West Penwith Habitat Surveys: Chapel Carn Brea (part) (survey area 2 (part) – 2021)

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Further information

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Chapel Carn Brea (part) (Survey Area 2 (part) – 2021)

Vegetation survey & Condition Assessment:	Mark Beard & Alex Gilroy
Report compiled by:	Mark Beard
Date surveyed:	08/10/2021

1. General Information

1.1 Location

Site name / No.	Chapel Carn Brea (part) / Survey area 2 (part)
County	Cornwall
Parishes	St Just / St Buryan
Central OS Grid Ref	SW 3885 2800
Natural England Area Team	Devon, Cornwall & Isles of Scilly
National Character Area	West Penwith (No. 156)

1.2 Summary description

Area	6.88ha
Altitude	145-180m A.O.D.
Aspect	moderate slope, south-westerly / south-easterly.
Drainage	Dry, freely draining.

Survey area 2 Chapel Carn Brea was originally surveyed in 2012 by Cornwall Environmental Consultants Ltd (commissioned by Natural England). That survey covered an extent of 23 ha, but excluded a number of small parcels of land around the SE and SW edges of Chapel Carn Brea which have since been recognised as supporting semi-natural vegetation. This omission in the survey data came to light in 2021 and field survey was undertaken 08 October 2021 to complement the 2012 survey. The survey site is made up of 4 separate land parcels which all adjoin the larger area of semi-natural vegetation at Chapel Carn Brea but each forming separate management units.

1.3 Access

Access was gained via privately owned farmland, National Trust property or public rights of way.

1.4 Tenure

All four parcels of survey site are privately owned. The survey was carried out either with the permission of the landowner or with the use of legal powers of entry under section 51 of the Wildlife and Countryside Act.

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 and 3, 1991/1992) was assigned. This community assignment was implied, based upon a working knowledge of the NVC by the surveyor, 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 surveyor 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 parts of Survey Site 2, surveyed in 2012 using standard NVC methodology; reported in *West Penwith Habitat Surveys: Carn Brea (survey area 2 – 2012)* Cornwall Environmental Consultants Ltd, Sproull, J., 2012. 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 not possible to assign to sub-communities to all stands, though where considered possible this was done.

Although the survey was undertaken relatively late in the season (October) it was possible to assign different stands of vegetation to communities with high confidence. This was helped by the prevailing mild, dry, calm weather of the preceeding weeks meaning vegetation had yet to have been affected by autumnal storms or frosts.

2. Biological description

2.1 Habitats

The survey site supports areas of lowland heath, acid grassland, bracken and small stands of European gorse and blackthorn scrub. Each habitat is discussed in turn below.

2.1.1 Lowland heath

H8a *Calluna vulgaris-Ulex gallii* heath (species-poor sub-community)

Lowland heath was restricted to a single stand on the upper slopes at Bolankan, surrounded by W25 underscrub. *Erica cinerea* (bell heather) and *Ulex gallii* (western gorse) were abundant; *Calluna vulgaris* (heather) was also frequent. The stand was

mature, even-aged and species-poor and has been heavily invaded by bracken and bramble.

Figure 1 Plate 1 – H8a lowland heath vegetation on upper slopes above Bolankan (note abundance of bracken and bramble within and around the heath stand)

2.1.2 Dry lowland acid grassland

U4b *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland (*Holcus lanatus–Trifolium repens* sub-community)

Dry acid grassland was limited to the land associated with Chapel Carn Brea Farm and was restricted to a narrow strip on the upper slopes, though more extensive on the lower slopes. These stands occurred in close juxtaposition to stands of bracken underscrub. The grassland was characterised by abundant common bent *Agrostis capillaris*, Yorkshire fog *Holcus lanatus* and sweet vernal grass *Anthoxanthum oderatum*, heath bedstraw *Galium saxatile*, sheep's sorrel *Rumex acetosella* and common dog-violet *Viola riviniana*. The lower slopes were more enriched with a higher proportion of *H. lanatus* and with locally frequent white clover *Trifolium repens*, greater bird's-foot-trefoil *Lotus pedunculatus* and creeping buttercup *Ranunculus repens*. This suggests affinities with more mesotrophic conditions (e.g. MG10 *Holcus lanatus - Juncus effusus* rush-pasture), though the match was not considered good (e.g. the absence of *J. effusus*) so the area was mapped as acid grassland notwithstanding. The landowner reports that cultivated daffodils *Narcissus* spp. also grow on this lower slope, suggesting past cultivation.

Figure 2 Plate 2 – U4b acid grassland near Chapel Carn Brea Farm

Figure 3 Plate 3 – golden waxcap fungus in acid grassland (Chapel Carn Brea Farm)

2.1.3 Scrub and underscrub

W22 *Prunus spinosa – Rubus fruticosus* scrub

A small number of marginal areas of blackthorn scrub were mapped. These were species poor, dominated by *P. spinosa*. Given that this is not a priority community type for SSSI selection along with difficulties of access through dense underscrub, a complete species-list was not recorded.

W23 *Ulex europaeus - Rubus fruticosus* scrub

A transitional area of *Ulex europaeus* scrub was mapped on the lower slopes on land associated with Chapel Carn Brea Farm. Given that this is not a priority community type for SSSI selection, was transitional with W25 underscrub and along with difficulties of access through dense underscrub, a complete species-list was not recorded.

W25 *Pteridium aquilinum - Rubus fruticosus* underscrub

Stands of W25 underscrub occupied the largest area of the survey site, occasionally forming transitions with H8a, U4b and W23. In addition to bracken, *Rubus fruticosus* agg. was abundant. *Convolvulus arvensis* was locally frequent on the lower slopes at Bolankan. *Ulex europaeus* was frequent in the stand at Chapel Carn Brea Farm, forming transitions to W23 scrub on the lower slopes.

Figure 4 Plate 4 – W25 underscrub on slopes above Bolankan Farm

Figure 5 Plate 5 – W25 underscrub at Chapel Carn Brea Farm

Figure 6 Plate 6 - W25 underscrub at Chycarne

Figure 7 Plate 7 - W25 underscrub, land north of Newshop

2.2 Species

No rare, scarce or threatened species were noted during the survey.

3. Condition Assessments

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

3.1 Lowland heath

This assessment shows that the lowland heath vegetation at this survey site is currently in **unfavourable** condition assessed against the generic targets for lowland heathland (JNCC, 2009). The acid grassland habitat failed against the following generic targets:

- Bare ground (too little / absent)
- Dwarf-shrub growth phases (too homogenous / lack of early-phase growth)

- Frequency of desirable graminoids (too few / absent) • Frequency of positive indicator species (too few / absent).

Although all other targets were met, it was noted in the field that the small stand of lowland heath had a relatively high proportion of bracken and bramble which will have colonised the stand at some point in time. In the absence of any previous data, however, it is unknown if such underscrub is increasing in cover or if this stand has reached a point of stability maintained by, for example, thin soils and exposure. Consequently, a trend category of **no change** is assumed.

3.2 Dry acid grassland

This assessment shows that the acid grassland vegetation at this survey site is currently in **unfavourable** condition assessed against the generic targets for lowland dry acid grassland (English Nature 2000 / JNCC, 2004). However, this assessment is considered marginal as only one of the generic targets was marginally failed:

- Frequency of weeds (too high, but marginal).

All other targets were met. It is difficult to ascertain the trend of the condition of acid grassland at this survey site in the absence of previous data. However, as there is some active management by the landowner 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 2 (part) – Chapel Carn Brea Hill (part) (2021)				
Habitat	**NVC communities**	**Area (ha)**	**Priority Habitat area (ha)**	**CA category**
Lowland heath	H8a	0.35	Lowland heath	UFNC
Acid grassland	U4b	0.35	Lowland dry acid grassland	UFNC (marginal)
Underscrub	W25	5.79	n/a	n/a
Scrub	W22	0.22	n/a	n/a
	W23	0.17	n/a	n/a
Condition assessment reporting categories: Favourable (F), Unfavourable Recovering (UFR), Unfavourable No Change (UFNC), Unfavourable Declining (UFD)				

4. References

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Rodwell J.S. (ed). (1991) British Plant Communities Volume 2. Mires and heaths. Cambridge University Press, Cambridge.

Rodwell J.S. (ed). (1992) British Plant Communities Volume 3. Grasslands. Cambridge University Press, Cambridge.

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Annex 1 Species lists for H8a, U4b, W22, W23, and W25 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 / sub-community				
Scientific name	Common name	H8a	U4b	W22	W23	W25
Agrostis capillaris	common bent		A			O
Agrostis curtissii	bristle bent		R			
Anthoxanthum oderatum	sweet vernal-grass		A			
Calluna vulgaris	heather	F				
Cerastium fontanum	common mouse-ear		R			
Chamerion angustifolium	rosebay willowherb					O
Cirsium vulgare	spear thistle		O			

Convolvulus arvensis	field bindweed					LF
Crataegus monogyna	hawthorn					R
Dactylis glomerata	cock's-foot		LF			
Digitalis purpurea	foxglove		EO			
Erica cinerea	bell-heather	A	EO			
Galium saxatile	heath bedstraw		F			O
Hedera helix	ivy		EF			O
Holcus lanatus	Yorkshire fog		A			O
Hyacinthoides nonscripta	bluebell					O
Hygrocybe chlorophana	golden waxcap (fungus)		R			
Hypochaeris radicata	common cat's-ear		R			
Lotus pedunculatus	greater bird's-foot-trefoil		LF			
Peltigera spp.	dog lichen		F			
Plantago lanceolata	ribwort plantain		O			
Polytrichum piliferum	bristly haircap		O			
Potentilla erecta	tormentil					O
Prunus spinosa	blackthorn			D		
Pseodoscleropodium purum	neat feather-moss	O	O			O
Pteridium aquilinum	bracken	F	O			A
Ranunculus repens	creeping buttercup		LF			
Rubus fruticosus agg.	bramble	F	O			A
Rumex acetosa	common sorrel		F			
Rumex acetosella	sheep's sorrel		F			
Rumex crispus	curled dock		LF			
Salix spp.	willow					R
Sedum anglicum	English stonecrop		O			
Silene dioica	red campion					O

Solidago virgaurea	goldenrod					R
Taraxacum	dandelion		LF			
Trifolium repens	white clover		O			
Teucrium scorodonia	wood sage		O			O
Ulex europaeus	European gorse				D / LF	O / LF
Ulex gallii	western gorse	A				
Urtica dioica	stinging nettle		O			
Viola riviniana	common dog-violet		F			O

Annex 2 Lowland heath (H8a) – whole stand condition assessment

Attribute (Mandatory only)	Target	Field observation	Assessment
Bare ground			
Lightly disturbed	1% - 10%	0%	Fail
Heavily disturbed	0%	0%	Pass
Vegetation structure			
Cover of dwarf-shrubs	40% - 90% (include Ulex gallii)	60%	Pass
Cover of Ulex spp. (all)	< 50%	20%	Pass
Cover of Ulex europaeus	< 25%	0%	Pass
Dwarf-shrub growth phases	Pioneer = 10 – 40% Building/mature = 20% - 80% Degenerate = < 30% Dead = < 10%	Pioneer = 0% Building/mature = 100% Degenerate = 0% Dead = 0%	Fail
Vegetation composition			
Diversity of dwarf-shrubs	At least two species of dwarf shrubs at least frequent (excluding Ulex gallii)	*Erica cinerea* = A *Calluna vulgaris* = O	Pass
Frequency of desirable graminoids	At least 1 species at least frequent and 2 species at least occasional	No graminoids observed	Fail
% cover Molinia caerulea	< 60%	0%	Pass

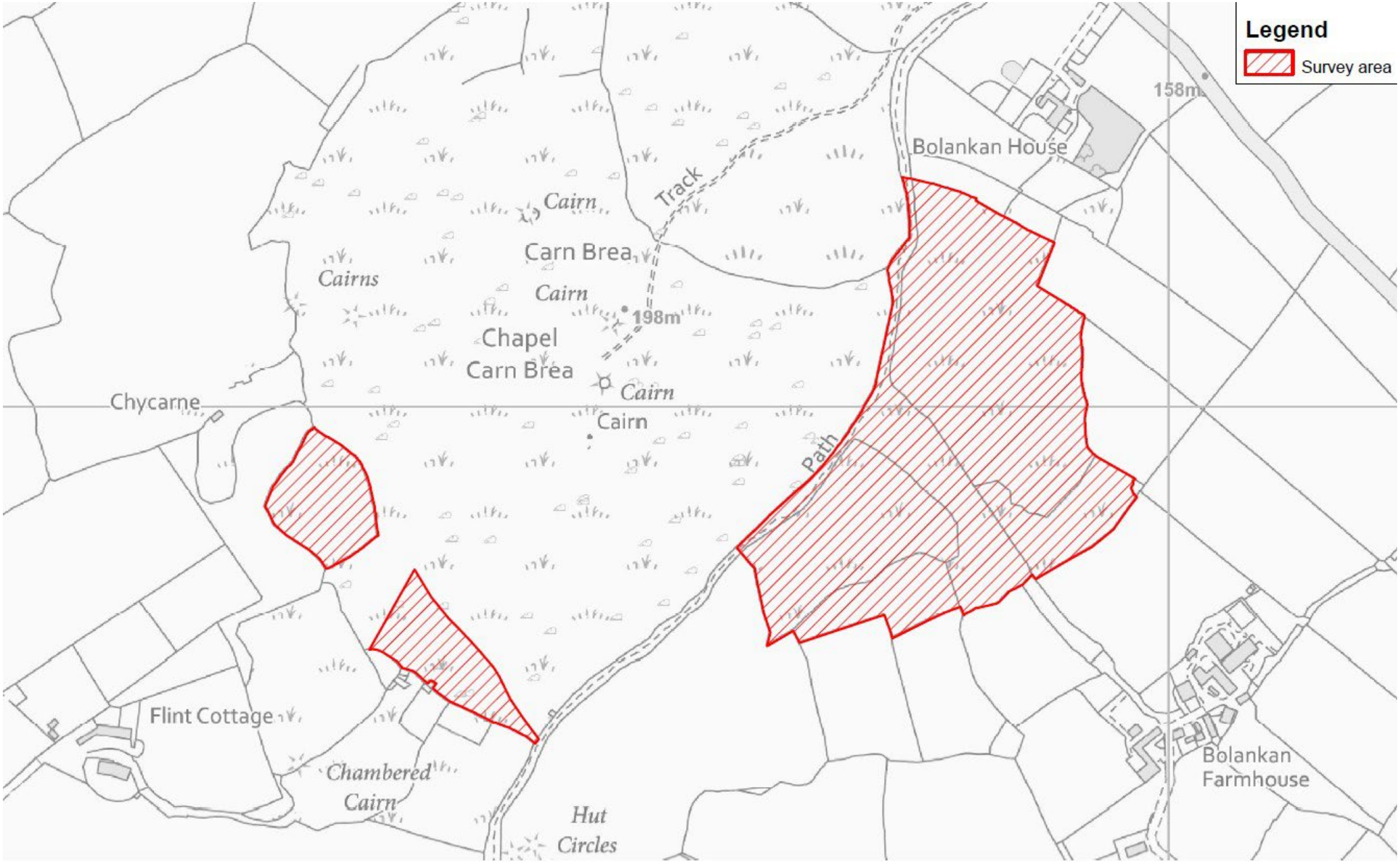
Frequency of positive indicator species	At least 2 species/taxa at least frequent plus at least 2 occasional	No forbs observed	Fail

Negative indicators			
Sward composition: bracken *Pteridium aquilinum*	< 20% bracken cover	Approx. 10% cover	Pass
Sward composition: weeds	< 1% cover	0%	Pass
Sward composition: trees and scrub	< 15% cover	Approx. 10% cover bramble	Pass
Sward composition: non-native invasives	<1% cover	0%	Pass

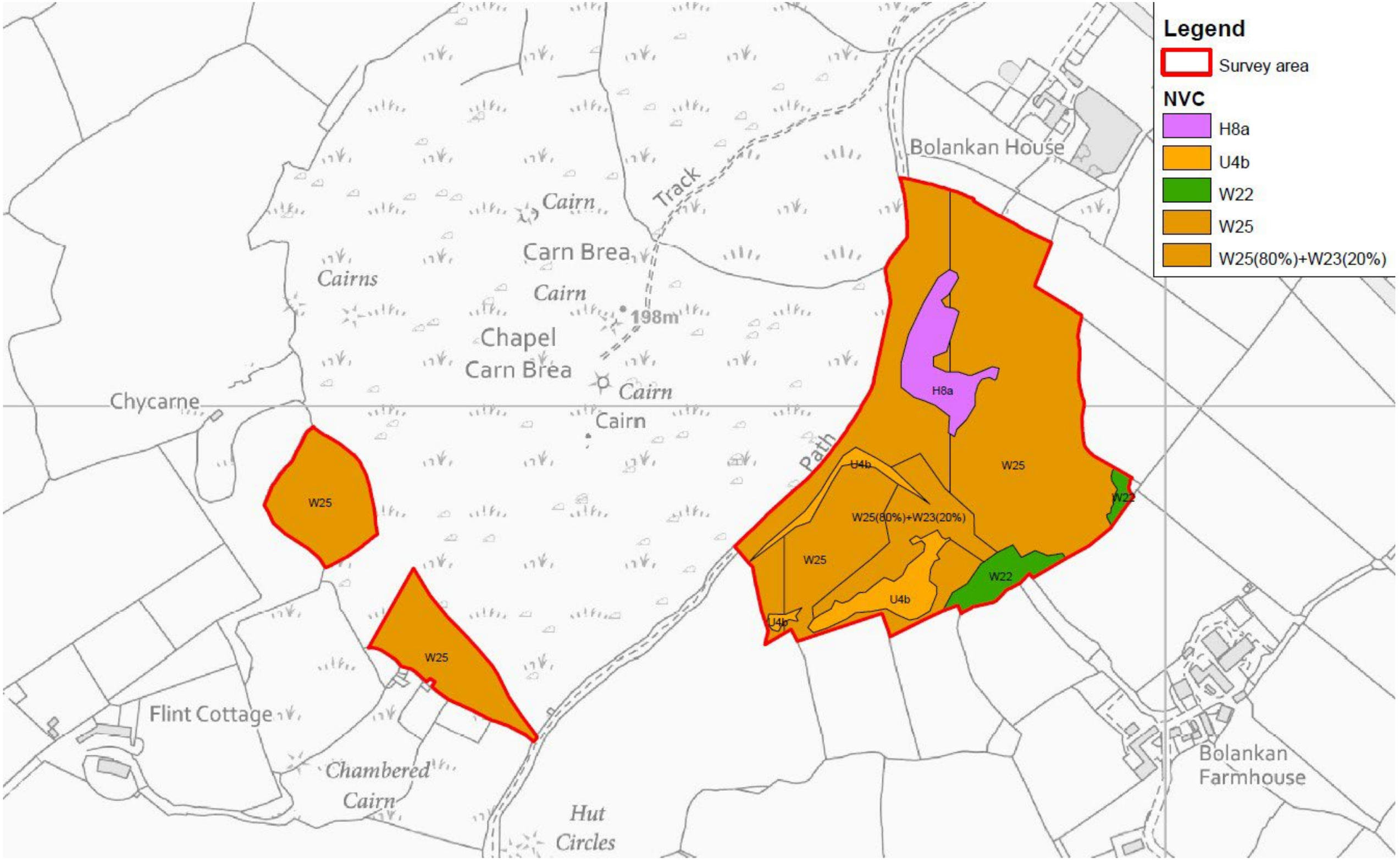
Annex 3 Lowland acid grassland (U4b) – whole stand condition assessment

Attribute (Mandatory only)	Target	Field observation	Assessment
Structure & composition			
Dwarf-shrubs	< 25% if grassland is the conservation aim rather than heathland	No dwarf-shrubs within grassland stands	Pass
Positive indicators			
Frequency of positive indicator species	At least 2 species/taxa at least frequent plus at least 2 occasional	*Galium saxatile* F *Rumex acetosella* F *Teucrium scorodonia* O *Viola riviniana* F	Pass
Negative indicators			
Sward composition: bracken *Pteridium aquilinum*	No more than 20% bracken cover	< 20% bracken cover within grassland stands (excluding W25 stands and transitions)	Pass
Sward composition: weeds	Weeds no more than occasional or no more than 5% cover	*Cirsium vulgare* O *Rumex crispus* LF combined cover <5%	Fail (marginal)
Sward composition: coarse grasses (e.g. *Dactylis glomerata*; do not apply *Holcus lanatus* to stands of U4b)	Coarse grasses no more than 10% cover	*Holcus lanatus* > 10% cover, but assessed as U4b so not failed	Pass
Sward composition: trees and scrub	No more than 5% cover	Bramble < 5%	Pass
Sward composition: Rhododendron	Rhododendron <1% cover	0%	Pass

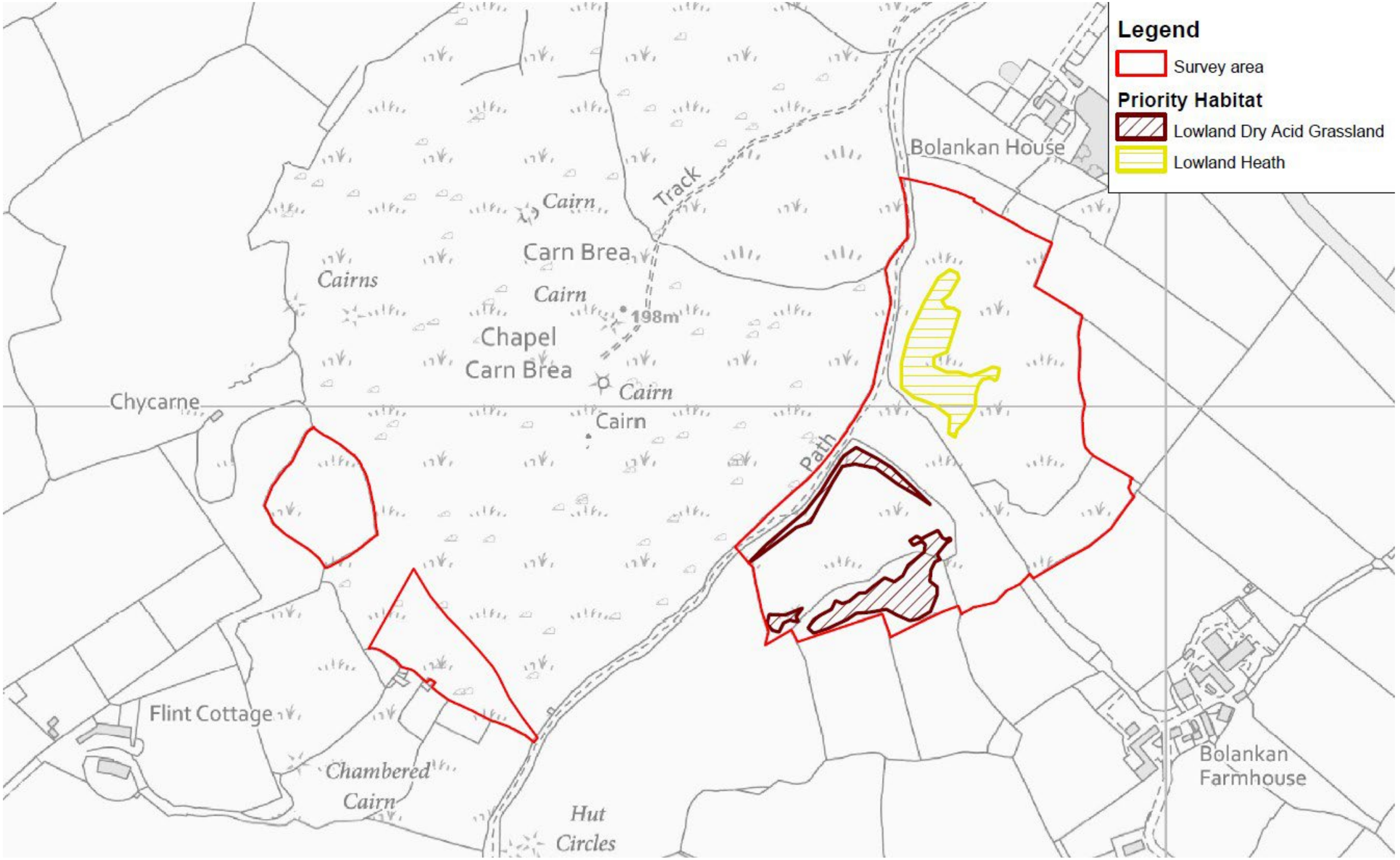
Map 1: Survey Area 2 (part) Chapel Carn Brea (part) 2021, Survey area



Map 2: Survey Area 2 (part) Chapel Carn Brea (part) 2021, NVC



Map 3: Survey Area 2 (part) Chapel Carn Brea (part) 2021, Priority Habitats



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