Natural England Research Report NERR088

West Penwith Habitat Surveys: Bosullow (survey area 30 – 2019)

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West Penwith Habitat Surveys: Bosullow (survey area 30 – 2019)

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Project manager Mark Beard

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Executive Summary

Land at Penwith Moors in west Cornwall is being considered for possible designation as a Site of Special Scientific Interest (SSSI) under the Wildlife and Countryside Act. To ascertain whether land at Bosullow, approximately 7 km north-west of Penzance, meets the published guidelines for the selection of SSSIs a field survey was undertaken in December 2019. A walk-over survey was undertaken from which vegetation communities were identified and a rapid assessment of condition was undertaken consistent with Common Standards Monitoring. All plant communities present were mapped. An area of lowland heath was identified and its condition assessed as unfavourable. This survey is one of many undertaken or commissioned by Natural England to provide the evidence required to identify those areas which should be included in an SSSI designation, to identify the features to be designated and to inform definition of the SSSI boundary. This report will also help to inform future site monitoring and to provide land management advice.

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West Penwith Habitat Surveys: Bosullow (survey area 30 – 2019)
Natural England

Bosullow (Survey Area 30 – 2019)

Vegetation survey & Condition Assessment:	Rob Large Mark Beard	Date surveyed:	19/12/2019
Report compiled by:	Mark Beard		

1 General Information

1.1 Location

Site name / No.	Bosullow / Site 30
County	Cornwall
Parishes	Morvah; Madron
Central OS Grid Ref	SW415346
Natural England Area Team	Devon, Cornwall & Isles of Scilly
National Character Area	West Penwith (No. 156)

1.2 Summary description

Area	3.59 ha
Altitude	170-193m AOD
Aspect	Southern part: gentle, southwards. Northern part: flat / gentle northwards (on water-shed).
Drainage	Predominantly dry; locally impeded drainage indicated by rushes.

Survey area 30 is immediately west of survey area 31 (Watch Croft, Trevean, White Downs and Bosullow Common) which was surveyed in 2012 and 2014. The two survey sites are divided only by the public highway which at the time of the survey is open (unfenced) on both sides.

1.3 Access

The survey site is immediately adjacent to the public highway between Trevowhan and Madron with a number of access tracks linking residential properties to the west with the road. There is an area which appears to be used for unofficial car parking. The site is also dissected by a minor road to Morvah. Much of the site is visible from the public highway.

1.4 Tenure

The northern part of the survey site is owned by National trust and subject to a tenancy. The southern part is in private ownership. The survey was carried out with a combination of permission and use of legal powers of entry under S51 of the Wildlife and Countryside Act 1981 (as amended).

1.5 Survey methodology and season

The site was surveyed by a 'walk-over' survey during which observations of the habitat present were made. For each distinct stand of vegetation observed a species list was compiled with an associated estimate of frequency based upon the DAFOR-scale and the most likely vegetation community type of the National Vegetation Classification (Rodwell, et. al., Volumes 1, 2 and 3, 1991/1992) was assigned. This community assignment was implied, based upon a working knowledge of the NVC by the surveyors, and is not based upon an analysis of quadrat data. As such the full NVC methodology has not been applied. Nevertheless, the experience of the surveyors in the field is considered sufficient for the implied NVC communities to be reliable for the purposes of this survey. Vegetation within the survey site could be compared to that in adjacent Survey Site 31, surveyed in 2014 using standard NVC methodology; reported in *West Penwith Habitat Surveys: Watch Croft, Trevean, White Downs and Bosullow Common (part) (survey area 31 – 2014) Hewins Ecology*, Groome, G., 2014. This allowed the surveyors to compare their implied community assignment to previous assignment of comparable vegetation using full NVC methodology in order to add further confidence to the assignment of the NVC communities implied. Owing to the methodology applied it was decided against attempting to assign to sub-communities, though where possible these are suggested in the biological description below.

Such surveys are usually carried out during the summer months (May - September), but due to logistical reasons this was not possible in 2019. Notwithstanding, survey in December was considered valid as the main floristic groups likely to be present (dwarf shrubs and grasses) usually remain identifiable throughout the early winter. Other species groups may also remain identifiable, particularly so when the prevailing weather remains mild (as in autumn 2019) and on those sites which are not grazed by livestock or regularly managed in any other way (as is the case at Survey Site 30). The surveyors also had the report from the 2014 survey of adjacent Survey Site 31 for comparison of similar vegetation stands to aid community assignment. Under these circumstances, survey at this time of year was endorsed by Dr Isabel Alonso, Natural England's Senior Specialist for Lowland Heathland habitat.

2 Biological description

2.1 Habitats

The survey site supports an area of dry, mature heath, bracken and bramble 'underscrub' and very small pockets of scrub and grassland. Each habitat is discussed in turn below.

2.1.1 Dry Heath

H8 (Calluna vulgaris – Ulex gallii heath)

Three stands of H8 heath were mapped, being characterised by high-structure species-poor heath that shows no signs of any recent management. *Ulex gallii* and

Erica cinerea, with occasional *Calluna vulgaris*, form dense and even-aged canopy. The vegetation structure is closed such that there are few opportunities for associated grasses and forbs, though the ferns *Dryopteris dilatata and D. filix-mas* were occasional to frequent. The southern (largest) stand was characterised by occasional scattered Cotoneaster (a non-native shrub); the species could not be ascertained by the surveyors but is an upright, deciduous, broad-leaved species, such as, for example, *Cotoneaster frigidus* or *C. cornubia*; but is not the prostrate *C. horizontalis*.

This stand displayed closest affinities to the H8a species-poor sub-community.

The stand lies in close proximity to stands of W25 underscrub. There is a narrow verge of rough grassland between the heath and adjacent public highway, though this was too narrow to map.

Plate 1 – Dense, mature, even-aged H8 heath with R. fruticosus (looking west from approximate OS grid ref SW41643457)

Plate 2 – H8 heath; note narrow rough grass verge between heath and public highway, too narrow to map

2.1.2 Scrub and underscrub

W22 *Prunus spinosa – Rubus fruticosus* scrub

One very small stand at the northern end of the Survey Site. Dominated by *Prunus spinosa*, but owning to the small extent, and given that this is not a priority community type for SSSI selection, no species-list was recorded.

W24 *Rubus fruticosus – Holcus lanatus* underscrub

Two small stands on the edge of larger stands of W25 underscrub. Stands were 'grassy' in nature with some evidence of disturbance indicated by the presence of ruderal vegetation in the southern-most stand, considered to be either rosebay willowherb *Chamaenerion angustifolium* or Canadian goldenrod *Solidago canadensis*, but not possible to differentiate at this time of year. Juncus effusus was also locally frequent in the southern-most stand.

W25 *Pteridium aquilinum - Rubus fruticosus* underscrub

Extensive areas adjacent to H8 heath with *P. aquilinum* and *R. fruticosus* co-dominant. *Hedera helix* and *Silene dioica* were also frequent. This community was also characterised by a number of invasive non-native species, namely: *Crocosmia x crocosmifolia*, *Impatiens glandulifera* and *Rosa rugosa*. These were mostly located close to the residential properties to the immediate west of the southern half of the survey site and, on this small site, in close proximity to stands of H8 heath with the potential to invade that community also.

2.1.3 Mesotrophic grassland

MG1 *Arrhenatherum elatius* grassland

A small stand of mesotrophic grassland was mapped adjacent to the road junction with the minor road to Morvah. This was dominated by *Dactylis glomerata*, but owning to the small extent and that this is not a priority community type for SSSI selection no species-list was recorded. A typical grass verge community of the area, but in the apparent absence of *A. elatius* is atypical of the community as described in the published NVC Volume 3.

MG10 Holcus lanatus – Juncus effusus rush-pasture

At the northern end of the survey site is an area of species-poor rush-pasture, managed by cattle-grazing in conjunction with adjacent pastures. Although J. effusus was intermittent, the grass sward was typified by *Holcus lanatus*, *Agrostis stolonifera* and *Ranunculus repens* giving a strong affinity to MG10. This stand displayed closest affinities to the MG10a typical sub-community.

2.2 Species

No rare, scarce or threatened species were noted during the survey. A number of non-native species were recorded as described in section 2.1.

3 Condition Assessments

Note: These assessments are based on generic targets and the condition may be assessed differently once site-specific targets are developed.

3.1 Lowland Heathland

Due to the small scale of the H8 stands the condition assessment was made from attributes assessed at the whole-stand level rather than using any number of randomly selected stops.

This assessment shows that the lowland heathland vegetation at this survey site are currently in **unfavourable** condition assessed against the generic targets for dry heathland (JNCC, 2009). The lowland heathland habitat failed against several generic targets, namely:

- Extent of bare ground (insufficient);
- Cover of *Ulex* spp (too great);
- Structure of dwarf shrubs (too uniform);
- Frequency of desirable graminoids (too few);
- Frequency of desirable forbs (too few).

However, all other targets were met.

It is difficult to ascertain the trend of the condition of lowland heathland at this survey site in the absence of previous data. However, as there appears to be no active

management at the survey site and there were no other apparent indications of immediate or rapid decline a trend category of **no change** would seem appropriate.

As no other priority habitats were recorded at the survey site, no other habitat condition assessments are necessary.

Table 1 Summary of habitats and vegetation communities

Site 30 – Bosullow (2019)				
Habitat	**NVC communities**	**Area (ha)**	**Priority Habitat area (ha)**	**CA category**
Dry heath	H8	1.47	Lowland heathland	UFNC
Underscrub	W24	0.13	n/a	n/a
	W25	1.54	n/a	n/a
Scrub	W22	0.02	n/a	n/a
	No NVC	0.06	n/a	n/a
Mesotrophic grassland	MG1	0.02	n/a	n/a
	MG10	0.21	n/a	n/a
hardstanding	n/a	0.14	n/a	n/a
Condition assessment reporting categories: Favourable (F), Unfavourable Recovering (UFR), Unfavourable No Change (UFNC), Unfavourable Declining (UFD)				

4 References

Groome, G. (2014) West Penwith Habitat Surveys: Watch Croft, Trevean, White Downs and Bosullow Common (part) (survey area 31 – 2014). Hewins Ecology

JNCC (2009) Common Standards Monitoring Guidance for Lowland Heathland. Version February 2009 (Updated from February 2004). JNCC, Peterborough.

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Rodwell J.S. (ed). (2000) British Plant Communities Volume 3. Grasslands. Cambridge University Press, Cambridge.

Target Notes for Bosullow (Survey area 30 – 2019)

TN1	SW41713442	Area of Himalayan balsam *Impatiens glandulifera*
TN2	SW41643450	Area of Himalayan balsam *Impatiens glandulifera*
TN3	SW4158334613	'C'-shaped stone sculpture / memorial, well maintained
TN4	SW4145334836	Granite quoit 'folly', marked as "Guide Stone" on OS 1:10,000 map
TN5	SW41703445	Area of recently imported hardcore to create hardstanding for parking / access to adjacent residential property
TN6	SW41523470	Area used for informal car parking maintaining bare ground / hardstanding

Species lists for H8, W22, W24, W25 and MG10 communities

DAFOR ratings:
D = dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare
L = Locally (frequent, abundant, dominant)
E = Edge (i.e. a species recorded from the margins of the mapped habitat/community)

		community				
Scientific name	Common name	H8	W22	W24	W25	MG10
Agrostis capillaris	Common bent	R				
Agrostis curtisii	Bristle bent	R				
Agrostis stolonifera	Creeping bent					A
Angelica sylvestris	Wild angelica	O				
Calluna vulgaris	Heather	O				
Cerastium fontanum	Common mouse-ear					O
Cerastium glomeratum	Sticky mouse-ear					O
Cotoneaster spp.	Cotoneaster	O				
Crataegus monogyna	Common hawthorn				R	
Crocosmia x crocosmifolia	Montbrecia				O	
Dactylis glomerata	Cock's-foot	R / EF		A	O	
Digitalis purpurea	Foxglove	O			O	R
Dryopteris dilatata	Broad buckler-fern	F			O	
Dryopteris filix-mas	Male fern	O				
Erica cinerea	Bell heather	F				
Galium saxatile	Heath bedstraw	R				
Hedera helix	Ivy	O			F	
Holcus lanatus	Yorkshire fog			A		A
Hypnum cupressiforme	Cypress-leaved Plait-moss	O			O	
Ilex aquifolium	Holly	R				
Impatiens glandulifera	Himalayan balsam				LF	
Juncus effusus	Soft rush			LF		F
Lolium perenne	Perennial rye-grass					O
Molinia caerulea	Purple moor-grass	O			O	
Potentilla erecta	Tormentil	R				
Prunus spinosa	Blackthorn		D			
Pteridium aquilinum	Bracken				D	
Ranunculus repens	Creeping buttercup					F
Rosa rugosa	Beach rose				LF	
Rubus fruticosus agg.	Bramble	F		A	D	
Rumex acetosa	Common sorrel				O	F
Rumex obtusifolius	Broad-leaved dock					O
Salix cinerea	Grey willow				R	
Senecio jacobaea	Common ragwort				R	R
Silene dioica	Red campion			F	F	
Stellaria holostea	Greater stitchwort				R	
Teucrium scorodonia	Wood sage	O			O	
Trifolium repens	White clover					F
Ulex europaeus	European gorse	O				
Ulex gallii	Western gorse	A			O	
Urtica dioica	Stinging nettle			R	R	

Dry heath (H8) – whole stand condition assessment

Attribute (Mandatory only)	Target	Field observation	Assessment
Structure & composition			
Bare ground (not rock)	Undisturbed 1-10% / Heavily disturbed <1%	<1% (undisturbed)	Fail
Total % cover shrubs	Cover of dwarf shrubs 25-90%	90%	Pass
Ulex spp. cover %	<50%	60%	Fail
Structure of dwarf shrubs	(pseudo-)Pioneer 10-40% Building/mature 20-80% Degenerate <30% Dead <10%	100% mature No pioneer	Fail
Positive indicators			
Frequency of dwarf shrubs	At least 2 species at least frequent (inc. *Ulex gallii*)	*Calluna vulgaris* O *Erica cinerea* F *Ulex gallii* A	Pass
Desirable graminoids	At least one species at least frequent and two species at least occasional	*Agrostis capillaris* R *Agrostis curtisii* R *Molinia caerulea* O	Fail*
Desirable forbs	At least 2 species at least occasional	*Galium saxatile* R *Potentilla erecta* R *Teucrium scorodonia* O	Fail*
Negative indicators			
Signs of disturbance (erosion)	<1% of habitat showing signs of erosion	Negligible erosion (establish access tracks excepted)	Pass
Non-native invasives	*Rhododendron* and other exotic species <1%	Cotoneaster, *Rosa rugosa*, *Impatiens glandulifera* & *Crocosmia x crocosmifolia*	Pass

		occasional or locally frequent, but overall estimated <1% cover	
Undesirable forbs	'weeds' <1%	None	Pass
Undesirable trees and scrub	<15% trees, tree seedlings or other species of scrub. <1% *Rubus* spp.	<1% *Crataegus monogyna, Ilex aquifolium, Rubus fruticosus*	Pass
Pteridium aquilinum	<10% *Pteridium* in a dense canopy	0%	Pass
Ulex europaeus	<25% *Ulex europaeus*	<5%	Pass

*Common Standards Monitoring guidance for Lowland Heathland (JNCC, 2009) states that in sites considered to be "naturally species-poor" a lower target of just one desirable graminoid and one desirable ford would suffice to achieve favourable condition. At the time of writing a consultation draft Favourable Condition Table for Penwith Moors is still in development and in the interim the generic targets are applied; this also maintains consistency with other lowland heathland condition assessments made elsewhere in Penwith Moors, 2012-2019.

West Penwith Moors 2019 Survey Area 30 Bosullow

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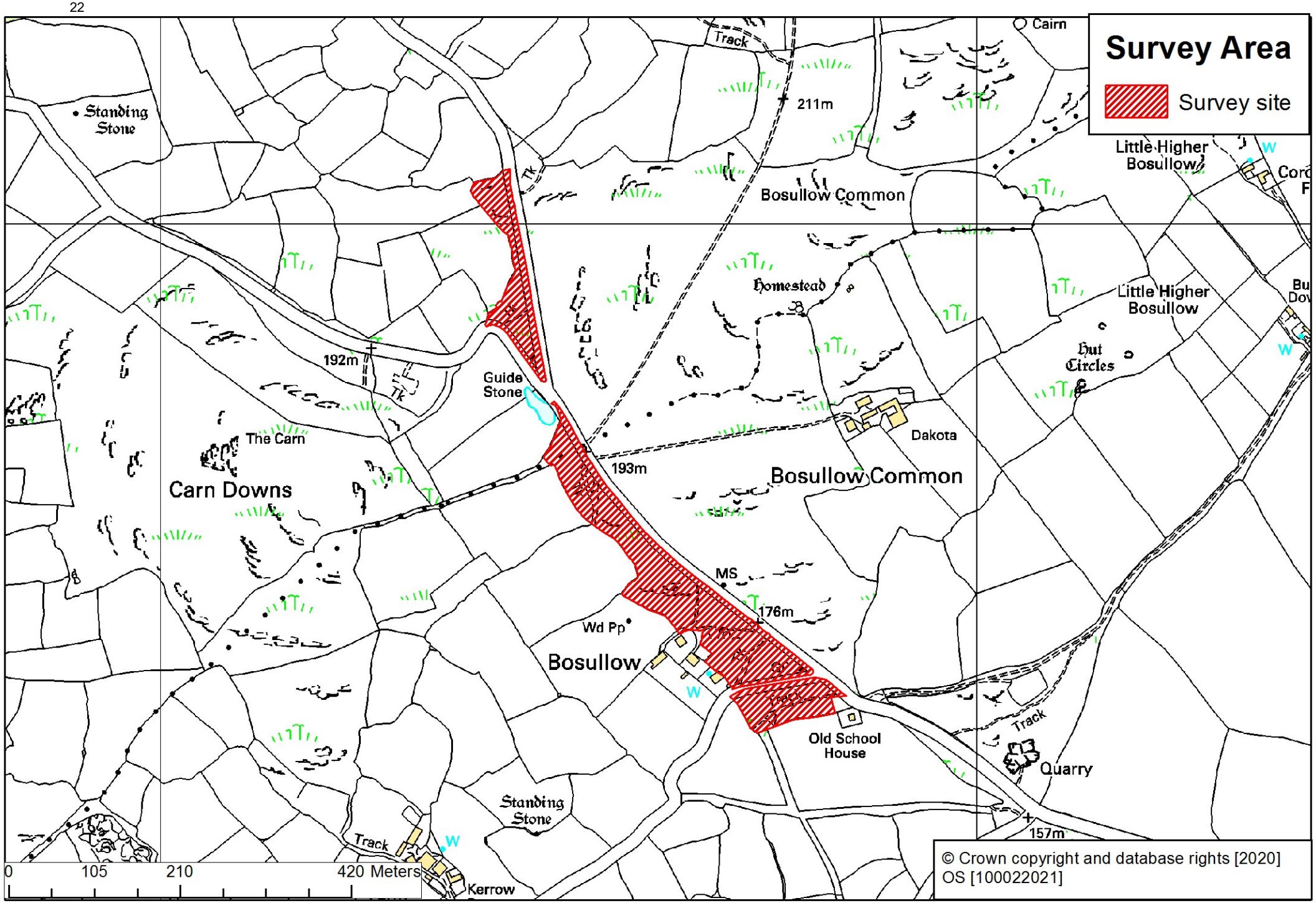
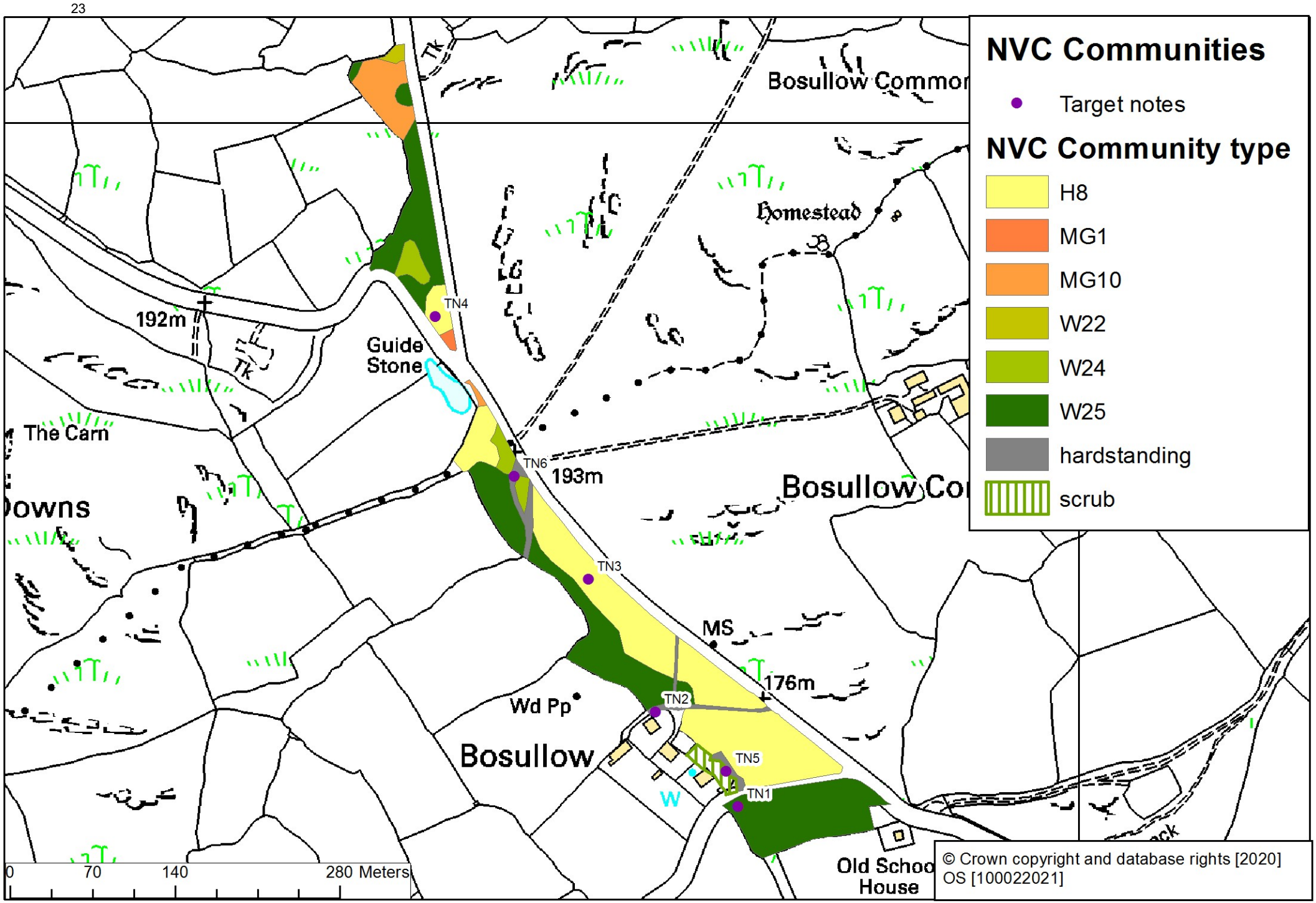


West Penwith Moors 2019 Survey Area 30 Bosullow



West Penwith Moors 2019 Survey Area 30 Bosullow