale generic prescriptions (common land) has resulted in a general decline in habitat and species diversity with a corresponding increase in vegetation height driven by reduced grazing and burning. This has resulted in SSSIs and PALs being considered as in sub optimal condition and has given rise to a range of interventions to address site condition and a national review (Fursdon Review). There has been considerable concern expressed over the decline in the commoning community The Dartmoor Society's letter to the press regarding the current controversy over further reductions in grazing on the Dartmoor Commons. - Dartmoor Society and a diminution of pastoral activity and associated intangible heritage. There has also been a recognition by Natural England and others that there is insufficient environmental data on which to evaluate the past 20 years on Dartmoor.

In contrast on Bodmin Moor a haphazard pattern of land management evolved based on social dimensions as opposed to societal drivers. Some commons entered agreements whilst others chose not to, creating a diverse mix of habitats and grazing patterns. This randomised model appears to be more resilient to change and is generally a more biodiverse space as a result. An indicator of this can be seen in PALs condition with the non-agreement sites providing greater visual access to the archaeological record albeit with some localised erosion issues.

In a similar vein some species have benefited and in particular invertebrates and waders. A good example would be Curlew which still have a viable breeding population on Bodmin Moor in contrast to Dartmoor who have just two adult birds left (non-breeding) and have been running a ‘head starting’ programme for the past five years The Duchy of Cornwall plays critical role in recovering Dartmoor's curlew | Duchy of Cornwall. The factors that surround this are complex but certainly a closer grazed landscape with less predator cover are amongst the most relevant. There have also been benefits for Marsh Fritillary which although vulnerable to heavy grazing is more susceptible to light grazing with Bodmin Moor now a remaining stronghold for this species.

An important lesson identified by the authors is the need to avoid large scale homogenised schemes driven by prescription rather than by outcomes. Creative and dynamic approaches are more likely to lead to success and allow better evaluation of interventions. The imposition of standardised (north of England) grazing calendars for the South West uplands should be avoided as a blunt tool unlikely to deliver required outcomes.

(EXPAND re culture, TEK, etc.)

Signum triciput*, a man looking back at the past, out at the present, and into the future, as we do when we consider the management of Bodmin Moor's rough ground. A symbol of people's engagement with time; both continuity and change. 15th or early 16th century bench end at Cardinham church, on the SW side of the Moor (Pete Herring, December 2020).*

9 Plan and strategy, HEAP Stage 4

9.1 Engaging with stakeholders

The stakeholders in Bodmin Moor's Rough Ground each have their own aims, objectives and obligations, and their own detailed, subtle and sensitive understanding of the Moor. Each can be informed by relating that to the long history of pastoralism on the Moor

For **farmers, landowners and commoners**, the rough ground is a resource from which livings are made, and through which a culture of pastoralism and a related body of Traditional Ecological Knowledge (TEK) has been developed and passed on. Their attachment to the Moor and to the ways they work with it might be strengthened if there was greater awareness of the connection with Neolithic, Bronze Age and medieval predecessors and with the archaeological remains that they have inherited from those times and from the many periods since then. In return, much may be gleaned from engagement with modern-day farmers regarding the specific qualities of parts of the Moor, the skills, methods and terminologies deployed when practicing pastoral farming today, and the issues and opportunities surrounding a return to a sustainable level of grazing.

It might be noted that for all of the previous millennium, and probably for the three millennia preceding that, back to the Early Bronze Age at least, that the large part of the rough ground of Bodmin Moor was managed as commons, and thus by using rules and customs that ensured its principal quality, the herbage eaten by livestock, was perpetually sustainable. Adjustments made to commoning practice in the last century have dislocated present-day farming communities from that very long continuity of sustainable commoning.

For **those who champion and guide management of the landscape**, including the Cornwall National Landscape team, there is an opportunity to develop and present narratives based on the long history of pastoralism that will enable the wider public to appreciate why and how the beauty and beguiling interest of Bodmin Moor developed and can be sustained. They will then be better able to champion the farming community as it takes on the heavy lifting in managing that beauty and interest through maintaining resilient and environmentally sustainable pastoral practice.

For **those who champion and guide management of the natural, or semi-natural environment**, including Natural England, the Environment Agency, RSPB, Cornwall Wildlife Trust, and other bodies and individuals, the appreciation that Bodmin Moor is not wilderness, but is instead one of Europe's most ancient continually managed semi-natural communities, an ancient semi-natural grassland created and maintained by summer grazing and when managed well a richly biodiverse habitat, dominated by coarse grasses and associated herbs, but also containing a shimmering mosaic of other communities, including heathland and scrub.

For those who champion and manage the historical environment including Historic England, the Cornwall Archaeological Society, Cornwall Heritage Trust, more local bodies like Caradon Archaeology and the TimeSeekers and many individuals, including researchers, the contextualisation of long-loved archaeological sites will help frame further research and involvement in ongoing management. Most archaeological sites can be related to pastoralism in one way or another, or to radically separate activities like extractive industry, defence and recreation.

9.2 Kitchen Table Discussions – feedback and key messages

As part of the development of these recommendations a series of Kitchen Table Discussions was held with interested parties, representing the stakeholders outlined above, in relation to PALs. This included representatives of Natural England and Historic England as well as Commons Secretaries, Chairmen and graziers. A summary of the key points can be found in Appendix 2.

The discussion was broken down into a series of sections covering topics from PALs awareness to grazing management. As informal and organic conversations, notes were taken during the sessions and then ordered according to relevance. Meetings took place on farm, on Zoom and at agreed meeting locations.

Participants were assured that any notes would be anonymised with the key points being used to inform future recommendations for the PALs. The feedback has been summarised under five headings as follows.

PALs Awareness

There was significant variation in response to this question and results were influenced by the roles and expertise of the participants. In general PALs had been considered in the last round of HLS agreements which are still live today (roll overs). This was probably influenced by the relatively recent development of the designation and the fact that officers at Natural England (NE) and Historic England had ownership and knowledge of their context. That said, it still relied on the attitude and skills of the individual NE officer to ensure that the historic environment was balanced against other priorities such as outcomes for protected semi-natural sites.

Knowledge of PALs for the commons associations appeared to begin and largely end with the key positions of Secretary and Chairman. Given the way PALs evolved at an agency level, this is not surprising. This broadly reflects the way agreements are negotiated and managed with the wider community (graziers and non-graziers) being unaware of the meaning or role of PALs. Whilst graziers may be familiar with individual or groups of monuments, their inter-relationships on a common or at a landscape scale are less understood. Knowledge or engagement with the historic environment tends to revolve around practical management tasks which can engage individuals in scrub management, erosion repairs or discussions over vehicular access.

More recent experience of PALs is less encouraging with an impression that they are less visible and no longer form a key element of agreement review or development. Knowledge and ownership has waned over time and planning officers, NE staff, HE regional teams and other key players are not utilising PALs as a meaningful tool. Its presence within systems such as the HEFER in agreement processing seems hit and miss with triggers normally created by SHINE polygons and not the PAL itself.

The ability to discuss and convey significance of the historic environment is limited to 250 words for what can be complex and internationally significant sites. This can underplay the importance of the historic environment and fail to generate a suitable level of discussion and engagement between NE, HE and the local HER team. Several respondents referred to the value of time in the field with multi agency groupings and the commoners as a valuable way to agree priorities and embed understanding between parties.

Agri-Environment schemes

This formed a large part of the conversations and generated a mix of responses with some alignment from both the agencies and the graziers.

The commons representatives raised a range of points in relation to current schemes. A critical point is the low levels of return now represented by HLS agreements which have been in place for well over a decade. There was unanimity that these needed to increase between 2.5 and 3 times the current financial levels to attain sufficient buy in and commitment. One association had undertaken independent ecological assessment which suggested they should be generating 240% more in annual revenue income (based on CSHT).

- A backdrop to this discussion is the new generation of younger commoners now coming through. They have no ownership of the schemes and at current values wish to graze the Moor to take advantage of higher livestock values which are potentially more profitable.
- One chairman pointed out that LUs are now so low it is hard to offer graziers viable numbers of stock in order to make the act of commoning viable.
- This was seen as a genuine risk by all participants and highlights that issues such as farm business succession may have implications for retaining agreements and PALs management moving forward.

Overall, participants felt that the visibility and condition of the historic environment had declined over the last 20 years and cited the impact of ‘furze’ and Molinia as two driving forces for change. A great deal of time and cost had been expended on tackling Gorse but there appeared to be no key learnings or evaluation of techniques. It was suggested that it has always been an issue and that in the 1940s it was present when cattle were dominant with fewer sheep.

One grazier expressed concern at the reduction in swaling and management of scrub citing hillsides which had now been covered and unlikely to be ‘easily rescued’.

In contrast a commons secretary suggested that vegetation cover was now different to any time in their lifetime suggesting that if an ecological emergency was the priority then more vegetation cover wasn't an issue. They rationalised this by suggesting that 'all of the archaeology has been recorded and can't see a real issue if it's allowed to cover over'. Other contributions simplified that graziers associated archaeology with a right to graze harder and therefore visibility of archaeological remains may be an issue worth raising with NE.

Stocking levels were covered in detail and the gradual changes made by NE over 20 years linked to SSSI condition.

- Reducing stocking levels was felt not to have delivered either for ecology or archaeology and there is a frustration at a lack of evidence.

There was strong comment on the need for careful discussion over stocking rates on contiguous commons to avoid vacuums and balances of different grazing animals. Management of grazing to deliver outcomes for archaeology was thought to be challenging although practices such as cobnuts and invisible fencing system could have a role to play in future.

The expert witnesses focussed on broader topics including agreement development and management. There was a feeling that better dialogue was needed between agencies and commons' associations with a renewed focus on landscape characterisation.

- Concerns were raised over stocking rate prescriptions historically (and in ELM) and that no regionalisation was applied to reflect growing seasons in the south west and different environmental conditions.

The heritage experts felt that scrub cover had increased in 20 years *[NB largely confirmed by this project's reviews of PALs using 2005 and 2025 aerial imagery – see PALs texts]* and that this was impacting certain feature types such as ridge and furrow (mainly lazy beds), turf steads and the more small-scale surface monuments. Examples were given of changes on Twelve Men's Moor (Molinia), St. Cleer Common, Stowe's Pound (scrub and bracken) and a number of free draining sites where bracken now obscures the archaeology.

There was praise for the early phase of HLS with experimentation in the field such as scrub removal on Treslea Downs and a general willingness to test and trial. This was felt to be an opportunity in ELM and reference was made to the Penwith ESA where feature protection grant payment rates were increased over time with a corresponding rise in take up. The need for creative application of the new CSHT options was explored with NE staff who placed emphasis on use of the planning capital grants to inform agreements. Other suggestions included options such as CHS4, CSG21 and the peatland payments to bolster revenue.

The local NE team wish to re-engage around PALs at a time when the regional Historic England focus appears to be moving to urban issues.

Future Scheme Design

Conversations around future scheme design focussed on revenue returns and the need to ensure 'buy in' from the next generation. Current values are considered too low, and it was suggested that figures closer to £400-500/HA were required now. Reference was made to the inappropriateness of the use of Lowland Heath as the target ecology on Bodmin Moor, which has essentially a lower and more oceanic setting.

It was suggested that if agri-environmental agreements fail the commons will be subject to much higher stocking rates with an emphasis on sheep as opposed to cattle. Whilst it was acknowledged this would suppress scrub, and increase the visibility of archaeological features, it would by default increase localised monument erosion. In the context of the SSSI and how NE might approach this with most respondents suggested that historic notifications would not be sufficient to prevent this in the first instance.

There was some interest in tying home farms and the common into integrated schemes with Landscape Recovery referenced by one association as a possible way forward.

There was concern over how graziers are tasked with multiple objectives in small spaces with complex grazing allocations. Targeted management was considered difficult, and collars were seen by some as useful and others as impracticable in shared grazing situations. Shepherding was also questioned as effective on smaller commons where displacement of livestock by people enjoying the open access and by other graziers is frequent.

Commons Governance

Discussion of this theme highlighted the complexity and skills required to negotiate, manage and deliver schemes over time. Each of the commons' associations paid either their Secretary or Chairman to perform a coordinating role although there are no standardised formulae for this. In line with Defra guidance, a separate trust was established to handle the HLS agreements and to make payments between interested parties. This left the commons association as a general management body although most of the power and decision making is now vested in the trust. There was some discussion over the suitability of this model and at least one association was moving to develop a limited company which was felt to be a more robust model.

Allocations of payment were determined locally and in some instances included non-graziers. Values were generally related to rights allocations with different formulae applied for graziers apportioned in relation to the HLS agreement. Lower rates are paid to non-graziers who are not required to contribute directly to management of the

common. All of the commons paid their landowners a pro rata sum based on the physical area of the common.

The role of the Secretary or Chair is key to the success of an agreement, and they are central to discussion in relation to the PALs. Respondents clearly work hard to be flexible and accommodate local issues within agreements, often negotiating between parties. It was intimated that in future only active graziers should be paid which is a model already being applied by one association. However, there was support for the concept of non-graziers being asked to help manage PALs and in particular activities such as scrub clearance and swaling.

Animal Health & Welfare

This was seen by the graziers as an increasing issue in relation to changes in vegetation communities on the common. Tick borne disease was cited by several people of which babesiosis and tick pyaemia were seen as risks associated with grazing the common. There was also reference to dense gorse stands creating issues for dogs when moving stock. The reduction in swaling was seen as a negative factor for animal health with burning suggested as 'cleaning' the ground of pests and diseases.

In terms of animal health and welfare models for commons this was considered a good idea but may be impracticable due to the ways that people graze the smaller commons on Bodmin Moor. This involves stock regularly changing and could be an issue when considering bio-security and nose to nose contact. There were some concerns over NE requiring winter de-stocking of long-established sheep flocks. These were felt to have some naturalised resilience to the environment and potentially intangible genetic values that would be lost through seasonal grazing restrictions.

Animal health and welfare was not discussed in agreement negotiations and implications for livestock or business viability were felt not to be considered in final settlements. Re-visiting this along with the costs of commoning was felt as a way to re-balance payments towards acceptable levels.

9.3 An overarching aim, framing objectives and targets

To gather resources together to achieve an outcome that benefits all the key stakeholders on Bodmin Moor, it is suggested that there is an agreed Aim that all actors and agencies can accept and work towards. The following is suggested:

Aim: To develop and maintain resilient and environmentally sustainable pastoral practice.

The Aim recognises the following.

- That **livestock grazing is key** to the Moor's short and long-term sustainable future.

- And that **long-term resilience rests on interdependence** of the three principal elements of the Bodmin Moor environment, the natural environment, historical/cultural environment, and the current managers (farmers, and commoners).
    - Grazing is the basis of a healthy natural or semi-natural environment.
    - It is consistent with the millennia of pastoral land use that has created the highly important archaeological remains and enables them to survive in good condition and continue to be visible.
    - It enables local farming and commoning communities to maintain a viable economic use of the ancient semi-natural grasslands that they and their predecessors have created and maintained.

It also recognises that current pastoral practice on Bodmin Moor, guided as much by prescriptions imposed by those with partial understanding of the Moor's history and significance, as by traditional sustainable use, has drifted away from the ancient commons-based use that created the semi-natural communities, and especially the ancient semi-natural grasslands, that all interests depend upon.

Alignment of that Aim with other strategies and plans

The Aim fits with the broader Vision set out in the **Cornwall Heritage Strategy 2022-2030**:

'In 2030 Cornwall's historic environment enriches people's lives. It is a valued part of Cornwall's prosperity and distinctiveness. Understanding how Cornwall has changed over previous millennia, centuries and more recent decades, we are better able to meet future challenges.'

It also aligns with **Cornwall's Environmental Growth Strategy**, which provides a long-term framework that aims to not just conserve, but to grow nature… by ensuring that there is more of it, and that it is bigger, better, more diverse and more joined up, and ... guided by the principle that we are interconnected with nature.' It contains a 'target that by 2030 30% of our land and seas are well managed for nature' (Cornwall Environmental Growth Strategy).

Natural England's Strategic Direction 2025-2030 focusses on 'Recovering Nature for Growth, Economy, Health and Security' and aims to drive nature recovery at a larger scale, address the root causes of nature's decline, and support sustainable practices in land use and farming. It emphasises working with partners to create resilient landscapes, to put people at the heart of the environment, and to grow natural capital (Natural England's Strategic Direction 2025-2030).

It also aligns with the three 'areas of focus' in **Historic England's Corporate Plan 2023-2026**. Each addresses the needs of 'historic places', of which Bodmin Moor as a whole and the Premier Archaeological Landscapes are good examples.

Thriving Places: 'We will collaborate with people and partners to secure vibrant and sustainable futures for historic places.'

Connected Communities: ‘We will bring communities together by discovering and celebrating local heritage, and by protecting the character of historic places.’

Active Participation: ‘We will inspire and equip people to take action in support of the places they care about.’

9.4 Raising awareness of PALs

In order to recognise and strengthen the role of PALs a number of changes are suggested to build awareness and to embed the designation in cultures and process.

Audience: Landowner, Grazier, Commoner

As the people responsible for the care and management of PALs it is important that the designation is understood both spatially and functionally. This could include:

- Provision of each PAL report to all with a direct interest in it (owners, occupiers, commoners).
- Simple summary leaflet on the PALs generally, the overarching HEAP for Bodmin Moor, and the Bodmin Moor Vision. Links to this from relevant web pages Cornwall National Landscape or Cornwall Council, including via the Heritage Hub on Let’s Talk Cornwall https://letstalk.cornwall.gov.uk/hub-page/heritage), and from more local Bodmin Moor community and commoners websites
- These should explain the basis of the identification of PALs and their significance.
- They should also flag ELM opportunities and provide basic guidance on desired management and condition for key monument types.
- Maps of the revised PALs areas.
- Contacts for further support or advice.

Audience: Statutory Bodies

A key outcome from the review was recognition of the loss of ownership and awareness of the original PALs process as staff moved on and organisations changed. Re-building knowledge and relationships alongside procedural enhancements will ensure PALs are considered, both in evolving agreements and local policy frameworks.

- Briefing for relevant NE, HE, CNL and CC staff on the PALs Review.
- Workshop with key individuals (including landowners / graziers) to consider next steps for local ELM processes including professional support for new agreement development.

- NE, HE and the CNL partnership to act on the Fursdon recommendations around coordinated discussion on scheme development where SAMs (PALs), SSSIs and National Landscape coalesce.

Audience: Wider Communities

The PALs review provides an opportunity to raise the profile of Bodmin Moor as an outstanding pastoral landscape and a highly important historic environment. Like the organisations historically involved in PALs, the local community and the wider community of interest have also changed, suggesting a refresh and then a mechanism for keeping PALs fresh and relevant would be of value.

- Organise a PALs review and a high-profile re-launch conference or symposium. Ensure the latter includes representation of farming / commoning and semi-natural environment interests as well as the historic environment, though the emphasis will inevitably be on the historical and archaeological.
- Establish an annual PALs-related event, with field visit, talks and structured discussion.
- Embed delivery of the Historic Environment Action Plan in the work of the Cornwall National Landscape team as a primary means of delivering against the CNL's Management plan for the Bodmin Moor area of the CNL.
- Prepare a booklet that sets out the aims and structure of the HEAP, BMV and the PALs, and how public benefit is central to them.

9.5 Embedding PALs in decision-making processes: including further work

In order to better present the historic landscape associated with PALs information about it need to be both visible and accessible. Raising the visibility and profile of PALs and embedding them in processes and systems will ensure a 'trigger' that can alert decision makers to their presence and significance.

- Make the revised PALs areas available on GIS through appropriate mapping tools. This should include:
    - The Cornwall and Isles of Scilly Historic Environment Record online mapping, with hyperlinks to each PAL's text. Cornwall and Scilly HER
    - The Cornwall Council Interactive Mapping, under Historic Environment, again with hyperlinks to each PAL's text. Cornwall Council Interactive Map
- Review how PALs are identified within the HEFER system to ensure they are recognised in their own right and not reliant solely on being mentioned in SHINE polygons.

- Include the PALs in Cornwall National Landscape mapping for Bodmin Moor and also provide to Natural England and Historic England for inclusion in their GIS systems.

A challenge for ecologists and archaeologists is how to agree priorities for key actions in relatively small landscapes such as Bodmin Moor. Developing tools that help inform discussions would be useful. The process deployed by Dartmoor National Park to review tin streamworks in relation to peatland and natural flood management is a model that could be applied to Bodmin Moor. This needs further discussion but could help to 're-purpose' features whilst contributing to mitigation for climate and nature.

Cornwall National Landscape adopting the Bodmin Moor Rough Ground HEAP

It might be suggested that the CNL team could consider whether their adoption of the HEAP might be a way of being involved in the oversight of the management of the historic and semi-natural environment of the whole of Bodmin Moor at the higher strategic level. The Management Plan 2022-2027 recognises that the Moor is 'hugely important historically', refers to some of the types of site that are found on it, and mentions the Vision for Bodmin Moor that melds the aims of all the agencies and bodies with an interest in the rough ground.

This overarching HEAP and the recommendations for the individual PALs may provide the CNL with a tool that ensures that the historic environment of the rough ground is appropriately managed.

The CNL's Objective BM-Ob1 is to 'Support the Bodmin Moor Commons Council in the coordinated management of the commons and resolution of commons issues.'

And Objective BM-Ob2 is to 'Support landowners and managers in achieving a landscape scale approach to the integrated management of natural, historic and geologically significant landscapes. Any restoration of moorland habitats should seek to improve ecosystem services and benefit species diversity. across the moor and seek to achieve consensus on long-term management objectives.'

Improving understanding and awareness of Heritage Values on Bodmin Moor

It is now generally accepted that the historic environment of Bodmin Moor is of special significance – as complex palimpsests of ancient and modern archaeological remains, the equally ancient semi-natural communities that are also semi-cultural communities, through being the outcomes of millennia of human-guided land use, and the intangible cultural heritage of Bodmin Moor pastoralism that enhances the meaning and value of all the above.

There has been systematic assessment of those archaeological remains that had been recorded by 1990 (which amounts the great majority of them), site by site, to inform statutory protection through Scheduling. This is expert-led assessment using largely evidential criteria.

To inform the wider range of decision-making that extends beyond formal planning processes, there is also a need to consider each of the Heritage Values (Aesthetic, Communal, and Historical Values as well as the Evidential) when reviewing the varying significance of places across the Moor, so that informed and good decisions can be made about changes such as those associated with vegetation management as part of the development of long-term sustainable pastoralism (the suggested chief aim of those managing the Moor). See Section 6, above for an introduction to the Heritage Values as they may be applied to the Moor.

The proposed review of Values can be undertaken at different scales:

- For the whole Moor, perhaps delineated as the Cornwall National Landscape area, and including the enclosed land, woodland, marshland, etc as well as the rough ground.
- For all the rough ground.
- For each area of common or each area of privately managed rough ground
- For each of the 22 PALs.
- For each of the Types of archaeological site found on the Moor (see Appendix 1).
- For particular sites, when required.

Sensitivity and Opportunity assessment in relation to specific types of change

The following subsections (9.6 to 9.11) consider some of the principal forms of change that are likely to affect Bodmin Moor's historic environment in general and the PALs in particular.

There has not been scope in the current project to develop more detailed models of the effects of each different form of change, nor to model the requirements of each, or the affordances of the historic environment in relation to those, beyond that presented in those subsections and above in Section 7.

Undertaking Sensitivity and Opportunity Assessments for each of the following types of change is work that could be commissioned in order to better inform decision-makers.

- Increasing livestock grazing.
- Decreasing livestock grazing.
- Planting trees and woodland.
- Planting conifers.
- The several forms of natural flood management.
- Peatland restoration.
- Various forms of wilding and rewilding, and habitat enhancement.
- Forms of development such as housing, roads, reservoirs, renewable energy and agricultural improvements of various types.

Sensitivity and Opportunity Assessment involves a three-stage method (Historic England forthcoming, based on Herring 2022 and Herring et al 2023).

1. Consider in detail all the effects of the form of change under consideration and all of the requirements for it.
2. Assess how vulnerable each element of the are being considered is to the effects, or impacts of the type of change, and the affordances of the place in relation to the change's requirements, the qualities of place that might favour the form of change.
3. Consider the degree to which the vulnerabilities and affordances relate to and diminish or enhance the place's significance or the values it has for society. Here the Heritage Values introduced above in Section 6 will often be the most useful measures of value.

Such assessments can be undertaken at different scales, as set out above for reviewing Heritage Values: the whole Moor, the whole area of rough ground, particular commons, particular PALs, particular types of site and particular sites.

The Sensitivity and Opportunity assessment approach support an aim based on the Right Tree in the Right Place approach to woodland planting and may be characterised as the Right Objective in the Right Place.

Improving understanding of the origins and development of the Moor's semi-natural communities to support decisions about their future

Current understanding of the development of the semi-natural community of Bodmin Moor depends on a limited number of palaeo-environmental studies, several of them associated with archaeological investigation. These have been summarised in Section 3.4.

As the balance between coarse grasslands and heathland is of significance when prescribing favourable management of designated habitats (especially the Bodmin Moor North SSSI) there is a need for a more strategic approach to gaining understanding of the long history of land use and vegetation change on the Moor since pastoralism was introduced between 4000 and 6000 years ago.

Is there evidence to support the presumption that the rough ground of the Moor is a degraded heathland (as in the SSSI description)?

Or has the Moor been predominantly a grassland since early prehistoric reduction and removal of oak and hazel dominated woodland, albeit a grassland that has always contained a shimmering mosaic of other species, including heath, furze, thorn and bracken.

Then, there needs to be discussion around what is the most appropriate vegetation to manage the Moor for in the future. And whether that management should aim for the conformity and homogeneity that alignment with a favoured type might suggest, or whether it should enable and encourage the biodiversity and heterogeneity that

the currently available palaeo-environmental evidence suggests has been an important part of the story of the Moor's vegetation cover, the mosaic shimmering through time as very local communities changed their grazing regimes in response to the endlessly shifting pressures and opportunities thrown up economic, social and climate change.

Optimum management of the historic environment

Now may be the time to gather together understanding and prepare guidance on the optimum forms of management for different aspects of the historic environment on Bodmin Moor. Considerable experience has been gained in the period since the Bodmin Moor Surveys were undertaken in the 1980s regarding management of scrub and other vegetation, reducing erosion from livestock and other sources, restoration and repair, and presentation.

Again, such guidance can be targeted at the historic environment of the whole Moor, all the rough ground, particular commons and areas of rough ground, each PAL, each site type, and particular sites.

Improved monitoring of vegetation cover

It will be clear from this report that the historic environment is most substantially affected by the form and density of vegetation cover. There is a need for an efficient means of identifying areas of concern, such as the development of closed canopy furze or extensive stands of bracken where they coincide with important archaeological remains, given the damage that root and rhizome systems can cause, and given the public benefit in ensuring that important remains are visible.

The scale of the Moor is such that monitoring cannot be efficiently achieved by ground inspection. Remote sensing, from the air, is essential. A new coverage of satellite photography was produced by Airbus, and hosted on the Google Earth Pro platform, in March 2025, right at the end of the current project. It provides the sort of high-resolution imagery of vegetation types, in which grass, molinia, bracken, furze, and other communities can be easily distinguished.

It may be suggested that regular reviews of the condition of the PALs and other important sites outwith the PALs will be of considerable value in themselves and in maintaining the profile of the PALs in the work of the CNL more generally. Perhaps this could be undertaken every two or three years, the typical length of time between the uploading of good quality imagery to platforms like Google Earth.

Sample of Airbus 2025 satellite imagery of Warleggan Down (PAL 12) in which colour and texture enable bracken (rust colour) to be separated from furze (dark green/black bushes), trees (bottom left), muddy mire (brown, towards upper left hand side), and other types of vegetation to be distinguished from the base pale green ancient semi-natural grassland. (Image courtesy of Airbus via Google Earth Pro).

Identification of specific items of historic environment work

Improved understanding of the optimal management of the historic environment of Bodmin Moor, together with more systematic reviews of vegetation cover based on GIS mappings that also show archaeological remains will lead to a clearer understanding of what specific works are required for specific places and monuments. This will enable programmes of works to be designed, resources such as funding or volunteer labour to be sourced, and works timetabled and delivered, and after-effects monitored.

Alongside the current project one example of a specific item of site management was identified on the west side of Garrow where dense furze was obscuring and probably damaging the important remains of a prehistoric roundhouse settlement and its fields. A project was designed, FiPL funding secured, contractors found and instructed, and the area's condition was considerably improved.

Maintaining intervisibility of archaeological remans within complexes and across the wider landscape

A key aspect of Bodmin Moor PALs is the importance of retaining the visibility of the landscape-scale relationships, particularly for some monument types and periods, such as Later Neolithic and Early Bronze Age ceremonial monument complexes, Middle Bronze Age roundhouses and associated fields or enclosures, the Medieval longhouse hamlets and their strip fields, and medieval and later streamworking, mining, quarrying and clay-working complexes.

Understanding such inter-relationships on large spatial scales is challenging and often left 'out of scope' when negotiating individual agreements. Developing tools to support scheme development or inform planning decisions (woodland or afforestation proposals) would help ensure intervisibility is considered where appropriate:

- Commission a piece of work to identify key settings and relationships within, between and beyond individual PALs.
- Visualise outcomes on a GIS layer and provide guidance and support to statutory bodies on interpreting and considering intervisibility.

Avoiding ghettoisation and linking PALs with the rest of the Moor and the in-bye land

The PALs were identified twenty years ago and the work done for this study confirms that the recognition of each still stands. Each retains its significance, and extensions of their areas have been suggested for several.

However, the intervening two decades have also seen increased concern that management of landscape is most sustainable when it is as holistic and integrated as it can be. This includes recognising that significance and importance are not the only drivers for action; sensitivity and opportunity assessment do not rest so absolutely on significance as many other heritage processes do, and both also enable stronger partnership working with other interests, including land managers (owners, tenants, commoners, etc), and those who champion the natural / semi-natural environment and the wider landscape.

There is also a danger with identification of PALs of a pathology that affects much of the historic environment when it is managed in a traditional, significance-led way, that of 'ghetto-isation', with most effort piled onto the selected assets or areas and relatively little left for caring for the rest of the historic environment.

A consequence of this is a disconnect of historic environment interests in the remainder of an area, whether a city, a region or an upland area like Bodmin Moor. This is especially problematic in a place like the Moor where the whole area is of importance, and is best understood and managed as a totality, the relatively blank areas in the rough ground in terms of density of archaeological remains still being

significant as the areas of open common grazing that were and are crucial for the viability of the communities who created the surviving remains.

Additionally, the rough ground has always been functionally and culturally attached to the enclosed land, the land that those who took or sent livestock up to the downs for summer grazing lived in and worked, and where the livestock's winter fodder was grown and saved. Much of the inbye land on Bodmin Moor also contains earlier remains including early prehistoric monuments like cairns, stone circles and roundhouses and their fields, drawn in as the medieval and post-medieval farmers established their enclosures on areas of former moorland.

Integrated and sustainable management of Bodmin Moor as a whole should therefore include the whole of the rough ground beyond the PALs and all of the associated enclosed land.

SWOT analyses for Premier Archaeological Landscapes and the wider Moor

Gather together the strands of work set out above into a review of significance, issues, opportunities for each PAL, each common or grazing area, and the whole Moor, including in-bye land, by undertaking a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis for each element.

9.6 Environmental Land Management options for PALs, and the wider Moor

Background

The future conservation and enhancement of the PALs is dependent on the success of ELM in attracting new agreements and the suite of land management actions which frame delivery. Government policy (since 2018) has enshrined the principle of 'public payment for public goods' and enshrined this within statute paving the way for blended finance models and greater private investment in nature, climate and communities. Whilst the historic environment is referenced as a contextual issue it is not seen as a key investment priority with the overriding emphasis on the biodiversity and climate emergencies.

Over the past twenty years agri-environment has addressed the historic landscape in the uplands primarily through broader management prescriptions or where required through targeted options (scrub clearance, HE1 HE1: Historic and archaeological feature protection - GOV.UK etc.). Under ELM this model will continue but there is a greater emphasis placed on actions which will meet Government targets for climate and nature. Funding is likely to tighten and the closure of the SFI 2024 scheme highlights vulnerabilities as well as the hopes for a new offer that will effectively target the uplands.

This section will explore themes that provide opportunities for ecological enhancement and improved management of the PALs. It will focus on CSHT and the principles of Landscape Recovery (LR) as the two tiers currently available accepting

that higher tier opens summer 2025 (invitation only) and LR is closed at present (no clarity on Round 3).

Agreement Value and Negotiation

Current values in historic schemes that pertain today are inadequate and unlikely to maintain engagement beyond the cessation of the current terms. Whilst we anticipate details in payment uplifts An update on Higher Level Stewardship and Countryside Stewardship Higher Tier – Farming at the end of April 2025 these are only for specific actions and limited to HLS (not UELS). Pressure to graze without restriction from the next generation who don't see sufficient reward at present is palpable. Whilst NE may exert some regulatory control on SSSIs this may be tested where notice wasn't served correctly under the WCA. Ultimately the potential loss of long-term agreements is a genuine risk with associated breakdown in relationships and governance models.

As a baseline, historic agreements today appear to be paying in the region of £90 - £180 / HA on the common with the potential for up to £250 / HA on the in-bye (subject to NBAR, Native Breeds at Risk option). Even allowing for inflation these figures are low and, based on discussions with graziers, will need to increase significantly to incentivise the next generation. Whilst LR allows bespoke payment rates under CSHT, the actions are clearly defined although some can be applied at the discretion of Natural England above the moorland line. As with the HLS schemes the use of options such as CSG21 (manage grassland for target habitats, species or features) as a direct replacement for HK15 (also for managing grassland for target features) should provide a financial uplift and be appropriate for the PALs and key species. Developing a package of incentives to reflect the Government's priorities will require a suite of actions that landowners and graziers will need to work harder at to deliver successful outcomes. The creative use of supplements and aggregation of species rich habitats across large commons has the potential to build values to realistic levels.

It is important that the lessons highlighted in the Fursdon Review are applied on Bodmin Moor with greater levels of communication and engagement between all parties. Regular evaluation and discussion especially on protected sites should be encouraged alongside space for commoners to innovate and pilot new approaches without fear of retribution. The model of using FiPL funds to support new thinking alongside ELM is a good example of how Defra's funds can be matched to deliver more than the sum of the parts. Better evidence for the impact of actions against outcomes will also inform ongoing review and amendments to agreements against the agreed objectives.

Alongside revenue Cornwall and Bodmin Moor has benefited from the use of capital funds to support works to understand and enhance the historic environment. This has largely been driven by key individuals in Cornwall Council and by Historic England's previous Heritage at Risk Project Officer utilising HAPs (100% funded).

This type of ongoing Investment to deal with scrub management, erosion repairs and enhance understanding is likely to be essential to the conservation and presentation of the PALs.

Landscape Recovery (LR) and Countryside Stewardship Higher Tier (CSHT) – PALs and Delivery

The LR scheme represents an opportunity to deliver outcomes on a landscape scale and to design a blended model that can include historic environment outcomes. The principal challenge is the ability to sign people into the development phase and then to have the resources, skills and focus to develop a fundable model.

As a competitive process, Defra are looking for outcomes which will deliver against its targets (especially carbon, climate, water) at scale whilst offering 'value for money'. The process is competitive and requires key tasks to be completed and the development of a Single Legal Entity to manage the programme over 20 years. There is also the requirement to attract private investment to offset Defra's own costs.

On Bodmin Moor the majority of the PALs lie within commons of which three (Blisland, Hamatethy and West Moor) form the largest contiguous block. The main challenge for LR is gaining consensus amongst large groups of graziers (active and non-graziers) and then resourcing the submission of an application, if and when the window for the third round opens. Sign up to the development phase is relatively easy to achieve but determining management outcomes and relevant funding levels is complex and dynamic. There is some support from a dedicated officer (NE or EA) but it would still require major commitment from a commons Secretary or Chairman to move this forward. It will also need to deliver sufficient land resources which can be impacted if people drop out at the final sign phase. There is therefore a significant degree of risk to parties involved and potentially a 2 to 3-year process to unlock revenue flows.

An alternative way forward for those that are interested could be a collaborative submission with a 'friendly' sponsor such as Cornwall National Landscape, or a wider partnership which might include Natural England and Historic England, where there was no conflict of interest. The attractiveness of LR is the ability to design something fit for purpose and to avoid prescriptive actions that appear in the other tiers of ELM. This particularly relates to stocking calendars and concerns over the LUs within moorland options which are unlikely to deliver visibility for the archaeological remains in PALs or potentially some key habitats and species.

It is important to note, however, that NE will still have the responsibility for protected sites and will therefore influence these factors during scheme development. Themes around peatland restoration and re-wetting offer opportunities to generate sustainable revenue streams but on commons requires some form of sharing agreements between landowners and graziers.

The alternative to LR is to use CSHT as a stand-alone offer or potentially in combination with SFI in the future. This should be deployed holistically and intelligently so that grazing management for contiguous commons is considered together to ensure 'vacuums' are avoided and to ensure that collectively they can deliver against the scheme objectives. As highlighted in the recommendations under PALs awareness an 'eye' on intervisibility issues would also be important to avoid unintended degradation of the settings of key monument types and periods which relate to landscape features. The strength of this approach is a reduction in risk and the timeframes that could be involved may be tighter. There are however trade-offs in terms of scheme values, flexibility of outcomes and stocking calendars.

9.7 PALs, the wider Moor and peatland restoration

These schemes aim to reverse trends towards degradation and desiccation of upland peatlands, principally raised and blanket bogs, and to enhance biodiversity, support ecosystems, sequestrate and store carbon, improve water quality and contribute to slowing run-off and thus reduce flooding.

Restoring peatland through rewetting increases carbon storage whilst supporting rare wildlife habitats and increases resilience to climate change. Sphagnum mosses are a key part of this process and Bodmin Moors wet oceanic climate is well suited to this group which is found in bogs, valley and spring mire sites. The benefits of peatland restoration may also influence problematic issues such as Molinia but need careful planning and discussion with landowners and graziers in order to avoid conflicts with pastoral activity.

The Government sees peatland restoration as a key priority and is using schemes such as Landscape Recovery and CSHT to drive activity forward with investment from private sector partners such as South West Water through the South West Peatlands Partnership. There have already been a number of projects on Bodmin Moor such as Crowdy, Pridacoombe Downs and Stanning Hill and there are likely to be others in the pipeline.

There is considerable private sector interest in peatland (How it works | IUCN UK Peatland Programme) and the ability through LR to generate bigger and more ambitious schemes. Within CSHT there are a range of payments for peatland and bogs below the moorland line but regrettably little above it at present. A supplement CUP7 to manage peatland post restoration is available at £160 per hectare in combination with general moorland management (CUP3 at £55 per hectare). Amongst these interesting options are management and creation of fen, reedbed and wetland mosaics (CWT13 & 14 Countryside Stewardship Higher Tier actions - GOV.UK) which can include mires and flushes. It is regrettable these are only available below the moorland line as they have potential to be applied to some commons, dependent on archaeological interest.

Peatlands are also cultural environments.

- They can include archaeological remains of peat/turf cutting, temporary storage and transportation, and these are especially well defined on Bodmin Moor, where the hundreds of turf steads are a distinctive feature of the Moor.
- They therefore form cultural environments that retain intangible heritage links with pastoralism, manifested in the registration of turbary rights under the 1965 Commons Registration Act.
- Within the peat itself is pollen and other material that provide rich palaeoenvironmental evidence, helping us understand the development of the Moor's environment from the time that the bogs started to develop, probably from around the second millennium on Bodmin Moor.
- Other prehistoric and later archaeological sites and artefacts whose survival has benefitted from being within anaerobic conditions, exemplified recently by the astonishing Early Bronze Age remains found in a waterlogged cist on Whitehorse Hill in northern Dartmoor (Jones 2016).

Physical interventions to facilitate peatland restoration, like small-scale damming and diversions of drainage systems have some potential for damaging significant archaeological remains, but experience in SW Britain, Scotland and elsewhere indicates that close cooperation between ecological and cultural curators can design schemes that minimise disturbance and ensure gains are made for both: desiccation being a substantial threat to waterlogged archaeological deposits and features and to paleoenvironmental potential as well as to the peatland's ecological values (Natural England 2022). Model processes involve a dedicated archaeologist to ensure that preparatory work, field surveys and supervision of delivery have minimal impacts on the historic environment.

PALs that contain areas of blanket bog, often quite shallow, are:

PAL 2 Hamatethy, etc. Especially on the northern part of Roughtor Downs and on King Arthur's Downs

PAL 3 West Moor. Especially Buttern Hill, the plain S of Leskernick Hill and the rounded downs between Carne and Hendra Beacon.

PAL 5 Brockabarrow Common

PAL 13 Penkestle Moor

PAL 16 Draynes Common

PAL 19 East Moor, on the eastern slopes of Fox Tor.

PAL 21 St Cleer etc., on Craddock Moor.

It may be recommended that peatland restoration is not undertaken in PALs where the significance of the historic environment is presumed to be greater than that of the semi-natural environment.

The deeper blanket bogs elsewhere on the Moor may be the preferred options for peatland restoration:

- Pridacoombe Downs, formerly called Wett Hill, because of the marshes.
- High Moor
- Sprey Moor
- Minzies Downs
- Meadows Downs
- Menacrin Downs
- Tolborough
- The western half of East Moor
- The SW half of Draynes Common

Quite extensive marshes have also developed alongside most of Bodmin Moor's streams and rivers, often as a result of blockages and diversions caused by tin streamworking, some of which may have prehistoric origins. Here any works on peatland restoration are more likely to have significant impacts on important archaeological remains: leats, reservoirs, diversion channels, spoil heaps (whose configuration is important for establishing streamworking techniques), tyes and hatches (the excavation and ore-dressing areas), tinners' shelters, and stamping and blowing mills (Sharpe 2008). Turf was also cut and saved from these marshes, right through to the later 20th century (Herring 2008).

Note that the Assessment for the Monument Protection Programme identified those 47 separate alluvial streamworks that should be regarded as nationally important non-designated heritage assets (Herring and Rose 1990, 357-359). These may be regarded as of sufficient importance to be carefully avoided in such peatland restoration works, and also in any natural flood management works in valley bottoms (see below). Because of this, it is recommended that peatland restoration projects on Bodmin Moor maybe best confined to blanket bogs, known locally as hill marsh.

If care is taken to understand historic land uses, then peatland restoration in blanket bogs can be expected to be highly positive, recreating or improving sustainable historical land uses, including summer grazing, and semi-natural vegetation cover.

There is clearly scope for more peatland restoration on Bodmin Moor, but careful design and prioritisation of sites is important to avoid negatively affecting the fabric and character of the PALs. Deeper peatland sites like Sprey Moor and Priddacombe are less likely to obscure the archaeological record than shallower areas including Leskernick, Brockabarrow or St. Cleer common. Small scale features such as turf steads and relationships between turbaries and historic buildings (Dozmary Downs and Pool) should be carefully considered in designing works.

9.8 PALs, the wider Moor and Natural Flood Management (NFM)

Climate change predictions suggest wetter milder winters and warmer drier summers with periods of short intensive rainfall. This coupled with the effects of accelerated drainage from some forms of infrastructure is leading to more frequent and more damaging incidences of riverine flooding, especially in lowland parts of Cornwall. The uplands have a role in addressing this issue. First more rain falls on the uplands than in the lowlands, and second, there are opportunities to decelerate water flow from the moors.

- Peatland restoration (see above) should hold back more water in the marshes at the heads of streams and alongside them.
- Retention and management of woodlands in the steep valleys of the moorland edge will also contribute to deceleration.
- In addition, there may be opportunities to deploy existing structures and earthworks in 'offline flood storage'. This is preferable to the new excavation of earthwork holding tanks for excess water when rivers are in full spate as they would have more substantial impacts on important archaeological remains found in or beside the moorland streams.
    - Most extensive of those are the alluvial streamworks, some of which may have prehistoric origins and were used throughout Cornish mining history, some until the early 20th century.
    - Alluvial streamworks include diversion channels, and dumps that may serve as means of temporarily slowing or storing flood water.

NFM aims to store water in the catchment and slow the rate at which water runs into rivers, to help reduce flooding downstream. In the uplands context it is sometimes called 'upstream management' and includes a range of interventions many of which are now funded through ELM to align with Government priorities. As well as revenue payments for river related actions (movement and floodplain connection) it also covers soil health, ponds and lakes and now floodplain storage. There is a suite of capital items in CSHT linked to this theme which includes restorative, creation and temporary interventions.

Retaining and slowing water could also form a wider role linked to PALs and the in-bye farms and through LR provide sources of income that can link to the private sector market. Climate change will create challenges for pastoralism in terms of animal stress, heat and access to water so an element of planned design could support outcomes both for the environment and the farm businesses.

The relationship between food, shelter and forage is a key one for livestock on the commons and in larger spaces such as West Moor or Shallowater the creation of temporary standing water could help hold animals in areas where targeted grazing is required. There may be associated benefits through reduced tracking and surface damage or encouraging stock to loaf or use parts of a PAL with more resilient monument types. Re-purposing features such as leats or ponds helps to reinforce

historic character and shallow surface scrapes in appropriate areas can support wintering waders. Whilst at face value NFM may seem to pose challenges for PALs it has potential through careful collaborative design to provide enhancement and resilience to farm revenue streams.

Within CSHT there are few dedicated options above the moorland line including CUP7 which is a supplement to manage non peat soils for flood and drought resilience. This can be used in association with general moorland management (CUP3) and other options to generate values in the region of £250/HA. This appears disappointingly low dependent on the value of outcomes designed which require 5% of the area to be covered in interventions. There are some attractive payments for rivers in relation to movement, and connectivity but many of these would not be compatible with PALs designations. With the right context and NE / HE staff there are possibilities to use CSW24, manage grassland for flood and drought resilience and water quality as a tool to carefully re-purpose streamworks where appropriate (Countryside Stewardship Higher Tier actions - GOV.UK). There are also options to link CGS21, manage grassland for target habitats, species or features to a mix of grazed areas and surface water for key Bodmin Moor species such as Golden Plover and wintering waders.

It is worth noting that NFM is often used in association with other complementary activities such as soil health, roughening of surface vegetation and woodland planting. These topics are addressed elsewhere in this section.

Natural flood management and water retention are key components of ELM with a range of new associated actions. Bodmin or ‘Fowey’ Moor is the sponge that feeds the rivers Camel, Fowey, Lynher, Seaton and Inney, servicing five significant water catchments in east Cornwall radiating to both the north and south coast and the Tamar estuary.

The character of Bodmin Moor is a diverse mosaic of habitats associated with the commons on the higher ground which lie at a relatively stable contour around 300 metres. Rainfall issues from the bogs and mires into the streams and rivers which drain via steep sided valleys into the lowlands. Many of these riparian corridors have associated marshes often as a result of blockages and diversions caused by tin streamworking and in some case turf extraction. These areas are less suited to peatland restoration but could with care and thought accommodate NFM measures particularly where features are temporary or involve targeted works such as dams or temporary structures.

In total 47 separate alluvial streamworks were identified by the Monument Protection Programme Assessment and should be regarded as nationally important non-designated heritage assets (Herring and Rose 1990, 357-359). However, there could well be scope to review and prioritise these features learning from a similar programme on Dartmoor and including alluvial streamworks which often have diversion channels, and dumps that could act as temporarily storage features. Re-

purposing some streamworks in a 21st century context may help strengthen cultural values whilst fulfilling a modern societal need.

9.9 PALs, the wider Moor and trees, scrub and woodland

A change in emphasis over the past twenty years within agri-environment support has been the increased focus on scrub, trees and woodland. This is reflected not only in emerging options both for creation and management but also in more attractive payment rates designed to support Government targets. These are available through Defra and Forestry Commission schemes, charities such as the Woodland Trust and multiple local and community initiatives. In Cornwall, the Forest for Cornwall is the principal project to support delivery of the local planning authority's Climate Change Action Plan, devised after it declared a Climate Change Emergency in January 2019. It aims to add 8000 hectares of trees and hedges by 2050 (increasing the area of Cornwall's land under trees by 2%), and to protect existing trees.

Planting trees and creating woodland forms a key strand of natural capital works and is an asset typology valued by corporates and investors driven by long term gains and emerging markets such as carbon credits (Home - UK Woodland Carbon Code). Woodlands are multi-functional habitats with benefits for climate, biodiversity, ecosystem services, rural economies and natural flood management. There are considerable landscape, social and economic benefits associated with woodlands alongside societal romanticism illustrated by re-labelling western Oak woodland as 'Atlantic rainforest' An interview with Merlin Hanbury-Tenison, founder of the Thousand Year Trust. - Kip Hideaways.

There are also considerable landscape, social and economic benefits associated with woodland creation. It can add variety, interest and beauty to landscape. If planted where it is known that woodlands once stood, it enhances the historic landscape's legibility. If existing woods, which are normally semi-natural in having been created by planting or by weeding out unwanted species of tree, are subjected to traditional management there is great potential for restoration/improved management of woodland ecology based on historic practices.

Trees and woodland are deeply embedded in our national culture and continue to play a role through Forest Schools, community woodlands and woodland 'bathing'. Involvement in creating woodland, and the visiting and caring for existing woodland contribute greatly to our human sense of place, calm and wellbeing.

Trees and woodland can, however, be seen as a challenge to longer-term pastoralism and especially in upland areas where tree cover is minimal. Many of these issues can be overcome by the application of the 'right tree in the right place' code and in the context of PALs and the wider Moor by carefully considering how creation can enhance a historic landscape's legibility. If existing semi-natural woods are subjected to their place-forming management then there is great potential for

restoration and enhancement based on historic practice. Where this can be aligned with the circular economy (examples on Dartmoor of timber used in peatland restoration) and appropriate investment it can also diversify opportunities for farm businesses.

Despite the Government's and Cornwall Council's aspirations for more trees there are many barriers to creation. Not least that existing semi-natural habitats have inherent values (including protected species) that can outweigh those attached to woodland. The Cornwall Wildlife Trust has prepared a useful guide on this CWT Right Tree, Right Place. Among other things, it recommends not planting trees in historic landscapes (i.e. with archaeological remains), or in moorland, grassland rich in wild flowers or fungi or in wet marshy land. Evidence given during the kitchen table discussions highlighted the protracted and expensive process to plant even small areas of native woodland. If the complications of common land, climate change and the historic landscape are added then the opportunities for traditional grant aided woodland establishment and tree planting are limited on Bodmin Moor.

A clear outcome of reduced grazing pressure has been an increase in scrub communities and a gradual roughening of the commons and enclosed moorland. Whilst this was intended to deliver improvements to grassland and specifically protected sites the outcome at present is a general deterioration in diversity with a zonation in grazing pressure and intensity. As the available area of palatable grass decreases livestock inevitably focus on the 'sweeter' areas allowing the expansion of sub optimal vegetation such as Molinia, Bracken and various typologies of scrub. These areas can foster some natural regeneration with species such as Rowan, Holly, Birch, Sessile Oak and Hawthorn able to establish over time. Good examples of this pattern would be the east side of Berry and Mutton Downs, and on Carburrow and Goonzion Downs. In wetter soils Salix (willow) is developing in areas previously not seen, such as on Brockabarrow Common. This naturalised wood pasture can be accepted and managed in some PALs and potentially encouraged in others through careful design and negotiation between parties.

The impact of scrub on the PALs depends on the typologies of monument and their susceptibility to vegetation height. As well as potential damage by rhizomes, roots and a closed canopy there can be indirect effects through narrowing access corridors for people, livestock and vehicles. This can lead to surface erosion and general loss of visual interpretation and in some cases indivisibility. Once obscured inadvertent damage can also be caused by management tasks with machinery such as scrub clearance.

A feature of Bodmin Moor are the Hawthorn trees which are scattered across the commons and in-bye prodding a glorious show of blossom in May. Many of these trees are of similar age and in the past 20 years there has been a visible reduction in number as they have blown over or succumbed to stock rubbing or old age. Often capped with lichens such as *Usnia articulate* (Old Mans Beard) they are as

synonymous with the moor as the enigmatic tors. Recent research on Dartmoor as part of the Our Upland Commons project by Corylus Ecology has highlighted Counting Trees — Foundation for Common Land that hawthorns account for roughly 80% of the trees surveyed on the Dartmoor commons with the other 20%, largely made up of Rowan with some Willow in wetter areas. Focussing on how a new generation of thorns and other species (climate change resilience) could be introduced via ELM would be a positive way of increasing shade (increasingly important in a period of warming) and regenerating tree stock. Along with more standing water, the shelter provided by scattered trees can help make the landscape more resilient for livestock with potential incremental benefits for tree browse etc. (Willow for lambs trial).

Identifying sustainable practices to manage scrub and introduce trees requires innovation and time. Practices such as swaling which support pastoralism can also impact tree regeneration so additional resource is required to sensitively manage existing as well as generate new trees. Within ELM there are various options that with the local NE teams support could be used. This includes CWD20 and CWD22 (Create and manage wood pasture Countryside Stewardship Higher Tier actions - GOV.UK) along with a range of capital items. Innovative funding to survey trees on commons or to pilot tree establishment (FiPL) would be beneficial in relation to future scrub management.

As noted, under the right tree in the right place mantra, the PALs themselves would normally be areas that are not suitable for tree planting (historic landscape, moorland, species rich grassland, areas of wetland). It can be noted, however, that the relaxation of grazing pressure has already encouraged the spread of saplings onto the lower edges of some PALs, mainly willows in and alongside rough ground, and also on the lower slopes (mainly) of both commons and private rough ground, the trees being largely birch, rowan, hawthorn and sessile oak, with some ash and sycamore. Notably in the following PALs.

PAL 2 Hamatethy: some willows on wet ground on Lady Down

PAL 3 West Moor: some willows on edges of low-lying marshes; some hawthorns on slopes of Bray Down.

PAL 4 Trewint Downs: numerous individual hawthorns and some oaks scattered on lower S and E slopes; willows in and beside wet ground to the S.

PAL 5 Brockabarrow Common: some willows on wet ground between PAL and Sprey Moor.

PAL 6 Kerrow Downs: some willows by De Lank River to N, and scatter of hawthorns and blackthorns on western slope.

PAL 8 Blacktor Downs: loose scatter of hawthorns.

PAL 9 Cardinham Moor West: numerous scattered hawthorns and oaks on western slope.

PAL 10 Cardinham Moor East: dense copse of trees in the southern dressing floors of the clayworks; willows along the dividing stream (R Bedalder).

PAL 11 Carburrow: fairly dense scatter of trees on W and SW slopes, less dense scatter on SE slope and a few individual trees, mainly hawthorns, elsewhere.

PAL 12 Warleggan Down: quite dense scatter of trees on Good Fortune mine, including inside openwork. Looser scatter on lower E slope, and a few individual trees across PAL.

PAL 13 Letter and Penkestle Moors: loose scatters of trees in SW and NE corners.

PAL 14 Goonzion Downs: dense and fairly mature woodland on v steep NE slopes down to R Loveny, and along W and S edges, 3 or 4 trees deep; a few other groups of mature trees.

PAL 15 Mutton's and Berry Downs: fairly dense scatter on SE slopes of Mutton's Down; looser scatters on E and SE slopes of Berry Down.

PAL 16 Draynes Common and Lamelgate: loose scatters on N and SE slopes of Lamelgate.

PAL 17 Browngelly Downs and Higher Langdon: Loose scatter of trees on E slopes of Higher Langdon.

PAL 18 Carneglos: loose scatter of trees on lower western slope.

PAL 19 East Moor: quite dense tree cover on lowest N slopes N of Startafolds. Looser scatters in far NE corner, near Clitters.

PAL 20 Bastreet: Small clump near centre, to NE of waterworks; loose scatters at E and W edges of PAL.

PAL 21 St Cleer Commons, etc: medium scatters of trees on SE slopes of Bearah and Sharp Tors; trees in the shelter of streamworks cuttings to NW and SE of Tregarrick Tor.

PAL 22 Caradon Hill: dense woodland on the lower N and NE slopes of the hill and in the Gonamena streamworks cutting; medium scatters of trees in South Caradon Mine, and looser scatters of trees on the lower E and S slopes.

There may be some potential for tree planting on edges of the rough ground of the rest of the Moor, in exceptional circumstances, but in terms of landscape character

and an organic development of its environment then leaving trees to colonise naturally as they are currently already doing may be preferable. Where they establish themselves in especially sensitive places, like within prehistoric roundhouses or medieval longhouses then trees might occasionally be removed. And where they obscure the views to and from important early prehistoric ritual and ceremonial monuments.

9.10 PALs, the wider Moor and grassland and heathland ELM options

Managing for heathland or grassland?

The 'ancient semi-natural grassland' which forms the backdrop for the PALs was created by grazing and has been maintained and modified by continued grazing and periodic burning. Today it is dominated by acid grassland and mire communities with some small heathland fragments with limited ericaceous dwarf-shrubs of the kind that define heathland in the rest of Britain. Doubt has been expressed that *Calluna vulgaris* was ever a widespread component of the vegetation community due to the oceanic climate and by the low levels of pollen recorded in pollen cores (see section 3.4). This raises questions about SSSI management objectives. Malim in 1936 stated: 'the surface of the Bodmin Moors is of long coarse grass with both dwarf and ordinary gorse, a little heather spread about the hillsides and the usual bracken amongst the scattered granite rocks', a description that pollen analysis suggests may (with the exception of the ordinary gorse) have applied equally to 1936 BC as to 1936 AD.

As previously discussed, environmental and regional factors are important when determining management options in ELM. The uplands of South-west Britain differ from the uplands of Northern Britain on which much of the historic scheme prescriptions are based in a number of ways.

- Bristle bent *Agrostis curtisii* and Western gorse *Ulex gallii* are important components of the vegetation in plant communities that are absent from northern uplands.
- Bodmin Moor also has a longer growing season allowing an extended period of rapid plant growth in the spring and autumn. This is likely to be a contributory factor for key species such as *Calluna vulgaris* but also *Molinia caerulea* which has become a significant beneficiary of lower grazing levels and atmospheric nitrogen deposition.

Technology may have a role to play in targeting better outcomes for PALs using invisible fencing systems. There are two manufacturers now producing systems and the marketplace is likely to grow. There can be issues with signal, deployment and costs which will need to be addressed within future scheme design to encourage take up (David Attwell)

Collars may be able to reduce pressure on some key monuments where livestock rubbing and erosion is an issue (David Attwell).

The relationship between some of the key Bodmin Moor species, PALs and grazing management are mutually beneficial. In particular, they are good for some of the wintering and breeding waders which prefer short invertebrate rich grassland including Lapwing, Golden Plover and Curlew. These birds have reduced in number over the past 30 years, but Bodmin Moor remains a stronghold with Natural England recently declaring the Colliford Lake area with associated commons as a Wader Recovery Zone. Options in CSHT such as CGS21 (Manage Grassland for Target Features) could support management but there are no upland specific wader options at present. Various supplements for rush management and potentially predator control (CSP9 Support for Threatened Species) could also improve PALs visibility and improve outcomes for the birds.

There is a strong relationship between the ancient semi-natural grassland and some of the red data book species. This includes Marsh Fritillary associated with Devils bit Scabious and wet grassland and both Small Pearl Bordered and large Pearl Bordered that align with bracken covered slopes. Whilst there can be conflicts between PALs and bracken there are also synergies in management for butterflies and in particular trampling with cattle. Developing prescriptions that are mutually beneficial should provide investment in both the natural and historic environments.

There are opportunities on the commons and in-bye land for management for species-rich grassland. In particular, some of the *rhos* pasture and mire systems along with upland hay meadows. In CSHT action CGS26 (manage priority habitat species-rich grassland Countryside Stewardship Higher Tier actions - GOV.UK) pays £646/HA with various supplements dependent on grassland type. In the case of hay meadows this can take payments over £800/HA for priority grassland and can reinforce the cultural aspects where aligned with historic field parcels. In contrast the moorland offer is less attractive with low stocking rates often associated with supplements linked to reductions in grazing, shepherding and species balance. Creating sufficient revenue from commons agreements will require Natural England to consider how CSHT (and in future SFI) can be used creatively allowing some prescriptions to be tailored to discrete areas.

Developing grazing strategies that can suppress Molinia may require more cattle earlier in the season with potential adjustment to ratios of sheep and ponies. Experience has shown on Dartmoor that winter grazing in suitable locations can also be beneficial for Molinia suppression and PALs visibility. A key challenge is keeping animals on transitioning areas but is potentially achievable with combinations of active management, emerging technology and financial incentives. Invisible fencing systems have a role to play here but can be challenging in small home commons where disturbance levels are high. There are also issues over equipment costs, signal, reliability and service charges which would need to be picked up in scheme revenue to make this viable for hill farms.

Dense molinia (Purple Moorgrass) now covers large parts of Brockabarrow Common and runs on into Shallow-water Common to its north, smothering most archaeological remains, such as transhumance huts and turf cutting (Pete Herring, November 2024).

If Natural England wish to see more cattle on SSSIs at key times of the year then scheme models need to embrace the costs of keeping a suckler cow for twelve months (feed, housing etc.) and not ‘cookie cut’ periods that fail to reflect the true costs. Currently there is a focus on spring calving which can leave a ‘gap’ when cows go to the bull off the common. Moving to autumn calving could help with this but is a much more expensive system (wintering costs) and there needs to be an understanding of transition costs and the time to breed suitable replacements naturalised to the moorland environment. Whilst these costs may be covered in LR it remains more challenging in CSHT. Building these outcomes into agreements with flexibility for review and adjustment should be a shared objective between all of the interested parties.

ELM also introduces the concept of investigative surveys such as MOR1 (assess moorland and produce a written record) and under capital items in CSHT a Moorland Mapping exercise (PA5). Whilst there is a dedicated payment (CUP18) for wildfire management on lowland heath there is nothing for upland habitats. This is an aspect of management linked to swaling practice which is increasingly under review linked to climate change. A strategic piece of work on Bodmin Moor (specifically contiguous commons) that would relate to PALs is the development of wildfire plans, equipment and training for commoners. The programme of activity on Dartmoor coordinated by Devon and Somerset Fire Service provides greater resilience to wildfire whilst providing a framework for commons management. A recently funded FiPI grant is facilitating the Dartmoor Commons Council to plan a compressive network of tracks

many of which align with paths, archaeology (parts of PALs) and commoners access routes.

9.11 Opportunities for supplements or new actions that strengthen PALs management.

This section looks at opportunities for new supplements or new actions that strengthen PALs management.

These are a combination of tailored options and a recognition of the value of intangible pastoral heritage associated with Bodmin Moor's ancient semi natural grassland. They also look beyond the hard PALs boundaries into the adjacent downland and beyond that into farmscape strengthening the cultural integrity of the relationship between the commons and the in-bye land.

Supplements: Three Species Grazing

A key feature of the south west uplands (and the New Forest) is the practice of multiple species grazing. On Bodmin Moor this can be traced at least as far back to the eleventh century with the records of numbers of livestock that belonged to the demesne (lord of the manor's own farm), which shows that the manors adjacent to the Moor had multiple types of livestock. These included unbroken mares, cattle and sheep as well as pigs and goats. This long tradition has continued to the present day and in combination with practices such as swaling has created the semi ancient pastures which frame the PALs. The way that these species graze and interact is a fundamental and poorly understood aspect of commons management. In recent years there has been a concerted effort to reduce sheep numbers driven by SSSI condition which resulted in the Fursdon review of Protected Site Management on Dartmoor.

Bodmin Moor was one of the areas examined in a survey of farmers in 2007, undertaken for the South West Uplands Federation by Land Use Consultants. The survey showed that nearly 80% of respondents held common grazing rights, and about half of these exercised them. Most farmers used their rights to graze sheep (40% of respondents), ahead of cattle (about 35%) and ponies were grazed by 18% of respondents. On the in-bye cattle formed the largest proportion of livestock with sheep focussed on utilising the common.

In many respects three species grazing is an example of what UNESCO refer to as intangible cultural heritage (ICH) What is Intangible Cultural Heritage? - intangible heritage - Culture Sector - UNESCO. This is defined as a 'practice, representation, expression, knowledge, or skill considered by UNESCO to be part of a place's cultural heritage'. A recent example is the dry stone walls of Ireland which were recognised in this context by the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage. The listing was for the 'Art of dry stone construction, knowledge and techniques' which is regarded as 'fostering mutual respect for cultural diversity through collaboration'. It could be argued that three

species grazing, with all that it entails from pony drifts to moorland management, is a long held and distinctive tradition associated with PALs preservation and enhancement. Identifying a supplemental payment that recognises both the ecological and cultural benefits would tie commoning and the historic landscape together in a meaningful way.

Within current schemes the payments that relate to grazing supplements, breeds or shepherding tend to reward for a nationally defined sets of parameters. These are often based on northern sheep based upland settings where the Natural England aspiration is to reduce flock numbers and introduce cattle grazing. In the South-West we know that mixed grazing can produce good environmental outcomes for vegetation and fauna where ratios and stocking calendars are well managed. Recent work on Dartmoor presented to the Fursdon Review highlighted the value of three species grazing and recognised the role played by sheep in bio-abundance of dung beetles.

A key challenge for the PALs on SSSI sites is the Natural England focus on dwarf, shrub heath and their desire to reduce sheep numbers further. It is unclear what condition these sites were in at designation and indeed if they will ever reach 'favourable condition' within current assessment criteria and objectives. It will be important for landowners and commons associations to consider three species grazing as not only a tool for environmental delivery but a facet of intangible cultural heritage. Recent prescriptions in SFI (now closed) focussed on shifting emphasis towards cattle and ponies but failed to recognise the role and value of multiple species grazing to Bodmin, Exmoor, Dartmoor and the new Forest. This perhaps illustrates the need for regionalisation to reflect environmental conditions (stocking rates etc.) and cultural values.

A three species grazing supplement paid for commons agreements or larger enclosed blocks could either be aligned with 'moorland' actions or indeed categorised under a 'heritage' action. The latter would place emphasis on the intangible cultural heritage whilst the former would align with grazing outcomes. A perceived risk of the current offer (actions CUP15-17 Countryside Stewardship Higher Tier actions - GOV.UK) is that it will increase pony numbers at the expense of cattle and sheep. The prescriptions refer to % of LUs 'as cattle or ponies' which may encourage some to keep the latter with no or low input costs. Creating an option that rewards three species grazing (potentially with agreement by NE on protected sites) would better respect the traditions of the south west moorlands.

Current values for grazing supplements vary dependent on the species and the intended use of the action. This can be as little as £7 to £23/ hectare above the moorland line to £59/hectare below it for cattle grazing. In setting a value for three species grazing this should look beyond current strictures on revenue (the moorland line) and seek to identify a figure that accurately reflects the holistic values of this long-term practice. Whilst the use of traditional breeds is widespread on Bodmin

Moor, many of them are not included on the Native Breeds at Risk (NBAR) Register UK native animal breeds at risk list - GOV.UK and therefore are ineligible for the payments under ELM (CSP16-19). This includes some herds built up under HLS using local breeds such as Devons which help to reinforce cultural heritage and local patina. There is an argument to suggest that an additional category for 'traditional breeds' should be introduced or indeed this value recognised within a three species grazing supplement.

It would be helpful to see development of actions associated with veterinary medication treatments for livestock that can be aligned to invertebrate populations. There was some historic work for the Greater Horseshoe bat (a key species on Bodmin Moor) which could be used as a model for dung fauna. We know that dung beetles and other species are important drivers in wider food chains such as breeding birds. A supplement associated with key flocks or herds could add revenue value and deliver significant outcomes over time.

There is also a case to be made for new schemes to cover the costs of vaccinations which may be required to counter disease vectors driven by vegetation change. The proposed new Louping Ill vaccine in development at the Moredun Foundation Louping Ill Vaccine Update - June 2023 | Moredun % is a good example which could help to mitigate naivety if stocking calendars require grazing breaks.

Supplements: Maintain Visibility of Archaeological Remains within PALs

A major challenge on Bodmin Moor is the density of significant archaeological features and the susceptibility of some of the more low-lying monument types to being obscured by increased vegetation height. Evidence gathered for the review suggests that various typologies such as stone rows, prehistoric and historic field systems, transhumance huts, lazybeds and leats are easily lost where grazing pressure is reduced. On Dartmoor Molinia has been highlighted as a specific issue but low scrub and bracken on free draining soils can also confuse interpretation and denude context. A good example is Louden Hill (Hamatethy) where previously visible roundhouses are now barely traceable and the associated field system has been submerged by rank Molinia. Recently Natural England commissioned a piece of work under its Evidence Review looking at monitoring and evaluation of the visibility of archaeology in Molinia landscapes.

This topic was addressed in the past under UELS (2013) by an option that was accessible on SDA land above the Moorland Line (UD13 Entry Level Stewardship: Environmental Stewardship Handbook, Fourth Edition – January 2013 - NE349). It was targeted but available for multiple features identified on the Environmental Information Map or Farm Environment Record (FER). It could be used in combination with supplements for scrub control and was evidenced by photographic records with caveats around poaching, ground disturbance, vehicular access and supplementary feeding.

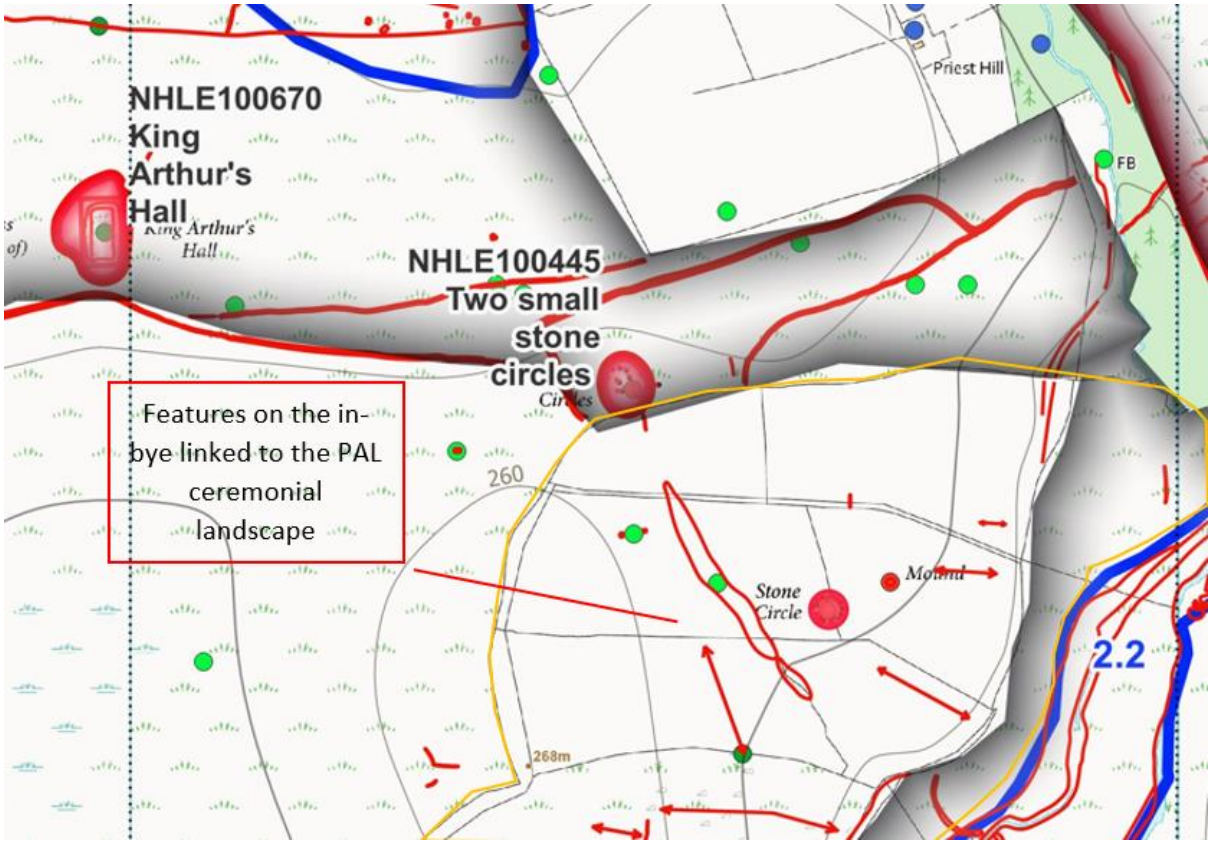
Within CSHT, action CHS4 (Countryside Stewardship Higher Tier actions - GOV.UK) pays for the control of scrub on historic and archaeological features and can be used in combination with other base actions. The challenge here is that many of these are the moorland options linked to moderate or low stocking rates or low supplementary payments for livestock breeds and shepherding. Creating a combined payment for a new option that embraced the principles of CHS4 with UD13 would be beneficial for PALs and could feed into the new SFI scheme as an upland option. Ideally it should allow local interpretation by NE on stocking rates linked to habitats and species (SSSI features) and stackable with other supplements for grazing and commons management.

This type of supplement could be linked to capital payments or be used in association with other Defra programmes such as the Farming Equipment and Technology Fund (FETF Coming soon: grants for equipment, technology and innovation – Farming). There is evolving thinking on how best to tackle Molinia based on the work of Geoff Eyre (The Heather Doctor | Working for Wildlife) and Our Upland Commons on Dartmoor (Coping with Molinia grass in Dartmoor, and thoughts on Dartmoor's future - a view from Adrian Colston — Foundation for Common Land). This has evaluated different techniques including re-wetting, rolling and cutting with monitoring of post intervention grazing providing useful guidance that is applicable to the PALs. Similar experimentation on Throwleigh and Gidleigh Common (GidleighCommonDayReport.pdf) using winter grazing and feeding of hay and cobs has also produced beneficial results for archaeological features. Developing flexibility for these approaches in re-negotiated ELM agreements will reinforce the value of the PALs and their visibility within a mosaic of vegetation.

Currently invisible fencing collars are not listed but in future they may be accessible and could perhaps be offered at higher rates for agreements associated with SSSIs, SAM management or potentially PALs.

Supplements: Integrating PALs with the wider Farmscape

A feature of the historic landscape on Bodmin Moor is the extensive layering of different periods of activity with associated monument typologies from the Neolithic to the second world war. Whilst PAL boundaries were restricted to CROW Act access land many related features are scattered across the remaining downland, and the in-bye whilst others have been fossilised within post medieval field systems. Identifying these layers of interest, recognising their wide distribution, and providing investment (revenue and capital) will help support farm businesses and strengthen the historic and cultural landscape. Widening the lens through which we view PALs is an important recognition of understanding their wider relevance to Bodmin Moor's pastoral traditions. In turn this will provide resilience for the act of commoning, supporting heterogeneity and the primary management tool for PALs i.e. grazing.



An example for one of the Hamatethy PALs where the farmscape hosts elements of the ceremonial landscape (stone circle and mound) which could be targeted through new ELM actions.

Under SFI 2024 a range of useful field boundary options were available which currently do not appear in CSHT (with the exception of CHRW4). The principle of payment for boundary maintenance is positive in rewarding those that have maintained the fabric of the farm. It also reflects small field size and provides reliable revenue streams that can be supported by standalone capital grants. Using existing GIS layers or commissioning complementary work (embedded in HEFER) historic boundaries and field systems could receive a supplemental payment. This would be a 'top up' to the SFI rates paid per 100M for profits foregone to one of a pro-active recognition of cultural value. Utilising GIS would help to target investment against priority boundaries which with declining resources may be beneficial. Scheme design could place a positive bias towards active graziers in concurrent commons agreement (covering the main PAL) incentivising take up. This theme could be evolved under LR or fed into the review of SFI and future iterations of CSHT. Again, a South West-wide uplands focus may be required to persuade the RPA that the scale of offer warrants system developments to support applications.

In addition to field systems and boundaries the principles of HE1 (Historic and Archaeological Feature Protection) or CSHT actions (such as CHS5 Manage Historic and Archaeological Features on Grassland) could be used for related PALs monuments and features on the in-bye. A good example would be King Arthurs

Downs (Hamatethy) where a series of standing stones and a stone circle lie inside the boundary of Leaze Farm but are related to Bronze Age ceremonial elements on Emblance Downs. Or another on Brown Willy where the hamlet and longhouses that is at the core of the extensive and remarkably well-preserved strip field system are in the inbye land while the peripheral parts are in the PAL. Providing a PALs supplement for these scenarios would help to strengthen the different layers of PALs and enhance revenue streams where landowners wished to engage.

Alongside ELM there are wider investment and funding opportunities to support intangible cultural heritage. This would include traditional skills associated with land management (walling, hedging etc.) as well as other forms of investment to conserve, record and celebrate pastoralism. Initiatives such as the MIP programme in Cornwall or the Heritage Skills course on Dartmoor could be used to involve the public in the farmscape. There could also be opportunities under LR which requires a focus on audience engagement and ownership of outcomes.

Supplements: Home Farm and Common Supplement

An aspect of previous agri-environment schemes has been the separation between the home farm and the common. This has been seen in some instances as ‘relieving’ pressure on the common only to see an intensification on the home farm with associated impacts for soils and water. Requirements to house cattle in winter, cross compliance and business viability are all factors associated with changes in the past thirty years.

Much of the discussion amongst conservationists has been based on the principle of levancy and couchancy or the linking of grazing rights on the common to the carrying capacity of the in-bye in winter. Traditionally the number of animals that a farmer was entitled to depasture on the common was limited to the number of animals their land could support through the winter. Sometimes a grazing right might be for a fixed number of animals, known as a ‘right in gross’, could be sold separately but these rights are rare. The language often referenced referred to the number of beasts 'levant and couchant', i.e. the numbers 'getting up’ (levant) on the downs in the summer and ‘lying down’ (couchant) on the farmer's holding in the winter months. These rights could be passed on or sold, but only with the farm to which they belonged or were ‘appurtenant’. They were viewed as being enjoyed by the occupier for the time being and could not be sold separately, or 'severed', from the farm. This long term practice was in effect changed by the 1965 Commons Registration Act under Section 15 where legal opinion suggests grazing ‘formerly determined by levancy and couchancy became rights to graze a fixed number of animals’ House of Lords - Bettison and Others v. Langton and Others.

Maintaining a viable livestock enterprise in the uplands requires a certain carrying capacity of livestock in order to generate sufficient cashflow and return. This is essential for tenants but equally important for owner occupiers. A structural response has been an increase in farm size in part driven by direct support. Whilst this can

make enterprises more resilient and introduce some efficiencies it can also have a negative impact on the character and quality of the historic environment where holdings are ring fenced and dwellings sold to offset acquisition costs. This topic was discussed as part of the kitchen table meetings and there were mixed views from graziers on whether linking home farms and commons would be advisable. This reflected concerns around limitations for LUs on the in-bye and the constraint this might place on younger farmers trying to establish a fledgling business. However, it was acknowledged that this type of option might be attractive to some 'part time' units or those coming to the end of their farming career.

To make a combined agreement offer there needs to be clear financial incentive, and this could be broader than just land management options. The agricultural transition involves multiple strands of investment which could be drawn together to offer a longer-term package that might span topics such as buildings, equipment, environmental management and business re-structure. Models like this could be considered within LR or through a multi-disciplinary approach led by NE or the RPA. Ultimately more holistic longer-term agreements should be good for both people, place and pastoralism.

Supplements: Commons Governance

A key element of stakeholder discussion was the complexity and challenge of managing commons agreements. Whilst a few supplements appear in ELM to offset costs (MOR1), these remain relatively small and niche. A bolder recognition of the costs involved in servicing agri-environment on commons would be beneficial and some form of national framework that agreements could be aligned with (perhaps based on common size, right holder numbers etc.). Taking a longer-term view there is a clear need to invest in key people through training and skills. This could include those involved in supporting the historic environment, and for the south west uplands could include the PALs.

Bodmin Moor is fortunate to have numbers of active graziers that are higher per common area than many other parts of England. Maintaining this heterogeneity is key not only to a viable workforce capable of managing commons but also biodiversity and ecological outcomes. We know that multiple graziers do things in different ways and at different times generating randomised pulses of activity which create ecological niches. The introduction of a supplement or payment that reflects this would incentivise associations to maintain grazier numbers. This could be weighted to invest in smaller right holders and young people who will continue the tradition of pastoralism on the moor.

Finally, the issue of the non-grazier is an anomaly within ELM and commons management that requires national direction. Through the kitchen table discussions, it is clear that different models and expectations are applied across commons associations. Paying people not to do something can be interpreted as both a negative and a positive action in the context of formalising an agreement. However,

the principle behind ELM has been a move to support the 'active farmer' and it would be good to see Defra define this in relation to commons. Certainly, there are opportunities for non-graziers to contribute to the historic landscape of PALs through tasks such as scrub clearance or wildfire management. Aligning a positive contribution to a payment could contribute to the quality and presentation of Bodmin Moor's historic environment.

9.12 Providing and increasing access to sources of historic environment information on Bodmin Moor

This is a substantial report because the historic environment of Bodmin Moor is so extensive and so complex. More detail is included in the texts prepared for each PAL. But this report and those texts introduce users to more detailed information which is either held in or linked to the primary repository of information on the Moor's historic environment, the Cornwall and Isles of Scilly Historic Environment Record (CSHER). Those working with the historic environment will find much of interest here if they wish or need to delve deeper into their place or their area of interest.

The CSHER, or the HER, is held at the offices of the Strategic Historic Environment team, at Kresen Kernow, Redruth, and is also available online CSHER online.

The detailed results of the Bodmin Moor Archaeological Surveys (1980s and 1990s) (detailed surveys at scales of 1:10,000, 1:2500, 1:1000 and larger for selected features, together with explanatory overlays and record sheets) are held in the Kresen Kernow archive or at the offices of the Strategic Historic Environment team, Kresen Kernow, Redruth. Much of this material was summarised and interpreted in the two volumes of *Bodmin Moor, an archaeological survey*: Volume 1 on the 'human landscape to c1800' (Johnson and Rose 1994) and volume 2 on the post-medieval and industrial landscape (Herring et al 2008).

Both volumes have been utilised in this report and in the PALs texts and are freely available online via the Archaeological Data Service (ADS), Bodmin Moor Volume 1, Bodmin Moor, volume 2 (includes large-scale maps)

- The 1:1000, 1:2500 and 1:10,000 plans, all inked up as part of the Bodmin Moor survey, including the Industrial survey, should be scanned at a high resolution and made available to the public and all those with an interest in the Moor. For most archaeological remains, these are the most detailed and informative representations that currently exist.
- Ideally, scans should be geo-referenced and included as a layer in the digitised CSHER and made available online.

Further mapping of archaeological remains visible on aerial photographs and other forms of remote sensing was undertaken as part of the National Mapping Programme (NMP), much of it in the period since the Bodmin Moor Survey National Mapping Programme. Such work is done now by the Aerial Investigation and Mapping (AIM) team in the Cornwall Archaeological Unit. NMP and AIM mapping and

information is held as part of the CSHER, the mapping is already included on the HER.

Recently high-quality Lidar mapping has been made available and several previously unrecorded sites have been noticed, including a probably Neolithic enclosure at the summit of Caradon Hill. Thus far, the examination of Lidar has largely been through volunteers; a systematic review would accurately plot remains and add descriptions and interpretations to the record in a consistent way.

The Historic Landscape Characterisations of Bodmin Moor (Countryside Commission 1994), Cornwall (Cornwall County Council 1996) and Lynher valley (Herring and Tapper 2002) are exercises that looked beyond the archaeological remains to record and interpret the large historic patterns in the landscape, separating out the ancient and more recent forms of land enclosure, for example.

Several sets of historic maps (including modern and historic OS mapping, c1840 parish Tithe maps) are available online via the 'Basemap' tab on the online CSHER.

The Tithe Apportionment Schedules that accompany the Tithe Maps, and early estate maps can be found in the archives held and made available by Kresen Kernow in Redruth.

Aerial photography, including that available as base mapping for the online CSHER mapping, the 'keys' to the 1946 RAF mapping, and Lidar mapping (including from various online sources, such as the Environment Agency).

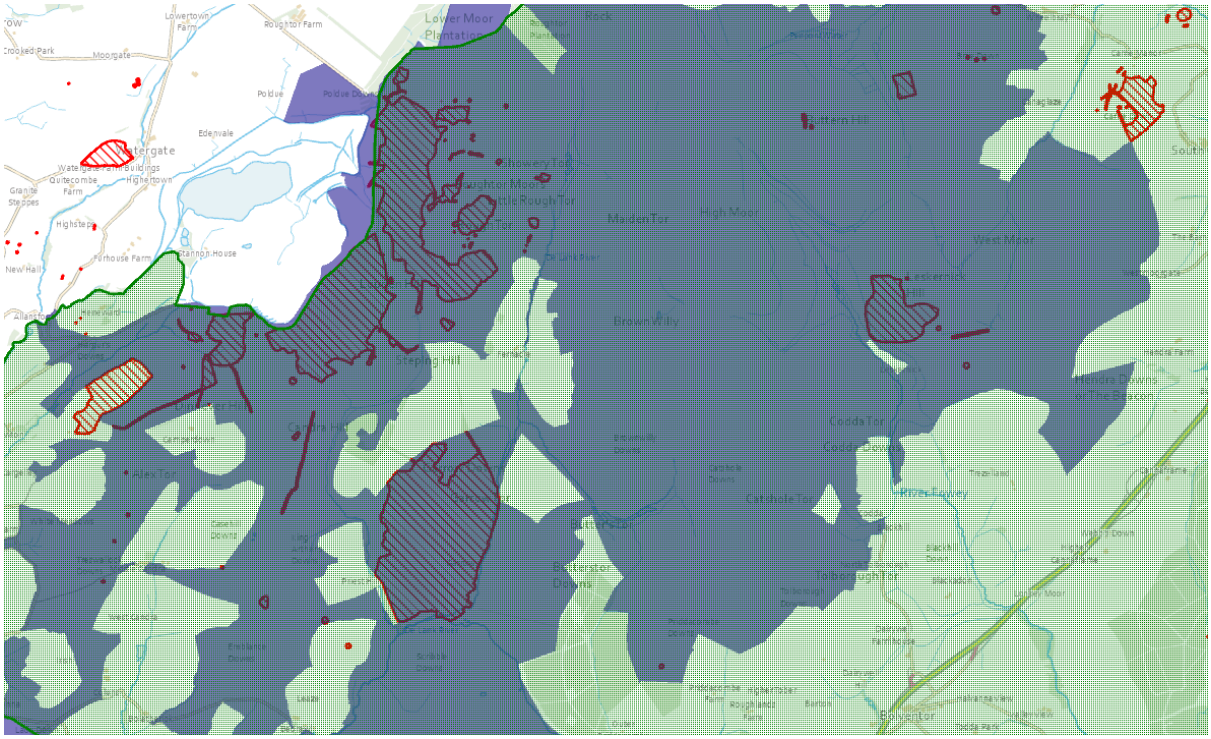
9.13 Negotiating decision-making in an area with multiple national designations

Many areas within Bodmin Moor are protected by multiple designations. Because of its significance for the historic environment, semi-natural environment and landscape, considerable areas have overlapping designations that recognise national importance and have statutory weight.

For example, Scheduled Monuments can overlap with SSSIs, especially north of the A30, and both are within a statutorily protected landscape, the National Landscape, formerly the Area of Outstanding natural Beauty protected under the 1949 National Parks and Access to Countryside Act, with further enhancements from the Countryside and Rights of Way Act 2000. The statutory purpose of the National landscape designation is to conserve and enhance the natural beauty of the area; it enjoys the same levels of protection as National Parks. There are also Special Areas for Conservation and the Cornwall and West Devon Mining Landscape World Heritage Site, which includes the Caradon Mining District in the SE of the Moor.

National agencies or governmental departments responsible for the condition of each designation will have requirements supported by criteria based on condition monitoring. Often these complement each other but when they do not decisions

need to be made regarding the best way forward which respect to each of the designations and what they aim to achieve.



Overlapping statutory designations in NW Bodmin Moor. The green tone represents the Cornwall National Landscape; the blue-grey is the Bodmin Moor North AONB; and the hatched red areas are Scheduled Monuments, some of which include quite large areas.

One suggestion that might facilitate improved coordination of the purposes and objectives of the agencies responsible for the designated assets is to support an assessment of the nature of the overlaps of interests (as well as the overlaps of areas).

It is generally accepted that the Moor does not have a natural environment but a semi-natural one, and thus a semi-cultural one. The Scheduled Monuments are not simply structures; each also contains semi-natural communities. Likewise, the natural communities protected as SSSIs are not purely natural. Not only do they all contain archaeological features (and those at Phoenix United and Crow's Nest / Caradon Hill are physically dependent on archaeological remains of mining), but their semi-natural components, their flora and fauna, are the products of historical and continuing land use determined by people.

To resiliently sustain the special qualities of the SSSIs and SACs there is a need to know and to present to modern land managers what human land use contributed to their creation and maintenance.

With this understanding in hand, the making of decisions when change is proposed or is observed will be better able to balance the varying needs of the intersecting

interests. The Cornwall National Landscape team may then act as a broker in such discussions, given its interest in the future of the whole of the Moor, and in its historical and semi-natural aspects.

9.14 Heritage at Risk

Historic England undertakes regular monitoring of the condition and issues affecting Scheduled Monuments (and Grade I and II* Listed Buildings, Registered Parks and Gardens, Conservation Areas etc), using a base year of 1999 for Scheduled Monuments. The consequent Register is published in the early winter of each year. The data it contains is an 'official statistic' so the collection, analysis and publication follow the regulations set out in the Code of Practice for Official Statistics (See Historic England website for detail; https://historicengland.org.uk/listing/heritage-at-risk/).

The Scheduled Monuments on Bodmin Moor included in the 2024 HAR register are tabulated below. Most are included within PALs, so the resolution of the condition of sites that are on the HAR register can be expected to influence the management of the PALs.

There has been a distinct shift in the principal vulnerability of Scheduled Monuments on Bodmin Moor from livestock erosion of sites to the effects of scrub growth, the damage caused by roots and rhizomes and the impact on the visibility and appreciation of Bodmin Moor's highly important archaeological remains.

The 'Principal Vulnerability' for each site included on the register is recorded. It will be seen that there are recurring vulnerabilities for the 44 Bodmin Moor sites that lie within PALs. Thirty-six of them (or 82%) relate to the effects of vegetation growth, which is usually consequent upon relaxation of traditional grazing levels: 21 sites have as their principal vulnerability 'Plant Growth', another 10 have 'Scrub / Tree Growth' and 5 have 'Bracken'.

The other vulnerabilities are more diverse and less systematic, and include flooding (1 site), stock erosion (2), vehicle damage (1), public utilities (1; Caradon TV mast maintenance), vandalism (2), collapse (1; engine house on Caradon Hill).

Addressing the issue of grazing levels would be beneficial for the wider historic environment, if those 44 sites on the register are taken as symptomatic of a more general problem.

9.15 Summary, conclusion and a pastoral vision

The backdrop to agri-environment on Bodmin Moor is framed by concerns over revenue values in schemes, protected site condition (especially the Bodmin Moor North SSSI), consequent historically low stocking rates, and the need to make space for the next generation of commoners.

It is a pivotal time and one that will require flexibility, creativity and commitment from all sides. Despite the primary focus of ELM being on nature and climate, there remain opportunities to integrate PALs with that and to broaden the lens to look over the common boundary. Developing a better understanding of the significance of Bodmin Moor on a national and European scale will help to support PALs and our wider cultural heritage associated with pastoralism.

While many of the decisions that will guide change on the Moor continue to lie with Natural England (via the SSSIs) and Defra (the agri-environmental incentives) this may be a moment to consider different ways of management and how those agencies draw together their understanding of the Moor and its requirements and work with partners who represent other important interests.

The PALs, this HEAP, and the detailed understanding of the development of Bodmin Moor's historic landscape also informs understanding of today's semi-natural environment, which is a product of long-term pastoralism. Maintaining this form of traditional practice should support both important aspects of the Moor and encourage a better integrated decision-making forum for historical and natural environmentalists, statutory bodies and the modern farming community.

Decision-making could be framed by the fine-grained understanding of the Moor's historic and semi-natural environment, in all its variety, as by the presumed needs of the natural environment. The PALs report highlights how recent agri-environment prescriptions have been based on generic presumptions of what uplands with acid soils could or should be like, whether they are in northern Britain or in its far south-west.

The Bodmin Moor, North SSSI, for example, appears to be being managed on the basis of an assumption, or a presumption – 'These grasslands probably represent degraded heathland communities' (SSSI Reasons for Notification).

If the ancient grasslands that are being gradually swamped by furze, bracken and molinia were to be regarded instead as survivals of ancient, early prehistoric grasslands, containing now as they always have done (as evidenced by palaeo-environmental research) a mixture of other habitats, which would include lesser amounts of heath, bracken, furze and others, then the condition of the SSSI might be seen as more in line with the original grassland communities.

Maintaining or in some cases increasing stocking levels would bring benefits for the condition and visibility of the archaeological remains, and for the enjoyment of the landscape by the public – the freedom to strike out in all directions would be maintained, and in some parts of the Moor would be reclaimed. Farm dogs too could run and circle and herd cattle, sheep and ponies as they have long done. Bringing light back to ground shrouded by closed-canopy furze and reintroducing a greater variety of communities and habitats would be beneficial for the semi-natural

environment, for environmental growth and biodiversity, and for carbon sequestration.

And the Moor's pastoral community, the farmers and commoners, would regain and strengthen its connection with its antecedents, the pastoral farmers of the last 4000 to 5000 years who created the landscape, environment and culture of the Moor that they can proudly and resiliently sustain, in partnership with those many others who also care about this remarkable place, a National Landscape.

Cattle in front of an early post-medieval pasture boundary on Brown Willy (Pete Herring, July 2017).

Table, Bodmin Moor sites on HAR Register, as consulted in January 2025, and summarised by Pete Herring

Entry name	NLHE No.	Condition	Principal Vulnerability	Trend	Owner Type	PAL?
Altarnun						
Prehistoric irregular field system and hut circle settlement with adjacent medieval regular field system and deserted settlement south east of Tresibbet Farm, Altarnun	1007776	Generally unsatisfactory with major localised problems	Scrub/tree growth	Stable	Private, multiple owners	No
Prehistoric coaxial field system, incorporated and adjacent hut circles, stone setting, linear boundaries and medieval settlement on Fox Tor and Treburland Farm	1008245	Generally unsatisfactory with major localised problems	Stock erosion - extensive	Declining	Private, multiple owners	19 East Moor
Two adjacent prehistoric coaxial field systems incorporating regular field systems, stone hut circles, cairns and medieval fields on East Moor and Ridge	1008439	Generally unsatisfactory with major localised problems	Plant growth	Declining	Mixed, multiple owners	19 East Moor
Nine Stones stone circle 1.03 kilometres NNW of Bowhayland Farm, Altarnun / North Hill	1008631	Generally unsatisfactory with major localised problems	Stock erosion - extensive	Declining	Private, multiple owners	19 East Moor
Blisland						
Hut circle group and enclosure north east of Carwen, Blisland	1004659	Extensive significant problems	Scrub/tree growth	Declining	Private	No
Linkinhorne						
Earlier prehistoric hillfort, two cairns, medieval pound and adjacent prehistoric field systems, hut circles and transhumance huts on Stowe's Hill, Linkinhorne	1012352	Generally satisfactory but with significant localised problems	Plant growth	Stable	Crown	21.3 St Cleer
Prehistoric funerary cist 1.275 kilometres north west of Wardbrook Farm, Linkinhorne	1012043	Generally unsatisfactory with major localised problems	Flooding	Declining	Crown	21.3 St Cleer
Two cairns, centred 82 metres and 110 metres south west of Caradon Hill summit, Linkinhorne	1011810	Generally satisfactory but with significant localised problems	Bracken	Stable	Private	22 Caradon

Entry name	NLHE No.	Condition	Principal Vulnerability	Trend	Owner Type	PAL?
Two adjacent transhumance huts on Caradon Hill, 450 metres north of East Caradon Farm, Linkinhorne	1011900	Generally unsatisfactory with major localised problems	Bracken	Declining	Private	22 Caradon
Early medieval transhumance hut 740 metres west of Blackcoombe Farm, Linkinhorne	1011899	Generally unsatisfactory with major localised problems	Plant growth	Declining	Crown	21.3 St Cleer
Neolithic long cairn, prehistoric regular and irregular aggregate field systems, linear boundaries and medieval enclosure 625 metres west of Blackcoombe Farm, Linkinhorne / North Hill	1010221	Generally unsatisfactory with major localised problems	Plant growth	Declining	Private	21.3 St Cleer
Prehistoric round cairn on Caradon Hill, 310 metres west of Heather House, Linkinhorne / St. Cleer	1020939	Generally satisfactory but with significant localised problems	Plant growth	Declining	Private	22 Caradon
Medieval and post-medieval tin and copper mines with medieval field system on the middle and lower northern slopes of Caradon Hill, Linkinhorne / St. Cleer	1020942	Generally satisfactory but with significant localised problems	Plant growth	Declining	Private	22 Caradon
North Hill						
Three adjoining prehistoric linear boundaries on Bearah Tor, 687 metres south west of Nodmans Bowda Farm, North Hill	1010220	Generally unsatisfactory with major localised problems	Scrub/tree growth	Stable	Crown	21.3 St Cleer
Prehistoric co-axial and regular aggregate field systems with incorporated and adjacent hut circle settlements on Bastreet Downs, south of Bowda Farm, North Hill	1011558	Generally unsatisfactory with major localised problems	Scrub/tree growth	Declining	Commercial company	20 Bastreet
Three stone hut circles 1.06 kilometres north east of Trewortha Farm, North Hill	1009807	Generally unsatisfactory with major localised problems	Scrub/tree growth	Stable	Crown	19 East Moor
Round cairn 1,175 metres WSW of East Castick Farm, North Hill	1010412	Generally unsatisfactory with major localised problems	Scrub/tree growth	Declining	Commercial company	21.1 St Cleer

Entry name	NLHE No.	Condition	Principal Vulnerability	Trend	Owner Type	PAL?
Stone hut circle 1,225 metres WSW of East Castick Farm, North Hill	1010414	Generally satisfactory but with significant localised problems	Scrub/tree growth	Declining	Commercial company	21.1 St Cleer
Unenclosed hut circle settlement and adjacent prehistoric linear boundary 800 metres SSE of Trewortha Farm, North Hill	1008958	Generally unsatisfactory with major localised problems	Scrub/tree growth	Stable	Unknown	21.1 St Cleer
Hut circle settlement 975 metres north east of Trewortha Farm, North Hill	1009806	Generally satisfactory but with significant localised problems	Plant growth	Stable	Crown	No
Unenclosed hut circle settlement with incorporated enclosure 1.5 kilometres north west of Wardbrook Farm, North Hill	1008954	Generally unsatisfactory with major localised problems	Bracken	Stable	Unknown	21.1 St Cleer
St Cleer						
Round cairn and shelters 812 metres SSW of Caradon Hill summit, St. Cleer	1011784	Generally satisfactory but with significant localised problems	Public utilities	Declining	Private	22 Caradon
Prehistoric enclosure 325 metres west of Trewalla Farm, St. Cleer	1010434	Generally unsatisfactory with major localised problems	Plant growth	Declining	Mixed, multiple owners	21.3 St Cleer
Round cairn 525 metres east of Trewalla Farm, St. Cleer	1012041	Generally satisfactory but with significant localised problems	Plant growth	Declining	Private	21.3 St Cleer
Prehistoric regular aggregate field system with incorporated and adjacent stone hut circles and an adjacent enclosure 550 metres WSW of Trewalla Farm, St. Cleer	1009731	Generally satisfactory but with significant localised problems	Plant growth	Declining	Private, multiple owners	21.3 St Cleer
Round cairn 450 metres east of Sparretts Farm, St. Cleer	1009838	Generally unsatisfactory with major localised problems	Plant growth	Unknown	Private	21.3 St Cleer
Two adjacent stone hut circles 290 metres west of Trewalla Farm, St. Cleer	1009703	Generally unsatisfactory with major localised problems	Plant growth	Declining	Private, multiple owners	21.3 St Cleer

Entry name	NLHE No.	Condition	Principal Vulnerability	Trend	Owner Type	PAL?
Embanked platform cairn with central mound 375 metres north west of Trewalla Farm, St. Cleer	1015976	Generally satisfactory but with minor localised problems	Scrub/tree growth	Declining	Private	21.3 St Cleer
Prehistoric enclosure and field system, two hut circles and parts of a medieval field system 350 metres south east of Sparretts Farm, St. Cleer	1013216	Generally unsatisfactory with major localised problems	Plant growth	Declining	Private	21.3 St Cleer
Round cairn with peripheral berm 402 metres SSW of Caradon Hill summit, St. Cleer	1011822	Generally satisfactory but with significant localised problems	Bracken	Declining	Private	22 Caradon
The Tinners' Dyke 160 yards (150 metres) in length south of Hendergrove Wood, St. Cleer	1004364	Generally satisfactory but with significant localised problems	Arable ploughing	Declining	Private	No
Prehistoric cist, cairns and cairnfield on north east Smallacoombe Downs, 570 metres north west of Smallacoombe Tor, St. Cleer	1018630	Generally satisfactory but with significant localised problems	Plant growth	Stable	Mixed, multiple owners	No
Tor cairn with adjacent sub-rectangular hut 650 metres SSW of Caradon Hill summit, St. Cleer	1011793	Generally satisfactory but with minor localised problems	Plant growth	Stable	Private	22 Caradon
Prehistoric irregular and regular aggregate field systems, enclosure, stone hut circles, cairnfield and kerbed boulder 750 metres ESE of Siblyback Farm, St. Cleer	1010060	Generally unsatisfactory with major localised problems	Plant growth	Unknown	Private	21.3 St Cleer
Prehistoric to post-medieval field systems, boundaries, settlements and railway at Smallacoombe Parks and north eastern Siblyback Moor, St. Cleer	1018631	Generally satisfactory but with significant localised problems	Forestry	Stable	Mixed, multiple owners	No
Two cairns 550 metres and 587 metres ENE of Trewalla Farm and two adjacent small clearance cairns, St. Cleer	1010311	Generally satisfactory but with significant localised problems	Vandalism	Declining	Private	21.3 St Cleer
South Caradon C19 copper mine, St. Cleer	1020614	Generally satisfactory but with significant localised problems	Collapse	Declining	Mixed, multiple owners	22 Caradon

Entry name	NLHE No.	Condition	Principal Vulnerability	Trend	Owner Type	PAL?
Round cairn 740 metres SSW of Caradon Hill summit, St. Cleer	1011774	Generally satisfactory but with minor localised problems	Plant growth	Declining	Private	22 Caradon
Kerbed platform cairn with kerbed central mound and outer bank 600 metres east of Trewalla Farm, St. Cleer	1010323	Generally satisfactory but with significant localised problems	Vandalism	Declining	Private	21.3 St Cleer
Prehistoric irregular aggregate field system with incorporated stone hut circles 375 metres SSE of Sparretts Farm, St. Cleer	1008765	Generally satisfactory but with significant localised problems	Plant growth	Declining	Private, multiple owners	21.3 St Cleer
Stone hut circle 750 metres ESE of Trewalla Farm, St. Cleer	1011909	Generally satisfactory but with significant localised problems	Plant growth	Declining	Private	21.3 St Cleer
Prehistoric irregular and regular aggregate field systems with incorporated stone hut circles 750 metres ENE of Siblyback Farm, St. Cleer	1011315	Generally unsatisfactory with major localised problems	Plant growth	Declining	Mixed, multiple owners	21.3 St Cleer
Two adjacent stone hut circles 265 metres WNW of Trewalla Farm, St. Cleer	1009738	Generally unsatisfactory with major localised problems	Plant growth	Declining	Private, multiple owners	21.3 St Cleer
St Neot						
Unenclosed hut circle settlement, field boundaries, enclosure and cairn on Blacktor Downs, St. Neot	1011701	Extensive significant problems	Plant growth	Declining	Unknown	8 Blacktor
Prehistoric field systems, enclosure, hut circles and rounds, with adjacent medieval settlement, longhouse and field system on Higher Langdon Farm, St. Neot	1007475	Generally satisfactory but with significant localised problems	Scrub/tree growth	Improving	Private, multiple owners	17 Brown Gelly and Higher Langdon
Hut circle village 330 yards (300 metres) west of West Northwood Farm, St. Neot	1004662	Generally unsatisfactory with major localised problems	Scrub/tree growth	Declining	Mixed, multiple owners	15 Mutton's and Berry Downs
Prehistoric settlements and field system with adjacent medieval settlement, field systems, boundaries and tin streamworks on the Brown Gelly Downs, St. Neot	1007770	Generally unsatisfactory with major localised problems	Scrub/tree growth	Declining	Private, multiple owners	17 Brown Gelly and Higher Langdon

Entry name	NLHE No.	Condition	Principal Vulnerability	Trend	Owner Type	PAL?
Prehistoric regular aggregate field system with incorporated enclosure and stone hut circles 550 metres NNW of Lamelgate Farm, St. Neot	1007474	Generally unsatisfactory with major localised problems	Bracken	Declining	Private	16 Draynes Common and Lamelgate
Round cairn 1.062 kilometres south west of Higher Langdon Farm, St. Neot	1007476	Generally satisfactory but with minor localised problems	Other	Unknown	Private	No
Medieval transhumance hut on Draynes Common, 500 metres south west of Westerlake Farm, St. Neot	1007779	Generally satisfactory but with significant localised problems	Vehicle damage/erosion - limited/localised	Stable	Unknown	16 Draynes Common and Lamelgate
Hobbs Hill tin mine, openwork and lodeback tinwork 530 metres east and 160 metres north east of Chyseger Farm, St. Neot	1021410	Extensive significant problems	Scrub/tree growth	Unknown	Private	No
Round cairn 1.17 kilometres south west of Higher Langdon Farm, St. Neot	1007477	Generally satisfactory but with minor localised problems	Other	Unknown	Private	No
Warleggan						
Ancient village south of Carburrow Tor, Warleggan	1003073	Generally satisfactory but with significant localised problems	Plant growth	Stable	Private	11 Carburrow

References

Barnatt, J, 1982 Prehistoric Cornwall, the Ceremonial Monuments, Wellingborough, Turnstone

Austin, D, Gerrard, G.A.M and Greeves, T.A.P, 1989. Tin and agriculture in the middle ages and beyond: landscape archaeology in St. Neot Parish, Cornwall, *Cornish Archaeol*, **28**

Barnatt, J, 1982 Prehistoric Cornwall, the Ceremonial Monuments, Wellingborough, Turnstone

Barton, RM 1970 Life in Cornwall in the early nineteenth century, Truro, Bradford Barton

Bender, B, Hamilton, S and Tilley, C, with P Herring et al 2007 *Stone Worlds, Narrative and Reflexivity in Landscape Archaeology*, Walnut Creek, California, Left Coast Press

Berridge, P and Roberts, A, 1986 The Mesolithic period in Cornwall, *Cornish Archaeology* **25**, 7-34

Berry, J, 1987 *The quarry markings of Bodmin Moor*,

Blackman, T, 2011 Pseudo-Quoits to Propped Stones, in S. Pearce (ed.) *Recent archaeological work in south-western Britain; papers in honour of Henrietta Quinnell*. Oxford: BAR British Series, 548, 41-48

Bodmin Moor Vision 2005 *A Focus on the Moorland*, Cornwall County Council, English Heritage, Environment Agency and Natural England

Borlase, W, 1758 *The Natural History of Cornwall*, Oxford

Bowden, M, Mackay, D and Topping, P (eds) 1989 *From Cornwall to Caithness, some aspects of British Field Archaeology, papers presented to Norman V Quinnell*, BAR British Series, 209, oxford

Breton, Rev HH, 1912 *The Breezy Cornish Moors and their Border Lands*, Sheepstor: Breton

Brewster, C, 1975. Bodmin Moor, A synoptic study and report on a moorland area, Pool, Institute of Cornish Studies

Brisbane, M and Clews, S, 1979. The East Moor Field Systems, Altarnun and North Hill, Bodmin Moor, *Cornish Archaeol*, **18**

Brotherton, P, 2023 State of Nature, blog post from Natural England, Director of Science, State of Nature

Brown, AP, 1977 Late-Devensian and Flandrian vegetational history of Bodmin Moor, Cornwall, *Philosophical Transactions of the Royal Society*, **B276**, 251-320

Carew, 1603 *The Survey of Cornwall*, first published 1603, reissued in 2004 by Devon and Cornwall Record Society New Series, Volume 47, Exeter

Carter, A, 1994 3 Survey Methodology, in Johnson and Rose 1994, 8-10

Casanova, E, Knowles, TDJ, Bayliss, A and Evershed, RP, 2022 Dating the emergence of dairying by the first farmers of Central Europe using ^{14}C analysis of fatty acids preserved in pottery vessels, *Proceedings of the National Academy of Sciences*, **119.43**, https://doi.org/10.1073/pnas.2109325118

Caseldine CJ 1980 Environmental change in Cornwall during the last 13,000 years. *Cornish Archaeology* **19**, 3–16

Casimir, MJ, 1990 On Milk-drinking San and the 'Myth of the Primitive Isolate', *Current Archaeology*, **31.5**, 551-554

Charke, WJ, 1931 Remembrance of life on a farm, *Old Cornwall* **2.1**, 28-36

Clark, J, Darlington, J, and Fairclough, G, 2004. *Using Historic Landscape Characterisation*, London, English Heritage and Lancashire County Council

Cole, R, 1997 *Ivey and Hawkstor Farms, an archaeological assessment*, Cornwall Archaeological Unit, Truro

Commission 1867 Commission on the employment of children, young persons, and women in agriculture, Appendix pt II to second report, HMSO, London

Connolly, AP, Godwin, H and Megaw, EM, 1950 Studies in the post-glacial history of British vegetation; late-glacial deposits in Cornwall, *Philosophical Transactions of the Royal Society*, **B234**, 397-469

Copley, MS, Bertsan, R, Dudd, SN, Docherty, G, Mukherjee, AJ, Straker, V, Payne, S, and Evershed, RP, 2003 Direct chemical evidence for widespread dairying in prehistoric Britain, *Proceedings of the National Academy of Sciences of the United States of America*, **120.7**, 1524-1529 https://doi.org/10.1073/pnas.0335955100

Copley, MS, Berstan, R, Dudd, SN, Aillaud, S, Mukherjee, AJ, Straker, V, Payne, S and Evershed, RP, 2005 Processing of milk products in pottery vessels through British prehistory, *Antiquity* **79.306**, 895-908 https://doi.org/10.1017/S0003598X00115029

Cornwall and Isles of Scilly Local Nature Partnership, 2021 *Environmental Growth Strategy 2020-2065, natural foundations for a green recovery* https://letstalk.cornwall.gov.uk/environmentalgrowth [accessed 19 December 2024]

Cornwall Council, 2019 Distinctively Cornish: Valuing what makes Cornwall Cornish, Truro, Cornwall Council

Cornwall Council 2020 Historic Landscape Characterisation, texts for HLC Types, HLC Types, Rough Ground

Cornwall Council 2024 *Cornwall and Isles of Scilly Local Area Energy Plan, Summary report*, Truro, CC

Cornwall County Council 1996 *Cornwall Landscape Assessment 1994*, Landscape Design Associates and Cornwall Archaeological Unit for CCC, Truro

Cornwall National Landscape 2022 *Management Plan, 2022-2027*, Truro

Council of Europe, 2000 *European Landscape Convention*, Florence, Council of Europe

Countryside Commission 1994 *The Landscape of Bodmin Moor*, Land Use Consultants and Cornwall Archaeological Unit, Bristol

Cranfield University 2018 The National Soil Map and Soil Classification,

Cranfield University 2022. *The Soils Guide.* Available: www.landis.org.uk. Cranfield University, UK. Last accessed 21/07/2022

Cummings, V and Morris, J, 2022 Neolithic Explanations Revisited: modelling the arrival and spread of domesticated cattle into Neolithic Britain, *Environmental Archaeology*, **27.1**, 20-30

Davey 1994 *The history of life at Mennaridden Farm and Lower Gillhouse Farm*, TS, held by its author

Dixon, P, and MacInnes, L 2019 *Historic Land-use Assessment of Scotland, 1996-2015*, Historic Environment Scotland

Dudley, P, 2011 *Goon hal, cliff and croft, the archaeology and landscape history of west Cornwall's rough ground*, Cornwall Council, Truro

Du Maurier, D 1936 *Jamaica Inn*, Gollancz, London

Emmett, DD 1979 Stone rows: the traditional view reconsidered, *Proc Devon Archaeological Society*, **37**, 94-114

English Heritage, 2008 *Conservation Principles, Policies and Guidance*, Swindon, English Heritage

Evans, DJA, Kalyan, R and Orton, C 2017 Periglacial geomorphology of summit tors on Bodmin Moor, Cornwall, SW England, *J Maps* **13**, 342–349

Fairclough, G and Herring, P, 2016 Lens, mirror, window: interactions between Historic Landscape Characterisation and Landscape Character Assessment, *Landscape Research*, **41.2**, 186-198

Farnworth, R, Herring, P, Tapper, N and Farnworth, CR, 2024a The Rough Tor Effect: early prehistoric monuments focusing on significant tors in Cornwall, *Time and Mind*, **16:1-4**, 7-38

Farnworth, R, Herring, P, Tapper, N and Farnworth, CR, 2024b Stone circles and the Pole Star on Bodmin Moor in Cornwall, *Time and Mind*, **16:1-4**, 59-86

Farnworth, R, Herring, P, Tapper, N and Farnworth, CR, 2024c Locations of Cornish cairns in relation to the Rough Tor Effect, *Time and Mind*, **16:1-4**, 87-113

Ferraby, R, DeSilvey, C, Fluck, H and Samuel, I, 2023 Landscape histories for landscape futures, *Historic England Research, vol 25, Landscape level Change*

Fleming, A, 1988 *The Dartmoor Reaves, investigating prehistoric land divisions*, Batsford, London

Fleming, A, 2022 Exploring the Origins and Character of Transhumance in England, in W Morrison (ed) *Challenging Preconceptions of the European Iron Age*, Archaeopress, Oxford, 54-69

Fluck, H and Holyoak, V 2017 Ecosystem Services, Natural capital and the Historic Environment, Historic England Research Report 19/2107, Historic England, Swindon

Folliott-Stokes, AG, 1912 *The Cornish Coast and Moors*, Greening & Co, London

Gale, R, 2004-5 The charcoal in Jones 2004-5, pp 43-46

Gearey, BR, West, S and Charman, DJ 1997 The landscape context of medieval settlement on the South-Western Moors of England. Recent palaeo-environmental evidence from Bodmin Moor and Dartmoor, *Medieval Archaeology*, **41**, 195-210

Gearey, B.R., D.J.Charman & M.Kent 2000. Palaeoecological Evidence for the Prehistoric Settlement of Bodmin Moor, Cornwall, South-West England: Part I - The Status of Woodland and Early Human Impacts. *Journal of Archaeological Science* 27, 423-438.

Gearey, B.R., D.J.Charman & M.Kent 2000. Palaeoecological Evidence for the Prehistoric Settlement of Bodmin Moor, Cornwall, South-West England: Part II - Land-Use Changes from the Neolithic to the Present. *Journal of Archaeological Science* 27, 493-508.

Gearey, B.R., S.West & D.J.Charman 1999. The Landscape Context of Medieval Settlement on the South-Western Moors of England - Recent Palaeoenvironmental Evidence from Bodmin Moor and Dartmoor. *Medieval Archaeology* XLI, 195-208.

Gerrard, GAM, 1986 *The early Cornish tin industry: an archaeological and historical survey*, unpublished PhD thesis, Saint David's University College, University of Wales

Gerrard, S, 2025 Principal contributor on the Bodmin Moor stone rows on the Stone Rows of Great Britain website, https://stonerows.wordpress.com/

Griffith, F.M et al, 1984. Archaeological Investigations at Colliford Reservoir, Bodmin Moor, 1977-78, *Cornish Archaeol,* **23**

Hamilton, S, Harrison, S, Bender, B, 2008 Conflicting imaginations: Archaeology, anthropology and geomorphology on Leskernick Hill, Bodmin Moor, southwest Britain. *Geoforum* **39**, 602–615

Harvey, G, 2001 *The Forgiveness of Nature, the story of Grass*, London, Jonathan Cape

Henderson, C, 1935 Twelve Men's Moor, in *Essays in Cornish History*, Oxford: Clarendon, 125-129

Herring, P, 1986 An exercise in landscape history. pre-Norman and medieval Brown Willy and Bodmin Moor, unpublished MPhil thesis, University of Sheffield

Herring, P, 1997 Early prehistoric sites at Leskernick, Altarnun. *Cornish Archaeology*, **36**, 176-185

Herring, P, 1998 Cornwall's historic landscape, presenting a method of historic landscape character assessment, Truro, Cornwall County Council

Herring, P, 2004 Cornish uplands: medieval, post-medieval and modern extents, in Ian Whyte and Angus Winchester (eds) *Society, Landscape and Environment in Upland Britain*, Society for Landscape Studies, 37–52

Herring, P, 2007 Historic Landscape Characterisation in an Ever-Changing Cornwall. *Landscapes* **8 (2)**, 15-27

Herring, P, 2006b Cornish Strip Fields, in Turner 2006, 44-77

Herring, P, 2008b Stepping onto the Commons: South-Western stone rows, in P Rainbird (ed) *Monuments in the Landscape*, Tempus, Stroud, 79-88

Herring, P, 2008 Turf, in Herring et al 2008, 117-126

Herring, P, 2008a Commons, fields and communities in prehistoric Cornwall, in A Chadwick, ed, *Recent approaches to the archaeology of land allotment*, Oxford: British Archaeological Reports, Int Ser, **1875,** 70-95

Herring, P, 2010 The Cornish landscape in the Lanhydrock Atlas, in P. Holden, P. Herring and O.J. Padel (eds.) *The Lanhydrock Atlas*, Cornish Editions, Fowey, 27-40

Herring, P, 2012 Shadows of Ghosts: Early Medieval Transhumants in Cornwall, in S Turner and B Silvester (eds), *Life in Medieval Landscapes; people and places in the Middle Ages*, Oxford: Windgather, 89-105

Herring, P, 2013, Changing Cornish Commons, in ID Rotherham (ed) Cultural Severance and the Environment, the ending of traditional and customary practice on Commons and landscapes managed in common, Springer, Heidelberg, 249-262

Herring, P, 2024 Tamara Landscape Partnership, Historic Environment Action Plans, for Tamar Valley National Landscape

Herring, P, 2022 Strategically assessing the historic landscape's sensitivity and capacity in relation to change, Research Report Series no.91/2022, Swindon, Historic England

Herring, P, 2023 The making of West Penwith's semi-natural environment, Exploring the development of a valued environment and landscape, report for the Penwith landscape partnership, St Just

Herring, P, forthcoming Thomas Martyn and landscape, in R Oliver (ed) *A New and accurate Map of Cornwall, Thomas Martyn, 1748*, Devon and Cornwall Records Society

Herring, P, Sharpe, A, Smith, J and Giles, C, 2008. Bodmin Moor. an archaeological survey. Volume 2: the industrial and post- medieval landscapes, Swindon: English Heritage

Herring, P and Giles, C 2008 Agriculture in Herring et al 2008, 139-162

Herring, P, and Lewis, B, 1992 Ploughing up gatherer-hunters. Mesolithic and later flints from Butterstor and elsewhere on Bodmin Moor, *Cornish Archaeology*, **31**, 5-14

Herring, P, and Rose, P, 2001 *Bodmin Moor's archaeological heritage*, Cornwall County Council, Truro

Herring, P and Tapper BP, 2002 *The Lynher Valley, Cornwall, historical and archaeological appraisal*, Truro, Historic Environment Service

Herring, P, Turner, S, and Sevara, C, 2022 *The historic landscape: assessing opportunity for change*, Research Report Series no.69/2022, Swindon, Historic England

Hirst, K, 2021 Dairy Farming - the Ancient History of Producing Milk *ThoughtCo*, Oct. 18, 2021, thoughtco.com/dairy-farming-ancient-history-171199

Historic England, 2025 *What are Scheduled Monuments?* What are Scheduled Monuments?

Historic England, forthcoming *Guidance on the assessment of sensitivity to change and opportunities for change*, Swindon.

Jacobi, R, 1979 Early Flandrian hunters in the south west, *Proceedings of the Devon Archaeological Society*, **37**, 48-93

Jewell, A, 1981 Some cultivation techniques in the south-west of England, in W. Minchinton (ed.) *Agricultural Improvement: Medieval and Modern*, Exeter University Press, Exeter

Johnson, N and Rose, P, 1989 Bodmin Moor, Cornwall – post survey observations, in Bowden et al 1989, *From Cornwall to Caithness*, 65-69.

Johnson, N and Rose, P, 1994 *Bodmin Moor, an archaeological survey, volume 1: The human landscape to c1800*, English Heritage, second edition in 2008, English Heritage, Swindon

Jones, AM 2004-5 Settlement and ceremony: archaeological investigations at Stannon Down, St Breward, Cornwall, *Cornish Archaeology*, **43-44**, 1-140

Jones, AM 2016 *Preserved in the Peat; an extraordinary Bronze Age burial on Whitehorse Hill, Dartmoor, and its wider context*. Oxford: Oxbow

Jones, AM and Quinnell, H 2021 Updating the Cornish Neolithic and Bronze Age: significant developments of the last decade, *Cornish Archaeology*, **60**, 1-22

Karkeek, WF, 1845 On the Farming of Cornwall, *J Roy Agr Soc England,* **6**, 400-462

Kirkham, G, 2011b Managing the historic environment on west Cornwall's rough ground, Cornwall Council, Truro

Langdon, A, 2006 *Blisland Commons Boundary Stone Project*, Blisland: Blisland Commoners Association

Last, J and Kidd, S, 2023 Archaeological sensitivity mapping, *Historic England Research, vol 25, Landscape level Change*

Latham, B, 1971, *Trebartha, the House by the Stream*, London, Hutchinson

Leigh, M, 1937 *Harvest of the Moor*, London, Westaway Books

Lykke Syse, K 2022 Hefting the Land: a locative heritage of hooves and feet, in Svensson, D, Saltzman, K and Sorlin, S, Exploring the Routes of a Movement Heritage, White Horse Press, Winwick, 97-113

MacArthur, W, 1948 *The River Fowey*, London: Cassell

Maclean, Sir J., 1886. An Ancient Cornish Deed in English, *Journal of the Royal Institution of Cornwall,* **9**, 27-36

Malim, JW, 1936 *The Bodmin Moors*, London: Methuen

Maltby, E and Caseldine, CJ, 1982 Prehistoric soil and vegetation development on Bodmin Moor, southwestern England, *Nature*, **297**, 397-400

Maltby, E and Caseldine, CJ 1984 Environmental reconstruction at Colliford, *Cornish Archaeology,* **23**, 92-111

Marshall, W, 1796 *Rural Economy of the West of England,* reprinted in 1970 by David and Charles, Newton Abbot

Mays, N, 2022 The Conquest of Milk: The Rise of Lactase Persistence and the Fall of Scandinavian Hunter-Gatherers, *James Madison Undergraduate research Journal*, **9.1**, 54-64

Mercer, RJ 1981 Excavations at Carn Brea, Illogan, Cornwall a Neolithic Fortified Complex of the Third Millennium bc, *Cornish Archaeology*, **20**, 1-204

Mercer, RJ, 1997 The excavation of a Neolithic enclosure complex at Helman Tor, Lostwithiel, Cornwall, *Cornish Archaeology*, **36**, 5-63

Mercer, R.J. and Dimbleby, G.W, 1978. Pollen Analysis and the Hut Circle Settlement at Stannon Down, St Breward, *Cornish Archaeol*, **17**

MHCLG (Ministry of Housing, Communities and Local Government), 2024 *National Planning Policy Framework*, London, MHCLG

Michell, J, 1833 *Parochial History of Saint Neots in Cornwall*, Liddell and Son, Bodmin

Natural England 2022 *Peatland restoration and the historic environment. Standards for delivering environmentally sustainable peatland restoration projects*, Natural England, with Historic England Peatland restoration standards

Natural England, 2023 *Living England Habitat Map* Living England Habitat Map (Phase 4) - data.gov.uk [accessed 19 December 2024]

Nowakowski, JA, Gossip, J and Kennett, C, 2021 Researching the Hurlers: Mapping the Sun (2103) and Reading the Hurlers (2016), *Cornish Archaeol*, **60**, 205-213

Oosthuizen, S, 2013 Tradition and Transformation in Anglo-Saxon England. Archaeology, Common Rights and Landscape, Bloomsbury, London

Ostrom, E., 1990. Governing the Commons; the evolution of institutions for collective action, Cambridge, Cambridge University Press

Oswald, A, Dyer, C & Barber, M, 2001, *The Creation of Monuments: Neolithic Causewayed Enclosures,* English Heritage, Swindon

Padel, OJ, 1985 *Cornish place-name elements*, English Place-name Society, Nottingham

Padel, OJ, 1988 A popular dictionary of Cornish place-names, Alison Hodge, Penzance

Padel, O, 2011 The vocabulary of Cornwall's rough ground and documentary evidence for its historic uses, in Dudley 2011, 75-83

Plantlife 2023 *Grasslands as a Carbon Store*, Plantlife, Salisbury

Pounds, NJG, 1945 *The Historical Geography of Cornwall*, PhD thesis University of London

Pryor, F, 2006 *Farmers in Prehistoric Britain*, second edition, Tempus, Stroud

Ratcliffe, J, Herring, P, Rose, C and Johns, C, 2011 *The De Lank to Lowermoor water main, Bodmin Moor. Archaeological recording in 1991*, Truro: Cornwall Archaeological Unit

Roberson, B S, Dudley Stamp, L, and Mortimer, M, 1941 *The land of Britain, the report of the Land Utilisation Survey of Britain*, Geographical Publications, London

Rose, P and Herring, P, 1990 *Bodmin Moor, Cornwall, an evaluation for the Monuments Protection Programme*, Cornwall Archaeological Unit, Cornwall Council, Truro

Sagger, H, Philips, J and Haque, M 2021 Valuing culture and heritage capital: a framework towards informing decision making, London, DCMS

Serjeantson, D, 2011, *Review of Animal Remains from the Neolithic and Early Bronze Age of Southern Britain (4000 BC – 1500BC)*, Historic England Research Report, 29-2011. English Heritage, Swindon

Sharpe, A, 1989 *Minions: an archaeological survey of the Caradon Mining District, Truro*, Cornwall Archaeological Unit

Sharpe, A, 2008 Mining, in Herring et al 2008, 29-82

Simpson, J, 1989 *The reconstruction of the vegetational history of the Bronze Age archaeological site at Roughtor*, unpublished dissertation, University of London

Sleep, G 1984 Oral testimony recorded as manuscript by J Nowakowski; copy held by J Nowakowski

Staines 1976 *Soil Survey Record No 34, soils in Cornwall 1, Sheet SX18, Camelford*, Harpenden, Soil Survey

State of Nature Partnership, 2023 State of Nature 2023 https://stateofnature.org.uk/

Straker, V, 2011 Science and archaeology, *Cornish Archaeology*, **50**, 175-186

Tapper, B, 2010 *HLC and sensitivity mapping for Photo-Voltaic (Solar Farm) installations in Cornwall*, Cornwall Council, Truro

Tilley, C 1995 Rocks as resources: landscape and power, *Cornish Archaeology*, **34**, 5-57

Tilley, C, 1996 The power of rocks: topography and monument construction on Bodmin Moor, *World Archaeology*, **28(2)**, 161-176

Tinsley, H, 2004-5 Pollen analysis, in Jones 2004-5, 48-72

Tree, I, 2018 *Wilding, the return of nature to a British farm*, London, Picador

Trehane, K, 2001. The effects of stocking density on the vegetation composition and breeding bird populations of Bodmin Moor, Cornwall, thesis, UEA

Turk, FA 1967 Notes on Cornish Mammals in Prehistoric and Historic Times: 1, *Cornish Archaeology*, **7**, 73-79

Turk, FA 1968 Notes on Cornish Mammals in Prehistoric and Historic Times: 2, *Cornish Archaeology*, **8**, 100-104

Turk, FA 1970 Notes on Cornish Mammals in Prehistoric and Historic Times: 3, *Cornish Archaeology*, **10**, 121-127

Turner, S, 2006 Medieval Devon and Cornwall; shaping an ancient countryside, Windgather, Macclesfield

UNESCO 2006 *Cornwall and West Devon Mining Landscape* https://whc.unesco.org/en/list/1215/

Wainwright, G, 1960 Three microlithic industries from south-west England and their affinities, *Proceedings of the Prehistoric Society*, **26**, 193-201

Warinner, C, Hendy, J, Speller, C, Cappellini, E, Fischer, R, Trachsel, C, Arneborg, J, Lynnerup, N, Craig, OE, Swallow, DM, Fotakis, A, Christensen, RJ, Olsen, J, Liebert,

A, Montalva, N, Fiddyment, S, Mackie, M, Canci, A, Bouwman, A, Rühli, F, Gilbert, MTP, and Collins, MJ,2014 Direct Evidence of Milk Consumption from Ancient Human Dental Calculus, *Scientific Reports* **4**, article 7104. doi:10.1038/srep07104

White, H, 2006 *One and All, A History of the Duke of Cornwall's Light Infantry, 1702-1959*, Tabb House, Padstow

Whittle, A, Healy, FM and Bayliss, A, 2011 *Gathering Time: Dating the Early Neolithic Enclosures of Southern Britain and Ireland, Vols. 1 and 2*, Oxford, Oxbow

Worgan, GB, 1811 *General Review of the Agriculture of the county of Cornwall*, London: Board of Agriculture

Vera, F, 2000 *Grazing ecology and forest history*, Wallingford, CABI

Yalden, D,1999 *The History of British Mammals*, T and AD Poyser Natural History, London

Acknowledgements

Hannah Curnow and team at CSHER and John Brinkhoff of Cornwall Council for material and maps.

Nicholas Johnson, Ann Preston-Jones and Ann Reynolds for thoughts on Bodmin Moor's historic environment, archaeological remains, issues affecting them and the PALs in particular. And for discussing suggestions to adjust PAL boundaries.

All the graziers, Commons Secretaries and Chairmen who took part in Kitchen Table Discussions.

Jez Bretherton (Historic England) and David Hazlehurst and Cerin Poland (Natural England) for discussions of agency interest in Bodmin Moor's historic and semi-natural environment.

Landowners Julie Throssell and Adrian Mansfield and Juliette Butler of Historic England for enabling reduction of European furze on roundhouse settlements on Garrow.

William Pollard for help in the field.

Glossary

Baker n. A cast-iron dome with a flattened top which was placed over a heated baking iron on an open fire.

Baking iron n. A flat circular piece of cast iron, c 1in (25mm) thick and 2 ft (600mm) diameter upon which pasties, bread and cakes were baked. It was heated in an open fire, food was placed on it, and then covered by a baker or dish kettle.

Beat-burning n./vb. The paring-off, drying and then slow burning of the turf of a cultivable field, the potash-containing ashes then being scattered on the ground as fertiliser. A South-Western term. Also known as **paring and burning**.

Biddax n. From beat-axe, a broad-bladed mattock used to pare turf in **beat-burning**.

Blanket bog n. Peat formed in waterlogged conditions on higher ground (cf **valley bog**) where drainage is impeded. On Bodmin Moor blanket bog was usually found on the rounded hills with convex profiles where water stood on their backs.

Bounds n. The agreed boundary of a defined area, often marked by distinctive features, natural, specially made or reused.

Brandis n. A three- or four-legged wrought-iron stand for supporting pots, etc, when cooking either in or immediately beside an open fire.

Breast spade/plough n. A sharp-bladed tool with upright wing for de-turfing ley or unbroken ground, or for cutting skimmies of hill turf. A cross-bar was pushed from the thighs. It was often also pulled by a second person, using a rope attached to the handle.

Brouse (phonetically ‘bruss’ on Bodmin Moor) n. Dry twigs, hedge-cleanings, etc, used to give rapid heat in **cloam ovens**.

Butterwell n. A stone-built structure with a stone roof, in or beside a stream or marsh and with water either flowing through or standing on the floor, the water cooling dairy produce stored on slate or wood shelves within.

Butterwell at Cabilla, Cardinham (Pete Herring, September 2020).

Chall barn n. The most important building on a 19th-century Bodmin Moor farm, with ox and cow houses (challs) beneath a threshing loft.

Chall house n. A dwelling and barn, with a cow house or stable under, built as a single range under one roof. There were separate entrances to each part (cf where access to both parts was shared).

Chark vb. To burn turf, wood, etc until it becomes charcoal.

Chisler n. A wheeled scarifier; an agricultural machine with prongs for loosening but not turning soil (Charke 1931, 36).

Churchtown n. The small nucleation of dwellings and amenities around the parish church. It was often the largest settlement in a Cornish parish.

Clitter n. A bouldery material liberated from the parent granite by sub-surface weathering and carried downslope by gravity once exposed at the surface, often creating a bouldery spread around the slopes of tor-capped moorland hills.

Coal end n. The bottom part of a ***marsh*** turf; dense and black, and capable of shedding water. The best part of the turf for burning and the end exposed to the elements when rick building.

Commons

'Land must be legally registered as a Common to enjoy such status. A popular misconception is that any person has a right to enter common land. Although this is sometimes the case, it is not automatically so. The laws as applied to common land are often the same as for any other piece of private land, except for certain people who possess commoners rights. This is a complex and very locally variable part of the law, and readers should seek local advice about the exact status of the land and its users before trying anything on what they think might be common land.

Commons pre-date parliament, or even the monarchy, and are a legacy from the times when land was mainly 'wild' and ownerless. The manorial system appointed owners but the peasantry kept their customary rights. By the mid-nineteenth century many of these rights had been eradicated by enclosures but some survive to the present day. The Commons Registration Act of 1965 attempted to record all common lands, owners and rights. The law relating to commons is under review so the situation may change in the next couple of years.' (Extract from www.naturenet.net/law/commonland.html)

Convertible husbandry n. An agricultural regime in which two or three years cropping were succeeded by between three and ten years grass (**ley**) and preceded by **paring and burning** of the grass. Grass seeds were usually sown with the last grain crop. Also called **ley husbandry**.

Cornish hedge n. A stock-proof boundary having two battered stone faces and an inner core of earth and small stones.

Crinnicks n. Sticks of furze (gorse) collected as a domestic fuel. Usually subjected beforehand to a rapid burn to remove prickles.

Crook n. A hooked wrought-iron bar suspended from a frame within a chimney, and ratchetted to allow it to be lowered and raised. Vessels were suspended over the fire for cooking, boiling, etc.

Dish kettle/kiddle n. Similar to a **baker** but its dome was not flattened. It was used for roasts and larger items of baking. It was sometimes made with three spikes on top to help keep turves in place.

Dray n. A simple sledge used on Bodmin Moor to pull marsh turf to drying grounds. Typically it had side timbers *c* 4 ft (1.2m) long and 3ft 6 in (1m) apart with iron runners and cross members at *c* 1ft (300mm) intervals.

Dredge n. Fodder crop; a mix of oats and barley.

Drift n. Occasional rounding-up of livestock on a common at which each is checked to ensure their owners have the right to put them there.

Elvan n. An igneous rock, usually of quartz and orthoclase and normally found as a **dyke**. Quarried in Cornwall for roadstone and ballast.

Farm n./vb. The arrangement by which productive use was made for the use of land (including ore deposits) by other than the owner, usually in return for rent.

Fine n. A sum of money paid by an incoming tenant in consideration of a relatively low rent.

Grist n. Corn for grinding, hence grist-mill. Grist often referred to animal fodder rather than baking flour.

Growan n. A local form of **rab**.

Hain vb. To save or bring home the dried hay.

Hill turf n. A local term for **blanket bog**; also included particularly humic soil.

Historic environment

‘All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora’ (MHCLG 2021, Glossary).

Bodmin Moor has, therefore, an especially rich and important historic environment, containing unusually coherent physical remains in the form of the landscape archaeology of activities from the Neolithic, Bronze Age, Iron Age, medieval and post-medieval periods, and, in the ancient semi-natural grassland, a valuable survival of an extremely long-managed flora, established by the same communities that created the archaeological remains.

Hollow-way n. A lane or trackway which has, through intensive use, become lower than the surface of the surrounding ground.

Inbye land n. Fields closest to the farmstead. These received most dung and were generally the more intensively cultivated.

Journey n. An amount of work an employer expected to be achieved in one day. The term can apply to a length of walling or hedging to be constructed, or to the number of turves to be cut and landed.

Killas n. A general and inclusive Cornish dialect term for slaty sedimentary rocks.

Lathed adj. Of a wagon or cart; having removable wooden ladders (with two or three cross-pieces) fitted to front and rear, allowing a large load of hay or corn to be carried.

Leat n. An artificial watercourse, serving streamworks, mills, clayworks and processing floors. It was often originally lined with stone, clay or wood, and usually had a downhill bank.

Ley n. Grass sown with the last of 2 or 3 years' grain crops. Used for hay and as best pasture for 5–10years as the recuperative part of the typical **ley** or **convertible husbandry** regime.

Ley husbandry n. An alternative term for convertible husbandry.

Longhouse n. The principal peasant house of Cornwall in the later medieval period. A cross-passage between two opposed entrances separated the cow house from the residents' quarters, animals and humans sharing the same door. Substantial, well-built and comfortable.

Machine n. A local term in the late 19th century for a horsedrawn mower, or binder.

Marsh/mash turf n. A local term for peat fuel from **valley bog**.

Moats n. Larger pieces of wood found when cutting turf in **bogs.**

Moor n. Medieval and post-medieval writers often used this term (a form of ***mere***) to refer to low-lying, marshy ground. Upland open heathland was usually referred to as ***downs***.

Moorstone n. A Cornish term for granite recovered from the surface or just under the surface of the ground.

Mowhay n. An enclosure on a farm where ricks of corn and hay were built; also often held ricks of turf and furze (both domestic fuel) and ferns (bracken, used for bedding for livestock).

Nuttalls n. Bits of hazel wood; the word was also used for small sticks of wood found when cutting turf in bogs.

Paring and burning n./vb. An alternative form of **beat-burning**.

Peat n. Brown or black altered vegetable matter, cut and harvested as fuel. Generally called turf on Bodmin Moor.

Peat platform n. An alternative, archaeological name for **turf stead**.

Pike n. A hay fork with two prongs.

Prong n. A hay fork, usually with four tines.

Rab n. Granite-based gravel; periglacial head. Widely used for surfacing tracks and creating hard standings.

Regrator n. A person who buys and sells locally produced goods (on Bodmin Moor eggs, butter, cheese, etc). A valuable middle-man.

Sett n. The legal boundary within which a mine or quarry could extract minerals.

Several n. A piece of enclosed land, in the past usually farmed communally but now in separate ownerships.

Sheep creep n. A lintelled passage through a field boundary through which sheep could pass but cattle and horses could not. It could be blocked as required with stones.

Shippon n. A cow house (East Cornwall).

Shode n. Tin ore detached from its parent lode by weathering.

Skimming plough n. A plough whose share is low and flat with a sharpened triangular wing fixed on to the leading angle. Used for skimming off a thin turf. Also **velling plough**.

Skimmy n. A thin slice of hill turf skimmed off with a breast spade and dried for fuel. Alternative names: **vag, tab, tob, vellin turf**.

Stead n. A platform, often stone lined, upon which a rick is built.

Stiddle n. A tethering post in a cow house.

Swale vb. To burn heathland in springtime to remove rank heather and grass and encourage more nutritious growth.

Tab n. An alternative name for skimmy.

Titch crook n. A hand tool with a long handle and two-tined head used for turning either drying fuel turf or turf pared in **paring and burning**.

Tob n. An alternative name for **skimmy**.

Tomentor n. A local form of *tormentor*; horse-drawn cultivator.

Townplace n. Open and usually public spaces in farming settlements.

'Traditional' farming systems

In Cornwall these tend to be mixed farming regimes making sensitive use of the agricultural potential of a holding through awareness of soils, aspect, climate etc. Their roots can be found in the prehistoric and medieval periods but they adapted to changes in tenure and technology in the early 20th century when market forces changed and specialisation (dairying, beef, horticulture etc) became dominant and the application of artificial fertilisers, herbicides and pesticides widespread. This trend away from traditional farming intensified

during the Second World War and has been maintained by subsequent Government and European support schemes. (Summarised from Herring 2001.)

Turbary n. A common right to dig, dry and save turf (peat) for domestic consumption as fuel. The term is also used to describe an area where turf is cut either by commoners or by others (e.g. tinners) with rights to cut; a source of profit for medieval manors.

Turf n. A Bodmin Moor term for peat; divided into **hill turf** and **marsh turf**.

Turf charcoal n. Charcoal made from dried turf, principally in the medieval and early post-medieval periods, and used for first smelt of tin. Appears in medieval documents as *turba carbonum*.

Turf house n. A farmstead building either built or reused to store dried turf.

Turf iron n. An elongated spade with pronounced feather and slender, downward pointing wing and long wooden handle used to cut and land **marsh turf** and deep **hill turf**. Broadly similar to the Irish slane and the Scottish peat spade.

Turf mowhay n. A homestead enclosure used specifically for ricking turf.

Turf pike n. A two-pronged fork used for turning drying **skimmy** turf.

Turf stead n. Post-medieval sub-rectangular and circular platforms, usually on the open moor, on which dried turf was stacked until it could be brought back to the homestead. A ditch (with an external upcast bank) was dug for drainage and to protect the rick from grazing animals. An alternative archaeological name is **peat platform**.

Turnrest plough n. A local form of *turnwrist* one-way plough (*see* Jewell 1981, 102).

Upland Rough Ground

‘Now distinguished mainly by habitat/ecology from surrounding enclosed/improved ground. The impact of human action is usually underestimated and the zone is often regarded as largely "natural". In fact, it has the longest history of human interference/utilisation, with its principal attributes, impoverished soil supporting essentially rough grassland/heath/scrub vegetation communities, being a product of prehistoric human intervention and maintained through medieval and early modern land use systems.

Environmental analysis confirms that woodland cover right up to the highest slopes in most parts (except perhaps on the Lizard) was gradually removed by early farmers in the Neolithic and Earlier Bronze Age periods (c4000-2000 BC) for arable and pastoral farming. Soils deteriorated through nutrient loss and leaching. Iron pans, formed by leaching minerals, accelerated peat formation in later prehistory (all processes either directly attributable to human action or closely associated with it).

Once vegetation had settled into its open, rough grassland and heathy form (probably by c2000 BC), its use changed to more extensive pastures and fuel-grounds (peat and furze), often as commons shared by several local farming communities. These maintained the essentially open appearance.

Upland Rough Ground was, until c1750, considerably more extensive; its enclosure by industrial labourers and more importantly by an expanding agricultural population in the 19th century and its continued improvement by farmers with capital and machinery in the 20th has greatly reduced it.' (Extracted from Cornwall Landscape Assessment 1994)

Vag n. An alternative name for **skimmy**.

Valley bog n. Peat developed in waterlogged valleys, often where streams were re-channelled during tin streaming. Known locally as **marsh** or **mash turf**.

Velling plough n. As skimming plough.

Velling share n. A flat plough share, *c* 10in (*c* 250mm) wide, with a triangular wing brazed onto the leading angle. An alternative name is **velshare**.

Vellin turf n. **Hill turf** harvested with a plough fitted with a **velling share**. In form similar to **skimmy**.

Vell shovel n. A spade or shovel with a rounded blade, 'wiggled' under **hill turf** to cut **skimmies**.

Velshare n. An alternative name for **velling share**.

Visgay n. A two-bladed mattock with the edge of one blade parallel to the handle; used to cut roots, etc.

Wastrel n. A form of unenclosed commons over which some individuals had specific rights, such as **turbary**.

Whippletree n. A crossbar to the ends of which traces are fastened in a cart, plough, etc.

Yaffle n. A quantity of material (eg) which could be carried when the bottom two corners of a wrapper, a rough overapron, were brought to the waist.

Abbreviations

AONB Area of Outstanding Natural Beauty, a statutory landscape designation, now renamed National Landscape, as in CNL.

APR Agricultural Property Relief

BAP Biodiversity Action Plan. Internationally recognised programme designed to protect and restore biological systems.

BMV Bodmin Moor Vision. One of a set of 'Visions' drafted in the early 21st century to integrate interests in a sustainable management of upland areas of SW Britain.

BPR Business Property Relief.

BPS Basic Payment Scheme.

bTB Bovine Tuberculosis

BVD Bovine Viral Diarrhoea.

CAD Computer aided design. 2D and 3D drawing.

CAS Cornwall Archaeological Society, the principal membership society for those with an interest in the archaeology of Cornwall and Scilly.

CAU Cornwall Archaeological Unit, originally the historic environment service for Cornwall County Council, now a commercial archaeological organisation hosted by Cornwall Council.

CC Cornwall Council, a unitary authority.

CCC Cornwall County Council, former higher-tier local authority, replaced by CC on April 1, 2009.

CCRA Cornwall Committee for Rescue Archaeology, later renamed CAU. Set up to provide a service recording the archaeology of Cornwall and engaging in various means of protecting it.

CHAHP Caradon Hill Area Heritage Project was a Heritage Lottery Fund Living Landscape Partnership Project that helped to recognise, conserve and enhance the area's special character.

CNL The Cornwall National Landscape, formerly the Cornwall AONB. Bodmin Moor is one of its 12 discrete elements.

CROW The Countryside and Rights of Way Act 2000, a UK law that grants public access to certain types of land in England and Wales.

CS Countryside Stewardship.

CSHT Countryside Stewardship Higher Tier.

DA Disadvantaged Area.

ELC European Landscape Convention

ELM Environmental Land Management. Post-Common Agricultural Policy (CAP) government support for land-based environment and climate goods and services.

ELS Entry Level Stewardship.

FC Forestry Commission.

FEP Farm Environment Plan.

FiPL Farming in Protected Landscape, funding scheme to support environmentally sensitive farming in statutorily protected landscape, including National Landscapes. Therefore, applicable to Bodmin Moor.

GIS Geographical Information System, increasingly sophisticated and multi-layered computerised mapping.

HAP Historical and Archaeological feature Protection.

HEAP Historic Environment Action Plan, analogous to the Biodiversity Action Plan. Reviews issues and opportunities and proposes actions (projects, programmes, policies, etc) to address them.

HECAS Historic Environment Countryside Advice Service. Instigated around the turn of the millennium, mainly by local authorities, to enable the historic environment to have a voice in considerations of rural management, protection, interpretation and presentation.

HEFER Historic Environment Farm Environment Record.

HER Historic Environment Record, specifically the Cornwall and Isles of Scilly HER, maintained by the CC SHE. Increasingly map-based gathering of current knowledge about individual heritage assets and the wider historic landscape, via historic mappings and HLC.

HLC Historic Landscape Characterisation. Systematic map-based description and interpretation of the predominant historic character of the landscape, using repeating Broad and Narrower Types. Supported by interpretative texts.

HLS Higher Level Stewardship.

HRA Habitat Regulation Assessment.

HTS Higher Tier Stewardship.

IBA Area identified by BirdLife International as being globally important for the conservation of bird populations, using an agreed set of criteria.

IDA International Dark-sky Association. Identifies areas with especially limited light pollution.

LFA Less Favoured Area.

LR Landscape Recovery.

LU Livestock Unit.

LUMG Dartmoor Land Use management Group.

MAFF Ministry of Agriculture, Fisheries and Food.

MESME Make Environmental Stewardship More Effective initiative.

MPP Monument Protection Programme, a systematic review of England's archaeological heritage to identify sites worthy of scheduling.

MTS Mid Tier Stewardship.

NBAR Native Breeds at Risk supplement in Countryside Stewardship Higher Tier.

NERC Natural Environment and Rural Communities Act 2006

OEP Office for Environmental Protection.

ORNEC Operations requiring Natural England Consent

OSL Optically Stimulated Luminescence (OSL) dating determines the age of sediments and other materials by measuring the stored energy of minerals like quartz and feldspar.

PAL Premier Archaeological Landscape (as defined and delineated to support the Bodmin Moor Vision). Areas with especially rich complexes of archaeological remains, mainly surviving at the surface.

RCHME Royal Commission on the Historical Monuments of England (RCHME), was a government advisory body responsible for documenting buildings and monuments of archaeological, architectural and historical importance in England. Established in 1908 and merged with English Heritage in 1999.

RDP Rural Development Programme.

RPS Rural Payments Agency.

SAC Special Area of Conservation. Adopted by the European Commission and formally designated by the government of each country.

SDA Severely Disadvantaged Area

SFI Sustainable Farming Initiative.

SHE Strategic Historic Environment, a service of the CC, which provides strategic and tactical advice, including HECAS, and maintains the HER.

SHINE Selected Heritage Inventory for England.

SM Scheduled Monument.

SPS Single Payment Scheme.

SSSI Site of Special Scientific Interest.

SWES Sheep and Wildlife Enhancement Scheme.

TBF Tick-borne Fever.

UELS Uplands Entry Level Scheme.

WCA Wildlife and Countryside Act 1981

Appendix 1 Archaeological site types found on Bodmin Moor's rough ground

As mentioned, the whole of Bodmin Moor is a significant historic environment and landscape; and might be regarded as a Premier Archaeological Landscape writ large in certain situations.

All its archaeological remains can be managed carefully and sensitively. Some are Scheduled Monuments or are within designated areas (World Heritage Site, Conservation Area, National Landscape etc.) and so are subject to procedures including consenting systems designed to prevent damage and destruction.

However, all sites can be ascribed to site types, and these can be managed and presented and researched to improve their condition and ensure they continue to be visible and maintain each of their four Heritage Values.

There was not resource to do more than briefly introduce the various site types, which are organised here by their period or theme.

Further work can include the following.

- Assessments of how they might be affected by the various forms of change that can be expected to occur on Bodmin Moor (see Sections 7 and 9). Sensitivity and Opportunity assessments.
- Explore how each of the four Heritage Values (Aesthetic, Communal, Historical and Evidential; see Section 6) might apply to each Type.
- Optimum management can be suggested for each type of site, to minimise disturbance and damage and maximise the visibility of their remains.

Each of these three will support decision-making on the Moor.

Mesolithic and Earlier Neolithic

Flint Scatter

Individual items and scatters of Mesolithic and Neolithic implements and projectiles, predominantly of flint (also some greenstone, chert, quartz). There is limited ploughing on the Moor to expose such scatters so most are found where livestock churn up the ground, especially in gateways. Ploughing ahead of conifer planting on Butterstor Downs also provided an opportunity for systematic field walking in which scores of tight scatters where identified, enabling estimates to be made of total numbers of such scatters on the Moor, around 140,000. This high number has been supported by the large numbers of scatters and individual objects found on the arbitrarily determined shores of each of the modern reservoirs (Siblyback, Crowdy and Colliford). Numerous flints have also been found around the shores of natural waterbodies, most notably at Dozmary Pool, where hundreds of Mesolithic flints have been picked up since Victorian times.

Tor Enclosure

Hilltop enclosures of irregular plan in which ditch-less banks of large rocks and smaller stones, some set on edge, link natural tors, hence the term ‘tor enclosure’. None of those on Bodmin Moor has been excavated but their similarity in form to the three elsewhere in granite uplands of Cornwall that have provided dates and artefacts (Carn Brea, Helman Tor and Trencrom) suggests that they too are of the 4th millennium BC, that is early Neolithic. Vary greatly in size, from very large areas at Stowe’s Hill (6.5 hectares), Rough Tor (5.5 hectares), medium sized enclosures at De Lank (4 hectares), Notter Tor (2 hectares), and Berry Down (1.5 hectares) and possibly also the very small site at Tregarrick Tor (0.5 hectares). Presumed to be gathering places for large communities, at a period when land use was predominantly nomadic.

Propped stone

A large slab deliberately supported by smaller stones placed on a tor or natural bedrock. The type was first recognised in 1994, on Leskernick Hill. The association of that stone with other early prehistoric monuments and the detail of its midsummer sunset alignment suggest an early 4th millennium date (Herring 1997). Others have since been identified, elsewhere on the Moor (including on Carburrow Tor, Rough Tor, Kilmar Tor, De Lank, Devil’s Leap, and Brown Willy), and further afield in Cornwall, and on Dartmoor and Scilly, and in Wales, northern England and Ireland (Blackman 2011). Care needs to be taken to demonstrate that the arrangements of some are not either natural (artefacts of tor creation or periglacial actions) or are associated with much more recent human activities, notably stone splitting.

Propped stone on Brown Willy (Pete Herring, November 2007).

Long Cairn

These are stonier equivalents of the long barrows that are more common elsewhere in England. They were first noticed on Bodmin Moor in the 1980s during the Bodmin

Moor Survey (Johnson and Rose 1994, 24-26) and now at least six are known. They are broadly trapezoidal, up to 30m in length, with mounds generally less than 1 metre high often contained by low slabs set on edge as kerbs. Traces of internal structures exist at some, particularly Louden and Catshole, and at Bearah there may be the remains of a more substantial chamber.

Check Tilley 199

Bank Cairn

Long and broad banks of stones, with traces of kerbs, that climb the slopes of hills and appear aimed at conspicuous tors, including cheesewrings. Associations with other features suggest a Middle Neolithic date, c3000BC, comparable with the earthen bank barrows known elsewhere in Britain. The most spectacular example is on Rough Tor where the bank exceeds 7 metres wide in places and comprises three straight stretches, each aligned on a hilltop cheesewring. Others, more fragmentary, have been noticed on Carburrow Tor and Fox Tor, all three of them within PALs.

Sacred Enclosure

The rectangular strongly banked enclosure known as King Arthur's Hall has been dated to the late 4th millennium BC and so is Middle Neolithic in date. Its orientation, due north-south and its form with the interior cleared down to bedrock to obtain the material for the banks, and its inner lining of tall upright granite stones all suggest a non-mundane purpose, presumed to relate to ritual, hence the suggested site type, sacred enclosure. So far as is currently known the site is unique; there are no very close parallels anywhere.

Later Neolithic and Early Bronze Age

Stone Circle

A ring of standing stones, usually granite, but occasionally quartzite. Scale and finish vary considerably; some are perfectly circular in plan and with stones carefully selected, even dressed to be of similar shape and size, and are often carefully spaced. Others have a mix of large and small stones, uneven spacing and irregular shape. The variety is such that it cannot be certain that all stone circles were used in the same way and had the same meanings for their creators. Most do have their position in common, being placed south of a locally dominant hill.

They are later Neolithic or early Bronze Age in date, c2000BC, and are presumed to have been used primarily for gatherings. There may have been associations with the disposal of the dead, but they could also have been gathering places for life-affirming activities like prehistoric equivalents of fairs where people gathered to exchange goods and gossip, meet old friends and make new ones, and to sort out any issues between individuals and groups, including over the use of shared resources, like the extensive grazing lands that the stone circles stood in.

Trippet Stones, Blisland Manor Common. Rough Tor and Brown Willy in the distance (Pete Herring, September 2020).

Stone Row

A line of spaced out stones, usually granite and often associated with other ritual or ceremonial monuments like cairns or stone settings, indicating a date of origin around the early Bronze Age, c2000BC.. Some rows, like on East Moor and at Colvannick on Cardinham Downs, have quite tall stones, similar to typical menhirs, but most have small stones, less than 0.2m high, sometimes even smaller. It has been suggested that these could only have served as monuments because grazing levels in the Early Bronze Age was so intense that the sward was sufficiently low.

Most rows incorporate distinct landscape design, most notable when they are walked along and as their terminal (often marked by a taller stone) is reached a significant feature pops up on the skyline ahead – the Brown Gelly summit cairns at the ENE end of the Trehudreth row, Leskernick propped stone at the southern end of the Buttern Hill row, and Rough Tor at the west end of the Leskernick row.

Stone Setting

An arrangement of two or more closely spaced large standing stones, not arranged as either a stone circle or a stone row. Presumed to be later neolithic or Early Bronze Age as they are normally found close to other monuments of this period, as at Stannon and Trehudreth. Presumed to be ritual or ceremonial monuments, possibly with stories or meanings attached to the stones.

Stone setting on Stannon Down (Pete Herring, December 2015).

Menhir

A single standing stone, usually of granite or quartzite on Bodmin Moor. Fewer here than in other granite areas of Cornwall, such as West Penwith, where several have been excavated and found to be associated with burial or placement of significant artefacts. Presumed therefore to be ritual or ceremonial monuments. They are often placed within complexes of other monuments, or placed where significant features, such as Rough Tor, come into view on further skylines, as at the Advent Longstone (Herring and Rose 2001, 24).

The Advent Longstone with Rough Tor emerging over the skyline as it is approached (Pete Herring, July 2009).

Embanked Avenue

Short passages (up to 80 metres long) defined by low banks up to 8 metres apart with some upright stones, apparently elements of walking routes to or between other monuments, including cairns and stone circles and stone rows, so presumed to be contemporary with those, i.e. Early Bronze Age, c2000 BC. They have not been as

thoroughly studied as they might be. Two examples identified so far, on Showery Tor (St Breward) and Craddock Moor (St Cleer) (Herring and Rose 2001, 25).

Cairn

Circular mound of stones, usually larger and with a more complex design when placed on the tops of hills or ridges, and smaller and simpler when on lower slopes. Generally of the later 3rd and early 2nd millennia BC, the centuries around 2000 BC. When excavated the smaller hillside cairns tend to be seen to be burial monuments, often for a single individual whereas the builders of the hilltop cairns appear to have only occasionally incorporated burial or disposal of the dead into a complex suite of sacred or ritualised behaviours.

Some hilltop cairns are placed in relation to distant significant hills, most notably Rough Tor and Stowe's Hill – some such as those on Brown Gelly and Carburrow Tor have been shaped to mimic the forms of Rough Tor and Brown Willy. Other, called tor cairns, incorporate natural granite outcrops, most spectacularly at Showery Tor, St Breward where a large ring cairn surrounds and appears to make sacred a wonderfully sculptural cheesewring.

There are hundreds of cairns surviving on Bodmin Moor (more than 400 have been recorded), often in groups, either as scatters of mounds or as lines of them (as on Caradon, Brown Gelly and on the eastern slope of Rough Tor). Very few hills lack cairns, and they seem to have played a role in marking out territories of communities. 'Virtually every block of land (as defined for example by prominent hills and divided by rivers and streams) is marked by a group of cairns, as if all the available land was claimed and accounted for (Herring and Rose 2001, 17 -18, and map on p 23).

Later Prehistoric

Roundhouse Settlement

Bodmin Moor is internationally important for the survival of its prehistoric settlements, mainly of circular houses, the remans often mapped as 'Hut Circles', but generally referred to by archaeologists now as roundhouses, in recognition that they were substantial and carefully constructed buildings, not humble huts. Some are over 10 metres in diameter internally, larger than many modern houses, and most have been levelled into the slope and have internal drains that kept their flat floors dry. Excavations find traces of rings of substantial wooden posts supporting a conical roof, presumably thatched, and lines of stakeholes showing subdivisions of space into rooms or activity areas. The doorway of most houses can be identified, sometimes through having two upright granite slabs, so we can still today enter and leave a prehistoric house and see the landscape that the house's inhabitants saw two or three thousand years ago.

Excavations (on Garrow, Stannon Down, Rough Tor, Leskernick and Northwood), have confirmed that many of the roundhouses on Bodmin Moor were built in the

Middle Bronze Age, that is in the middle centuries of the 2nd millennium or around 1500 BC. Smaller numbers (examples on Garrow Tor) are later, dating from the Iron Age and Romano-British periods. Some Bronze Age houses were reused in the Iron Age and a few had later smaller houses tucked into the shelter of their ruined shells (examples on Garrow, Rough Tor and Leskernick).

Most roundhouses are found in groups; there are hardly any that can be confidently regarded as originally being isolated. They were built by members of communities and together they form hamlets or even villages. Some groups have over 40 or 50 roundhouses (for example at Blacktor, on Garrow Tor, on Brockabarrow Common, on the western and southern slopes of Rough Tor and on Leskernick Hill. We cannot be certain now that all houses in such groups were occupied at the same time.

Some roundhouse groups are found associated with extensive field systems but some have either very small ovoid enclosures associated with them or none at all. Such settlements are generally believed to have been created by those whose principal activity revolved around caring for grazing livestock.

Prehistoric Field System

It is remarkable that the use of granite in building prehistoric field boundaries has left us the remains of whole farming systems dating from around 3500 years ago. Gateways survive with two slabs set on edge, and walled trackways leading through fields that we presume were used in part for growing crops or for saving hay lead out to the open rough grazing lands beyond them.

Few small enclosures

There are several distinctive types of enclosures and fields associated with prehistoric roundhouses on Bodmin Moor. Some sites have just a few small ovoid enclosures, as on the SW slopes of Kilmar Tor, at Brockabarrow Common and on the east side of Brown Willy, mostly places in the heart of Bodmin Moor where the land is most marginal for arable farming but where large herds and flocks of grazing animals would have been overseen. The enclosures may therefore have been small pens.

Elsewhere the enclosures are elements of patterns of fields, some with the distinctive lynchets at their lower sides where cultivation has led to the accumulation of soil in what archaeologists call lynchets. These then were fields created and used by farmers who included arable in their economy, presumably alongside haymaking and tending for cattle and sheep fields under grass – mixed farming of a type that would still familiar today. There are two principal forms of prehistoric field pattern on Bodmin Moor.

Curvilinear field systems

Some of the field systems have curvilinear enclosures, with sequences of construction clearly visible, one enclosure added to another in an accretive way. The

roundhouses associated with such fields are either grouped together in hamlets (as in the eastern settlement on Leskernick Hill) or are scattered through the fields (like in the pattern on Craddock Moor), the former perhaps suggesting that the fields were farmed communally while the latter indicating how individual households in some places appear to have had their own fields.

Rectilinear and coaxial field systems

Other field patterns are more rectilinear and in some cases are ‘coaxial’, with several long parallel fields defined by stony banks and subdivided by cross banks. These can be very extensive, as on East Moor and Ridge in Altarnun and North Hill, and may have several clusters of roundhouses, or hamlets, within them. Boundaries normally cross the contour and are attached at their upper ends to long boundaries that edge the areas of open rough grazing, which were probably used as prehistoric commons.

Pasture boundaries

As well as field patterns with roundhouses there are numerous long prehistoric boundaries, usually quite substantial stony banks, with no ditches alongside them. They break areas of the Moor into large blocks and the most probable interpretation of them is that they were pasture boundaries. Some are associated with round house settlements and fields, as on the southern side of Rough Tor, on Louden Hill, and on Treswallock Downs, all in St Breward, and on Langstone Downs in Linkinhorne.

Iron Age hillfort

Large massively banked and ditched circular or sub-circular enclosures, often with more than one line of defences. Usually on a hilltop. On Bodmin Moor the hillforts are on the edge of the uplands, at places like Bury Down, Cardinham, Berry Down, St Neot and Allabury, North Hill. Such locations suggest that the people who built them and gathered in them had interests in the downs and their pastures as well as in the lower more sheltered land and in the wooded valleys. As such, they are seen as central places in territories that provided large communities with multiple resources – pastures, mixed farming and woodlands.

Round

Hamlets of a handful of houses or farmsteads contained within a single bank and ditch, of a scale that made them defensible, although we might expect them to have normally been the bases for small communities living in peace with their neighbours. There are hundreds in lowland Cornwall, most of them reduced to below ground remains detectable through crop marks as the deeper soils in the former ditches grow more strongly and ripen later, showing as green rings in ripe crops. On Bodmin Moor, several rounds survive as substantial earthworks, but there are no more than a handful in total and these are on the edge of the Moor or in very sheltered valleys, such as at Higher Langdon in St Neot.

Medieval

Transhumance hut

Small sub-rectangular buildings, typically c4m long and c2m wide internally with walls surviving as low stony banks. Usually in small groups, up to c12 in number, fairly widely spaced out (to allow herds and flocks to be gathered around each building). The numbers reflect the hamlet basis of the home or winter farms of the groups of people using these as summer dwellings while they practiced transhumance – the accompanying of livestock to summer rough grazing grounds, usually extensive commons, where the cattle, sheep and goats were milked and the produce turned to cheese and butter. Sometimes associated with small pens. Often established among the ruins of prehistoric roundhouse settlements (e.g. at Rough Tor, Leskernick and Brown Willy).

Drift pound

Substantial enclosure in which livestock found to be grazing commons without rights or exceeding rights were impounded, usually until their owners paid a fine for their release. The livestock were checked during drifts, probably normally organised by the appropriate Hundred (of which there were four on Bodmin Moor, dividing it into roughly equal-sized quarters – Trigg, Lesnewth and East and West Wivelshire). Commoners would work together to round up livestock and check their markings to establish ownership and then to check their right to be there.

Some pounds were newly built in the medieval and early post-medieval period (including Crow Pound on Goonzion Downs in West Wivelshire hundred) and two in Lesnewth Hundred (at Highertown, Advent, and Bray Down, Altarnun) which were each called Drift Pound. Two others appear to have reused substantial stock-proof enclosures that had been originally created in early prehistory, the ‘sacred enclosure’ at King Arthur’s Hall, St Breward, for Trigg hundred, and the inner enclosure of the tor enclosure at Stowe’s Pound on Stowe’s Hill, for East Wivelshire hundred.

Pasture boundary

Long, usually sinuous or curving boundary, originally built to be stock-proof, often with a substantial ditch on one or both sides (the principal distinguishing feature that allows them to be separated from prehistoric pasture boundaries). Many are found within the ‘hamlet commons’ attached to the field systems of medieval hamlets. Few of the ancient commons are divided by such boundaries, but some are delimited by them.

Medieval farming hamlet

Cluster of closely spaced ruined farmsteads usually arranged around an irregular common space, the townplace. Each farmstead has a distinguishable ruined longhouse (qv) and several smaller buildings, formerly cowhouses, stables, barns, etc, as well as small enclosures (yards, gardens and mowhays, the yards in which

stack were made of corn, hay, turf, furze, ferns (bracken)). Usually reached by a hedged lane and set within a pattern of subdivided (strip) fields.

Longhouse

Rectangular medieval building, its long axis set across the slope. A cross passage between opposed doorways roughly central to the long sides formed the division between the cowhouse at the lower end and the dwelling house and any inner rooms at the upper end. Stone walls to 1.0m wide and up to 1.5m high, usually very well built. Single-storeyed, originally thatched, but now ruinous on the open moor. A few survive reused in farmsteads (like Stonaford and Codda).

Ruined 13th century longhouse (right) and associated outhouse (left) on Louden Hill, St Breward (Pete Herring, December 2015).

Corn-drying barn

A specialised medieval farm building. Usually quite small (less than 7 metres long) set a little way from the main hamlet because of the fire risk. Rectangular with an internal platform at one end (usually upper end) in which a kiln was built and onto which a stone-built domed oven was built. Usually collapsed but still discernible.

Ring-fence

The outer perimeter of a later medieval farming settlement's land. Often a curving line against the open ground, usually a common, into which the incursion was made. Usually for a hamlet rather than a single farm so it can be quite large. The boundary was built to be stock-proof to prevent livestock from the common entering the fields contained within the ring-fence. Often a form of corn ditch.

Corn ditch

A stock-proof hedge with a distinctive profile. On the primary side, the one that has to be most stock-proof there is a substantial ditch, typically up to 1.5m wide and 0.8m deep, and a good strong stone face, to 1.8m high. The inner side has a sloping bank that could be sued to drive trespassing animals back out over. Usually later medieval; in date, though the basic form was still used in places, in less substantial sizes in the post-medieval period.

Beehive hut (medieval)

Small building made entirely from slabs of stone, its roof formed by overlapping stones cantilevered over the building's centre, the walling having an inverse batter. Usually a single low doorway and a floor that is either circular or squarish. Multiple purposes, including storing deadstock, but also shelter for pigs, geese and dogs.

Strip field system

Medieval fields associated with longhouse hamlets were usually strip fields, to make equitable distribution among the hamlet's households easier – it is easier to judge quantity via width rather than attempting to calculate areas. Usually, several strips within a single field, delineated by low stony banks that could be stepped over by livestock grazing it when the field was not in cultivation. Had to accommodate the rotation of convertible husbandry, so usually 10 or more subdivided fields in a system (see Herring 1986).

Lazybeds

Narrow parallel ridges left from medieval and post-medieval spade cultivation. Ridges typically less than 2.5m wide and now quite low (0.2m high) but would have been fairly pronounced when first made. One aim was to double the soil depth and to fold in dressing (dung, seaweed, ditch cleanings, etc) to maximise yields of grain crops, principally species of oats on Bodmin Moor in the later medieval period.

Wayside cross

Later medieval stone cross set up beside the tracks or paths to the parish church. Usually less than 2m high, often round-headed (occasionally perforated), occasionally latin cross. Some have carvings in relief of a cross and of Jesus crucified, in relief.

Inscribed stone

Early medieval standing stone with inscription in primitive letters, usually a dedication or memorial.

Chapel

Small stone building used for Christian gatherings and worship. Usually oriented east-west. Of all periods from the early medieval through to the 16th century. Distinguished from more recent nonconformist places of worship, also known as chapels.

Holy Well

A well or more often a spring that has been contained and resorted to obtain hole water for use in Christian worship and ritual. Often believed ot have had earlier pagan significance. In the later medieval period some were provided with small chapel like structures (as at St Cleer) or were contained within small rectangular buildings, well-houses.

Post-medieval and modern

Post-medieval farmstead

Usually a single farmstead rather than a hamlet, and usually associated with a post-medieval field pattern though some were placed within earlier field patterns as medieval arrangements broke down. Often included a challbarn (with cattle housed beneath a hayloft) and other farm buildings and yards, gardens and a mowhay.

Post-medieval field system

Pattern of fields attached to a post-medieval farmstead. Usually rectilinear if of the 18th to 20th centuries. Boundaries built from material close to hand so can include turf banks as well as Cornish hedges and drystone walls. Most of the fields would have been under grass for most of the time, but a long rotation convertible husbandry regime, normal in Cornwall until the early 20th century, meant that some would be under arable for 2 or 3 years.

Pastoralist's shelter

Small stone or turf-built building, usually rectangular, but occasionally irregular (as in a couple of cases on Rough Tor), set amid extensive pastures and often some way from tinworks or stone quarrying. Usually interpreted then as shelters for those tending flock and herds. Some may have been stayed in overnight. Their tiny floorspaces indicate that they could only accommodate one or two people.

Rock carving

Inscriptions made onto natural boulders, tors and slabs in the post-medieval period. Ranges from elaborate and high-quality carving, including the Jubilee Stone at Pendrift in Blisland, with coats of arms, images and poetry, to Daniel Gumb's mathematical diagrams at the Cheesewring, to the fleurs-delys carvings keeping stonemasons from encroaching on the tors in the SE quarter of the Moor. Also graffiti carved in the 19tha nd early 20th centuries on tors.

Merriment hole

A single hole hand-drilled into a natural tor on a hilltop. Filled with black powder and lit by a fuse to explode on feast days as a local amusement in the 19th century. Also known as Midsummer Holes.

Drilling practice holes

Numerous closely spaced holes in a tor or a large granite block. Understood to have been created either through practicing hand drilling or by competitions between drillers. Presumed to be 19th or early 20th century.

Millstone

Slab of granite shaped for use as a millstone but abandoned either complete or more often after a flaw meant that the job of fashioning the millstone was abandoned.

Boundstone

Standing stone on the line of a parish, property or sett boundary. Often inscribe with initials, sometimes with numbers and dates. The stones themselves usually split with wedge or drill marks visible. Mainly 18th to early 20th centuries.

Trackway

Linear hollowed earthwork of a trackway, sometimes wide and consistent enough to have been used by wheeled vehicles, but often created by the movement of livestock and so of variable width and depth. Often braided, where several trackways overlie each other.

Industrial

Streamworks, Alluvial

Earthworks in a valley bottom left from the careful working of alluvial shode, that is tin-bearing stones eroded from parent lodes and sorted by alluvial action and deposited in a valley bottom. Workings normally involved diverting the still flowing stream into a diversion channel to allow the workers to excavate by pick and shovel into the shode, and dressing the tin-bearing stones unearthed in ‘tyes’ or working areas within the pattern of pits, trenches and spoil heaps. Heavier tin was separated from the generally lighter waste material by running a flow of water over the excavated material. Some, perhaps many, alluvial works will have prehistoric origins, but the basic technique was used through the medieval and post-medieval periods, right through to the early decades of the 20th century. Later workings will have caused substantial disturbance to earlier ones.

Streamworks, Eluvial

Earthworks on hillslopes and dry valleys in which shode was worked within cuttings dug by pick and shovel and into which water was drawn from reservoirs often filled by run-off water collected by leats. As in alluvial streamworks, dressing of the excavated material to separate heavier tine from lighter waste was undertaken within linear ‘tyes’ whose positions can often be discerned through the patterns of waste dumps left in the base of the cutting. A drainage channel normally runs through the length of the streamworks.

Tinners' building

Small building, usually rectangular, used by tin streamworkers for shelter and storage, and possibly also for sleeping in. Often built within streamworking cuttings or tucked into the side of spoil dumps (to maximise shelter). Usually built of stone, but some are earthworks of turf-built structures, and those have also been subjected to archaeological excavation. Occasionally have a small fireplace at one end, in the gable wall.

Prospecting pit

Small sub-rectangular pit, typically around 2.5m by 1.5m, and usually surviving to c 1.3m deep, and with a crescentic heap of spoil (usually less than 1.0m high) on its downhill side. Dug to assess quantities of shode in subsoil and thus to help home in on its source, either a viable deposit of shode that could be worked by streamworks or shode workings, or the shode's parent lode that could be worked by lode-back workings, openworks or a mine. The pits were therefore dug systematically, often in informal rows, occasionally in longer trenches, or costeaning trenches, and all arranged perpendicularly to a presumed line of lode or shode.

Prospecting pits were also dug to assess for deposits of kaolin in china-clay workings.

In all a total of 59 groups of prospecting pits were recorded on Bodmin Moor, ranging in size from a handful of pits to wide scatters. Seventeen costeaning trenches were recorded (Rose and Herring 1990, 471-472).

Shode working

Where it was not possible to draw water to a workable deposit of shode in order to open a streamworks, the tin workers would dig the material up and transport it to a place where it could be dressed. The pits that resulted from this operation were generally larger than prospecting pits but were similar in form and they were densely packed in complexes called shambles. There can be scores of such pits. Often an area of shode working lies immediately uphill of an eluvial streamworks.

Openwork

A mining operation in which the lode is removed by working down from the surface, leaving a long narrow pit that was dug as deep as was safe, and was not filled by water. Waste was often dumped in simple finger dumps downhill. Known from the later medieval period through to the 19th and 20th centuries when some openworks removed several closely adjacent lodes, as at Treveddoe in Warleggan.

Lode-back works

Simple working of a tin lode by lines of primitive shafts dug as deep as was safe and could be drained, and whose working along the lodes went as far along the lode as was practicable before another lode-back pit had to be sunk a few metres further along. Most pits have now slumped in but in some the mouth of the shaft, cut into the bedrock, can be discerned. Openings are typically around 4m in diameter and spoil

heaps around the mouths can reach over 3m high. Some may be as early as the later medieval period, but most are post-medieval.

Mine

A mining operation involving sinking deep shafts, opening levels from them, drainage (whether by machinery or by adits), removal of lode-bearing rock (again via adits or by hoisting to the shaft head), and a dressing plant to refine the ore raised. The earliest mines on Bodmin Moor are later than in more westerly parts of Cornwall where greater capitalisation encouraged earlier adoption of the necessary technologies. On the Moor few can be dated to before the 18th century. Most were for tin and copper, but some also raised wolfram, lead and silver.

Shaft

Rectangular hole dug either directly onto a lode (and thus often slightly slanting to follow the lode's lie) or vertically and placed so as to intersect the lode underground. Gave miners access to the underground part of a mine and were use for hoisting ore (usually with a capstan or headgear) and often also for pumping water out to enable mining to continue. Ventilation shafts were sunk to provide fresh air to the miners. Usually around 3m by 2m, and with spoil heaps around or near their heads. Shafts used for pumping and winding required stable collars for the support of pit-gear and head-gear and pumping shafts usually have stone-lined slots built into the sides of their tops to take the balance-bob (the rocking counter-weight to the heavy pumping rods} and, if the pumps were worked via FLAT-RODS from some remote power source, an angle-bob which transferred horizontal motion to vertical.

Adit

A very gently inclined tunnel driven into a mine to provide access for miners, to drain water from workings and sometimes to haul out ore. Usually made to be just as wide and tall as was necessary (given the effort required to cut through hard rock). Usually have finger dumps a short way downhill from the portal.

Engine house

Large rectangular building that housed a steam-driven engine. They were used for various purposes, including pumping (from an immediately adjacent shaft in which pumping rods were fitted), winding (often from a slightly more distant shaft over which was set a headframe), and stamping to pulverise the ore prior to dressing. In a copper mine an engine house could also power an ore crusher. The engine's cylinder was fixed onto a platform that covered over half the house's floor and the beam that was rocked by the engine's action was pivoted on the very solid bob wall. Winding and stamping engines had loadings for the wheels that transferred to linear action of the bob to rotative motion. On Bodmin Moor engine houses arrived relatively late (as transport costs made them expensive to install and then operate and water power proved enduringly effective in the deep valleys). Only one was installed before the 19th century.

The functions of most of the 56 surviving engine houses on Bodmin Moor can be established (through form, documentation and contemporary maps and plans): 28 pumping, 19 winding,10 stamping and crushing, 2 man engines and 6 unknown (Rose and Herring 1990, 418).

To many people the engine house with its powerful lines, often with tapering stack attached to the corner of the tall and strong house is the monument that best signifies the historic mining industry.

Wheelpit

Long narrow stone-walled pit that contained a waterwheel used for generating power. That power was used in mining (for pumping, winding, stamping and blowing/smelting), in china clay working (pumping again), and in agriculture (grinding, fulling, operating barn machinery etc. The pit can be as long as 25 metres and as wide as 2 metres, but most are less than 10 and 1 respectively. They are typically partly cut down into the ground (at their uphill end when created on a slope) and partly built up as freestanding structures (downhill ends). Waterwheels in a landscape with significant relief were normally overshot as this type, in which the water was poured into the buckets of the wheel from above, generated the greatest power from the least amount of water.

Most overshot wheels had leats that terminated on launder supports, substantial stone built structures immediately beside the uphill end from which a wooden trough took the flow of water beyond the midway point of the wheel and so turned it as a continuation of the stream's flow. The largest wheels on the Moor were built in the later 19th century and created via a cam the lateral motion that was transmitted over several kilometres of moorland via flatrods. Some smaller ones may be the earliest, possibly later medieval (e.g. those associated with stamping and blowing tin ore). Most are post-medieval, and the majority will be 18th and 19th century. Most are now redundant and becoming ruinous and are potential hazards.

Horse whim

An engine that used the power of one or more horses attached to a vertical shaft set in the centre of a circular platform and rotating in a greased hole drilled in a flat slab of granite, a melior stone, to generate power. This was used to haul ore, soil or water from shafts in mines, or to work belts that powered barn machinery like threshing, winnowing and chaff-cutting machines. The archaeological remains are normally the circular whim plats, typically between 9 and 12 metres in diameter. Largely post-medieval in date, with some agricultural horse engines still in use in the late 19th century.

Flat rods

Devices by which power generated by waterwheels or steam engines was transmitted to one or more other places by means of long timber rods that were lifted above the ground and set moving forwards and backwards on rocking bobs that

were perpetually in need of greasing to keep the action smooth and as friction-free as possible. Most spectacularly deployed in china-clay works in the later 19th century, when some flatrods ran for over a kilometre over uneven ground. Shorter runs were deployed in mines (Sharpe 2008, ***). Only when their perfectly straight courses ran through uneven ground did they leave traces on the ground either as narrow trenches or as banks. In very rare cases upright stones (the roller supports or pendulum pivots), or the shallow depressions left on the removal of such stones or posts also survive. (Rose and Herring 1990, 438).

Stamping mill

Waterwheel powered sets of stamps housed in small rectangular buildings, usually in immediate association with dressing floors. Some of the ruined sites are later medieval but in a land where water power was at least as important as steam power in mining complexes they were also created into the modern period. Some stamps were powered by steam engines, especially in the more significantly capitalised south-eastern part of the Moor.

Crusher

Dressing copper ore differed considerably from tin dressing because the main ore (chalcopyrite) was easily lost in the 'tails' of water separation. The ore was hand picked from the waste, both underground and on the surface and graded into prills (pure ore not requiring further work) and drage (ore mixed with gangue - waste minerals). In early copper mines the drage was crushed by hand using heavy hammers but in the late 18th century water-powered crushers were introduced, later supplemented or replaced by steam-engine driven crushers. Their houses are not especially distinctive once the machinery has been removed (Rose and Herring 1990, 450).

Dressing floor

Platforms, often levelled into the slopes, in which buddles were set alongside settling tanks, all downhill from stamping mills from which the crushed ores was transported in suspension as a form of slurry. In the buddles and tanks the much heavier tin-bearing material fell out of suspension quicker than the waste, enabling a reasonable level of separation to take place. Early dressing floors had trapezoidal stone lines buddles which were operated by women and boys stirring the slime with brushes to encourage ethe tin to drop out. Later buddles, from the 19th and 20th centuries had circular buddles around which brushes agitating the slime could be rotated.

Calciner

The removal of sulpherous and arsenical impurities from lode tin was an important process on a mine as it greatly increased the value of the tin sent to the smelter and in some cases was necessary to make the tin able to be smelted at all. The calciner was a substantial stone structure, usually squarish in plan, in which a furnace and heating chamber were used to drive off impurities such as sulphur and arsenic from ores. Material would normally be re-processed on the dressing floors several times,

to maximise ore collection, before the concentrated tin was put into the burning-house or calciner to remove unwanted arsenic, pyrites and other impurities

Magazine

Small well-built structure usually placed some distance (50 metres or more) from the heart of a mine or quarry complex in which the black powder or other explosive material used in mining and quarrying was stored. Usually square in plan, and with slots for wooden or slate shelves, cut into water-tight pointing or plastering (to minimise the chances of damp making the explosives unstable). Those 11 examples recorded on the Moor appear to be 18th or 19th century in date (Rose and Herring 1990, 456).

Tramway

Small-scale rail-based transport systems of the 19th and early 20th centuries whose levelled beds, with regular transverse linear depressions (for sleepers/setts), survive as substantial and evocative earthworks. Motive power was provided by animals (donkeys, horses, people), by gravity (with continuous cables, associated usually with inclined planes), by steam or, more usually in the 20th century, electric engines, either fixed (as at 12105.01, Black Tor) or mobile, running along the rails. Fifteen tramway systems have been recorded on Bodmin Moor, 10 in mines, 4 in dimension stone quarries and 1 in a china-clay works.

Blowing house

Before the introduction of reverberatory furnaces (early 18th century) and after the decline of the simple bowl furnaces (14th century?) most Cornish 'black tin' (the dressed ore, over c60% pure tin) was converted to metal in 'blowing houses'. These contained permanent stone-built furnaces fuelled by wood or turf charcoal and served by bellows operated by water wheels. Their use overlapped with reverberatory furnaces and some continued to operate into the mid-19th century (Gerrard 1986, pl45), smelting black tin from both streamworks and mines.

Blowing houses often also had small sets of stamps on their sites. These were used to crush slag for re-processing (to save on tin-loss through inefficient smelting) and, occasionally, to process ore brought by poorer tinners who lacked dressing facilities.

Blowing houses are distinguished from other mills in the field through possession of mould stones (for the ingots), float stones (granite troughs into which the molten tin flowed from the hearth), and slag, often in very small pieces (having been re-stamped). (Rose and Herring 1990, 468). Six blowing houses are recorded on Bodmin Moor, but many more originally existed.

Reservoir

Dam for holding back water. These were used in a range of industrial, agricultural and domestic contexts, including providing the water for dressing in eluvial streamworks, for operating waterwheels in stamping mills, blowing houses, corn and tucking mills, and for barn machinery. They were usually placed either in running

streams, or where run-off water could be collected by contour-following leats. Most were quite simple earthen banks, but some were stone and occasionally, more recently, concrete walls.

Leat

Artificial watercourses whose earthwork remains are a low bank on the downhill side of a shallow ditch or channel. Excavations indicate that they were sometimes lined with wood or clay. They transported water through gravity (being very slightly sloping). The water was used in a range of industrial, agricultural and domestic contexts, including providing the water for dressing in eluvial streamworks, for watering livestock and providing domestic water in farmsteads and cottages, or for operating waterwheels to generate power in stamping mills, blowing houses, corn and tucking mills, and for barn machinery. Leat were as long as was required so could be very short, just a few metres, or more often of considerable length, curving along valley sides and around hills. There are scores of leats surviving on Bodmin Moor.

Dimension-stone Quarry

Dramatic mid-19th century to early 21st century granite quarrying sites with vertical cliffs (some reaching 30 metres high) in deep cuttings (up to 100 metres across), and large finger dumps of waster rocks on the slopes below and smaller heaps of overburden around the higher edges. Many have waterfilled pits within, and several have well-preserved remains of cranes, processing floors, and internal stone-transportation systems (tracks, tramways etc).

They produced large blocks of flawless granite for use in major civil engineering works (lighthouses, piers, docks, breakwaters, military sites etc); in large public and private buildings; and, especially in the 20th century, in the manufacture of monuments, mainly gravestones. The quarries were either cuts run into hillsides on the level or dug down deeply as pits, usually now flooded.

Forty quarries have been recorded, some in groups, making 29 complexes in all.

Proto-industrial quarry

Small granite quarries, intermediate between moorstone pits and dimension stone quarries. Most are from before the mid-19th century growth in dimension stone quarrying. They lack the charge-holes associated with gunpowder blasting and instead have the thicker drill-marks of early 19th century tare-and-feather splitting. Distinguished from moorstone splitting pits by being cut into bedrock (rather than individual boulders) and through being of a scale which is incipiently industrial; scores or hundreds or blocks of granite being removed from each quarry. Eleven proto-industrial quarries have been recorded (Rose and Herring 1990, 496).

Roadstone quarry

Quarries cut into bedrock – granite, elvan and shillet – for road/railway ballast, or for simple rubble work in buildings, walls, hedges etc. Lack waster dumps and stone

processing plants (except for a modern crusher at De Lank, St Breward). Those in granite are linear, exploiting natural weaknesses and fracturing in the rock; those in elvan are also linear, following the intrusion. All are simply dug into hillsides; no pits are dug down. Shillet quarries are broader. Twenty roadstone or rubble quarries have been recorded on Bodmin Moor (Rose and Herring 1990, 499).

Rab pit

Simple quarries cut into 'rab' or, locally, 'growan', the decomposed granite gravels used for track surfacing. The pits, often at roadsides are scoop-like, flat-bottomed, and with entrances wide enough for vehicles. Pick marks are still visible in some of the pits' walls, which can reach 3.0m high. Most appear, from map evidence, to be later 19th century. The Bodmin Moor Survey recorded 29 rab pits (Rose and Herring 1990, 503).

China-clay works

China clay is partially decomposed granite, kaolinized (hence kaolin, china clay) and was first recognised in Cornwall in c1745 by William Cookworthy. Bodmin Moor clay is less pure than Hensbarrow clay. This, and high transportation costs, marginalised the Bodmin Moor industry, which started relatively late, in the 1860s.

Early Bodmin Moor were on hillsides and operated the 'stream and strake' extraction method. A stream directed over exposed clay ground washed kaolinised material away from unaltered rocks ('stent'), the clay flowing out by gravity. Workers, 'dubbers', standing in the clay stream broke the material with shovels and picks, forming the gully known as the strake. Deepening of pits required adits to be driven from their bases, or shafts to be sunk, through which clay was brought to the surface, including by use of waterwheel and steam-engine driven pumps.

Earlier spoil dumps were finger form, flat-topped, made by wheeling barrows to their ends. Barrows were later replaced by tramways and the sky tips, or conical dumps, characteristic of china clay works were created by having skip roads extending upwards with material being dumped at their ends. This reduced the area wasted through dumping and was cheaper on labour. The last works, post-Aberfan, had their waste dumped on large flat-topped dumps by lorries.

Processing involved separating kaolin from gravel, sand and mica and then drying it. The earliest separation method involved running the stream through stepped tanks, usually rectangular, in which sand, fine sand and mica, and mica alone were respectively deposited. Later on, deep, narrow, channelled sand and mica drags were used. Purified clay flowed into settling pans for thickening and was dried in pans. The earliest pans were in the open air and drying was a very slow process. From the 1850s pan kilns were introduced, with hypercausts bringing heated air beneath the tiled pan floors.

Transportation was a problem on Bodmin Moor, with its poor roads so around the turn of the 20th century major producers installed pipelines taking the purified clay (as slurry) to dries built beside the nearest railways.

Those Bodmin Moor clayworks abandoned before the First World War are among the best-preserved remains of the industry in SW Britain. Being abandoned early they were not damaged by re-workings. The Bodmin Moor Survey recorded 29 china-clay works on Bodmin Moor and suggested two should be assessed for National Importance with a view to Scheduling, Burnt Heath, an early workings and Glynn Valley, a later very well-preserved complex, both in Cardinham (Rose and Herring 1990, 510-513).

Turf cutting

Dried cut turf (i.e peat) was the principal domestic fuel in moorland homes from at least the 12th century to the mid 20th century. The viability of medieval and post-medieval settlements to some extent depended on the availability of turf. Turf had industrial uses too: turf charcoal was used in primary smelting of tin in later medieval times and turf was used much later in drying china clay, storing Dozmary Pool ice, and firing the Ice Company's engine house boiler. Archaeological remains of turf cutting – the extensive cuttings and hundreds of turf steads – also contribute greatly to Bodmin Moor's historic landscape.

Bodmin Moor turf was either skimmed off the surface of downlands as thin broad turves, called skimmies, vags, tobs, and other very local names, using breast spades and vell shovels, or it was dug in pits in valley bogs (Marsh turf) and blanket bogs (hill turf) using 'turf irons', sharply pointed bladed spades, with a wing and a feather to cut and 'land' long turves about 5 inches square and up to 2 feet 6 inches long. The turves were dried beside the pits before being stacked on turf steads or drawn home and stacked on platforms close to the house (Herring 2008).

Turf cuttings were not systematically recorded in the Bodmin Moor Survey and there are many more sites than the 24 in the CSHER (Rose and herring 1990, 527-529).

Turf stead

Grassy sub-rectangular or 'playing-card' shaped platforms, occasionally circular, defined by ditches with external banks. A typical platform is c 6.0m by c 4.0m (but they can be up to 12 metres long), the ditch typically c 0.5m wide, c 0.3m deep, and outer bank c 1.5m wide, c 0.2m high. They are usually found in loose scatters (platforms rarely less than 10m apart), mainly around bogs and peaty areas, both marsh and hill turf.

The platforms have been the subject of several archaeological misinterpretations, being first believed to be prehistoric houses, then medieval 'peat-drying platforms', and then platforms for dried turf destined to be charked for use in medieval tin smelting. The work of the late Tony Blackman, talking to the people of the Moor, has confirmed that they were indeed used for supporting stacks of dried turf (and

certainly not for drying turf), and that they are modern (a few possibly as early as the late 18th century, but most later 19th or 20th century and some still being created in the mid-20th). Tony also recorded the local name for them, ‘turf steads’ (pronounced as ‘steeds’), and that they were used for the turf burnt in the Moor’s domestic fireplaces. Bodmin Moor turf being relatively porous, it had to be kept dry in stacks on the moor while waiting to be drawn home at the end of the busy summer. Nearly a thousand turf steads have been recorded on Bodmin Moor. There are some on the lizard, a smaller number on Dartmoor and a few in western Ireland; Bodmin Moor is where they are most densely concentrated.

Appendix 2 Summary of Kitchen Table Discussions

Key Points by Topic Heading

PALS Awareness

Grazier

- Aware of the PALs and were able to encourage NE to address this in grazing prescriptions for current agreement
- Yes. Some historic involvement in process although mainly led by agencies
- Revised stocking rates on areas of common for PAL's. One neighbouring common has much denser PAL's coverage and were able to negotiate higher stocking rates
- PAL's were discussed as part of agreements
- Not sure what good condition is for a SAM. When stocking rates were higher lots of erosion around standing stones and boundstones from rubbing
- NE concerned now about 4x4 vehicles and looking to press for quad bikes only for shepherding

Expert Witness

- Not been used or implemented as intended
- Variable as to how the NE Officer was as to how PAL's were considered. May relate to knowledge and ownership of the PALs
- More successful on Dartmoor and appear to be part of regular dialogue
- Process was focussed on agencies and less involvement with Graziers other than angry village hall discussions
- Not intended as a public GIS layer more a tool for the Historic Environment Record
- Planning Officers often not aware of it and knowledge within agencies changes according to staff
- PALS do appear on the [1]HEFER but CC only consulted on HT applications. Earlier process was more dialogue but new RPA system only allows 250 words of text for a common or a farm
- Used to have joint discussions with NE on large applications with site visits. Priorities tend to be driven by SSSI. More recently a disconnect in processes
- Possible value in SW Uplands lens for PALs but not sure about Exmoor?

[1] Historic Environment Farm Environment Record

Agri-environment

Grazier

- Issues over re-balancing agreements where people withdraw or others need to be accommodated
- Good numbers of young commoners but they are keen to graze and don't see value in schemes
- Not enough money have been doing this for 25 years on the same terms. Budget needs to increase 2.5 to 3 x to retain status quo
- Have been some accommodation of feeding cobs on Molinia in winter
- Practical issues of accommodating graziers and NE objectives. One grazier has had sheep on the common since the 1940's now in his 90's. NE want to reduce LU to 140 in the summer over a 5-year period. This won't allow enough flexibility for the commoning community
- In dry summers the common would get abused without agreements as people turn out to relive pressure on in-bye
- Need to have allocations which are practical. No point in keeping cattle on the common if you are allowed less than 15. Not practical for young commoners below this level. Also need sufficient numbers for animals to herd and hold each other in place on the common.
- Independent assessment of the common against current prescriptions and revised CSHT rates suggests we would be 2.4x better off if we could re-negotiate the terms
- See value in boundary payments under SFi and capital works investment. Limited by ability to deliver the works
- Unsure about linking home farm and the common in agreements as would depend on limitations on stocking rates
- AH&W on the common difficult as people often change animals during the year making it hard to rely on bio-security
- Stocking rates are so low we are seeing areas of the common disappear under furze and Molinia
- Vegetation cover now different to any time in my lifetime. Evidence would suggest lots of change and industrial abuse in the past. Ecological emergency is the priority and if more vegetation cover is needed then not an issue. All of the archaeology has been recorded and can't see a real issue if its allowed to cover over
- Margaret Leigh's book describes the moor which is now a memory for the older generation when I was young. At that time lots of furze on the moors and I think largely cattle grazed. She was really the first person to introduce sheep. Probably only summer grazing although neighbour on Hamatethy maintains his father always out wintered cattle on the common
- Targeting grazing is challenging. Possible to use cobs or maybe collars are a possibility if affordable

- Yes, in an HLS UELS roll over until 2027. Original scheme in 2000 followed by current scheme, so almost 25 years of agreements.
- Capital works in first two or three years. After this for scrub clearance we would request support. Sometimes successful and often not as inferred requirement of agreement to manage scrub
- No HAP used as [part of the agreement
- 2000-2004 struggled to get numbers down in line with agreement. Then foot and mouth in 2004 meant many commoners took compensation under the protection zone and lots of animals culled. Since then numbers have remained about static
- In first 10 years the Sheep Wildlife Enhancement Scheme (SWES) paid to take ewes off and was relatively generous. Paid per ewe but given up front for a 5-year period
- Too many ponies in first 10 years. Still too many and allowed to graze year round. Included in stocking calculations
- Stocking rates worked on a maximum and minimum number. Target grazing figures of 375 units (summer) and 166 units in winter. Based on 1100 HA.
- Each area of common broken down into livestock types (cows with calves under 6 months)
- On one common which has a PAL sheep, cattle and ponies' year round
- Applied for a HEFER on both occasions. On last agreement George Brew of NE did the application so no specific involvement on PAL's and archaeology side
- Some specific codes for the HE on PAL's such as [2]HK16 in which agreement text specifically refers to PAL's
- Not sure what condition the archaeology is in. Depends on whether visibility is required. Most commoners associate it with a right to graze harder but ultimately its mapped and recorded so apart from the public not a major issue
- I think in the past gorse was denser. My father recalls people losing Stannon circle and great excitement when it was re-discovered following a fire and grazing. Over grazing definitely reduced this and left a tight sward
- Commons now look very different and personally proud of what we have achieved. I think it's the right balance at the moment. With the Govt.s 30 x 30 targets and nature recovery perhaps we need to do more as the Land Use Framework alludes too?
- Concern over the impact of furze and Bracken on archaeological features and the reduction in swaling over time to manage this. 'Blinds it out' not possible to see some features and Molinia masks sites which 10 years ago were visible

[2] Management of Grassland for Target Features Higher Level Stewardship: Environmental Stewardship Handbook, Fourth Edition – January 2013 - NE350

- In the 70's huge stocking levels on the moors. In 900 HA probably 2,500 sheep, 350 cows and 300 ponies in the summer. Now 180 LU's of which 50 are sheep with about 50 ponies and the remainder (80 odd) are cattle. In winter as low as 100LU of which no sheep and only 30 ponies and 60 cows
- Maintaining schemes on contiguous commons is vital otherwise you just get drift and a free for all
- Currently have 10 active graziers out of 34 registered which is a good number

Expert Witness

- Too much of a focus on dwarf, shrub heath in grazing prescriptions was an issue
- Roll overs have stymied opportunity to re-visit PALS management
- Result of reduced grazing evident on certain feature types such as ridge and furrow on Louden Hill. Individual house discernible but can longer see the linking boundaries or slighter features
- Bracken has also been an issue for well drained field systems. St. Cleer commons has overgrown and Stowes Pound real issues with scrub and Bracken
- Tin Streaming generally robust but the scale can be lost by vegetation change such as at Leskernick
- Molinia has been something that has evolved and become an issue on some commons such as Hamatethy
- HE not always consulted by NE on HLS roll overs depends on Officer. Commons Association tend not to ask HE for advice on PAL's
- Scrub potentially more widespread now. Molina on Twelve Men's Moor
- Would be useful to have more group discussion between agencies and graziers about agreement development. Allows a shared conversation and conflicts / opportunities to be aired at an early stage.
- Concerns over stocking rate assumptions for SW England based on N York Moors?
- Early PALs agreements successful with focus on Gorse and scrub. Examples of pilot approaches in field such as Treslea Downs. Intensive focus on scrub with different machinery and techniques but possibly little evaluation. Most sites reverted now
- Use of electric collars
- Example of Penwith ESA where 'feature protection grants' started at 50% with low take up and ended up at 100% with widespread adoption
- Role of [3]FiPl in supporting management and investigative works

[3] Farming in Protected Landscapes Grant Get funding for farming in protected landscapes - GOV.UK

- HE outcomes tend to be delivered by combination of well-rounded prescription's and targeted works. Use of targeted statements in HLS a positive way of promoting heritage
- Need to use data to show co-benefits of heritage and the environmental goods. Need to balance out conflicting values on Sites of Special Scientific Interest
- Role of National Landscape Characterisation as a tool to strengthen the historic environment
- NE are currently working on an evidence report looking at Molinia and its impact on the visibility of archaeology on moorland
- Opportunity for bespoke prescriptions that maintain visibility of archaeology (as in historic schemes) and options for mixed grazing.
- Disappointing that HE now focussed more on urban settings with less strategic interest in upland settings. Similarly, no lead in Defra on Heritage Policy which creates a vacuum.
- The role of SWES on Bodmin was key to reducing numbers of sheep. This was also helped by the Foot and Mouth compensatory scheme which removed animals and reduced pressure on the commons. Payments up front were key and within 2 days the sheep were gone
- Creative use of management of targeted features above the moorland line is helpful for the historic environment
- Use of PA1 and PA2 can help scope HE options. [4]HE1 can be valuable as a tool for 100% funded investment in research or restorative works
- Challenge of looking at heathland on Bodmin Moor. In past used the lowland heath option but this may not be feasible in CSHT
- Concerns over how PALs are flagged in the agreement process. Need to review HEFER to explore this
- Generally, not a lot of discussion with graziers about landscape as part of agreement negotiations
- Use of [5]CHS4 for targeted parts of the common for scrub on archaeological features
- Options to get greater investment for commons agreements through peatland works and grazing supplements

Future Scheme Design

- In a scheme now for over 27 years and finance levels the same as when we entered so in effect 50% of the original value

---

[4] HE1 – Historic and Archaeological Feature Protection Grant HE1: Historic and archaeological feature protection - GOV.UK

[5] Control scrub on historic and archaeological features Countryside Stewardship Higher Tier: preview guidance - GOV.UK

- Younger farmers on our agreement which is good, don't see enough money or motivation to stay in scheme. Grown up without subsidies and don't need them. Much higher levels needed to attract their engagement
- Ideally when we have our break from an agreement will allow a reset moment.
- If we don't go into an agreement, then more sheep will be the result but not more ponies. Probably cattle numbers will reduce. I can also see with climate change more people abusing the moor and turning out when its dry at home onto the commons. Of course a lot depends on NE as we are in a SSSI in terms of permission to graze
- Would be sensible to tie the in-bye and the common in an agreement. Landscape Recovery style approach with bigger payments and this could cover the historic elements on the farm as well as the PAL
- Issues with areas such as ------- which are natural attractors and inter change points for livestock so will be heavily grazed
- All too complicated in terms of targeted grazing for this element and that element. Have tried collars but always breaking down and would be difficult to manage on the commons
- Not sure shepherding really works on smaller commons and would-be difficult to enforce. Probably better to pay more for lower stocking rates
- Suggest they double the funding for our agreement to £300K per year and we could then negotiate with younger farmers and NE on stocking rates
- Ideally look to lowland heath payments as we really are a lower area at £412/HA. Would then ensure engagement.

Commons Governance

- Grazing rights related to payment allocation for active graziers apportioned
- Important to have flexibility and to work with each other. If TB is an issue, then graziers will share out units to ensure agreement outcomes are complied with
- Chairman is paid a fee and it takes a lot of time and effort to maintain the agreement. This includes liaison with NE, graziers, landowner and other interested parties
- Generally, non-grazers don't contribute to managing the agreement or the common
- Reviewing our Trust and considering setting up a Limited Company which may be a more robust and defensible model in the future
- Landowners receive a payment from the agreement. One is active the others just attend the AGM to claim their fee
- Approx. 60 people with rights on the common but only 12 active graziers of which around 4 are under 40 years' old
- We have a Commons Association which meets once a year and a Limited Company for the HLS Agreement which meets 2-3 times a year

- Resources are allocated for the Secretary. This is much lower than a neighbouring common
- Originally paid everyone but in last negotiation only active graziers although in reality one or two stopped grazing and are still being paid
- Grazier numbers fell in the first agreement but have been static in second phase of HLS
- Secretary is main point of contact for NE, HE and for any archaeological works
- Non graziers are in effect silent unless they attend annual meeting which is poorly attended as are HLS meetings
- Biggest threat to commoning in reality is nature recovery as less stock and less graziers
- No agreements and graziers will exploit the commons as they probably always have
- Younger commoners are not set in EU legacy and they don't see any need to be in schemes. Need much greater incentives if they are to be engaged longer term

Animal Health & Welfare

- Red water an issue for some cattle graziers
- Generally, ticks are reported by commoners as a growing issue
- AH&W on the common difficult as people often change animals during the year making it hard to rely on bio-security

Appendix 3 Text of Bodmin Moor North Site of Special Scientific Interest

COUNTY: Cornwall SITE NAME: BODMIN MOOR, NORTH
DISTRICT: North 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 County Council, North Cornwall District Council National Grid Reference: SX 160810
Area: 4957 (ha) 12248 (ac)
Ordnance Survey Sheet 1:50,000: 200, 2011:10,000:
SX:18SW:18SE, 18NW,
18NE,
17NW, 17WE, 17SW, 17SE, 28SW, 27NW
Date Notified (Under 1949 Act): 1951 Date of Last Revision:
Date Notified (Under 1981 Act): 1991 Date of Last Revision:
Other Information:
Site formerly known as Bodmin Moor. The boundary has been amended by extension and deletion.

Description and Reasons for Notification:

Bodmin Moor occupies much of the central part of east Cornwall. It is remarkable as a moorland both for its low altitude: between 230 m in the valley bogs and 420 m at the summit of Brown Willy, and for the Atlantic elements in its flora and fauna with a number of species known only from south-west Britain. The site is of particular importance as the only upland massif in Cornwall and for the extensive area of semi-natural vegetation, which includes examples of a range of upland plant communities: wet heath, dry grassland, valley bogs, blanket bogs and crags. The area incorporates several catchments each with a range of wetland communities supporting a number of rare and local plants.

The Moor is the eroded remnant of a massive, sub-surface intruded granite boss of Armorican age. During its cooling, secondary intrusions occurred and extensive mineral deposits were formed, notably of tin, copper, zinc, lead, silver and iron. Around the main granite massif is an aureole of highly metamorphosed rock derived from the surrounding slates and shales.

Several peneplains have been identified and above these rise the high tors. These granite outcrops show many features of periglacial erosion including “cheeswring” type structures, screes and clitter slopes. A number of streams and several important rivers, including the Fowey, Camel and Lynher rise on Bodmin Moor cutting valleys across the plateaux.

The granite-derived soils are mostly gritty, very acid loams of the Hexworthy series of stagnopodzols. There is frequently a wet peaty surface horizon and an ironpan is often present. Slightly better-draining but similar soils are found high on the tors

while basins and river valleys contain thick, very acid amorphous waterlogged peaty soils. On steep bouldery slopes there are occasional exposures of well-drained humic brown podzols, and much of the metamorphic aureole is overlain by typical well-drained, loamy brown podzolic soils.

The diverse topography and soils give rise to a range of vegetation types. The two most widespread are: *Festuca ovina* – *Agrostis capillaris* – *Galium saxatile* (Sheep's-fescue – Common Bent – Heath Bedstraw) grassland and *Scirpus cespitosus* – *Erica tetralix* (Deergrass – Cross-leaved Heath) heath. Clitter slopes on the high tors, and in other areas of relaxed grazing typically support dwarf shrub heath vegetation with dominance of Heather *Calluna vulgaris*, Bilberry *Vaccinium myrtillus*, Bristle Bent *Agrostis curtisii*, Purple Moor-grass *Molinia caerulea* or Western Gorse *Ulex gallii*. Humid creviced amongst the higher tors support the uncommon Wilson's and Tonbridge Filmy Ferns *Hymmenophyllum wilsonii* and *H. tunbridgense*.

At intermediate altitudes, between about 250 m and 300 m the vegetation of the more gently sloping ground displays the influence of several thousand years of pastoral activity. A number of grassland types have been identified here, typically dominated either by Common Bent, Velvet Bent *A.canina*, Red Fescue *Festuca rubra*, Sheep's-fescue, Mat- grass *Nardus stricta* or Purple Moor-grass. The balance between these communities is maintained largely by local variation in grazing intensity and type of livestock. These grasslands probably represent degraded heathland communities. Where grazing is very light, Bracken *Pteridium aquilinum*, Western Gorse and Gorse *Ulex europaeus* may dominate. On the margins of wet areas the frequency of *Sphagnum* mosses increases, and Heath Rush *Juncus squarrosus* may be locally dominant.

Hollows and valleys on Bodmin Moor are typically colonized by a range of wetland communities, notably: *Carex rostrata* – *Sphagnum recurvum* mire (Bottle Sedge – *Sphagnum* Moss mire), *Carex echinata* – *Sphagnum recurvum/auriculatum* mire (Star Sedge – *Sphagnum* Moss mire) and *Narthecium ossifragum* – *Sphagnum papillosum* valley mire (Bog Asphodel – *Sphagnum* Moss mire). These have been frequently subjected to burning and intense grazing pressure. Throughout the Moor a number of such areas have been flooded by reservoir construction, though at the eastern end of Crowdy Reservoir a high degree of biological interest remains because of the gradual transition to peatland with a complex of islets and emergent vegetation and Cornwall's only major colony of Black- headed Gulls. Rare or local flowering plants occurring within the bog communities include: Bog Pimpernel *Anagallis tenella*, Oblong-leaved and Round-leaved Sundew *Drosera intermedia* and *D.rotundifolia*, Bog Orchid *Hammarbya paludosa* – a nationally scarce species, Bogbean *Menyanthes trifoliata*, Pale Butterwort *Pinguicula lusitanica*, Lesser Skullcap *Scutellaria minor* and Ivy-leaved Bellflower *Wahlenbergia hederacea*.

Lower plants are not well documented from Bodmin Moor but there are records of the epiphytic lichen *Usnea articulata* from rocks on clitter clopes. These clitters and some of

the high tors have developed an attractive lichen turf deserving further study. A number of rare epiphytic lichens are found on trees in the strips of deciduous woodland which follow the courses of some of the rivers into the Moor. At least nine species of local or rare liverworts are known from tors and clitter slopes and a further eight local species, including the very rare *Jamesoniella undulifolia*, are recorded in boggy areas. A rich moss flora includes *Antitricha curtipendula* from high rocky outcrops, *Pohlia bulbifera* from wetlands, and there are records of the very rare *Fontinalis squamosa* var. *curnowii* from rocks in streams.

Otters *Lutra lutra* penetrate the Moor along watercourses, particularly the River Fowey, and there are records of Harvest Mouse *Micromys minutus*.

Bodmin Moor is of major importance for both nesting and wintering birds. Of the breeding species the site is of county importance for Lapwing *Vanellus vanellus*, Snipe *Gallinago gallinago*, Redstart *Phoeniicurus phoenicurus*, Stonechat *Saxicola torquata* and Black- headed Gull *Larus ridibundus*; it is of regional importance for its populations of Wheatear *Oenanthe oenanthe*, Curlew *Numenius arquata* and Whinchat *Saxicola rubetra*. The latter breeds here at exceptionally high densities for Britain. The tiny breeding population of Dunlin *Calidris alpina* represents the southern limit of the world breeding range of the species.

In winter Bodmin Moor supports a number of rare species of bird in small numbers, including Hen Harrier *Circus cyaneus**, Merlin *Falco colubarius**, Peregrine *Falco peregrinus** and there are regular winter records of Red Kite *Molvus milvus**. It is the main wintering area in Cornwall for Snipe and Short-eared Owl *Asio flammeus**. The winter population of Golden Plover *Pluvialis apricaria** regularly reaches nationally important levels and occasional counts of well over 10,000 birds qualify the Moor as being of international importance. While migrant and overwintering birds range widely across Bodmin Moor they are dependent upon the large area of semi-natural habitats within the site for shelter, roosting and feeding.

The Moor is one of the best dragonfly and damselfly sites in the County. Of the sixteen species recorded the Black Sympetrum *Sympetrum scoticum*, the Small Red Damselfly *Ceriagrion tenellum* and the Scarce Blue-tailed *Ischnura pumilio* are of very restricted range and distribution nationally.

Other invertebrate groups are rather poorly studied by there are records of the nationally scarce butterfly species Silver-studded Blue *Plebejus argus* and Marsh Fritillary *Euphydryas aurinia* as well as Dark-green Fritillary *Argynnis aglaia*, Silver-washed Fritillary *A. paphia*, Green Hairstreak *Callophrys rubi* and Grayling *Eumenis semele*.

*These species are listed in Annex 1 of the EC Birds Directive.

The SSSI is divided into 26 separate units, 22 of which have as their Main Habitat ‘Acid grassland - upland’. Three others are ‘Dwarf shrub heath, upland’ and the remaining one is ‘Broadleaved, mixed and yew woodland – upland’. All of these latter

four are currently in ‘Favourable’ condition, but much of the acid grassland is recorded as being in either ‘Unfavourable declining’ or Unfavourable, recovering’ condition, and all of the largest areas are one or the other of those Unfavourable categories.

North Cornwall	Bodmin Moor, North	Acid grassland - upland	1	353.75	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	2	487.55	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	3	268.56	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	4	447.69	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	5	26.32	Favourable
North Cornwall	Bodmin Moor, North	Acid grassland - upland	6	76.68	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	7	61.92	Unfavourable no change
North Cornwall	Bodmin Moor, North	Acid grassland - upland	8	145.95	Unfavourable no change
North Cornwall	Bodmin Moor, North	Acid grassland - upland	9	782.37	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	10	646.1	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	11	36.81	Unfavourable declining
North Cornwall	Bodmin Moor, North	Acid grassland - upland	12	134.8	Unfavourable declining
North Cornwall	Bodmin Moor, North	Acid grassland - upland	13	15.89	Unfavourable declining
North Cornwall	Bodmin Moor, North	Acid grassland - upland	14	99.72	Unfavourable declining
North Cornwall	Bodmin Moor, North	Acid grassland - upland	15	594.06	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	16	297.08	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	17	170.45	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Dwarf shrub heath - upland	18	23.52	Favourable
North Cornwall	Bodmin Moor, North	Dwarf shrub heath - upland	19	12.54	Favourable
North Cornwall	Bodmin Moor, North	Acid grassland - upland	20	9.96	Favourable
North Cornwall	Bodmin Moor, North	Acid grassland - upland	21	14.04	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Acid grassland - upland	22	7.38	Unfavourable recovering
North Cornwall	Bodmin Moor, North	Broadleaved, mixed and yew woodland - upland	23	4.39	Favourable
North Cornwall	Bodmin Moor, North	Acid grassland - upland	24	158.44	Unfavourable recovering

PPENDIX B Condition of SSSIs

District	SSSI name	Main habitat	Unit number	Unit area (ha)	Condition
North Cornwall	Bodmin Moor, North	Acid grassland - upland	25	6.57	Favourable
North Cornwall	Bodmin Moor, North	Dwarf shrub heath - upland	26	6.91	Favourable

Appendix 4 Proposed amendments to the boundaries of Premier Archaeological Landscapes

The project brief included undertaking a review of the PALs:

> 'Review each of the 22 PALs against the original criteria for creation using desk based methods. Consider the need to expand, reduce or even remove each PAL against these criteria in the light of subsequent archaeological research and activity on the moor.'

2025 adjustments

All of the PALs identified in 2005 meet at least one of the criteria deployed in their identification, a few meet them all. Criterion 1 works as a simple filter, so that places that do not meet it cannot be regarded as PALs, though as noted in our commentary, many heritage assets that are either solitary or thinly spread will retain great significance and all should be properly included in sustainable management of the Moor.

The 2025 review was undertaken by the project team and with input from three of the experienced archaeologists involved in the initial mapping exercise in 2005. Their deliberations included consideration of the criteria (all agreed that they were still sound) and adjustments were suggested on the basis of closer application of them. It was recalled that the initial mapping of PALs was undertaken quickly and quite 'tentatively' or 'cautiously', preferring to draw back rather than demand more of the Moor be regarded as primarily of historical significance. The proposed adjustments are also offered in a spirit of careful consideration of the needs of others, especially the farming community and the requirements of the natural or semi-natural environment, and public amenity, and the need for a sustainable management regime that satisfies all interests.

For each suggested adjustment set out below, criterion 1 and one or more of the others have been deployed.

PAL 1 Davidstow Moor

1 Minor tweak of PAL's NW boundary to include the whole of the medieval field system.

2 Larger adjustment at the SE corner of the PAL

- To include the prominent 'natural monument' Lamlavery Rock, a dramatic quartzite outcrop that was probably a significant landmark in prehistoric and medieval times, as it still is today.
- To include more of the pattern of braided trackways leading onto the open downlands of High Moor and West Moor, many of them apparently at least as early as the later medieval fields of Lamlavery longhouse settlement through which they passed. These can be made personal through knowledge that it

was along these tracks that Charlotte Dymond was making her way on the day she was murdered in April 1844.

- To include those elements of the important early Victorian copper mine Great Roughtor Consols that lie on the open moor, including lode-back pits and prospecting pits.
- To include a scatter of Second World War and later slit trenches on the rough ground around Lamlavery Rock, which has often been used as a target, a form of citadel, in military exercises.

PAL 2 Hamatethy, etc, part 2, Carkees Tor

1 Minor tweak in SW corner to ensure that the whole of the medieval field system is included. Redraw the boundary along the fence which edges the CROW access land.

PAL 2 Hamatethy, etc, part 3, King Arthur's Downs

1 Minor tweak along S edge to ensure that all of the medieval pasture boundaries are included.

2 Minor tweak on E side to ensure that the whole of the leat is included.

PAL 2 Hamatethy, etc, part 4, Lady Down

1 Several minor tweaks required; the whole PAL has been unusually clumsily drafted, wobbling away from the edge of the CROW access land, including entering parts that are not Access land.

2 An area of rough ground on the south side of the PAL that Lidar suggests contains remains of both prehistoric and medieval fields, as well as extraction pits. Inclusion would complete the coverage of the common.

3 Re-drawing of the line along the edge of the Access land along the S edge of the PAL would bring all of the pasture boundaries that are a key feature of this PAL into its mapping.

PAL 2 Hamatethy, etc, part 6, Garrow

1 Larger adjustment on the E side of the PAL. This would bring the western slopes of Butterstor Downs into it, an area containing an important group of Early Bronze Age cairns, some Middle Bronze Age curvilinear fields and associated roundhouses, and several Early medieval transhumance huts.

PAL 2 Hamatethy, etc, part 7, Rough Tor to Stannon

1 Minor tweak at NW edge to include prehistoric and medieval banks and trackways to the W of Stannon stone circle.

2 Minor tweak at N edge to include all of the alluvial streamworks and associated tinners' hut here.

PAL 3 West Moor

'The glory of the West Moor area is to capture the full extent of the incredible leat systems that feed all the dams and streamworks' (Nicholas Johnson, former County Archaeologist). The original PALs mapping was hampered by being done ahead of the publication of the second volume on the Bodmin Moor archaeological survey which included a map of all the leats and streamworks. The PAL's boundaries need adjusting to ensure inclusion of all those leats and dams.

PAL 3 West Moor part 1, Buttern Hill and Bowithick

1 Extend the NW boundary to include all of the streamworks and leats in the Pennydevern valley and on the eastern edge of High Moor.

2 Extend the western boundary onto High Moor to include all the alluvial streamworks in the River Fowey and it its moorland tributaries on High Moor.

3 Extend the N boundary at Bowithick to include all of the important early 20th century wolfram dressing floors.

PAL 3 West Moor part 2, Leskernick and High Moor

1 Extend the western side of the PAL onto High Moor to include all of the leats and streamworks plotted there.

2 Include Codda Tor and its well-preserved cairn group and later Bronze Age roundhouses and enclosures on the east slope and turf cuttings on the west slope.

PAL 3 West Moor part 3, West Moor

1 Extend onto the rough ground of Hendra Beacon, the streamworks and prospecting pits and shode-works on the northern slope, a prehistoric roundhouse settlement and rectilinear field system on the SE slope and the 'natural monument' known as Elephant Rock on the south slope.

PAL 6 Kerrow Downs

1 Extend along the De Lank River to Bradford to include the remainder of the alluvial streamworks, and bring in the Bradford fords and clapper bridges, etc.

PAL 7 Trehudreth

1 Extend N side to include whole of the medieval field system and lazybeds and eluvial streamworks as well as the 'wonderful' flat rod trench for the power line from the enormous 15 metre diameter Gawnes waterwheel to the Temple China-Clay Works.

2 Extend on the S side to include remainder of the medieval field system and early lode-back working and to link to Peverell's Cross.

PAL 8 Blacktor Downs

1 Extend the E side to include the whole of the early 20th century china-clay works, notably the main pit and the southerly drain.

PAL 9 Cardinham Moor, West

1 Include the southern part of the Colvannick Stone Row.

2 Include the southern end of the medieval strip field system.

3 Include one of the best shode-working complexes on Bodmin Moor, lying uphill from a small eluvial streamworks, which also worked shode deposits.

4 Extend the area around St Bellarmin's Tor to ensure all the possible medieval ecclesiastical remains and the early modern granite workings are included.

5 Extend to the south to include the Corner Quoit granite quarry with its surviving early 20th century crane.

6 Extend to the NE to include the leats, waterwheel pits and flatrod trenches associated with the well-preserved early china-clay works at Burnt Heath.

PAL 10 Cardinham Moor, East

1 Extend the SW edge of the PAL to include all of the cairns in the linear group on Great Care Hill.

2 Include prehistoric cairns and fields and roundhouses on Little Care Hill.

3 Include the alluvial streamworks in the floor of the upper River Bedalder.

4 Include the leats that served the important Glynn Valley china-clayworks, the dominant feature of this PAL.

5 Tweak the line of the E edge of the PAL to include all the Open Access land here and so include turf cutting in the Dewey River valley.

PAL 16 Draynes Common

1 Extend southern end to include the leat serving the streamworks.

PAL 19 East Moor, pt 1

1 Extend at NW to include all of the eluvial streamworks and associated leat. NB Noah Breslin has identified a possible stamping mill at the NW end of the streamworks.

2 Extend on SE side to include the remainder of the medieval field system and lazybeds.

PAL 19 East Moor, pt 3

1 Consider closing the loop of the East Moor PAL as it encircles Redmoor Marsh and the 'natural monument', Greymare Rock. It would then be a single block of land containing Cornwall's best preserved Middle Bronze Age coaxial field systems and the area of open, common grazing that they directly related to through their terminal boundary which frames it on its N and E sides, and through the several lanes that led through the fields and onto it. This central part also contains the Nine

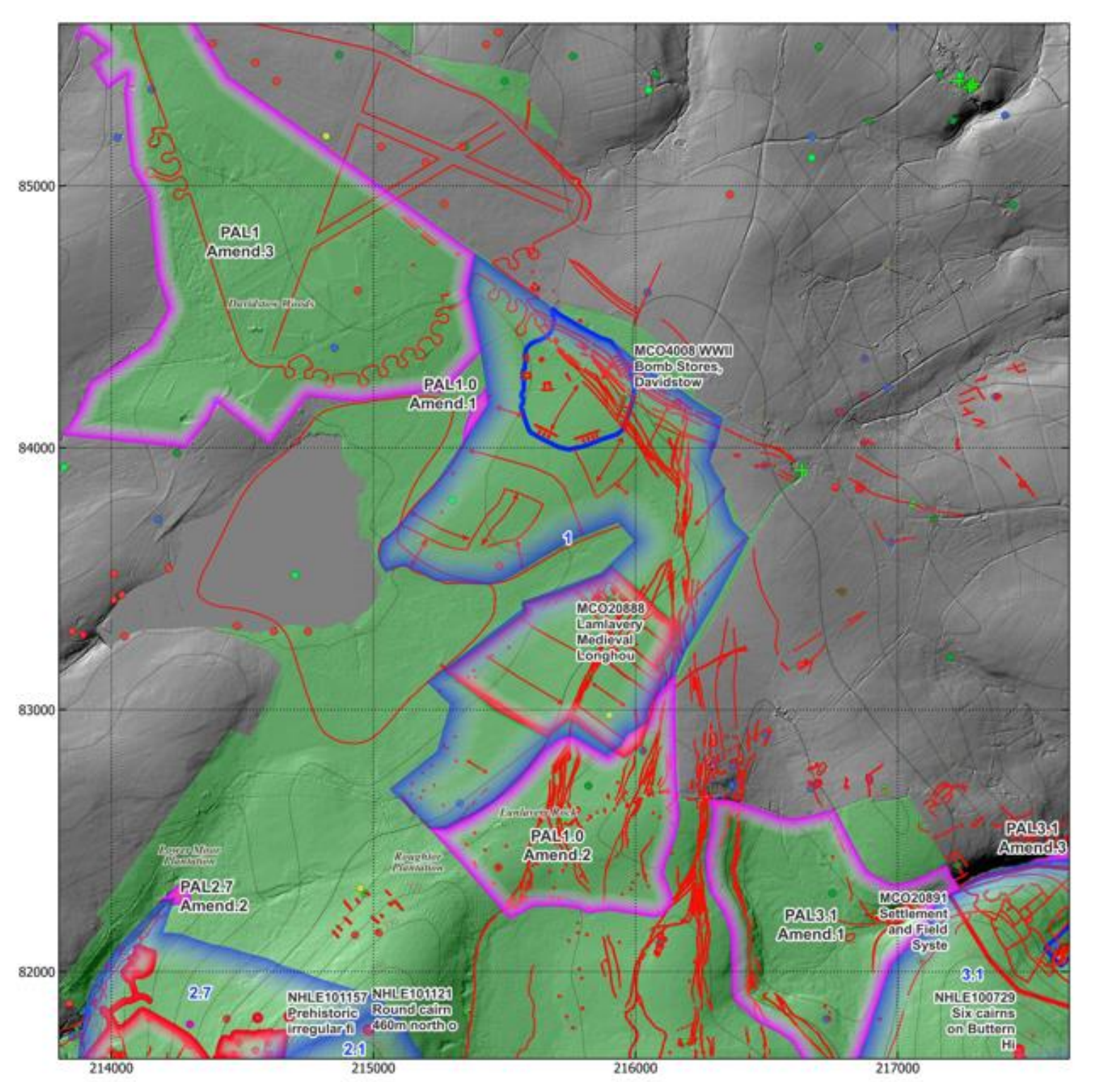
Stones stone circle, making the enlarged PAL represent a coherent early prehistoric landscape.

PAL 21 St Cleer etc, pt 1

1 Extend the N edge of the PAL to include the final cairns of an important group on the S slopes of Trewortha Tor.

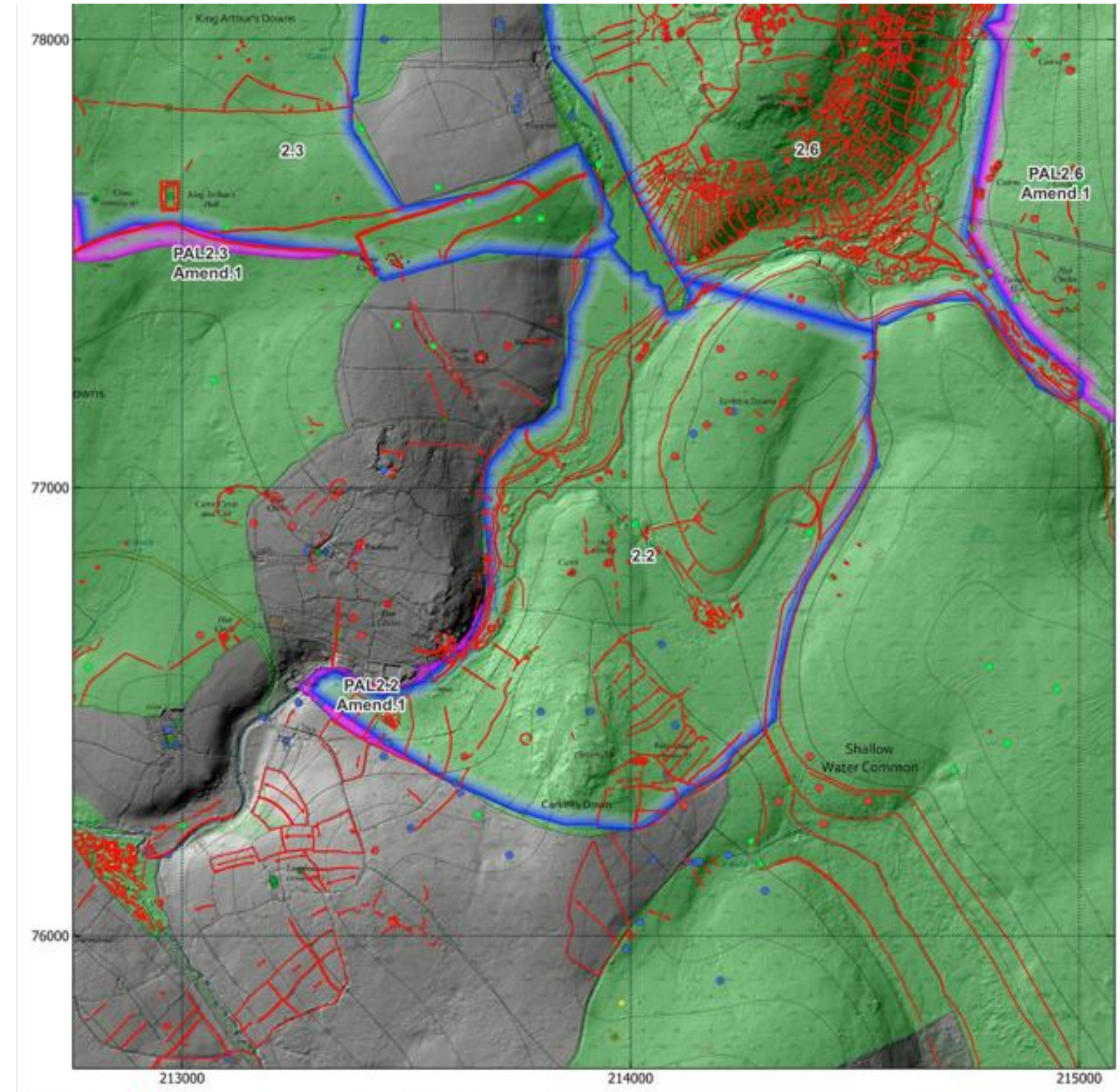
PAL 21 St Cleer, pt 2

1 Extend the E side to include the rest of the two long ‘reave’-like prehistoric pasture boundaries that run along the spine of Bearah Tor.



PAL 1 Davidstow Moor

Proposed extensions



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

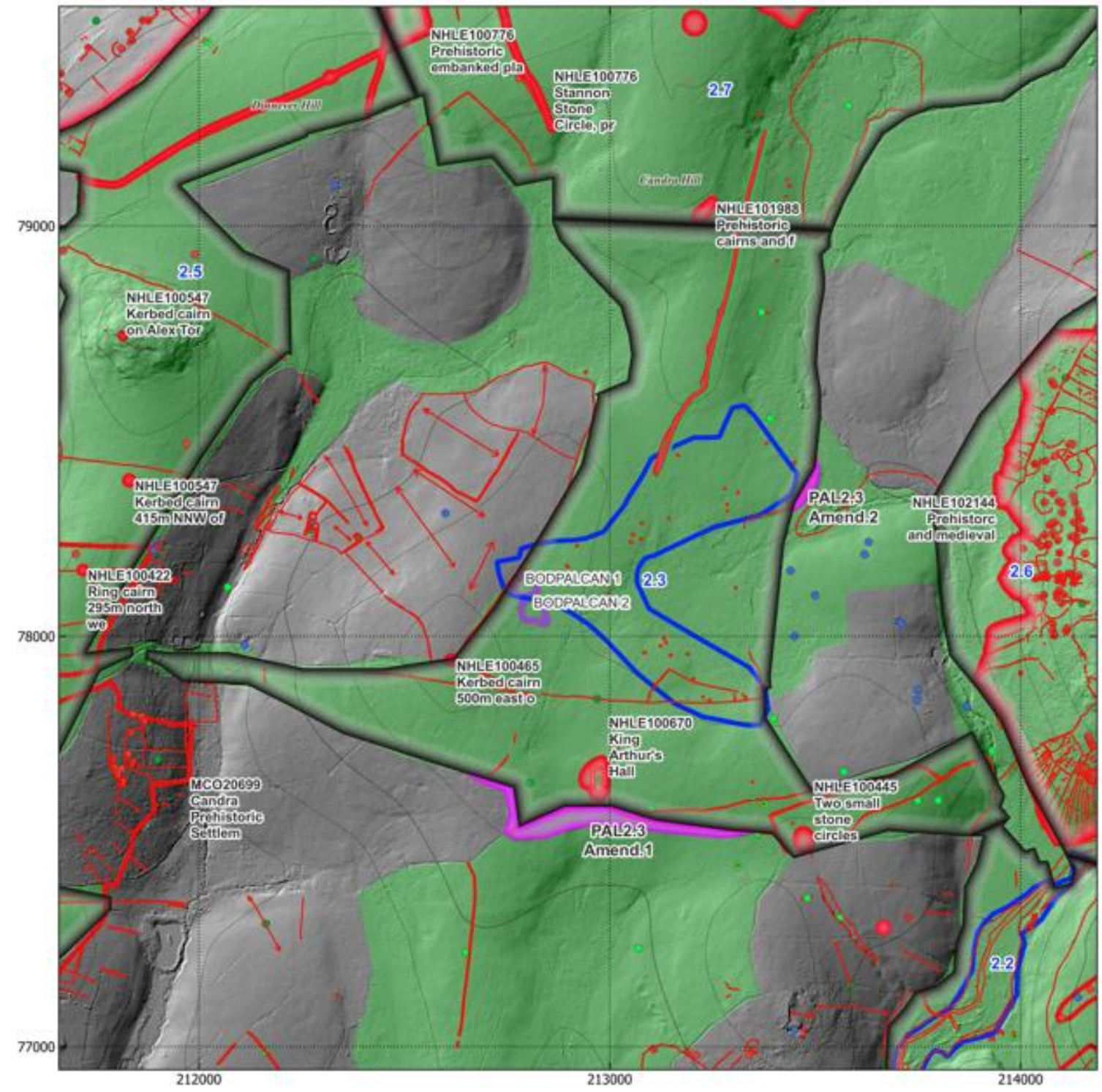
500 1,000 m

PAL 2 Hamatethy, Brown Willy and Garrow 2

Proposed extensions

www.statement-heritage.com

Cornwall Council



- Pal Areas
- Proposed PAL extensions
- Scheduled Monuments
- Scheduled Monuments @ Risk
- CRoW_Access_Land___Natural_England

Feature Groups
- Prehistoric
- Medieval
- Post Medieval

- NMP_Raster

CSHER point data
- Prehistoric
- Early Medieval
- Romano British
- Medieval
- Post Medieval
- Modern

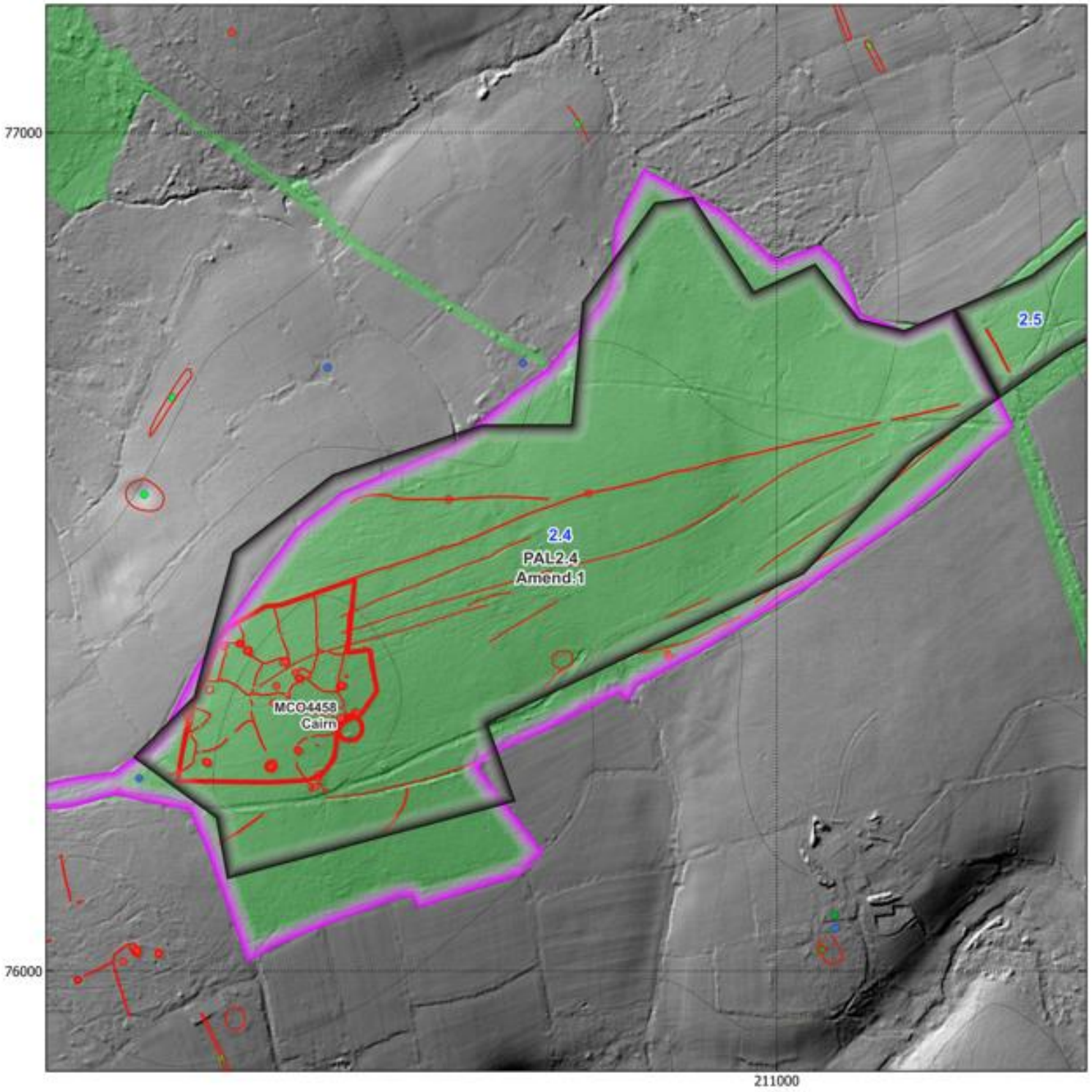
0 500 1,000 m

PAL 2 Hamatethy, Brown Willy and Garrow 3

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

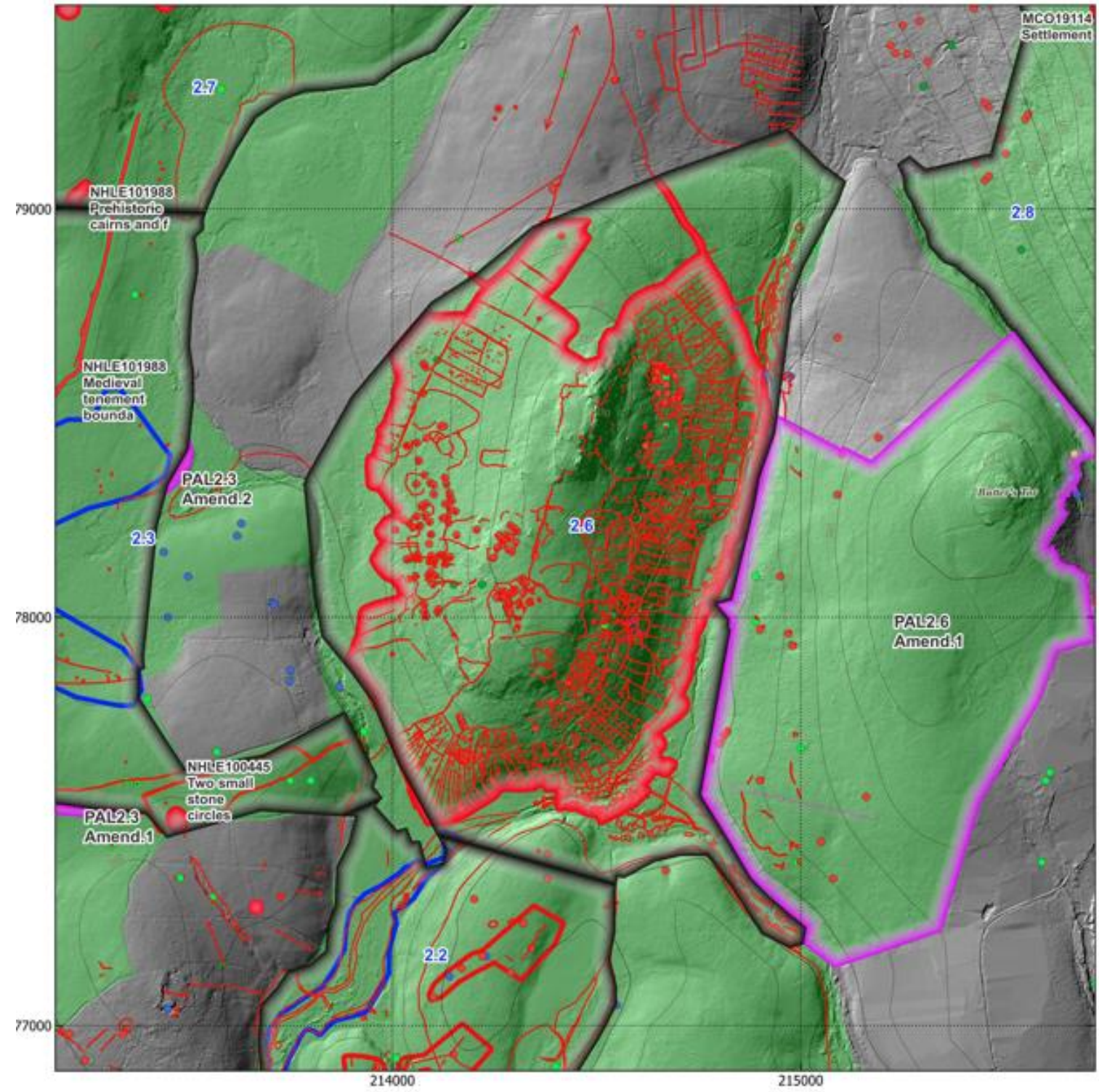
0 500

PAL 2 Hamatethy, Brown Willy and Garrow 4

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

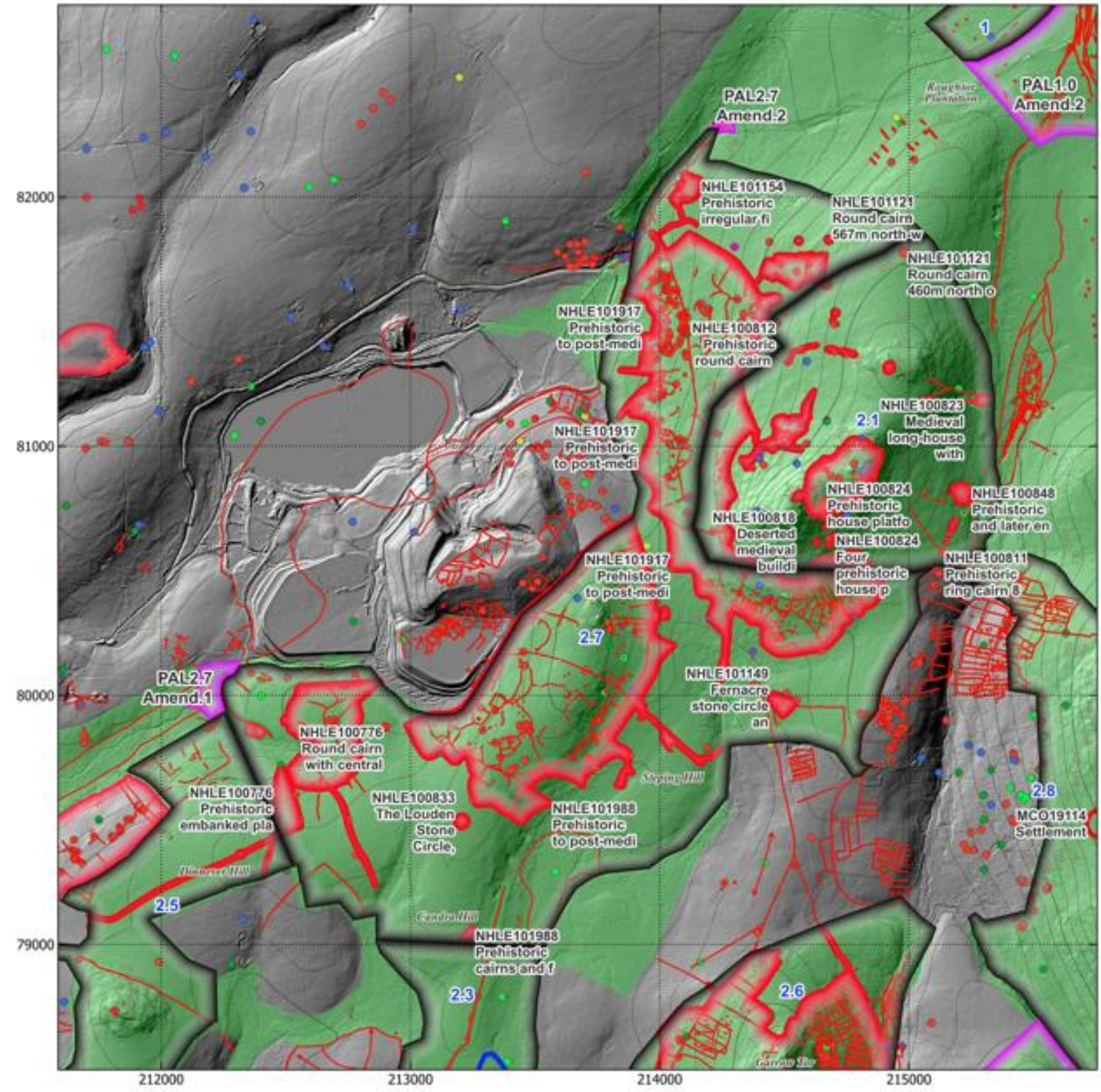
0 500 1,000 m

PAL 2 Hamatethy, Brown Willy and Garrow 6

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

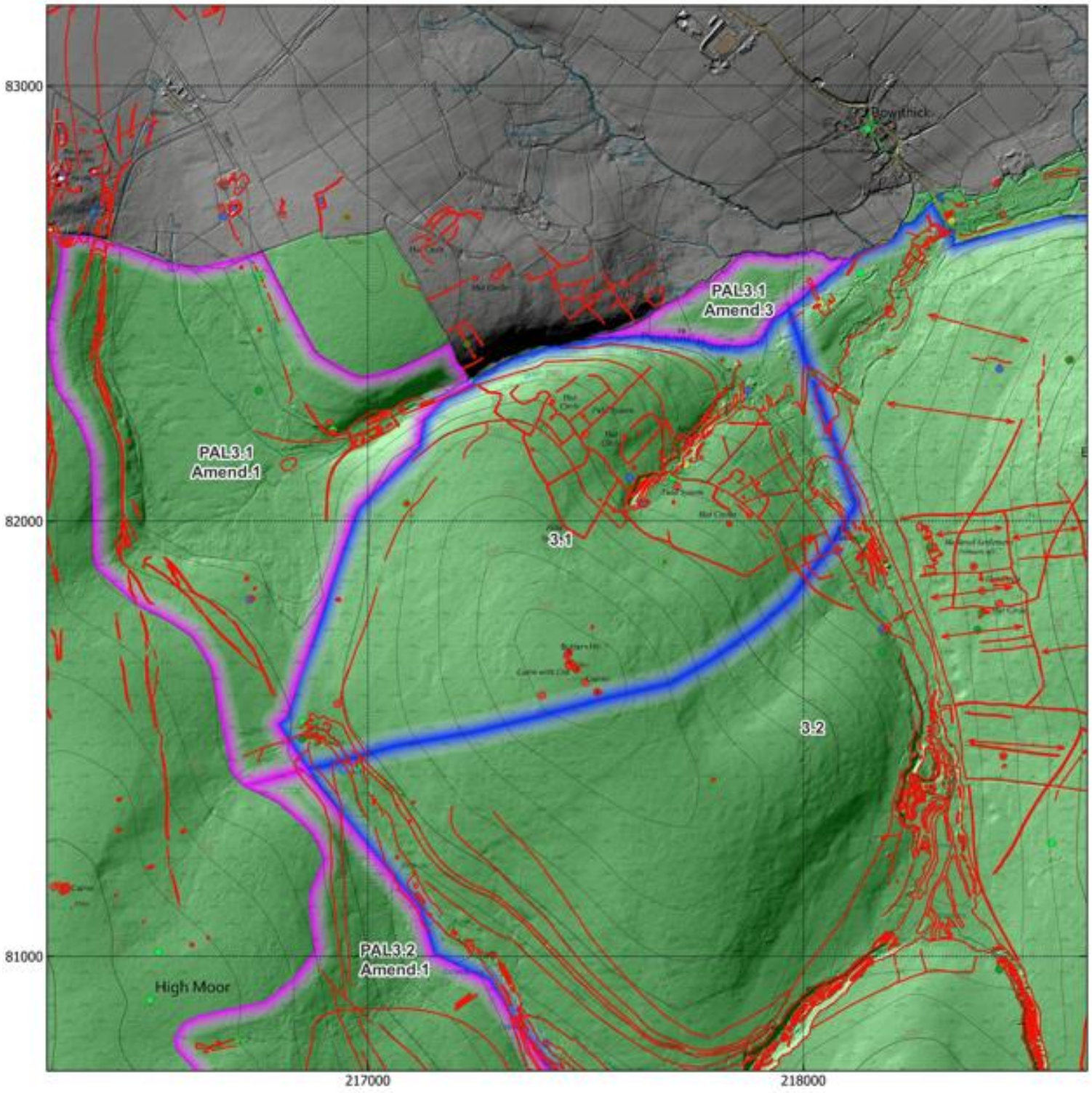
0 500 1,000 m

PAL 2 Hamatethy, Brown Willy and Garrow 7

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

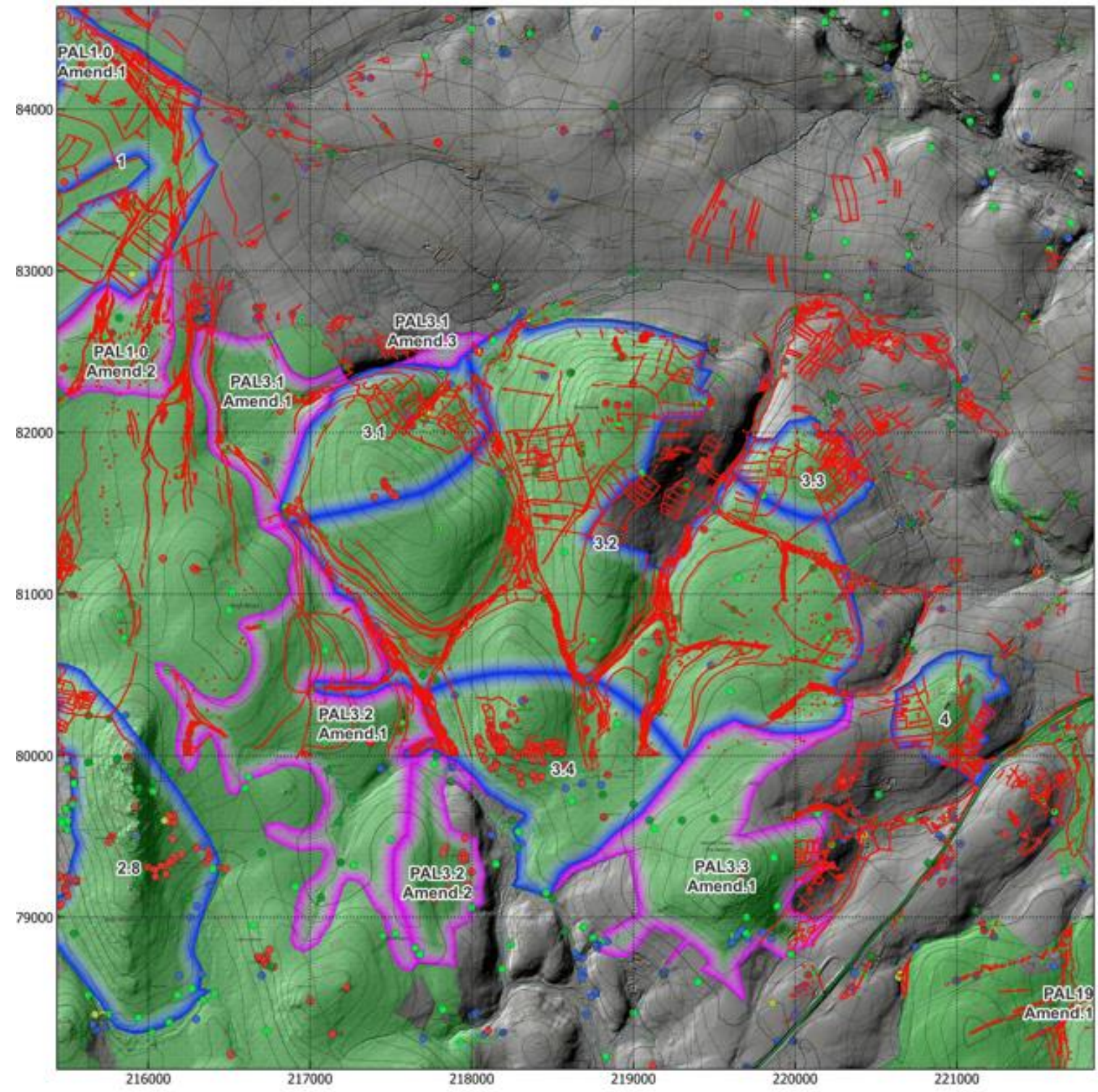
0 500 1,000 m

PAL 3 West Moor 1

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

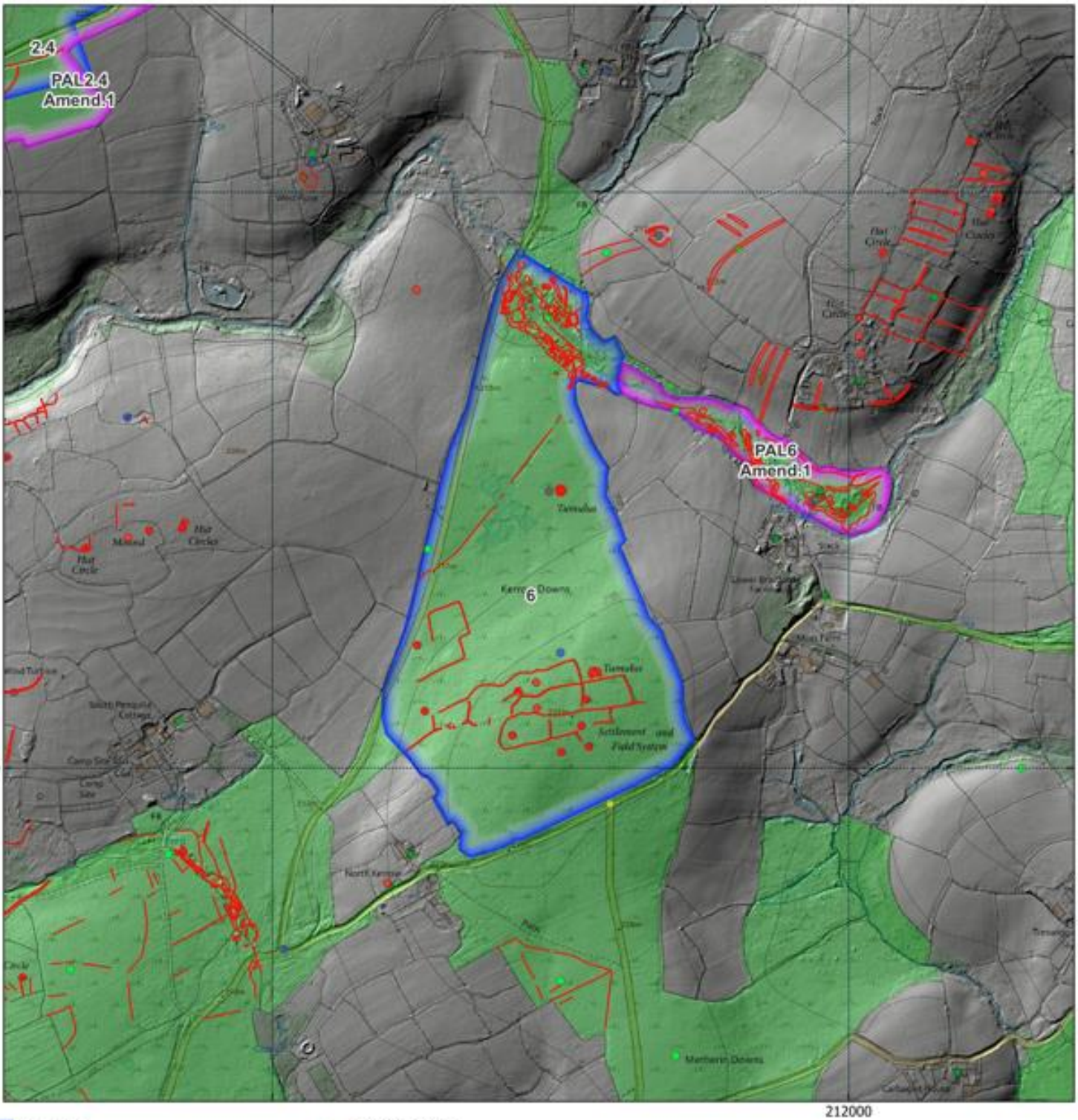
0 500 1,000 m

PAL 3 West Moor 2

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

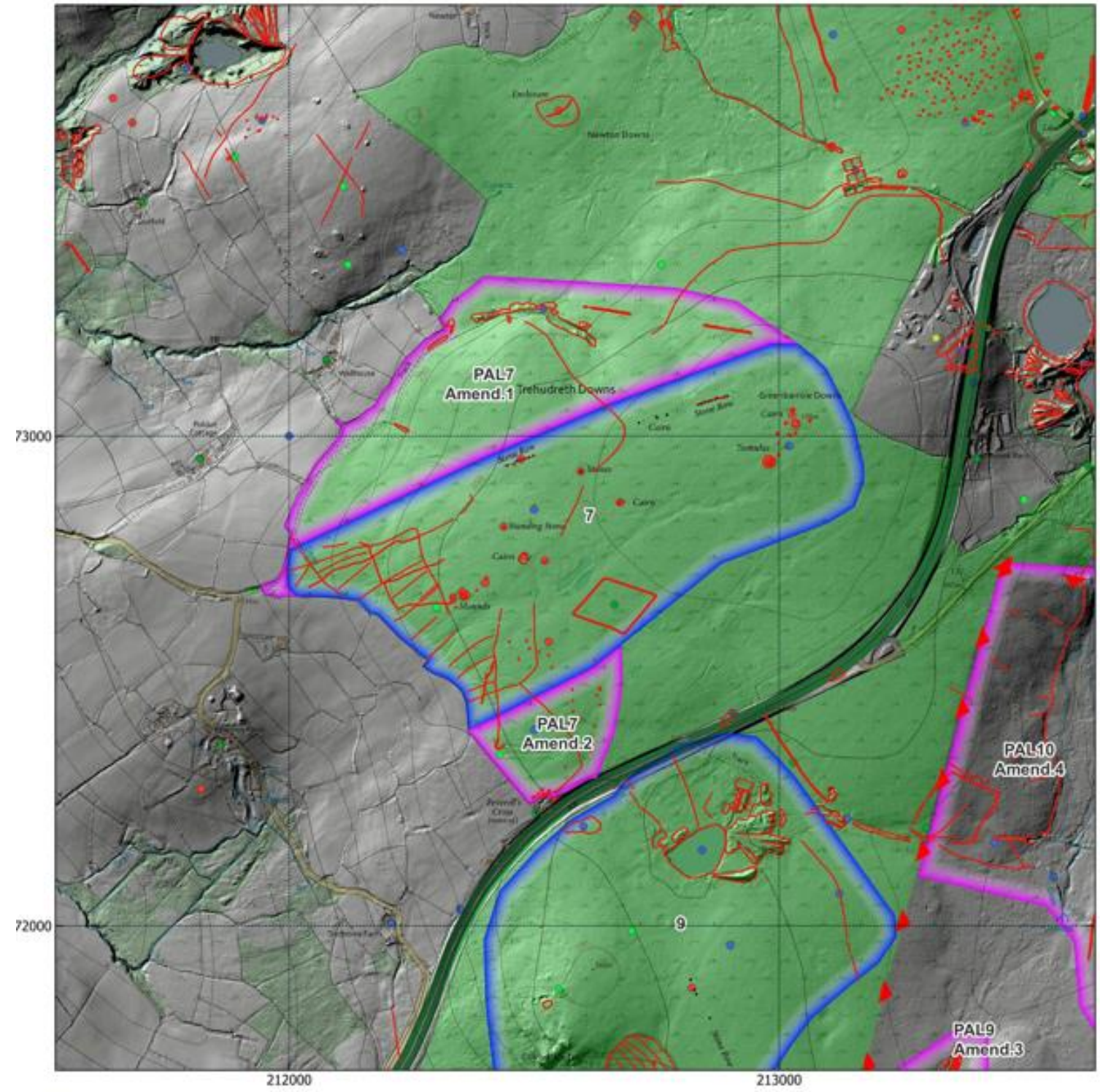
0 500 1,000 m

PAL 6 Kerrow Downs

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

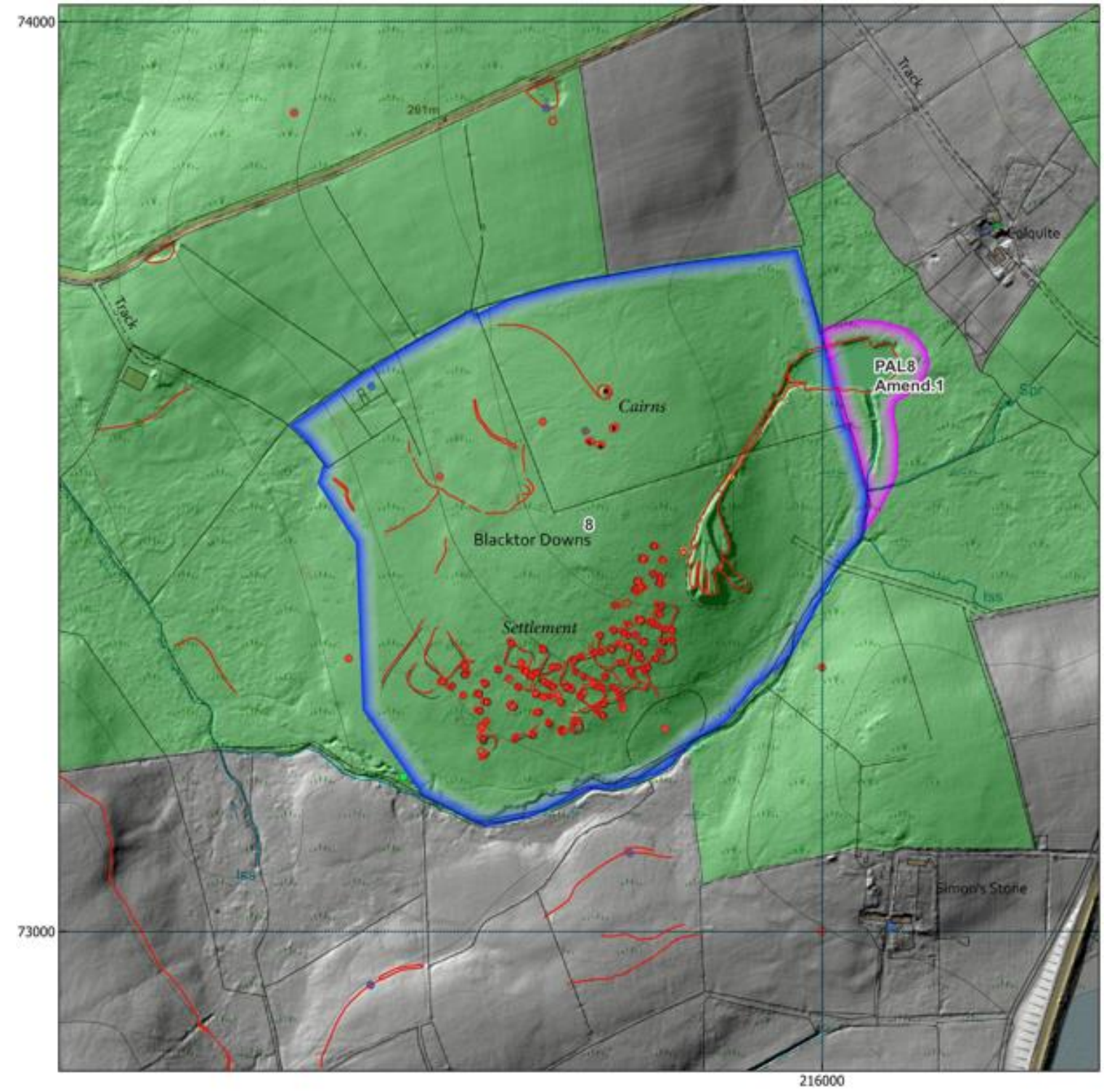
NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

0 500 1,000 m

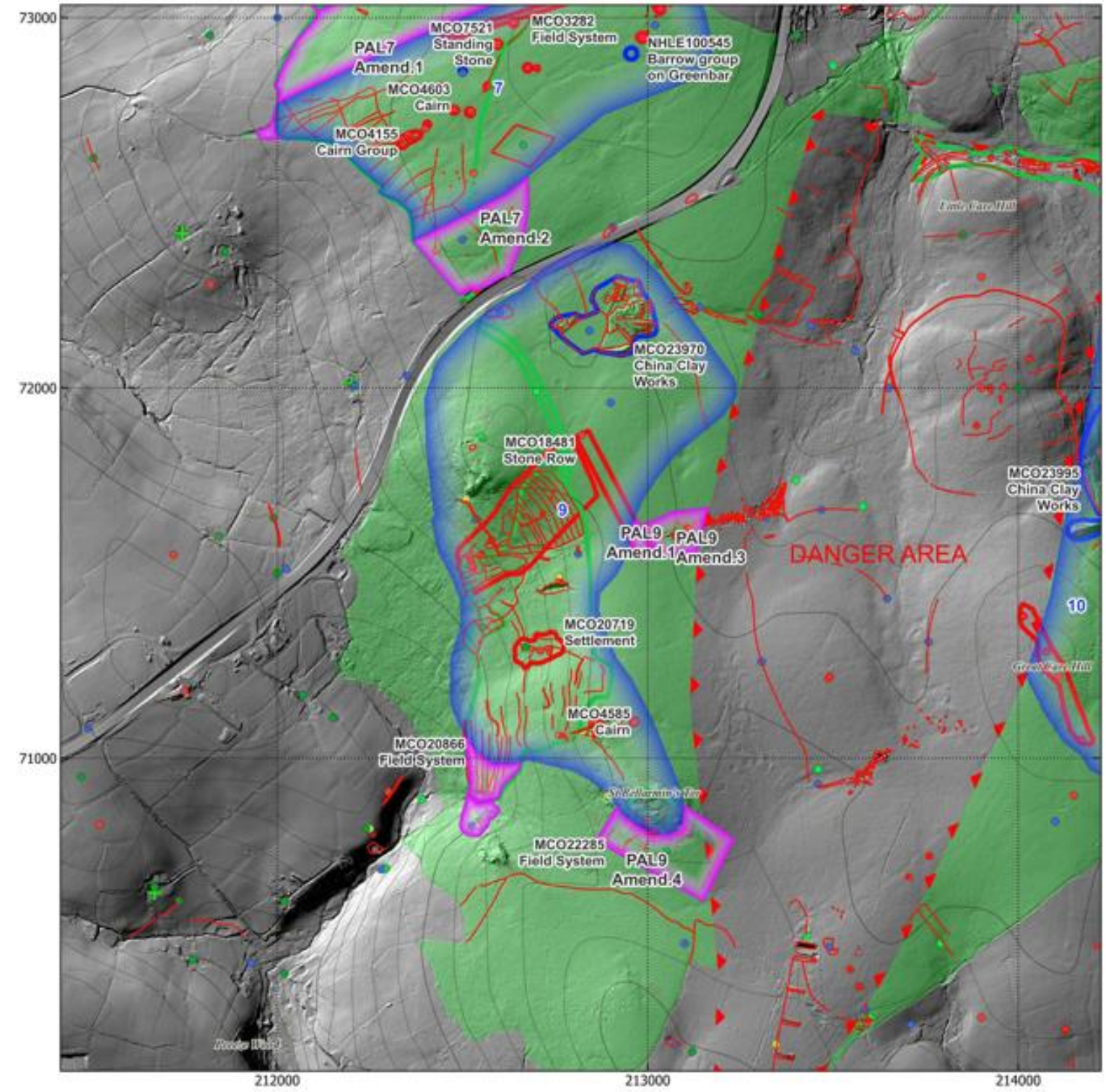
PAL 7 Trehudreth

Proposed extensions



PAL 8 Blacktor

Proposed extensions



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

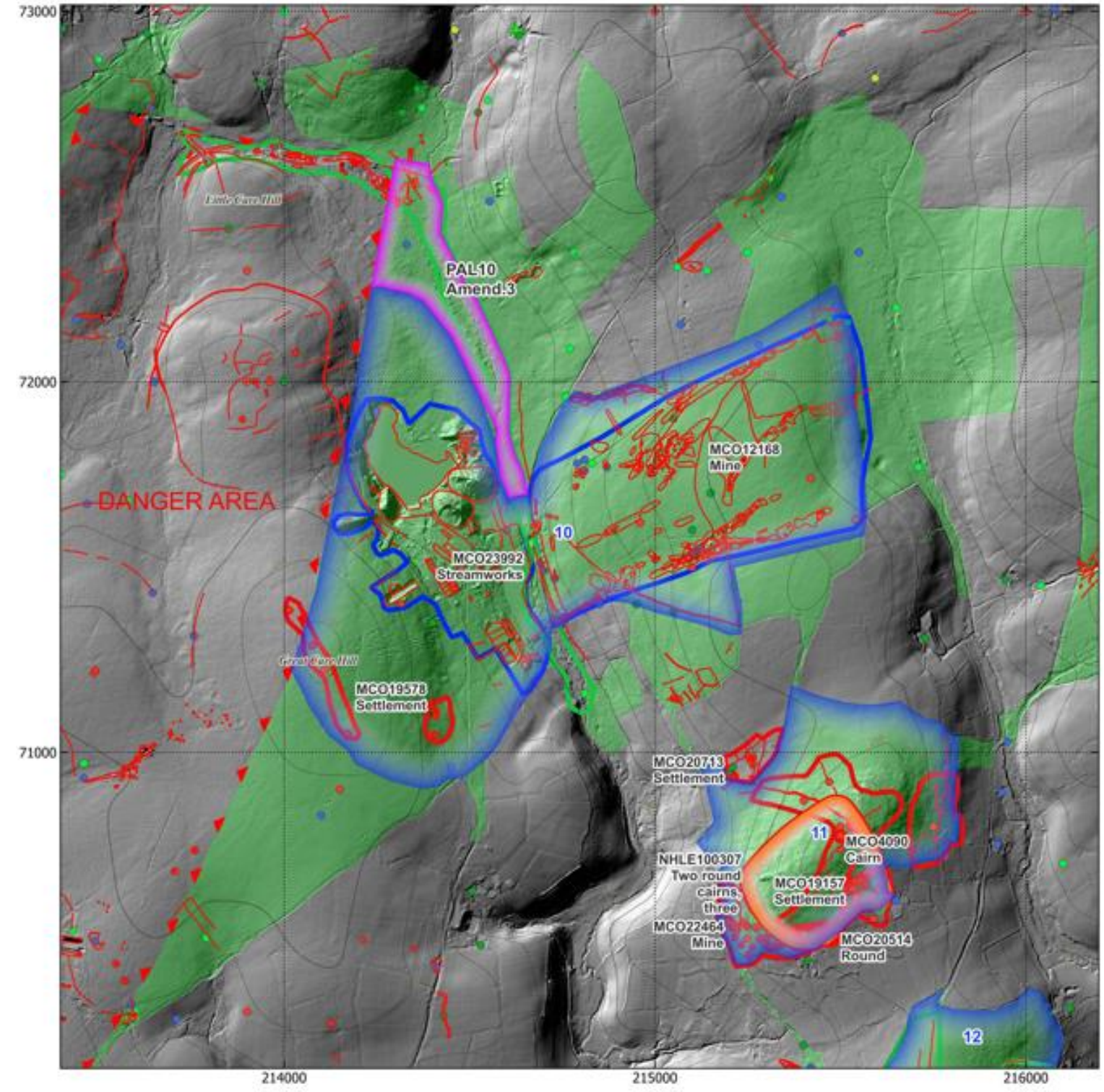
0 500 1,000 m

PAL 9 Cardinham Moor West

Proposed extensions

www.statement-heritage.com

Cornwall Council

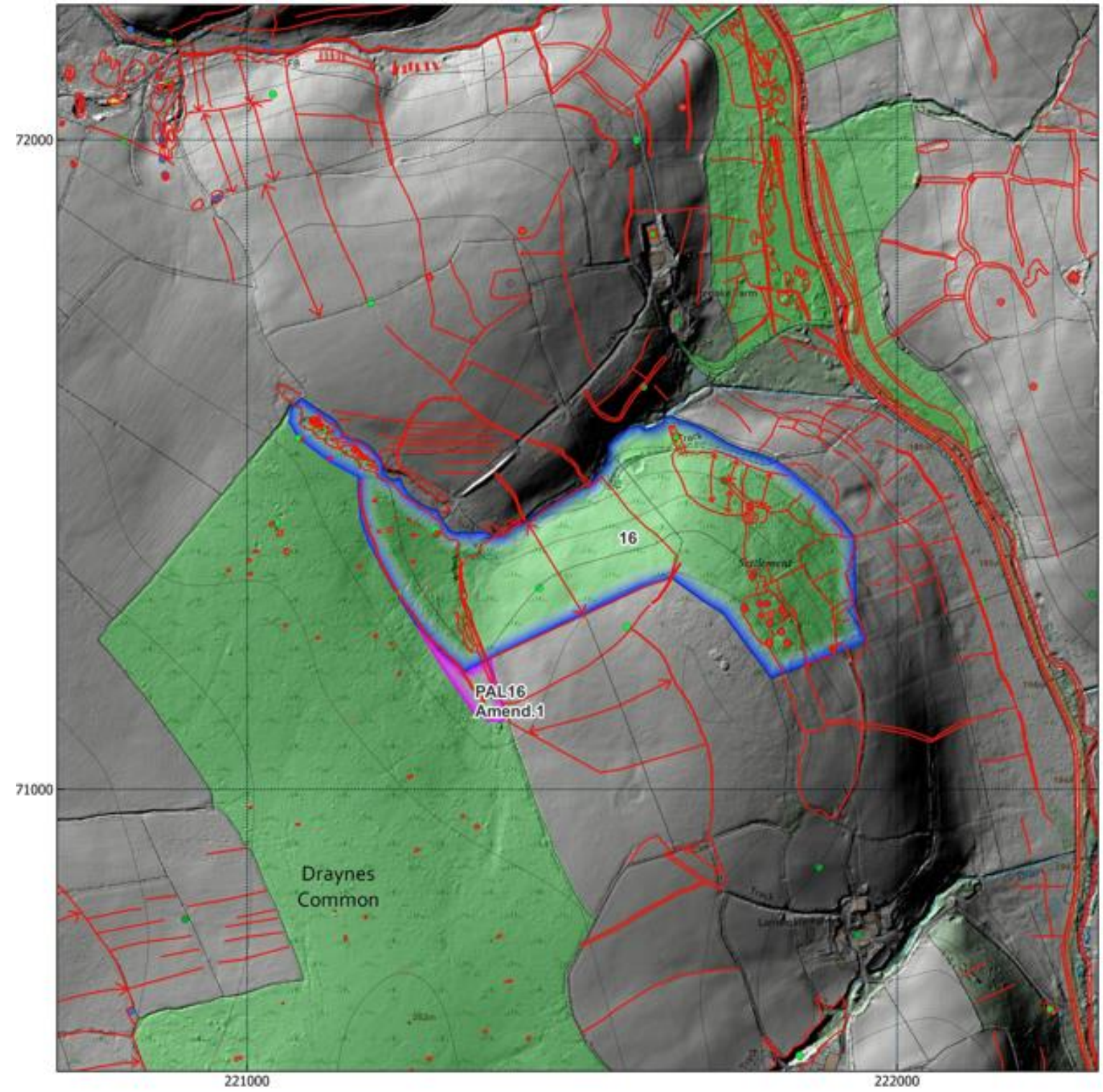


PAL 10 Cardinham Moor East

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

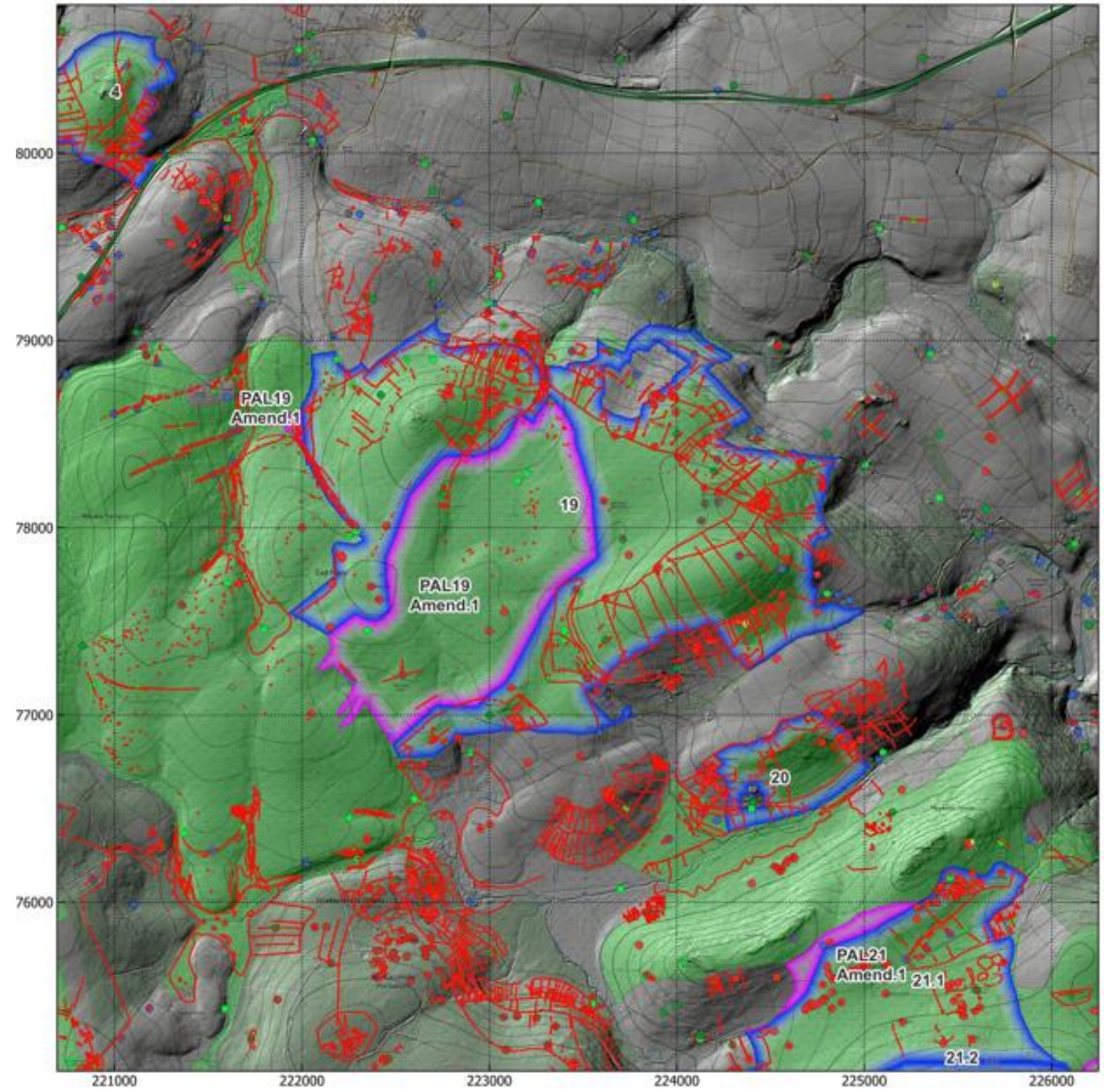
0 500

PAL 16 Part Draynes Common and Lamelgate

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

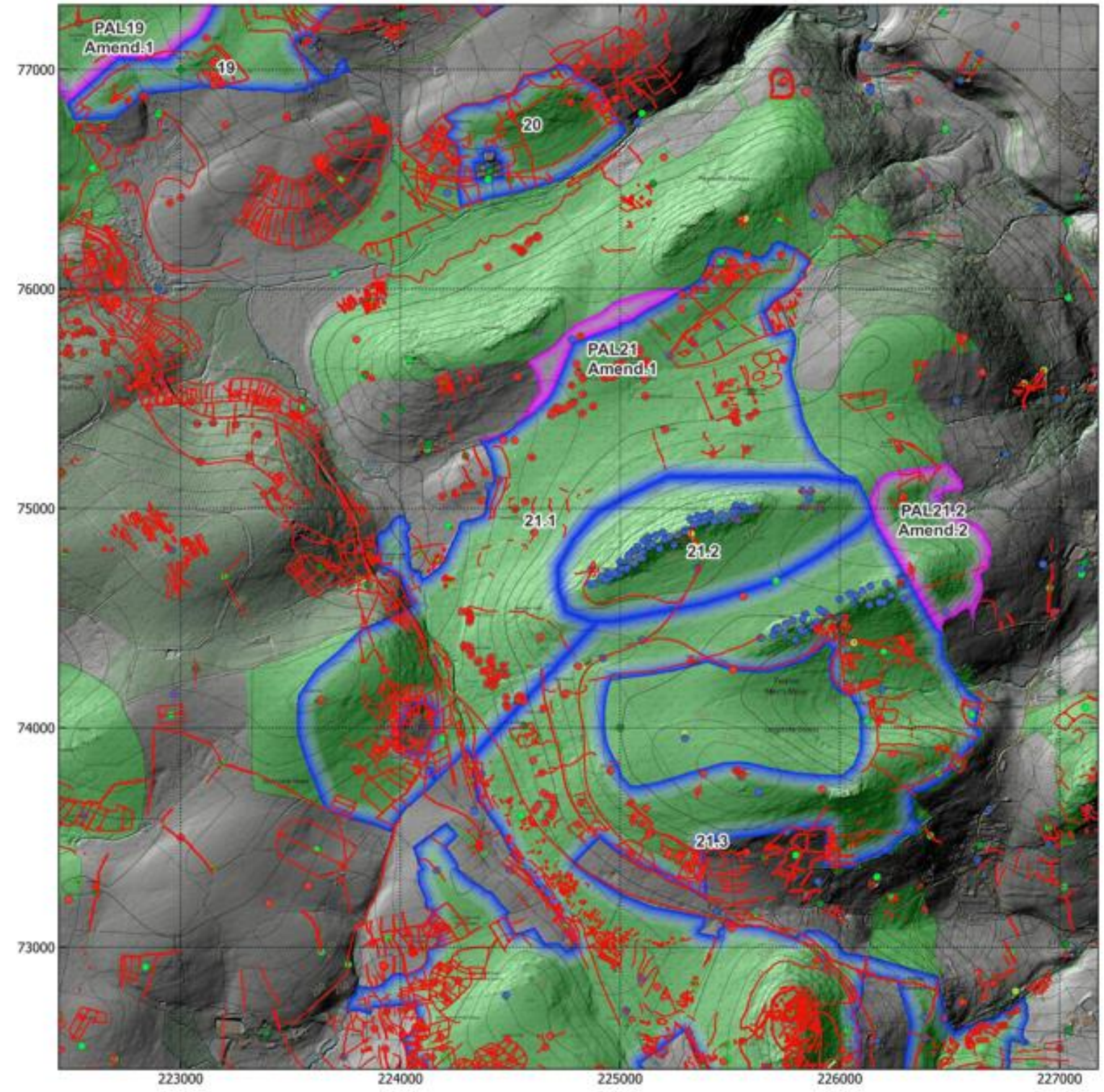
0 500 1,000 m

PAL 19 East Moor

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

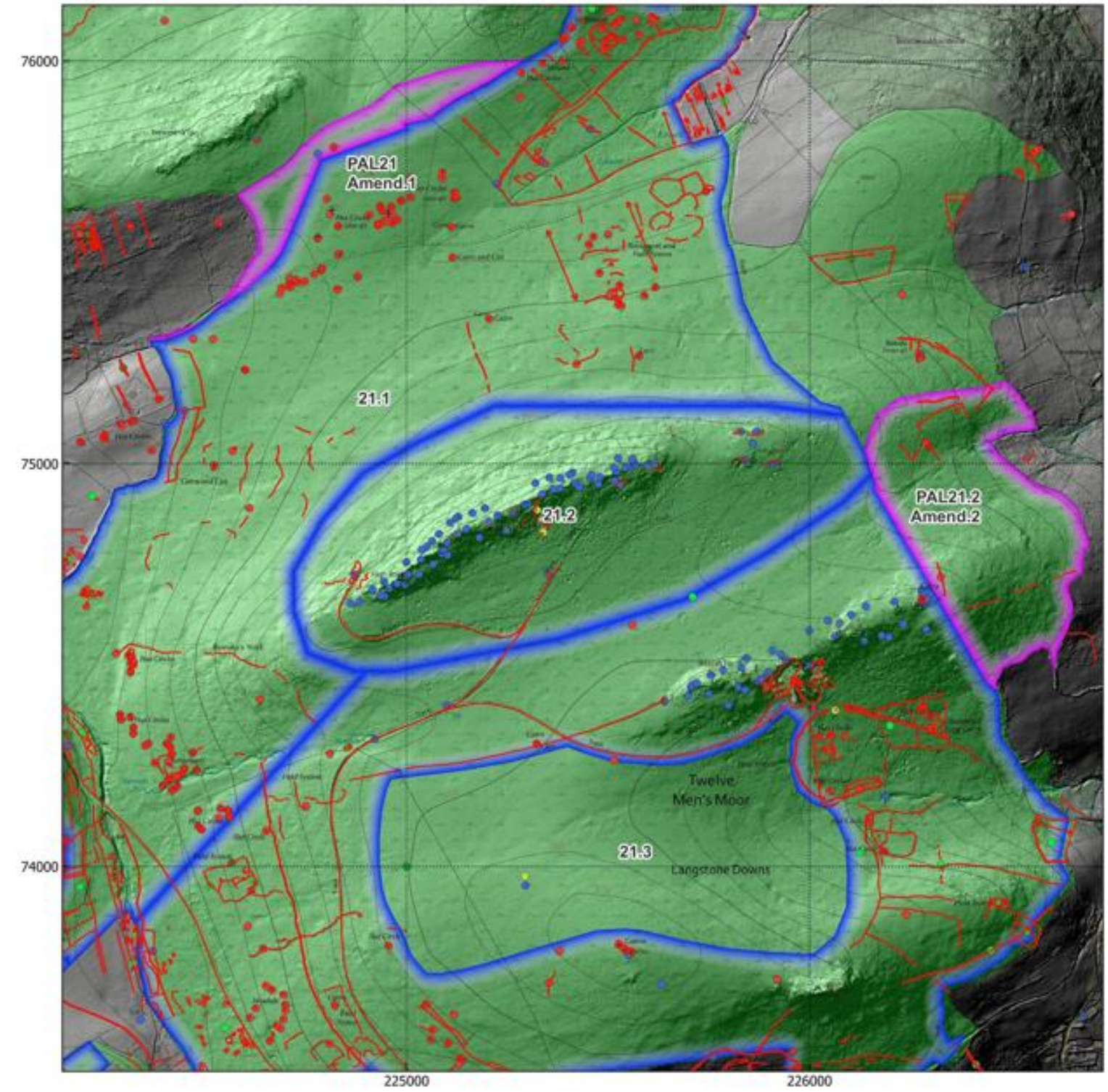
0 500 1,000 m

PAL 21 St Cleer Commons 1

Proposed extensions

www.statement-heritage.com

Cornwall Council



Pal Areas
Proposed PAL extensions
Scheduled Monuments
Scheduled Monuments @ Risk
CRoW_Access_Land___Natural_England

Feature Groups
Prehistoric
Medieval
Post Medieval

NMP_Raster

CSHER point data
Prehistoric
Early Medieval
Romano British
Medieval
Post Medieval
Modern

0 500 1,000 m

PAL 21 St Cleer Commons 2

Proposed extensions

www.statement-heritage.com

Cornwall Council