Cyfoeth Naturiol Cymru
Natural Resources Wales

Tŷ Ddewi / St David's Coast NVC Survey Report

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ADAS

Report No 143

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We work to support Wales' economy by enabling the sustainable use of natural resources to support jobs and enterprise. We help businesses and developers to understand and consider environmental limits when they make important decisions.

We work to maintain and improve the quality of the environment for everyone and we work towards making the environment and our natural resources more resilient to climate change and other pressures.

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- Securing our data and information;
- Having a well resourced proactive programme of evidence work;
- Continuing to review and add to our evidence to ensure it is fit for the challenges facing us; and
- Communicating our evidence in an open and transparent way.

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Contents

List of Figures

List of Tables

1. Crynodeb Gweithredol

Mae arfordir Tŷ Ddewi wedi'i ddynodi'n Ardal Cadwraeth Arbennig (ACA) oherwydd y cymunedau llystyfiant ar y llethr arfordirol ac yn y rhostir. Er mwyn diweddaru set ddata sylfaenol Cyfoeth Naturiol Cymru (CNC) ar gyfer cynefinoedd arfordirol, i'w defnyddio ar gyfer gwaith rheoli a chanolbwyntio'r gwaith o fonitro llystyfiant, cafodd ADAS eu comisiynu gan Cyfoeth Naturiol Cymru yn 2015 i gynnal arolwg Dosbarthiad Llystyfiant Cenedlaethol (NVC). Roedd y contract yn canolbwyntio'n bennaf ar ddau ddarn o'r arfordir ger Pen-caer a Phenmaendewi ac roedd hefyd yn cynnwys darnau hir o'r arfordir i'r de o Dyddewi.

Roedd protocol yr arolwg yn dilyn trefniadau arolygu safonol NVC fel y'u disgrifir gan Rodwell (1991, 1992, 1995 a 2000) a chafodd y llystyfiant ei fapio ar awyrluniau ar raddfa o 1:5000.

Mapiwyd yr holl lystyfiant yn yr Ardaloedd Blaenoriaeth a bennwyd ymlaen llaw. Fodd bynnag, oherwydd cyfuniad o brysgwydd dyrys a/neu lethrau/clogwyni serth a pheryglus, nid oedd modd mynd i rai mannau. Mewn achosion felly, dibynnwyd ar graffu trwy sbienddrych er mwyn canfod cymunedau llystyfiant. Mae'r ardaloedd lle gwnaed hyn wedi'u hamlygu.

Roedd safle'r arolwg NVC yn mesur cyfanswm o 556.87ha. Mapiwyd cyfanswm o 1035 o bolygonau ar lefel is-gymuned (neu weithiau ar lefel cymuned) neu fel mosaigau o un neu fwy o gymunedau/is-gymunedau.
Cofnodwyd cyfanswm o 37 o gymunedau a 49 o is-gymunedau NVC. Roedd hyn yn cynnwys pum grŵp bras o gynefinoedd NVC:

- Cymunedau morol
- Cymunedau coetiroedd a phrysgwydd
- Cymunedau glaswelltir
- Cymunedau corsiog
- Cymunedau gwernydd a chorsydd calchog llystyfiant tal

Y cynefinoedd o Atodiad 1 a nodir fel y prif reswm dros ei ddewis yn safle ACA yw 'Clogwyni môr â llystyfiant o arfordiroedd yr Iwerydd a'r Baltig' a 'rhostiroedd sych Ewropeaidd'.

Yn ardal yr arolwg, gwelwyd bod 34.47ha o glogwyni môr â llystyfiant a 124.55ha o rostir sych Ewropeaidd. Ar y cyfan, fodd bynnag, y mathau mwyaf cyffredin o gymunedau oedd W25 isdyfiant Pteridium aquilinum – Rubus fruticosus ac W23 prysgoed Ulex europaeus - Rubus fruticosus

Cofnodwyd nifer o rywogaethau o blanhigion prin neu nodedig, nifer ohonynt o arwyddocâd cenedlaethol a lleol.

Wrth asesu ardal yr arolwg yn erbyn meini prawf y JNCC, awgrymir bod yr ardal yn werthfawr o safbwynt cadwraeth ond mae awgrym hefyd y gallai ddod yn llai gwerthfawr gan nad oes cymaint o bori ag y bu ac y gallai hynny arwain at weld rhedyn a phrysgwydd yn lledaenu ar draul cymunedau morol. Fodd bynnag, os yw'r syniad hwnnw'n gywir, byddai modd rheoli'r tir yn briodol er mwyn gwella'r sefyllfa.

Executive Summary

St. David's coast has been designated as a SAC on account of its coastal slope and heathland vegetation communities. In order to update Natural Resources Wales (NRW) baseline data set for coastal habitats, to inform management and focus vegetation monitoring, NRW commissioned ADAS to undertake a National Vegetation Classification (NVC) survey in 2015. The contract principally focused on two sections of coastline in the vicinity of Strumble Head and St. David's Head, but also included long stretches of coastline south of St. David's.

Survey protocol followed standard NVC survey procedure as described by Rodwell (1991, 1992, 1995 & 2000) and vegetation was mapped onto aerial photographs at a scale of 1:5000.

All vegetation within the pre-identified Priority Areas was mapped. However, due to a combination of impenetrable scrub and/or steep and dangerous slopes/cliff faces, it was not possible to access some areas. In such instances, scanning through binoculars was relied upon to assign vegetation communities. Any such areas thus treated have been highlighted.

The NVC survey encompassed a total site area of 556.87ha. With a total of 1035 polygons mapped to sub-community (occasionally community) level or to mosaics of one or more communities/sub-communities.
A total of 37 NVC communities and 49 sub-communities were recorded. This encompassed five broad NVC habitat groups:

- Maritime communities
- Woodland and scrub communities
- Grassland communities
- Mire communities
- Swamp and tall herb fen communities

Annex 1 habitats cited as a primary reason for SAC site selection are 'Vegetated sea cliffs of the Atlantic and Baltic coasts' and 'European dry heath'.

Within the surveyed area there were found to be 34.47ha of Vegetated sea cliffs and 124.55ha of European dry heath. Overall however, the most abundant community types were W25 *Pteridium aquilinum* - *Rubus fruticosus* underscrub and W23 *Ulex europaeus* - *Rubus fruticosus* scrub.

A range of scarce or notable plant species were recorded, a number of which are of national and local significance.

Assessment of the surveyed area against JNCC criteria suggests that the area is of high conservation value, but there is some suggestion that potential value is being compromised due to a relaxation in grazing intensity, which is potentially leading to the spread of bracken and scrub to the detriment of maritime communities. However, should this notion be accurate, with appropriate management the capacity exists to improve this situation.

Quality Assurance

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*Denotes full member of MCIEEM

Revision History

Revision	Date	Amendment
1 S.S.	16/12/2015	Addressing comments and amendments proposed by NRW

Disclaimer

2. Introduction and Background

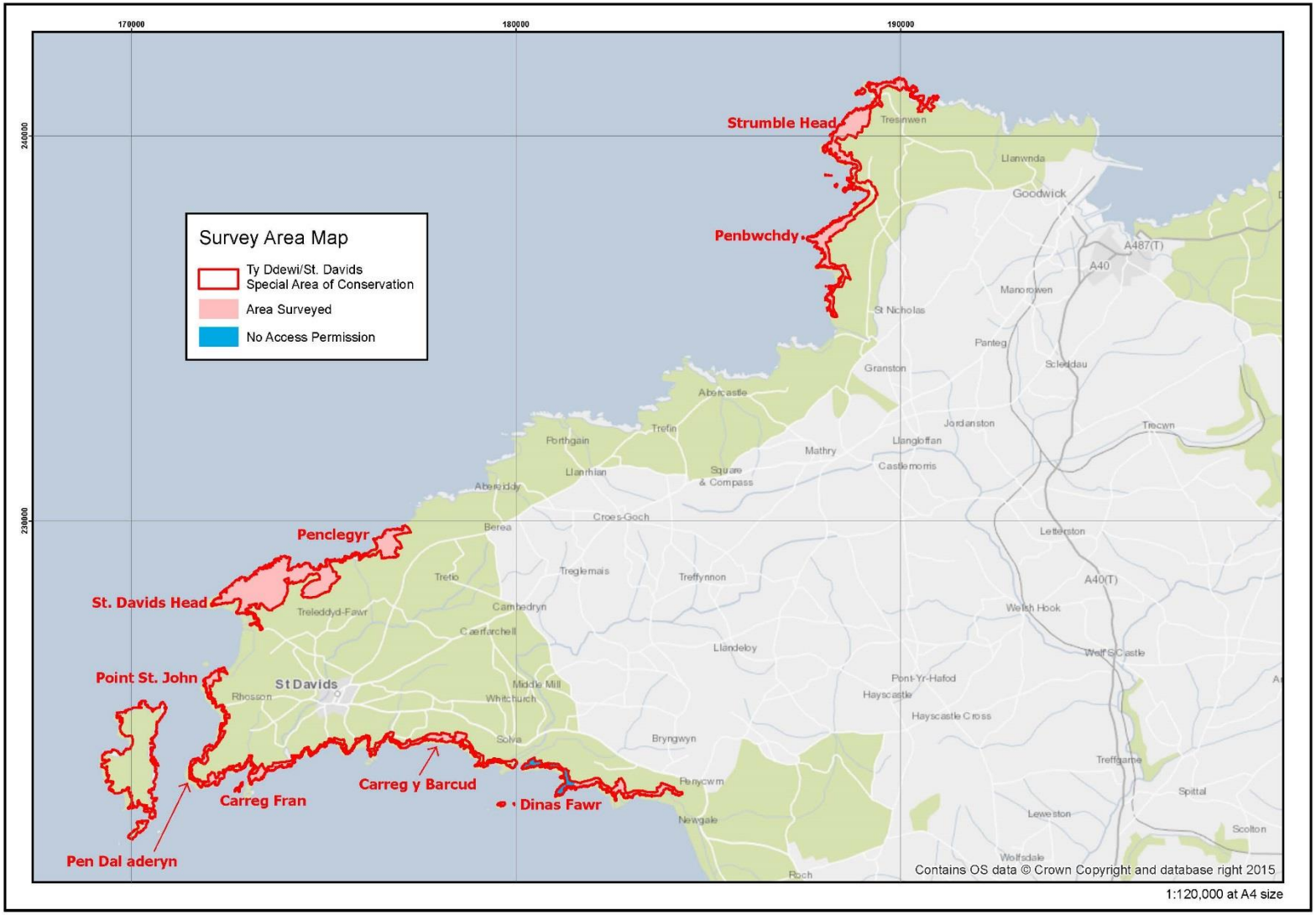
St. David's coast has been designated as a SAC on account of its coastal slope and heathland vegetation communities. Annex 1 habitat types are listed as '1230 Vegetated sea cliffs of the Atlantic and Baltic coasts' and '4030 European dry heath'. The area has been designated as a SAC in recognition of the high conservation value of the vegetation communities and the presence of a number of associated rare and scarce species. The Lowland Heathland Survey of Pembrokeshire 1996 (Prosser and Wallace 1997) covered the majority of this site with the emphasis on the heathland vegetation communities. However, this survey is almost 20 years old. An up to date survey of the site focusing on the maritime communities would help inform management and confirm the continued presence and distribution of the SAC features.

Consequently, Natural Resources Wales instructed ADAS to carry out a detailed survey and subsequent digital mapping of the coastal slope and heathland communities of the St. David's coast, which focused on known Priority Areas which have been highlighted as areas where active management is taking place. The collated information and mapping will provide a detailed record of some of the SAC and SSSI features and can thus be used to underpin relevant performance indicators. It will also assist in focusing management and monitoring.

The contract principally focused on two sections of coastline – Strumble Head and St. David's Head, but also included long stretches of coastline south of St. David's. These areas feature a wide and high quality range of maritime vegetation, with rock-

crevice communities associated with the cliffs themselves, and a succession of coastal grassland, coastal heath and scrub further inland (Figure 1).
Survey work was conducted in July and August 2015. Survey maps are provided in Figure 2.

Figure 1 Priority Areas Surveyed.



3. Methodology

3.1. Survey Protocol

Survey protocol followed standard NVC survey procedure as described by Rodwell (1991, 1992, 1995 & 2000). In summary this consisted of:

- The collection of standard 2m x 2m quadrats (extended to 4m x4m quadrats in some scrub, tall herb fen or swamp vegetation and 50m x 50m for some woodland vegetation). Quadrats were located using hand-held Garmin Etrex Legend GPS units to within a 10 figure grid reference. At least five quadrats (reduced to a minimum of one in non-target habitats) were recorded in all areas of vegetation homogeneous to the eye in its floristics (species composition) and physiognomy (structure, including the patterned arrangement of species over the ground and vertical layering). Within a small number of sub-communities, due to their small total area, or inaccessible nature, less than the requisite five quadrats were occasionally recorded. Data was collected using the Domin scale. Nomenclature used followed Stace (2010). A constancy table of this data was drawn up for each community sampled and these tables are presented in Appendix 4.

- NVC keys, tables and descriptive text (Rodwell, 1991, 1992, 1995 & 2000) were utilised to assign polygons to the relevant vegetation communities and homogenous stands of vegetation were assigned to a plant community in the field. However, in a limited number of cases, further validation of problematic cases was achieved by running data through the TABLEFIT programme (Hill 1996). In the majority of cases, stands of vegetation were assigned to sub-community level. However, in some instances due to the nature of the vegetation, it was only possible to assign to community level.

- In general, assignation to sub-community level was not attempted for MG7 *Lolium perenne* leys, MG6 *Lolium perenne - Cynosurus cristatus* grassland or U20 *Pteridium aquilinum - Galium saxatile* communities. However, where this could be promptly achieved, this was carried out.

- Transitional vegetation polygons were mapped with the primary vegetation type and in the condition column of the attributes a note was made of the transitional element. This is detailed below in 3.2.

- Vegetation was mapped onto ortho-rectified aerial photographs, (supplied by Bing through ArcGIS licence) at a scale of 1:5000. Digitisation of data and survey maps was carried out, using OS MasterMap data supplied by NRW in Esri ArcGIS software.

- Because vegetation communities exist on a continuum, combined with the fact that not all variations are described by the NVC, interpretation of discrete stands requires an element of subjective assessment on the part of individual surveyors. Therefore, in order to optimise consistency between surveyors, a training day was held prior to the survey to identify and achieve consensus on key communities present. This was augmented by ongoing discussion, collective evaluation of

quadrat data and discussion of aberrant/problematic samples throughout the survey period. Three very experienced ADAS botanical surveyors undertook the survey.

3.2. Mapping Protocol

Digitising

Digitisation of Vegetation polygons, Mosaics, Quadrats, Photo Locations, Target Notes, Notable Species and Site Boundaries was carried out using ArcGIS software. Where appropriate all polygon data was registered to Ordnance Survey MasterMap data and snapped to the SAC boundary.

Datasets

The datasets listed above are provided in a File Geodatabase called St_Davids_Ty_Ddewi_NVC.gdb. This file also includes additional tables called St_Davids_NVC_survey_type and St_Davids_NVC_target_note_full_text. The first of these contains information on what habitats were able to be visited, and which habitats could only be viewed through binoculars, this table can be linked to the St_Savids_NVC_veg dataset. The second of these contains the full text provided by the surveyor for the target notes but not limited to the 254 characters of the St_Davids_NVC_target_note. All datasets created are structured to enable their inclusion into the standard Phase II NRW corporate dataset.

Transitional Polygons

Transitional vegetation polygons were mapped with the primary vegetation type and in the condition column of the attributes a note made that it is transitional, and its transitional vegetation type e.g. (Vegetation_type: “MC8”, Condition: “Transitional_to_MC9”). Where it is a sub community transition the main community type was placed in the Vegetation_type column and a slash placed between the sub community types e.g. MC8 e/g.

Mosaic Polygons

The Make Mosaic Polygons tool, provided by NRW, was used to generate a grid for each mosaic polygon in the mosaic layer and assigns vegetation codes from the Mosaic Table in proportions and a distribution pattern to represent the mosaic. The dataset created by this tool is called St_Davids_mosaic_polygons and can be found in the File Geodatabase.

Mapping

The point dataset St_Davids_NVC_notable_species were mapped separately at a scale of 1:30,000 over 3 maps, this was to ensure they could be clearly seen. The other point datasets included in the File Geodatabase were symbolised for the final maps as per the instructions in the 'Specification for Digitising NVC Survey Maps'. The standard NRW style file was used to colour all the vegetation and mosaic polygons to create the finished annotated 20 maps at a scale of 1:5,000 provided in the PDF file submitted with this report.

3.3. Limitations

Due to a combination of the nature of the vegetation (impenetrable Gorse (*Ulex europaeus*), Blackthorn (*Prunus spinosa*) or Bramble (*Rubus fruticosus* agg.) dominated scrub) and terrain (steep and dangerous slopes above vertical cliffs) it was not possible to access some areas. Furthermore, in the vast majority of cases, it was not possible to sample vegetation on cliff faces. In both of the above instances scanning through binoculars was relied upon to assign vegetation communities. This equated to approximately 44 hectares. Polygons thus treated were marked on survey maps and is included on digital maps.

Due to the timing of fly-over, north-facing cliff slopes on aerial photographs were in shadow. Consequently, in some instances it was difficult to ascertain precise vegetation boundaries on maps.

Due to the aforementioned steeply sloping ground in many locations, mapped polygon shape and size will be distorted from reality once projected onto a flat (mapped) surface. Therefore, the area of such polygons is likely to under-represent the true extent of such vegetation communities.

Access permission was refused for an area of the SAC in the vicinity of Dinas Fawr. This has been delineated on the survey maps.

4. Results

The NVC survey encompassed a total site area of 555.47ha. This comprised a total of 1035 polygons mapped to sub-community (occasionally community) level or to mosaics of one or more communities/sub-communities.

A total of 37 NVC communities and 49 sub-communities were recorded. These are detailed in Table 1:

Table 1 Summary of NVC Communities at St. David's Head

NVC Community	Sub-community	Extent (ha)*
Maritime Communities		
MC1 *Crithmum maritimum - Spergularia rupicola* maritime rock-crevice community		0.10
	MC1a Typical sub-community	1.17
MC5 *Armeria maritima - Cerastium diffusum* ssp. *diffusum* maritime therophyte community	MC5b *Anthyllis vulneraria* sub-community	0.19
	MC5c *Aira praecox* sub-community	0.19
MC6 *Atriplex prostrata - Beta vulgaris* ssp. *maritima* sea-bird cliff community		0.84
MC8 *Festuca rubra - Armeria maritima* maritime grassland		1.61
	MC8a Typical sub-community	4.35
	MC8d *Holcus lanatus* sub-community	2.41
	MC8e *Plantago coronopus* sub-community	6.44
	MC8f *Anthyllis vulneraria* sub-community	1.42
	MC8g *Armeria maritima* sub-community	0.46
MC9 *Festa rubra - Holcus lanatus* maritime grassland		2.13
	MC9a *Plantago maritima* sub-community	0.47
	MC9b *Dactylis glomerata* sub-community	7.35
	MC9c *Achillea millefolium* sub-community	5.00
	MC9d *Primula vulgaris* sub-community	1.44

NVC Community	Sub-community	Extent (ha)*
MC10 *Festa rubra - Plantago* spp. maritime grassland	MC10a *Armeria maritima* sub-community	2.74
	MC10b *Carex panicea* sub-community	1.01
MC11 *Festuca rubra – Daucus carota* ssp. *gummifer maritime* grassland	MC11a *Bromus hordeaceus* ssp. *ferronii* sub-community	0.11
MC12a *Festa rubra - Hyacinthoides non-scripta* maritime bluebell community	MC12a *Ranunculus ficaria* sub-community	0.05
Heath Communities		
H7 *Calluna vulgaris - Scilla verna* heath		0.70
	H7a *Armeria maritima* sub-community	6.35
	H7b *Viola riviniana* sub-community	11.19
	H7c *Erica tetralix* sub-community	0.24
	H7e *Calluna vulgaris* sub-community	22.84
H8 *Calluna vulgaris - Ulex gallii* heath		1.69
	H8a Species-poor sub-community	63.17
	H8b *Danthonia decumbens* sub-community	16.67
	H8c *Sanguisorba minor* sub-community	0.06
	H8d *Scilla verna* sub-community	3.64
Woodland and Scrub Communities		
W2 *Salix cinerea - Betula pubescens - Phragmites australis* woodland	W2a *Alnus glutinosa - Filipendula ulmaria* sub-community	2.78
W22 *Prunus spinosa - Rubus fruticosus* scrub		1.48
	W22a *Hedera helix - Silene dioica* sub-community	3.96
	W22b *Viola riviniana- Veronica chamaedrys* sub-community	0.47

NVC Community	Sub-community	Extent (ha)*
	W22c *Dactylis glomerata* sub-community;	1.35
W23 *Ulex europaeus* - *Rubus fruticosus* scrub		0.04
	W23a *Anthoxanthum odoratum* sub-community	3.12
	W23c *Teucrium scorodonia* sub-community	40.34
W23 Maritime variant *Ulex europaeus* - *Rubus fruticosus* scrub	W23c (Mv) *Teucrium scorodonia* sub-community	50.37
W24 *Rubus fruticosus* - *Holcus lanatus* scrub		0.10
W25 *Pteridium aquilinum* - *Rubus fruticosus* underscrub	W25a *Hyacinthoides non-scripta* sub-commmunity	2.87
	W25b *Teucrium scorodonia* sub-commmunity	85.54
W25 Maritime variant *Pteridium aquilinum* - *Rubus fruticosus* underscrub	W25b (Mv) *Teucrium scorodonia* sub-commmunity	0.93
W25 Maritime variant (*Calluna*) *Pteridium aquilinum* - *Rubus fruticosus* underscrub	W25b (Mv(c)) *Teucrium scorodonia* sub-commmunity	42.26
Grassland Communities		
U1 *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland		0.01
U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland		0.96
	U4a Typical sub-community	1.67
	U4b *Holcus lanatus* - *Trifolium* repens sub-community	7.96
U20 *Pteridium aquilinum* - *Galium saxatile* community		11.04
MG1 *Arrhenatherum elatius* grassland		0.03
	MG1a *Festuca rubra* sub-community	0.22

NVC Community	Sub-community	Extent (ha)*
	MG1c *Filipendula ulmaria* sub-community	0.10
MG5 *Cynosurus cristatus - Centaurea nigra* grassland	MG5a *Lathyrus pratensis* sub-community	3.41
	MG5c *Danthonia decumbens* sub-community	0.17
MG6 *Lolium perenne - Cynosurus cristatus* grassland		4.99
MG7 *Lolium perenne* leys and related grasslands		0.27
MG10 *Holcus lanatus - Juncus effusus* rush pasture	MG10a Typical sub-community	0.31
MG11 *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland	MG11a *Lolium perenne* sub-community	0.20
Small sedge-rich damp grassland		1.11
Mire Communities		
M10 *Carex dioica - Pinguicula vulgaris* mire	M10a *Carex viridula* subsp. *oedocarpa - Juncus bulbosus/kochii* sub-community	0.15
M24 *Molinia caerulea - Cirssium dissectum* fen-meadow		2.63
M25 *Molinia caerulea - Potentilla erecta* mire		0.47
	M25a *Erica tetralix* sub-community	0.66
	M25c *Angelica sylvestris* sub-community	2.19
M27 *Filipendula ulmaria - Angelica sylvestris* mire		0.02
	M27a *Valerina officinalis - Rumex acetosa* sub-community	0.05
	M27b *Urtica dioica - Vicia cracca* sub-community	0.08
M29 *Hypericum elodes - Potamogeton polygonifolius* soakaway		0.12
Swamp & Tall Herb Fen Communities		

NVC Community	Sub-community	Extent (ha)*
S4 *Phragmites australis* swamp and reed-beds	S4a *Phragmites australis* sub-community	0.21
S19 *Eleocharis palustris* swamp		0.41
S25 *Phragmites australis* - *Eupatorium cannabinum* tall-herb fen		0.02
S26 *Phragmites australis* – *Urtica dioica* tall-herb fen		0.05

Note: Transitional areas are included in the area totals under the predominant community type. However, for clarity mosaics are not included.

4.1. Community Descriptions

In order to aid interpretation, each of the Priority Areas for NVC Mapping has been assigned a location name. This is usually based on the name of a local geographic feature or town. A map of locations and names is presented in Figure 1. Full NVC maps are presented in Figure 2.

When determining community types, and especially with regard to sub-communities, emphasis has been placed on the suite of species present, rather than the presence or absence of individual species. Consequently, in some instances, even though community/sub-community constants may not have been recorded, or recorded with less frequency/abundance than published NVC tables, vegetation has been assigned to the community/sub-community that best represents the essential ecological character or stamp of that community type. This has been achieved through a combination of reference to NVC texts and professional judgement. Essentially therefore, one or two atypical species or the absence of a key species has been of secondary consideration. In a limited number of instances, further validation of problematic cases was achieved by running data through the TABLEFIT programme (Hill 1996). However, in no cases were such derived results used as definitive.

4.1.1. Maritime Communities

Maritime communities can be broadly separated into cliff or rock communities and grassland communities. Of the former, in the majority of locations, the situation of such communities rendered close scrutiny impossible. Consequently, community description was frequently reliant on scanning through binoculars. Hence, depiction to sub-community level was rarely achieved. Furthermore, these communities will certainly have been under recorded. However, notwithstanding the above, the most frequently encountered of the more maritime communities was MC1 *Crithmum maritimum* - *Spergularia rupicola* maritime rock-crevice community.

MC1 was located sporadically throughout the survey area on cliff-faces in close proximity to the sea. In the limited number of instances where detailed inspection was possible, this was found to be MC1a the Typical sub-community. In locations where close scrutiny was possible, botanical assemblage was characteristic of NVC type.

MC5 *Armeria maritima* - *Cerastium diffusum* ssp. *diffusum* maritime therophyte community was of localised occurrence and associated with thin soils usually on the interface of cliff-tops and landward maritime grasslands. This community was characterised by a very short and open turf with relatively abundant therophytes. It was most prevalent along the south coast, particularly in the vicinity of Carreg y Barcud and Dinas Fawr. Two sub-communities were recorded. The most common of these was MC5c *Aira praecox* sub-community. The MC5b *Anthyllis vulneraria* sub-community was only recorded at a single location at Carreg y Barcud. Both sub-communities were fairly typical to type. MC6 *Atriplex prostrata* - *Beta vulgaris* ssp. *maritima* sea-bird cliff community was only rarely recorded, with small examples noted in the vicinity of Strumble Head, Dinas Fawr, Point St. John, Carreg Fran and Carreg y Barcud. Nevertheless, this community is likely to be common on inaccessible cliff faces, and hence under recorded. In no locations was it possible to sample this community. However, in the very limited situations where relatively detailed assessment was possible, this community appeared typical of the NVC type.

Maritime grassland communities were most commonly represented by MC8 *Festuca rubra* - *Armeria maritima* maritime grassland and MC9 *Festa rubra* - *Holcus lanatus* maritime grasslands. Which were approximately of equal abundance. Of the former, MC8a Typical sub-community was the most frequently encountered. Although fairly typical of the NVC type, *Agrostis stolonifera* was at a relatively low frequency. Nevertheless, the sward stereotypically comprised a generally species-poor overwhelmingly *Festuca rubra* dominated rank sward. It was found throughout in the most maritime of situations, and quite frequently on very steep slopes.

MC8d *Holcus lanatus* sub-community was generally encountered in comparatively more sheltered situations. With the exception of a relatively low frequency of *Agrostis stolonifera,* this sub-community was relatively true to type. However, it frequently presented difficulties for surveyors in clearly separating it from some forms of MC9 maritime grassland, with differentiation often being achieved with reference to the cumulative relative abundance of less maritime species present within the sample.

MC8e *Plantago coronopus* sub-community was generally situated on flatter ground than the preceding sub-communities and without exception comprised a short and usually tightly grazed or trampled sward. Consequently, it was relatively common in small areas, but spread throughout, on cliff-tops and ‘honeypot areas’ that are frequented by the public. As with MC8d surveyors regularly found it time consuming to clearly separate this community from some forms of MC10 *Festa rubra* - *Plantago* spp. maritime grassland, with differentiation often being achieved with reference to the cumulative relative

abundance of *Plantago lanceolata* and *Euphrasia* agg. present within the sample. Although *Agrostis stolonifera* was again recorded at a relatively low abundance within sampled locations, it is considered in general relatively true to NVC type. The MC8f *Anthyllis vulneraria* sub-community was found in scattered, and generally small stands, in several areas throughout. For example, at Strumble Head, Penbwchdy, Penclegyr, St. David's Head and Carreg y Barcud. This sub-community was generally notable for its abundance of flowering herbs such as *Anthyllis vulneraria* and *Silene uniflora*. The sampled locations were found to be relatively true to NVC type.

The MC8g *Armeria maritima* sub-community was again found to be widely scattered, but in this instance with an emphasis on the south coast, throughout the survey area. However, it again tended to occur in small patches in comparatively maritime situations. Notwithstanding the low recorded frequency of *Agrostis stolonifera,* it was generally considered to be true to type and comprised a species-poor community that was overwhelmingly dominated by *Armeria maritima.* It is considered that this community is likely to have been under recorded as it is likely to be at its most abundant in crevices on inaccessible rock faces.
The MC9 *Festuca rubra - Holcus lanatus* maritime grassland community at the survey area was generally found on the deeper soils, and in situations that are less subject to maritime extremes than is the case with typical MC8.

The MC9a *Plantago maritima* sub-community encountered was relatively consistent with NVC tables, being characterised by abundant *Plantago maritima,* which in places dominated the sward. With the exception of the far south-eastern locality, this sub-community was relatively evenly distributed around the survey area. However, it was the least abundant of the *Festuca rubra - Holcus lanatus* maritime grassland sub-communities and was generally encountered in relatively maritime situations.

The MC9b *Dactylis glomerata* sub-community was also relatively evenly distributed around the survey area and the most abundant of the sub-community types. It was characterised by a generally, *Dactylis glomerata* dominated, somewhat rank sward in in which *Daucus carota* was generally constant. Although tending to lack *Rumex acetosa* in sampled plots, botanical composition was generally relatively true to the NVC type.

The MC9c *Achillea millefolium* was a relatively abundant sub-community of the *Festuca rubra - Holcus lanatus* maritime grassland and again relatively evenly distributed around the survey area. This sub-community was characterised by a relatively diverse sward with abundant *Agrostis capillaris.* Within the sampled locations, with the exception of *Trifolium repens* and *Rumex acetosa* which tended to be somewhat under-represented in comparison to the published NVC tables, this sub-community was otherwise relatively true to type.

MC9d *Primula vulgaris* sub-community was scattered in its distribution, being restricted to the extreme north and south of the survey area around Strumble Head, Penbwchdy and Dinas Fawr. It was characterised by a constant

element of *Primula vulgaris*. With the exception of a relatively low abundance of *Trifolium repens,* botanical stamp was comparatively true to NVC type.

MC10 *Festuca rubra - Plantago* spp. maritime grassland was encountered with less frequency than the preceding MC8 and MC9 maritime grasslands. In general, it was found in relatively small stands, and frequently, slightly above the level of MC8 maritime grassland on the tops, or towards the tops, of sea-cliffs. However, it was distributed in small stands throughout the survey area. Of sub-communities, MC10a *Armeria maritima* sub-community was the most commonly encountered. Although physiognomically true to the NVC type, with a species-poor, short tight sward that was dominated by *Plantago* species and *Armeria maritima*, that encountered within the survey area tended to have a lower representation of *Plantago coronopus* and *Plantago lanceolata* than the published NVC tables. Dominance was generally attained by *Plantago maritima*.

MC10b *Carex panicea* sub-community tended to occur on damper soils and in less maritime situations than MC10a. It was also characterised by a dominance of *Festuca rubra* and *Plantago maritima*. However, greater frequency of *Carex panicea* and *Thymus praecox* characterised this sub-community. Nevertheless, within the survey area, such species did not generally attain the frequencies detailed in published NVC tables.

MC11 *Festuca rubra – Daucus carota* ssp. *gummifer* maritime grassland was only encountered in a single location at St David's Head in mosaic with MC10. This comprised the MC11a *Bromus hordeaceus* ssp. *ferronii* sub-community. The sampled location of this was true to the NVC type.

MC12a *Festuca rubra - Hyacinthoides non-scripta* maritime bluebell community was also a very infrequently encountered maritime grassland community. It was only found in two locations; Strumble Head and Penbwchdy. These were without exception at the tops of sea-cliffs and in shallow gullies on relatively deeper soils. Encountered examples were of the MC12a *Ranunculus ficaria* sub-community, which was typical of the NVC type with a rank *Festuca rubra* and *Hyacinthoides non-scripta* dominated sward with frequently occurring *Silene uniflora*.

4.1.2. Heath Communities

Heath communities were confined to NVC H8 *Calluna vulgaris - Ulex gallii* heath and H7 *Calluna vulgaris - Scilla verna* heath. Typically, H8 occurred in less maritime situations, whereas H7 was generally encountered on the seaward side of cliff-tops with the two community types frequently grading into each other. The nationally scarce *Genista pilosa* was frequently encountered in this type of H7 heath. H8 was the more extensive of these two heaths, with individual stands in general of a larger size than the H7 heaths.

H7a *Armeria maritima* sub-community was found scattered throughout the survey area. In terms of physiognomy and botanical composition, it was true

to NVC type, with a grassy sward in which sub-shrubs were generally of more restricted cover than in other sub-community types.

H7b *Viola riviniana* sub-community was the most abundant of the *Calluna vulgaris – Scilla verna* heaths. However, it was not found to be as widely distributed as the relatively less abundant H7a. It is characterised by greater abundance of sub-shrubs than the H7a. In particular, and true to NVC type, both *Erica cinerea* and *Calluna vulgaris* are particularly abundant in this sub-community. In general, herbaceous species also conform to type, particularly with regard to the constant occurrence of *Viola* sp. However, *Holcus lanatus* is less well represented than in the published NVC tables.
H7c *Erica tetralix* sub-community was the scarcest of the *Calluna vulgaris - Scilla verna* heaths recorded and is of restricted occurrence within the survey area. It was encountered in a single location at Strumble Head on relatively damp soils, and in a mosaic with H7a at Penbwchdy. Vegetatively and physiognomically this example was comparatively true to NVC type, with a relatively grassy sward with constant *Erica tetralix* and *Danthonia decumbens*.
This H7e *Calluna vulgaris* sub-community was found to be the most abundant of the *Calluna vulgaris - Scilla verna* heaths. It was correspondingly relatively widespread. It typically exhibits a taller, closed and species-poor sward, in which *Calluna vulgaris* is overwhelmingly dominant. This was the case in the survey area where botanically and physiognomically, the sampled areas conformed to NVC type.

Of the various sub-communities of the H8 *Calluna vulgaris - Ulex gallii* heath, the H8a Species-poor sub-community was the most common, and this sub-community dominated over significant tracts of less maritime cliff-top locations. For example, relatively extensive swathes were located at Strumble Head, Pen Dal Aderyn and Carreg Fran. Species composition was true to NVC type, with a generally *Calluna vulgaris* or *Erica cinerea* dominated species-poor closed heath. It was in H8a heath that the parasitic *Cuscuta epithymum* was most frequently encountered, especially in the vicinity of Carreg Fran.

Although second in terms of abundance, the H8b *Danthonia decumbens* sub-community was found to be of relatively restricted occurrence with the bulk restricted to the St. David's Head area. In this sub-community, the heathy element was not as pronounced as in H8a. Consequently, these areas of heath were also grassier in appearance with, in addition to the constant heathy species *Calluna vulgaris* and *Erica cinerea*, a significant contribution was made from typical graminoids such as *Danthonia decumbens, Agrostis canina* and *Anthoxanthum odoratum*. With the exception that *Ulex gallii* was not recorded as frequently as in published NVC tables, the samples encountered in the survey area were comparatively true to type.

H8c *Sanguisorba minor* sub-community was a rare community type that was only found in a single location, of limited extent and of somewhat fragmentary occurrence, at St. David's Head. As per the NVC type, this community was characterised by a suite of herbs that are generally of a more mesotrophic nature and a shift towards a somewhat elevated base status. Hence, species

such as *Lotus corniculatus*, *Serratula tinctoria* and *Carex flacca* were located in this sub-community.

The H8d *Scilla verna* sub-community tended to be located in slightly more maritime or exposed situations than the preceding H8 sub-communities. It was a relatively uncommon community type and, in-the-main, stands were restricted to the south western periphery of the survey area in the vicinity of St. David's Head, Point St. John and Pen Dal Aderyn. The recorded examples were all true to NVC type with a low growing, dense mat of heathy sub-shrubs with scattered *Scilla verna* and *Hypochaeris radicata*.

4.1.3. Woodland and Scrub Communities

Woodland scrub communities were collectively the most abundant community type recorded on the St. David's survey area with W25 *Pteridium aquilinum - Rubus fruticosus* underscrub, and to a lesser extent W23 *Ulex europaeus - Rubus fruticosus* scrub in particular being very widespread and overall the most abundant communities recorded). Particularly extensive stands of the former were located in the vicinities of St. David's Head and Penclegyr and the latter in in the vicinities of Strumble Head and Penclegyr.

In the main, scrub communities broadly conformed to NVC types for W22a *Hedera helix – Silene dioica* sub-community, W22b *Viola riviniana-Veronica chamaedrys* sub-community, W22c *Dactylis glomerata* sub-community, W23a *Anthoxanthum odoratum* sub-community, W23c *Teucrium scorodonia* sub-community, W25a *Hyacinthoides non-scripta* sub-commmunity and W25b *Teucrium scorodonia* sub-community. However, in many locations, a distinctive maritime stamp was frequently encountered within some of these community types. In particular, W23c often comprised an understory of species such as *Ulex gallii, Erica cinerea, Calluna vulgaris, Serratula tinctoria* and *Betonica officinalis*, and W25b was regularly encountered with an understory of maritime grassland species typically associated with MC9 maritime grassland, or again with a characteristically maritime heathy element.

These communities have been previously described by Prosser and Wallace (2003) and proposed as additions to woodland NVC. Consequently, these communities have been categorised as:

- Maritime variant W23c (W23c (Mv)) Maritime *Ulex europaeus - Rubus fruticosus* scrub, *Teucrium scorodonia* sub-community;

- Maritime variant W25b (W25b (Mv)) Maritime *Pteridium aquilinum - Rubus fruticosus* underscrub, *Teucrium scorodonia* sub-commmunity and

- Maritime variant (*Calluna*) W25b (W25b (Mv(c)) Maritime (*Calluna*) *Pteridium aquilinum - Rubus fruticosus* underscrub, *Teucrium scorodonia* sub-commmunity.

The only other woodland communities encountered were W24 *Rubus fruticosus - Holcus lanatus* scrub and W2 *Salix cinerea – Betula pubescens – Phragmites australis* woodland. With the exception of a small W23: W24 mosaic at Point St. John, W24 scrub was recorded at a single location near Dinas Fawr. This was on a steep and exposed cliff. Consequently, vegetation was found to be heavily influenced by the maritime situation, and a poor fit to published NVC tables. However, in terms of botanical description, a variety of W24, as a *Rubus fruticosus* agg. dominated scrub, is most appropriate. The W2 woodland was relatively widespread as small stands throughout the survey area. It was most abundantly represented by the W2a *Hedera helix – Silene dioica* sub-community with respectively, lesser amounts of W2c *Dactylis glomerata* sub-community and W2b *Viola riviniana-Veronica chamaedrys* sub-community. W2 woodland was typically *Salix cinerea* dominated and associated with valley bottoms and topogenous mires. In contrast to the community type, examples in the survey area lacked community constants such as Betula pubesens and Frangula alnus. The largest stand of this community within the survey area exists near Strumble Head, with other very small stands found in similar situations near St. David's head and Carreg Fran, Carreg y Barcud and Dinas Fawr.

4.1.4. Grassland Communities

Grassland communities were widely scattered throughout the survey area. They were increasingly encountered away from cliff-tops and on more enclosed ground.

The exception to this were U1 *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland. This was most typically encountered as small fragmentary stands in rock outcrops and crevices in association with H8 heath. Recorded stands lacked the community constant *Rumex acetosella* and sub-communities were considered to be indeterminate between U1b Typical sub-community, U1e *Galium saxatile – Potentilla erecta* sub-community and U1f *Hypochaeris radicata* sub-community.

U4a *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland was generally found peripheral with agricultural enclosure. Two sub-communities were recorded. These were: U4a Typical sub-community and U4b *Holcus lanatus - Trifolium repens* sub-community. Both were typical of the NVC type and were generally found, respectively in association with heaths, and agricultural improvement.

Although *Pteridium aquilinum* was most commonly recorded as a component of the W25 community type, it was also frequently encountered in U20 *Pteridium aquilinum - Galium saxatile* community. This community was widespread in less coastal situations throughout the survey area.

MG1 *Arrhenatheretum elatioris* grassland was a very scarce community type most frequently encountered as peripheral to agricultural improvement.

MG5 *Cynosurus cristatus - Centaurea nigra* grassland was found in a single location at Penclegyr. This was in association with enclosed fields of MG6 *Lolium perenne - Cynosurus cristatus* grassland. The bulk of this conformed to the NVC type for the MG5a *Lathyrus pratensis* sub-community. However, it did lack the community constant *Centaurea nigra*. Moreover, a small peripheral bank comprised species characteristic of more calcifugous grasslands such as *Betonica officinalis, Succisa pratensis*, and *Potentilla erecta.* Although lacking the sub-community preferential *Danthonia decumbens*, in this location the sward was strongly trending towards the MG5c *Danthonia decumbens* sub-community.

True to NVC type MG6 *Lolium perenne - Cynosurus cristatus* grassland was found in association with agricultural improvement scattered throughout the survey area.

Two small stands of MG7 *Lolium perenne* leys grassland were located at Penclegyr and Point St. John. The latter of these comprised a *Dactylis glomerata* dominated sward.

A small stand of MG10 *Holcus lanatus - Juncus effusus* rush pasture was located at Carreg y Barcud. This was relatively true to type of the MG10a Typical sub-community.

A small stand of MG11 *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland is located adjacent to agriculturally improved fields at Penclegyr. With the exception of a lack of the community constant *Agrostis stolonifera*, this was comparatively true to the NVC type.

An area at St. David's Head comprised a small sedge dominated damp grassland. This included abundant *Carex flacca, Carex nigra, Carex panicea* and *Carex viridula* subsp. *oedocarpa,* in association with *Agrostis vinealis* and *Hydrocotyle vulgaris*. This area did not conform to any NVC community type (quadrat 19) (photo 003) and has been mapped as Small sedge-rich damp grassland.

4.1.5. Mire Communities

Mire communities were a relatively rarely recorded broad community group within the survey area. They were of limited extent, scattered in occurrence and typically associated with seepage lines/depressions.

An isolated wet, small-sedge dominated area of mire was recorded at St. David's Head. Although this was a relatively poor fit to the NVC type, the appellation of M10a *Carex dioica - Pinguicula vulgaris* mire *Carex viridula* subsp. *oedocarpa - Juncus bulbosus/kochii* sub-community is considered a representative description.

Also at St. David's Head, a linear area of *Molinia caerulea* dominated mire occupied the base of a shallow valley. Although only a moderate fit to

published NVC tables, and lacking the community constants *Cirsium dissectum* and *Succisa pratensis*, this was considered to be best described as M24 *Molinia caerulea - Cirsium dissectum* fen-meadow.

M25 *Molinia caerulea - Potentilla erecta* mire was the most common of the mire communities recorded and found widely scattered throughout the survey area. Of the two sub-communities, the M25a *Erica tetralix* sub-community was most frequently occurring with the M25c *Angelica sylvestris* sub-community restricted to Penbwchdy. Both sub-communities were true to NVC type.

M27 *Filipendula ulmaria - Angelica sylvestris* mire was again thinly scattered throughout the survey area, and most typically encountered on soligenous mires and stream edges. Two sub-communities were recorded. These were M27a *Valeriana officinalis - Rumex acetosa* sub-community and M27b *Urtica dioica - Vicia cracca* sub-community. Both of these were generally species-poor, in comparison to published NVC tables.

The scarcest mire community recorded within the survey area was M29 *Hypericum elodes - Potamogeton polygonifolius* soakway. This was restricted to St. David's Head, and adjacent to the above described M24 mire, which occupied the base of a shallow valley. However, lacking community constants such as *Potamogeton polygonifolius*, *Ranunculus flammula* and *Juncus bulbosus*, this was a very poor fit to the NVC type. Nevertheless, it is considered that this area is best described as a variant of M29.

4.1.6. Swamp and Tall Herb Fen Communities

Swamp communities were the least recorded of all the broad community groups. With significant areas being restricted to Strumble Head.
In terms of area, S4 *Phragmites australis* swamp and reed-beds were noteworthy with a fairly extensive stand occupying a valley floor in association with W2 woodland. This was the S4a *Phragmities australis* sub-community and was typical of the NVC type, being overwhelmingly *Phragmites australis* dominated and species-poor.

A significant area of open water at Pen Dal Aderyn is fringed by *Eleocharis* sp. and *Potamogeton natans* dominated vegetation (Target Note 030). Although it was not possible to sample this area, it had the characteristics of a S19 *Eleocharis palustris* swamp.

A small stand of very species-poor *Eupatorium cannabinum* tall-herb fen exists adjacent to a small stream at Dinas Fawr (Target Note 050). This was not sampled due to its inaccessible nature. However, although lacking *Phragmites australis*, this had characteristics of S25 *Phragmites australis - Eupatorium cannabinum* tall-herb fen.

A single, small stand, of typical species-poor S26 *Phragmites australis – Urtica dioica* tall-herb fen exist at Penbwchdy.

5. Scarce Plant Species

Although not specifically a rare plant study, a number of notable species were encountered during the survey. These are detailed in Table 2. These records are also indicated on a distinct digitised map at a scale of 1:30,000.

Table 2 Notable Species Recorded

Species	Location	IUCN Red Listing Status	Recorded in Fewer Than 15 Tetrads in Wales	Recorded in Fewer Than 10 Tetrads in Pembrokeshire.	Notes
Genista pilosa	SM 88616 40423	Near threatened	✓	✓	In H7 heath
Genista pilosa	SM 72666 28224	Near threatened	✓	✓	In H7 heath
Genista pilosa	SM 89314 40841	Near threatened	✓	✓	Occurs as scattered plants IUCN H7 heath
Genista pilosa	SM 88616 40423	Near threatened	✓	✓	Occurs as scattered plants in H7 heath
Genista pilosa	SM 87968 37160	Near threatened	✓	✓	In burnt W23
Osmunda regalis	SM 88549 40245	Least concern			In association with *Phragmites* swamp
Osmunda regalis	SM 88548 40245	Least concern			Adjacent to small stream
Osmunda regalis	SM 82672 23200	Least concern			2 plants adjacent to small stream
Chamaemelum nobile	SM 72955 27673	Vulnerable	✓	✓	In small patches of grassland among W25 scrub
Asplenium marinum	SM 72510 28149	Least concern			4 plants under a rock overhang
Veronica spicata	SM 88303 39651	Least concern	✓	✓	Approx. 100 plants in species-rich scrubby grassland.
Cuscuta epithymum	SM 71598 23325	Vulnerable	✓	✓	Growing on *Ulex gallii*

Species	Location	IUCN Red Listing Status	Recorded in Fewer Than 15 Tetrads in Wales	Recorded in Fewer Than 10 Tetrads in Pembrokeshire.	Notes
Cuscuta epithymum	SM 73095 23382	Vulnerable	✓	✓	Scattered in NVC H8a. 1-10 plants in immediate vicinity
Cuscuta epithymum	SM 73309 23313	Vulnerable	✓	✓	Scattered in NVC W23c 1-10 plants in vicinity.
Cuscuta epithymum	SM 72570 23602	Vulnerable	✓	✓	Growing on *Ulex gallii*
Parentucellia viscosa	SM 89452 40817	Least concern	✓	✓	1-10 plants in *Juncus articulatus* dominated linear flush/small stream
Radiola linoides	SM 88335 39754	Near threatened			In burnt W23c
Ranunculus tripartitus	SM 88372 39979	Endangered	✓	✓	In in-filling pond

6. Conservation Assessment

Conservation assessment is made with reference to the JNCC guidelines for SSSI selection (JNCC 2013a). Consequently, a number of criteria are used to evaluate the area surveyed in both a national and local context. JNCC criteria are:

- Typicalness
- Fragility
- Size
- Diversity
- Naturalness
- Rarity
- Ecological coherence
- Potential value

SAC Annex 1 Habitats

Annex 1 habitat types for St. David's SAC are listed as (JNCC web page 2015):

- 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts and
- 4030 European dry heath.

Associated recorded NVC communities (and corresponding areas) that relate to these habitat types are detailed in Table 3.

Table 3 NVC Communities and Associated Annex 1 Habitats

NVC Community	Annex 1 Habitat	Extent (ha) *
MC1	1230 Vegetated sea cliffs	1.27
MC5	1230 Vegetated sea cliffs	0.38
MC6	1230 Vegetated sea cliffs	0.84
MC8	1230 Vegetated sea cliffs	16.69
MC9	1230 Vegetated sea cliffs	16.39
MC10	1230 Vegetated sea cliffs	3.75
MC11	1230 Vegetated sea cliffs	0.11
MC12	1230 Vegetated sea cliffs	0.05
Total		**39.48**
H7	4030 European dry heaths	41.01
H8	4030 European dry heaths	83.54
Total		**124.55**

JNCC web page 2015) *Note: Transitional areas are included in the area totals under the predominant community type. However, for clarity, mosaics are not included

Typicalness

The JNCC (2013b), detail a number of communities within three broad geological groupings that should ideally be represented as typical (JNCC 2013a) communities in prospective Areas of Search for SSSI's Seacliffs and slopes. These are detailed in Table 4.

Table 4 JNCC Desired Community Types and Geological Groups

NVC Community	Present in survey area	Geological group	Notes
MC1	✓	Vegetation on rock crevices and ledges	
MC2		Vegetation on rock crevices and ledges	Replaces MC1 in northern UK areas.
MC3		Vegetation on rock crevices and ledges	Replaces MC4 in northern UK areas.
MC4		Vegetation on rock crevices and ledges	Generally restricted to south-facing calcareous cliffs on the south coast of England.
MC5	✓	Maritime and cliff-top vegetation	
MC6	✓	Maritime and cliff-top vegetation	Sea-bird cliff community.
MC7		Maritime and cliff-top vegetation	Sea-bird cliff community.
MC8	✓	Maritime and cliff-top vegetation	
MC9	✓	Maritime and cliff-top vegetation	
MC10	✓	Maritime and cliff-top vegetation	
MC11	✓	Maritime and cliff-top vegetation	
MC12	✓	Maritime and cliff-top vegetation	
NVC Unspecified	✓	Sub-maritime and para-maritime vegetation	Includes, for example, cliff-top heathland, scrub and woodland.

As a reflection of the diverse range of NVC community types and habitats recorded, within the surveyed Priority Areas, and of communities that could reasonably be expected to occur, only MC7 *Stellaria media-Rumex acetosa* sea-bird cliff community was not recorded. Consequently, this variety of vegetation communities is indicative of an elevated outcome for the criterion for Typicalness of the area surveyed at a national and local level.

Fragility

Although the maritime coastal cliffs are not *per se* a fragile habitat, they do occupy a narrow strip of land that is squeezed between the sea, on the one hand, and an agriculturally improved hinterland. Further measures of improvement will serve to increase the "squeeze" on remaining habitat. Furthermore, over significant proportions of the surveyed area, vegetation comprised W23 *Ulex europaeus - Rubus fruticosus* scrub and W25 *Pteridium aquilinum - Rubus fruticosus* underscrub or their maritime variants. It is not known if this has increased significantly over the medium or long-term. However, there was a suspicion among surveyors that a relative lack of grazing in some areas was leading to the spread of bracken and scrub at the expense of maritime communities and consequently, maritime habitats are fragile in the absence of appropriate management. This is considered further under Potential Value (below).

Size

There is a combined total of 890ha of Coastal grassland and Coastal heath in Pembrokeshire and 2490ha in Wales (Jones et al 2003). Coastal heath includes NVC H7 and H8d. Within the surveyed area, excluding mosaics, there is a combined total of Coastal grassland and Coastal heath of 84.13ha. This equates to 9.45% of the Pembrokeshire total and 3.37% of the national total. The current NVC survey focused on Priority Areas. This equates to approximately 59% of the SAC total area of 935ha. Consequently, as the total area of combined Coastal grassland and Coastal heath within the SAC is likely to be significantly higher than these figures, it is liable to represent a significant proportion of the local, and to a lesser extent, national total habitat.

Diversity

Diversity at the habitat scale is a significant criterion with which to evaluate a site. However, as some habitats are naturally more species-rich than others, when evaluating individual sites, as opposed to making comparisons between sites, measures of diversity are best restricted to similar habitat types.

Within the surveyed area, the high number of maritime grassland and coastal heath sub-communities recorded is evidence of high site habitat diversity. Moreover, the high number of peripheral habitat and community types recorded, that ranged from tidal halophytes through to vegetated sea cliffs, maritime grasslands, mesotrophic/acid grasslands, maritime heathland, and sub-maritime habitats such as cliff-top scrub, woodland and heathland are indicative of high inter-habitat diversity within the survey area.

Naturalness

The coast cliffs especially on the north-facing shores are near vertical and ungrazed and so, notwithstanding the effects of atmospheric pollution, the recorded communities of MC1, MC5 and MC6 are rare examples of entirely natural habitat types. Similarly, although occupying a somewhat less martime position, this is also true of the majority of MC8 and MC9 communities. These communities are to a large

extent ungrazed, or very lightly grazed, and floristic variation is determined by exposure to the maritime influence, soils and/or topographic zonation. Therefore, given the hinterland of generally improved agricultural pasture, these communities are likely to represent a high value of naturalness at the local and indeed national scale. Conversely, where stock are able to infiltrate the maritime zone, influence of grazing is more pronounced, and in these locations transitions to the plagioclimatic sub-community of MC8e and eventually the MC10 community are more frequent. Both of which represent less natural maritime habitat types.

Rarity

The UK holds a relatively extensive array of coastal cliffs. This ranges from predominately limestone and sandstone rock in the south-east of England to predominately acidic rock in the west of Wales and Scotland. However, the UK holds a significant proportion of the European total, and at a European scale, coastal cliffs are a rare habitat type. Moreover, in many areas, especially along the south coast the habitat is squeezed between the sea and an agriculturally improved hinterland. Of the area surveyed, the vicinities of Strumble Head, Penclegyr and St. David's Head especially, are rare extensive examples of a transitional sequence of habitats from maritime rock face vegetation through grasslands, maritime heaths, dry heaths, scrub and woodland.

Moreover, in addition to the more maritime habitats, vicinities comprising more extensive hinterlands encompassed a proportionately broader suite of habitats, some of which, such as the MG5 *Cynosurus cristatus - Centaurea nigra* grassland are rare at the national scale.

A number of notable plant species were recorded. A proportion of these are rare, and following IUCN criteria, are regarded as warranting a status of vulnerable, near threatened or endangered.

Ecological Coherence

As discussed above, the majority of the surveyed area, but especially in the vicinity of Strumble Head, Penclegyr and St. David's Head, exhibits an unbroken transitional sequence of habitats from tidal halophytes through to vegetated sea cliffs, maritime grasslands, mesotrophic/acid grasslands, maritime heathland, and sub-maritime habitats such as cliff-top scrub, woodland and heathland. Furthermore, the area forms part of a network of maritime coast habitat that extends over much of the Pembrokeshire coastline. Consequently, ecological coherence is high.

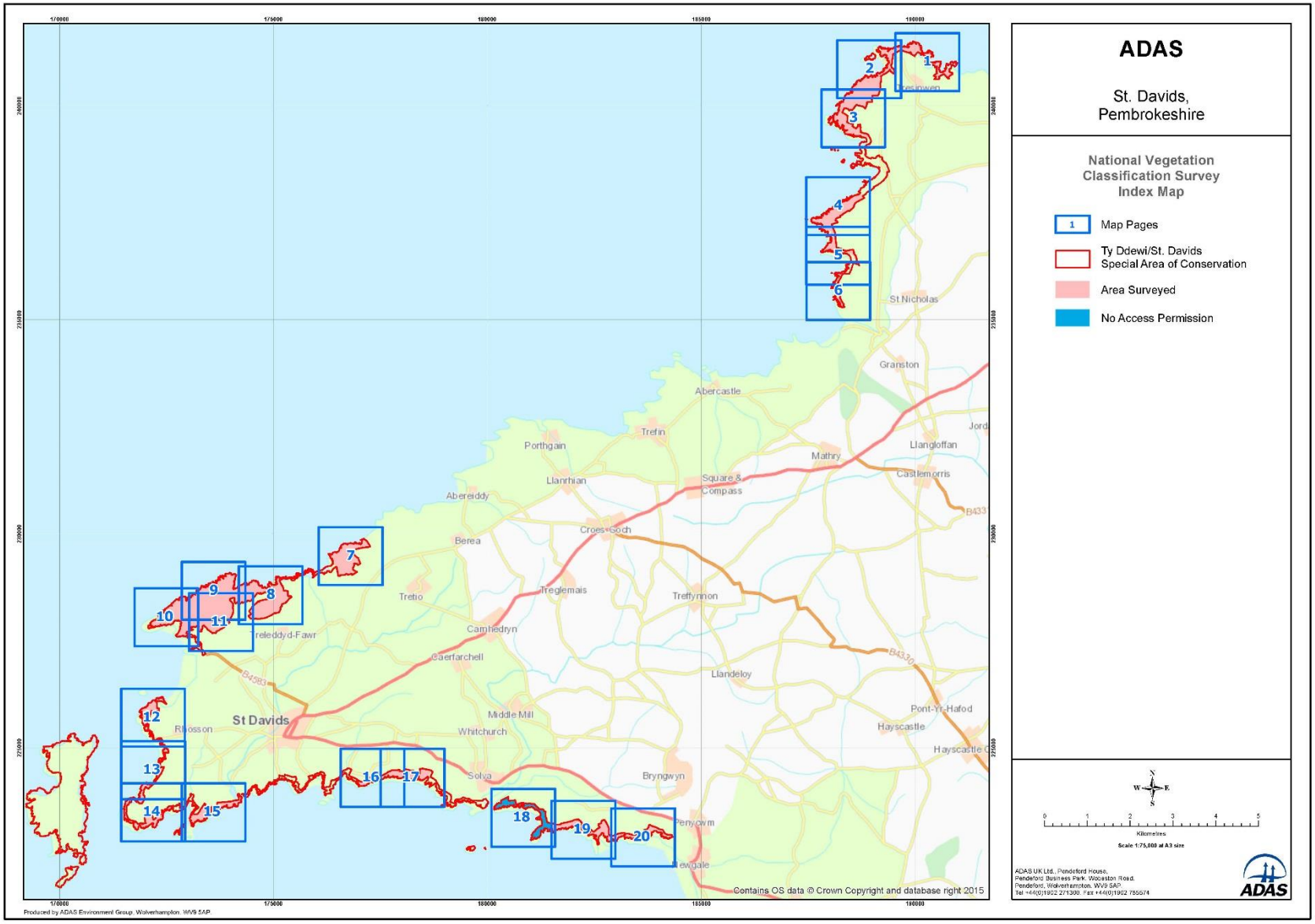
Potential Value

As discussed above, significant proportions of the surveyed area comprised W23 *Ulex europaeus - Rubus fruticosus* scrub and W25 *Pteridium aquilinum - Rubus fruticosus* underscrub or their maritime variants. It is not known if this has increased significantly over the medium or long-term. However, there was a suspicion among surveyors that a relative lack of grazing in some areas was leading to the spread of bracken and scrub at the expense of maritime communities. Hence, potential value may be being compromised due to the existing condition of some of the vegetation

communities. For example, at the southern coast in the vicinity of Carreg y Barcud a significant area comprised *Pteridium aquilinum* and *Ulex europaeus* dominated vegetation, which are respectively attributable to W25 and W23 communities or their maritime variants. However, over a significant proportion of this region both W25 and W23 are somewhat transitional in nature, or in mosaic with grassland community types, and the impression gained is that this may be the result of a relatively recent spread of these species. This appears to be a relatively common condition around the surveyed area, but also especially notably, on the less maritime hinterland at Strumble Head and Penclegyr. This notional deterioration in condition is perhaps being reinforced due to the fact that as scrubby vegetation increases, stock tend to focus on and preferentially graze adjacent grassland. However, the potential exists to enhance value in these locations with appropriate management. Equally, a lack of suitable management is likely to result in a reduction in Potential Value over the medium to long-term.

The surveyed area is notable for the very wide range of community types recorded within a comparatively small geographical area. This is a result of a combination of factors such as maritime influence, soil type, aspect and land management. Consequently, this is reflective of the high inherent value of this rare amalgam of habitats, which is, away from coastal zones, perhaps unparalleled in any other environment of a similar geographic expanse. Similarly, although not a rare species survey *per se*, the number of notable species, of national and regional significance located echoes the diversity of habitats present, and the intrinsic value of the area. For example, this ranged from wetland species such as *Ranunculus tripartitus* to a very notable assemblage of a dry grassland/scrub species such as *Veronica spicata*.

Figure 2 NVC Survey Maps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St. Davids,
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Map Pages
Ty Ddewi/St. Davids
Special Area of Conservation
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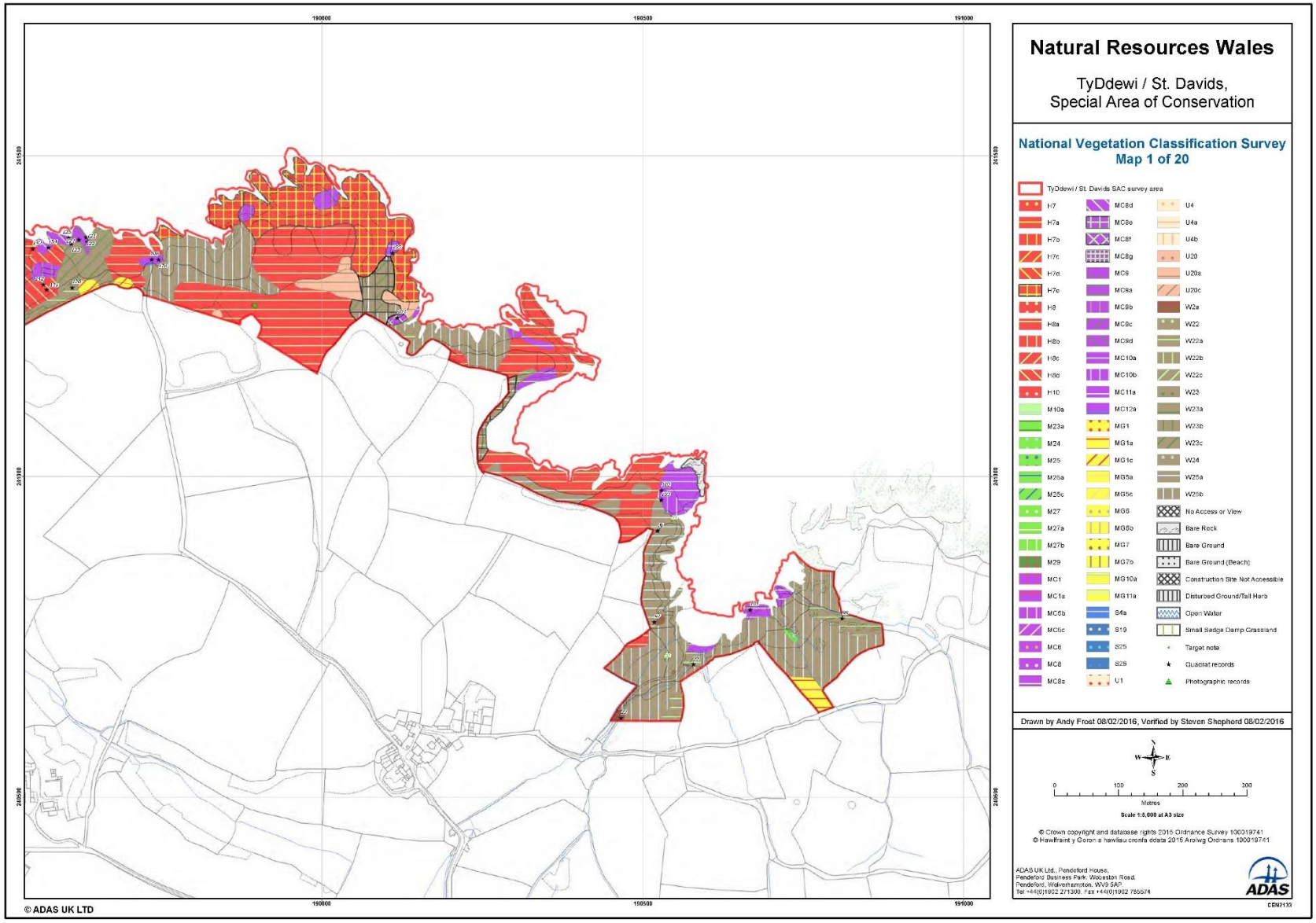
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TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 1 of 20
TyDdewi / St. Davids SAC survey area
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Photographic records
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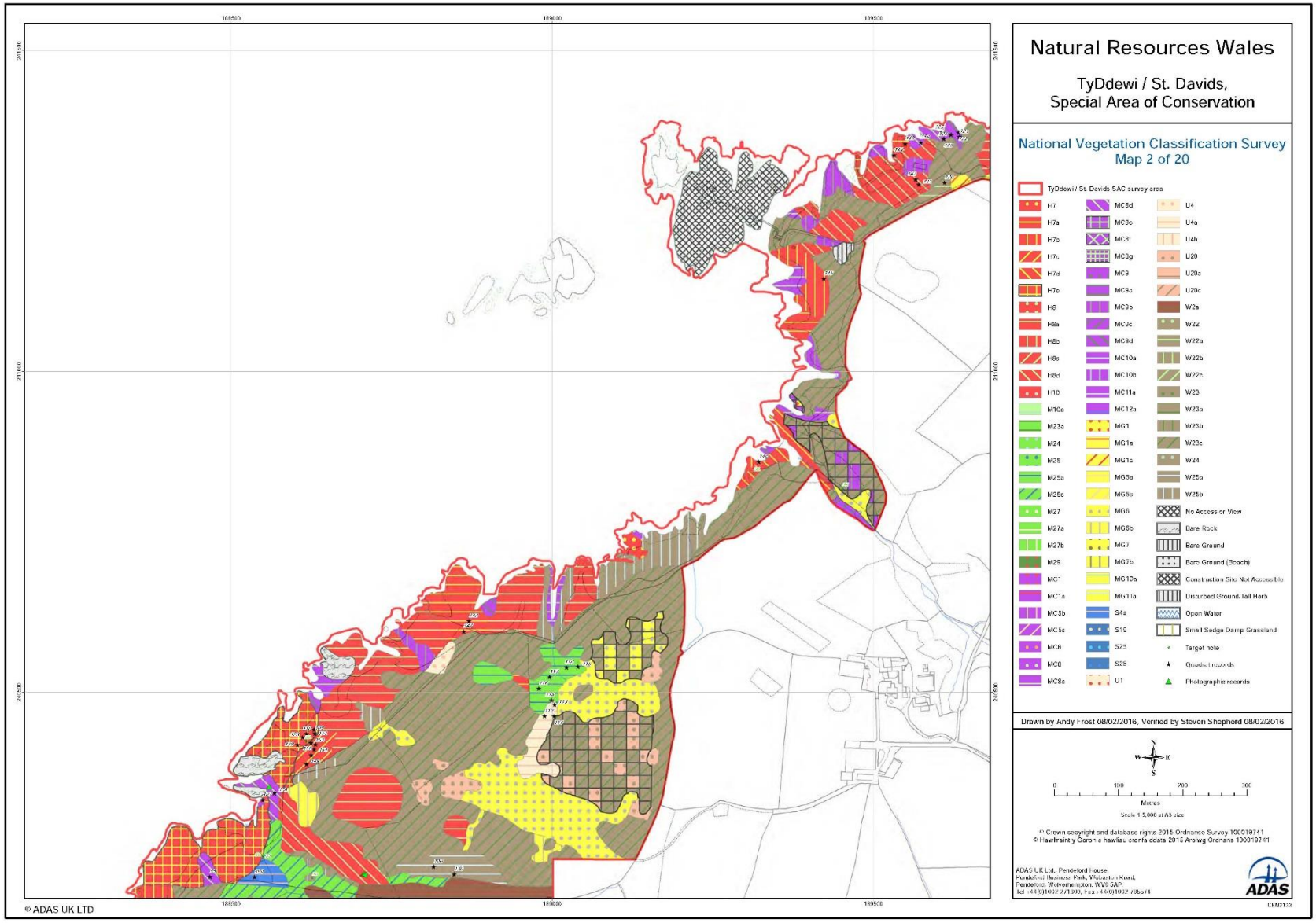
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TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 2 of 20
TyDdewi / St. Davids SAC survey area
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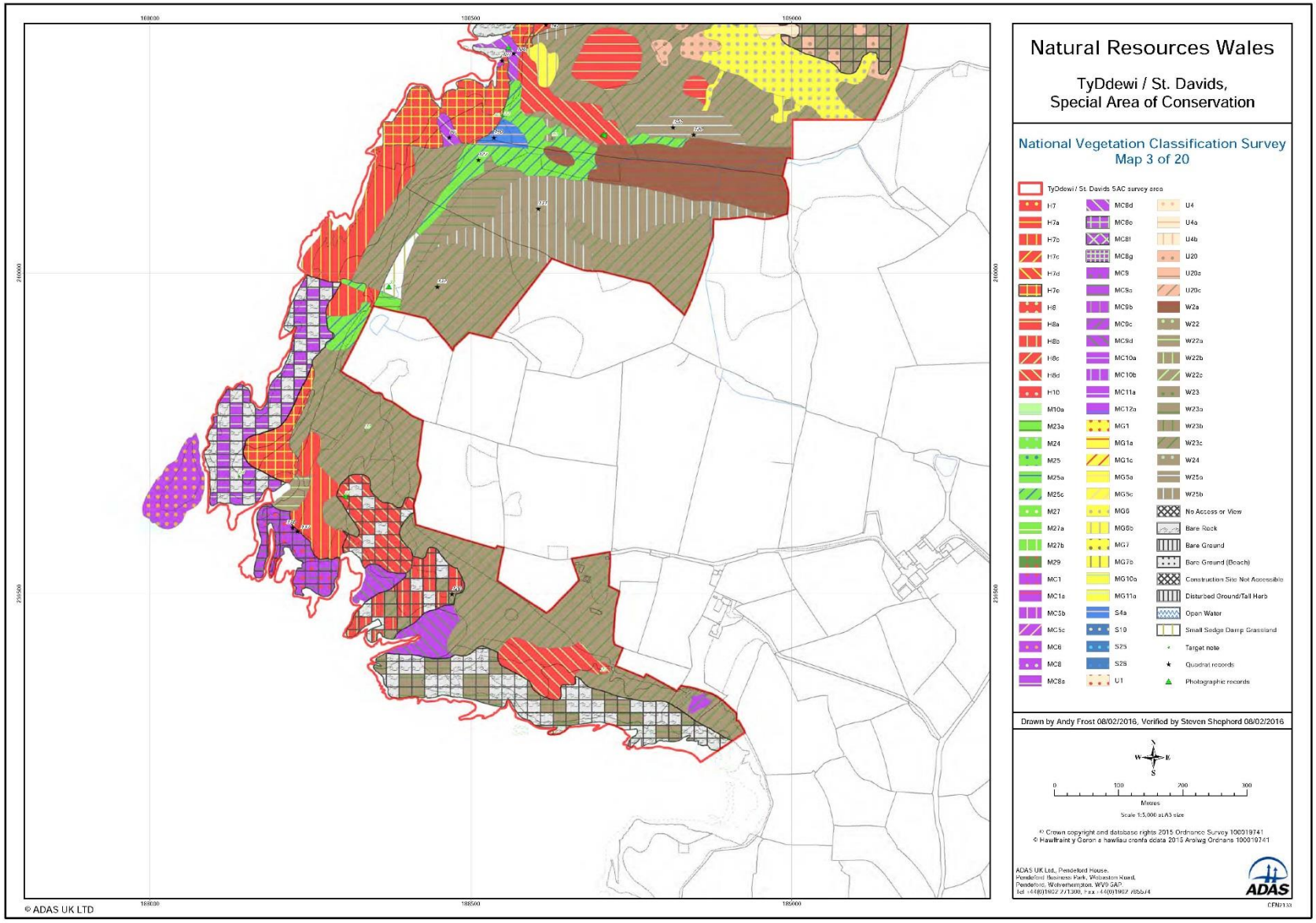
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TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 3 of 20
TyDdewi / St. Davids SAC survey area
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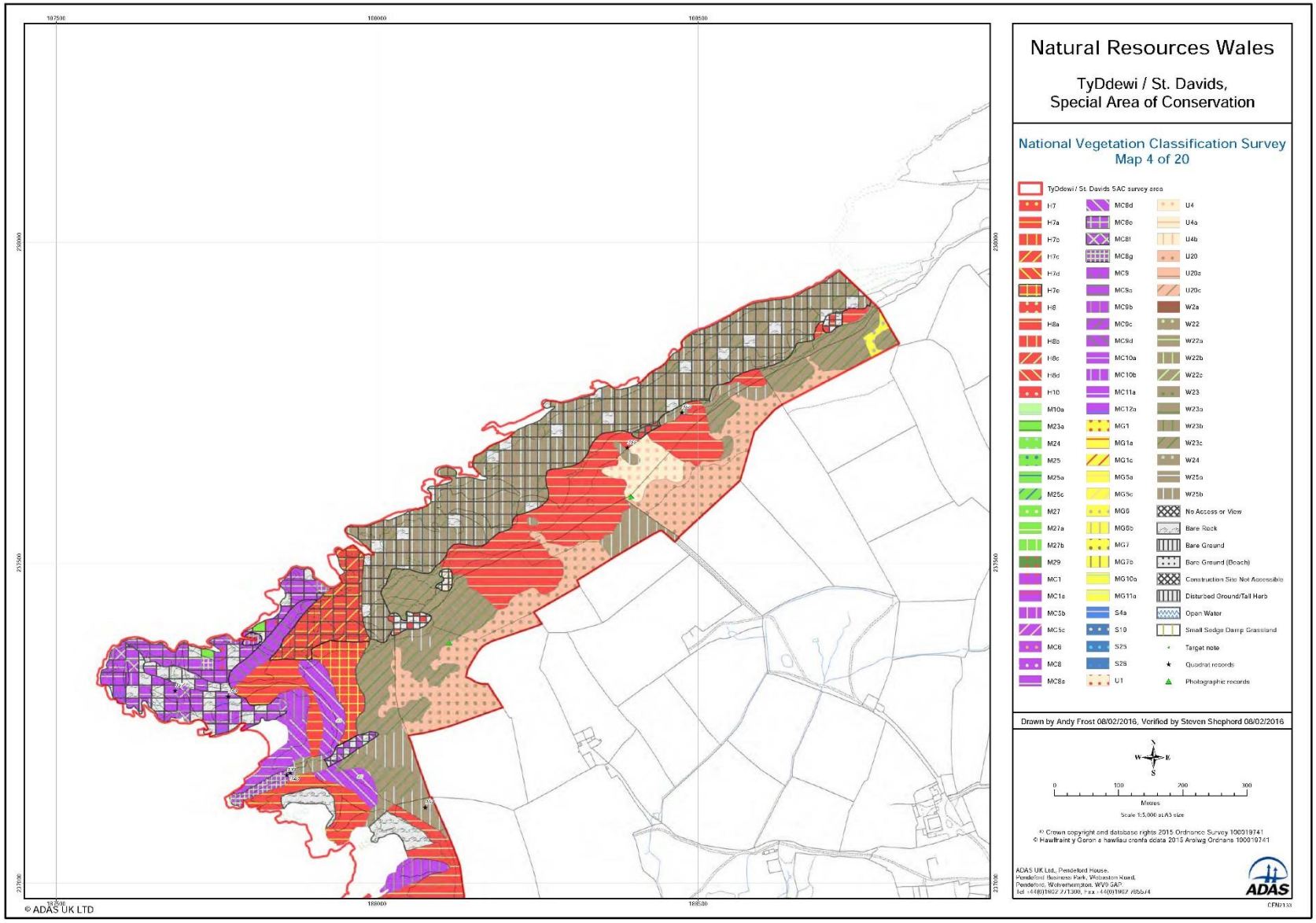
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TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 4 of 20
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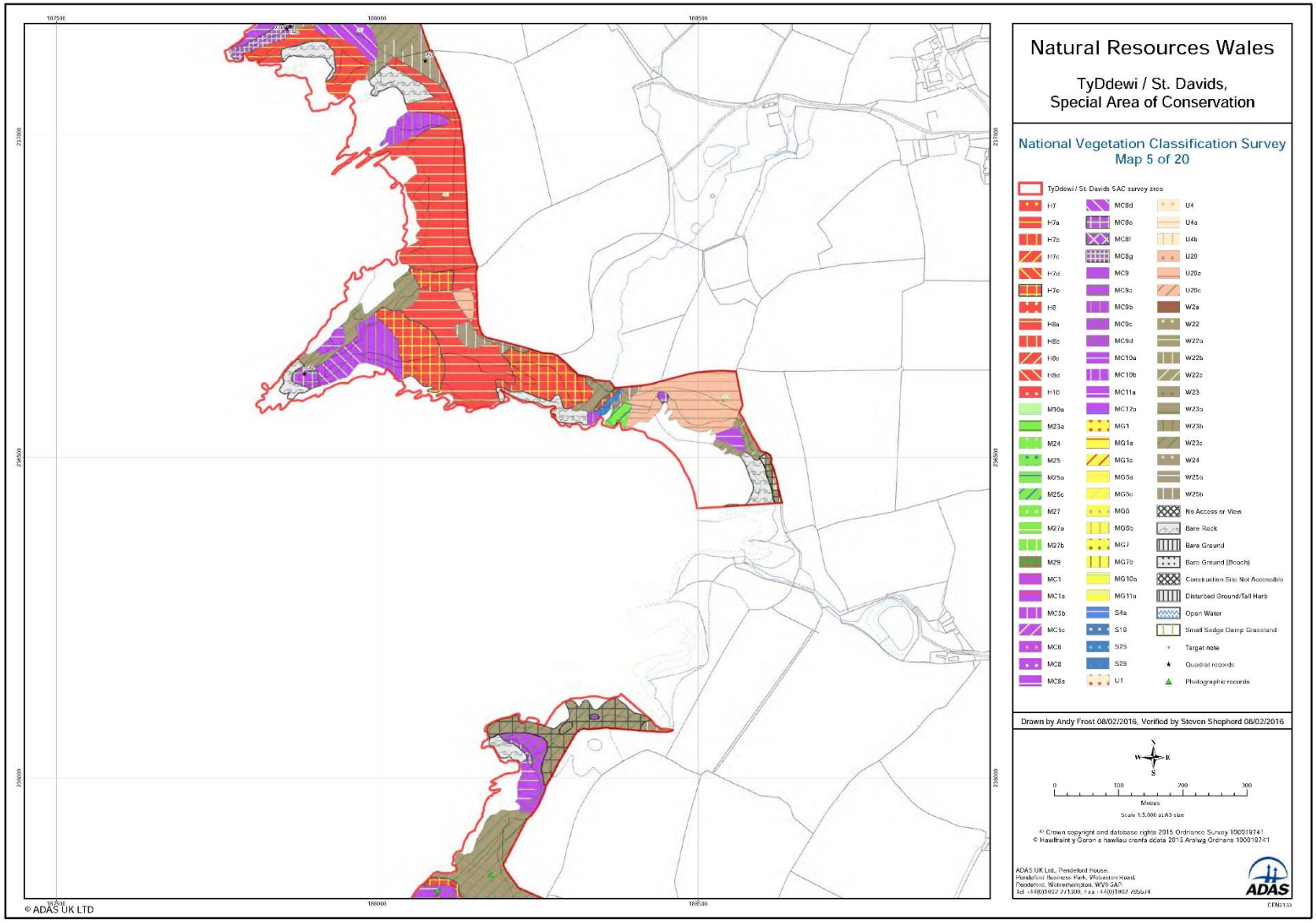
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TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 5 of 20
TyDdewi / St. Davids SAC survey area
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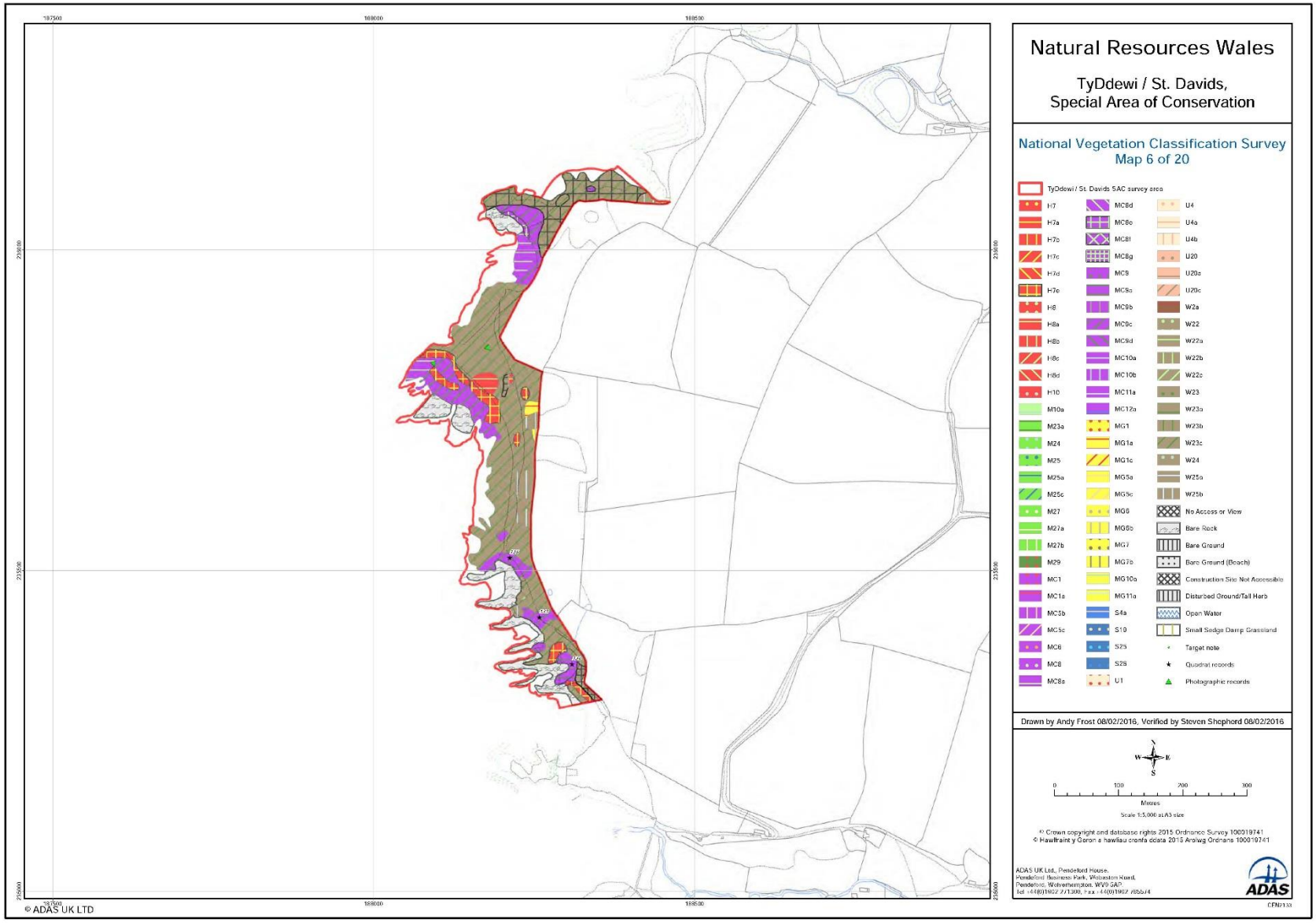
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TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 6 of 20
TyDdewi / St. Davids SAC survey area
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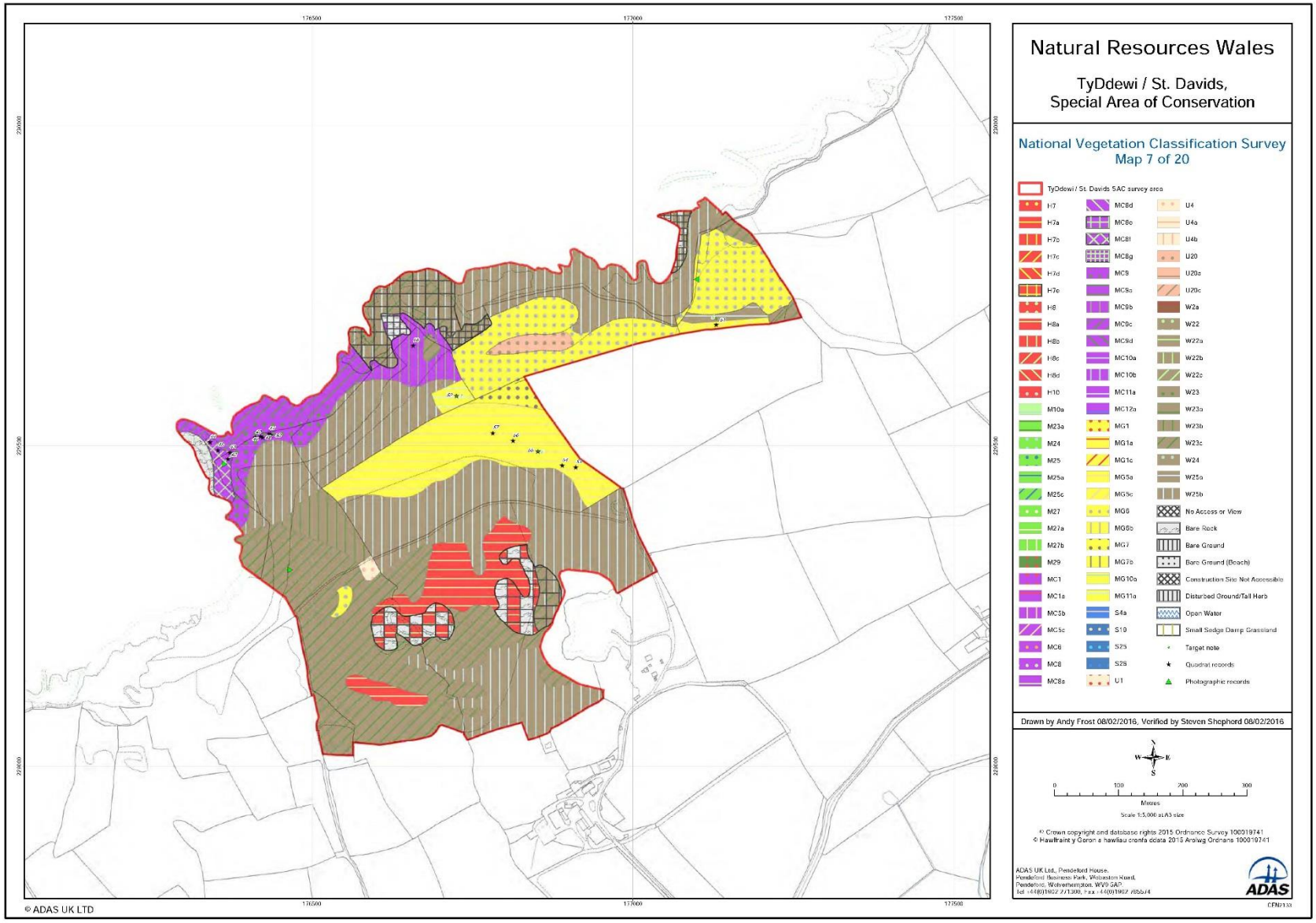
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 7 of 20
TyDdewi / St. Davids SAC survey area
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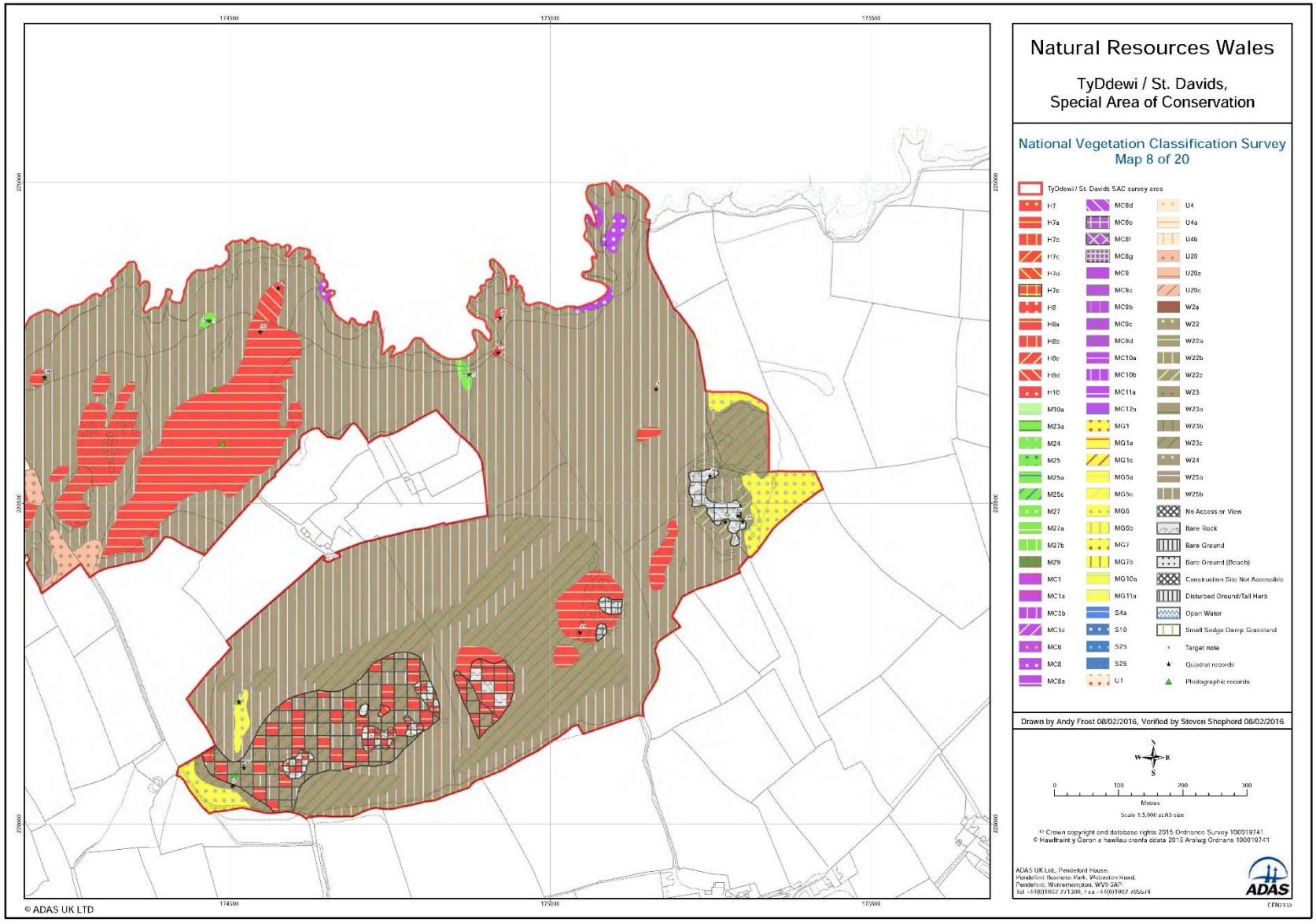
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 8 of 20
TyDdewi / St. Davids SAC survey area
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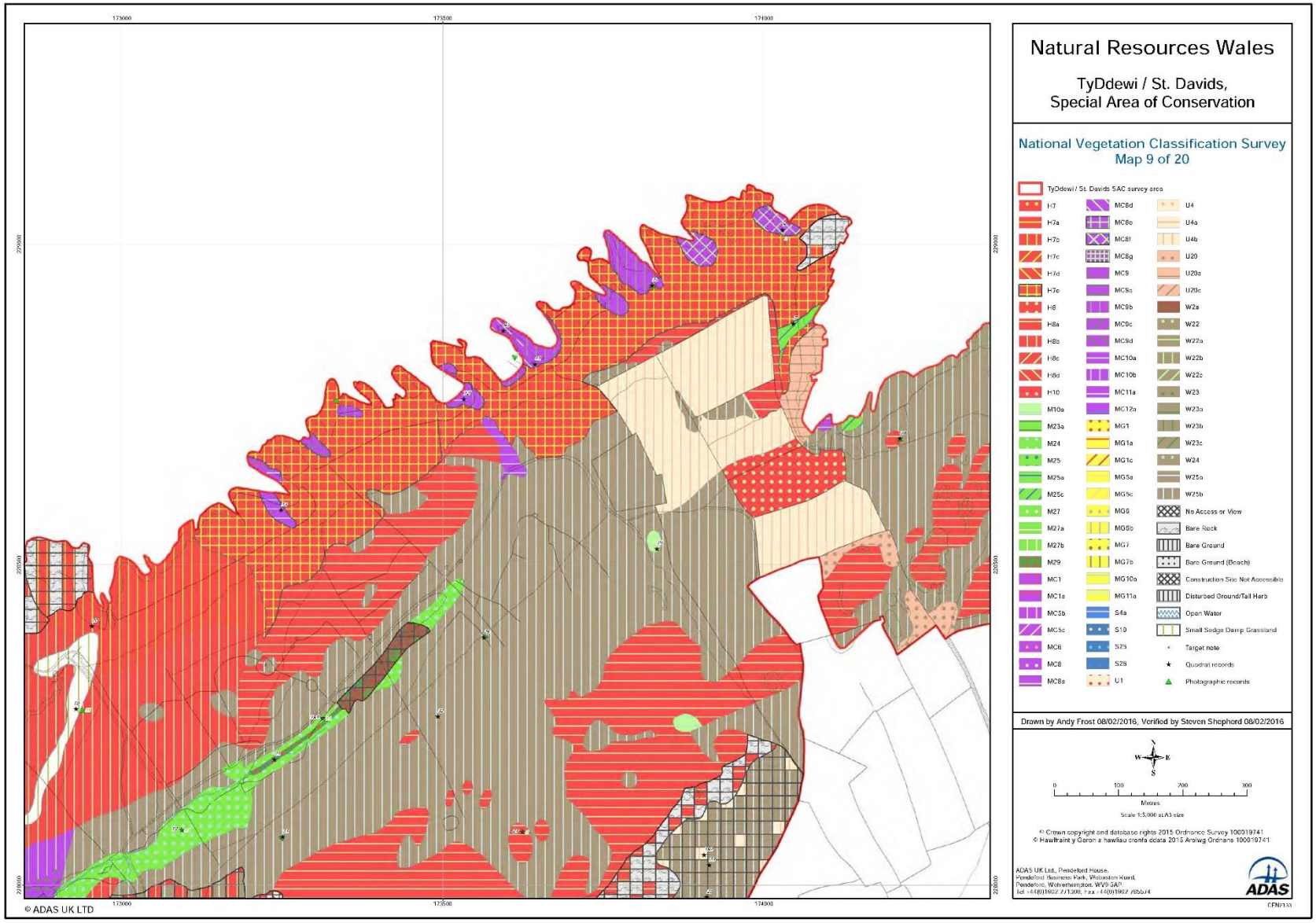
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 9 of 20
TyDdewi / St. Davids SAC survey area
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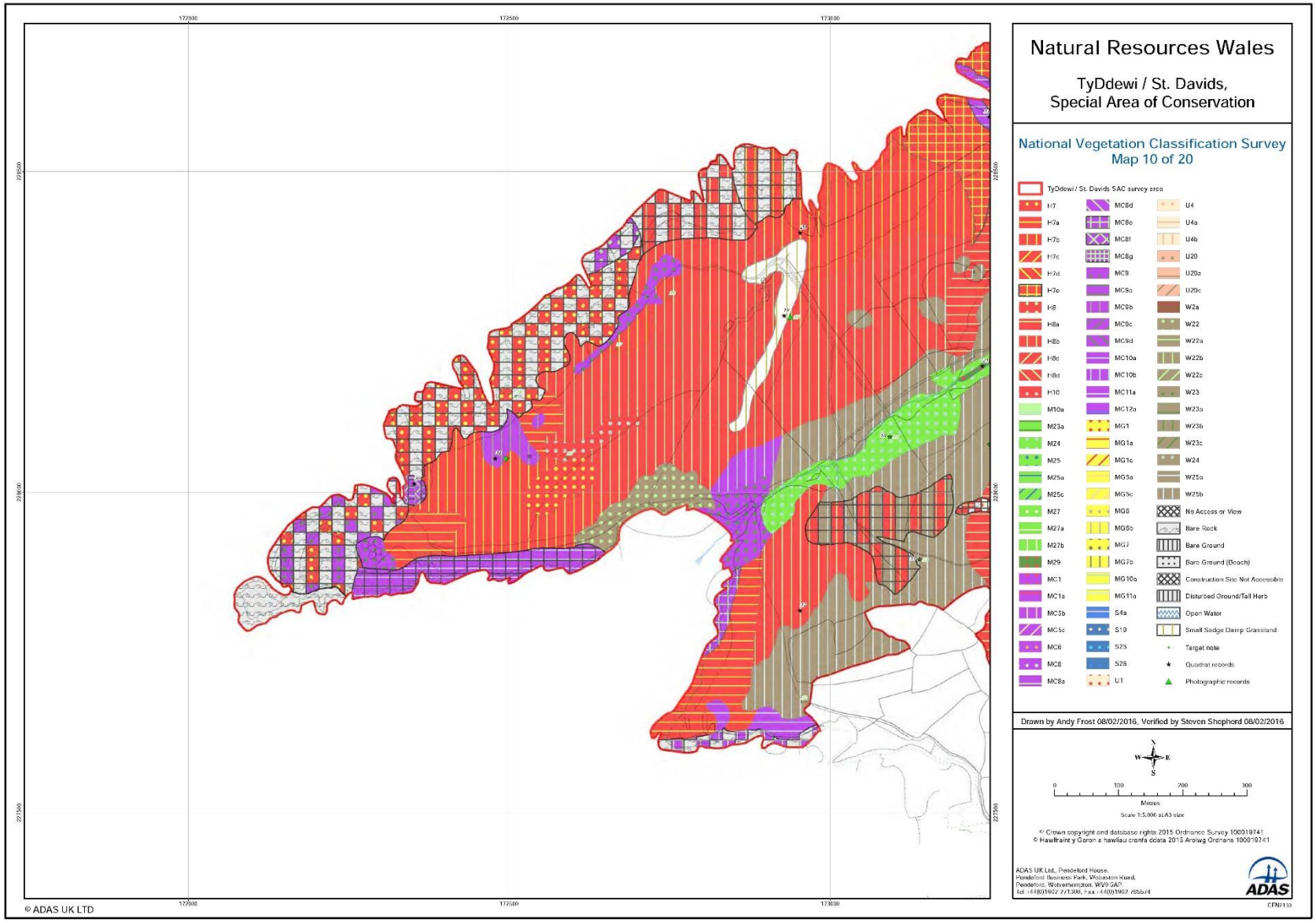
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 10 of 20
TyDdewi / St. Davids SAC survey area
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Bare Rock
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Bare Ground (Beach)
Construction Site Not Accessible
Disturbed Ground/Tall Herb
Open Water
Small Sedge Damp Grassland
Target note
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Photographic records
Drawn by Andy Frost 08/02/2016, Verified by Steven Shepherd 08/02/2016
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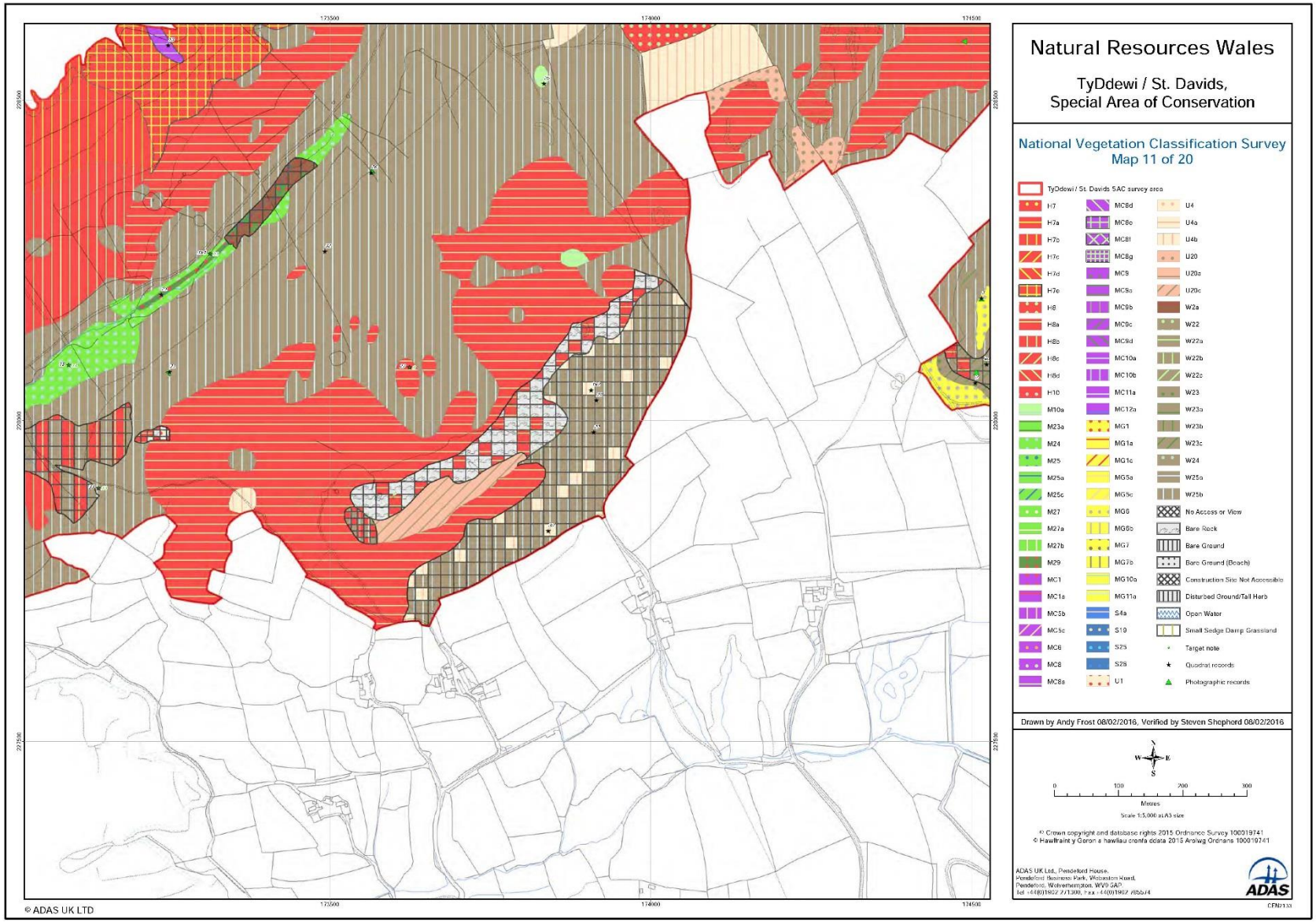
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 11 of 20
TyDdewi / St. Davids SAC survey area
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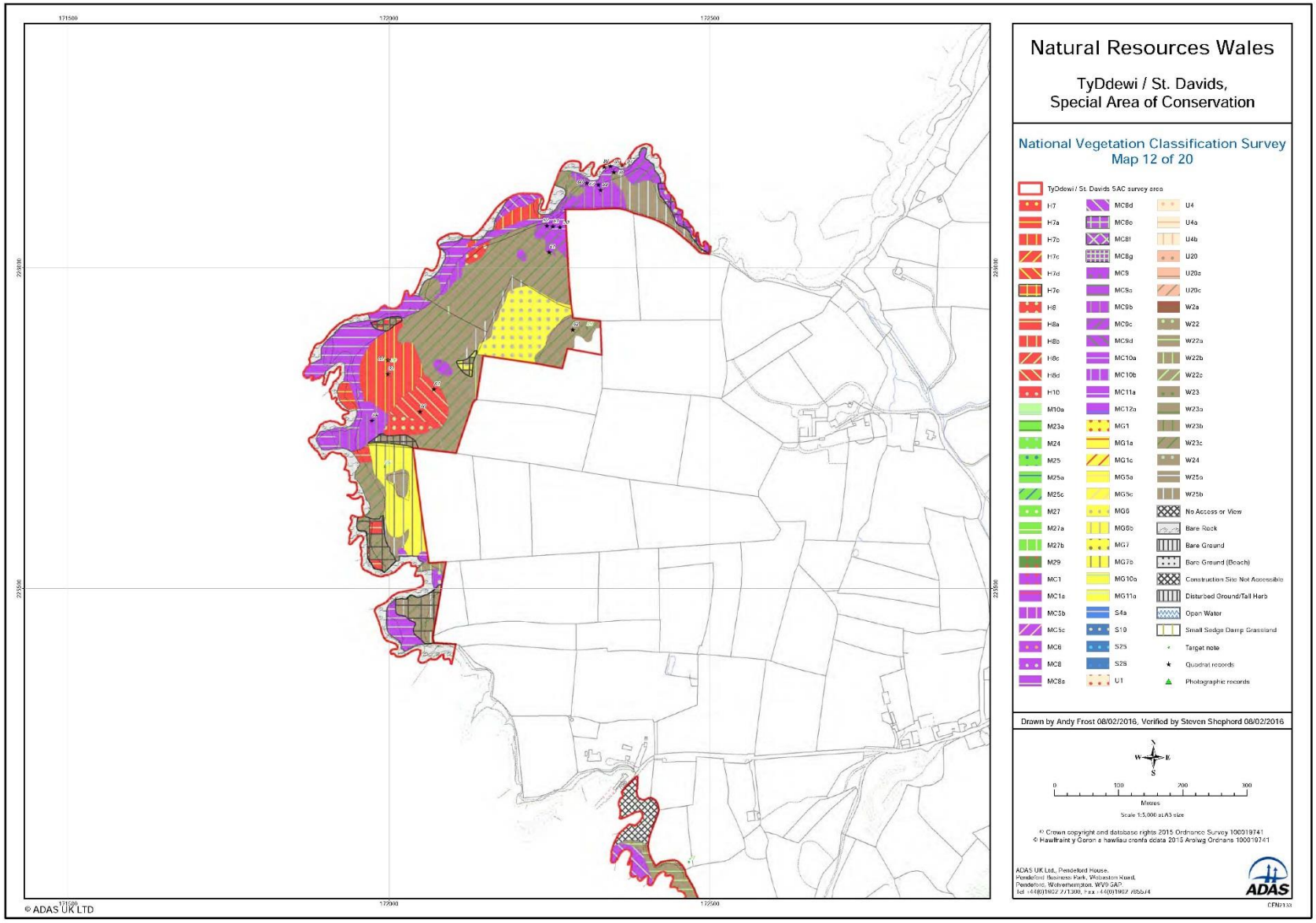
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 12 of 20
TyDdewi / St. Davids SAC survey area
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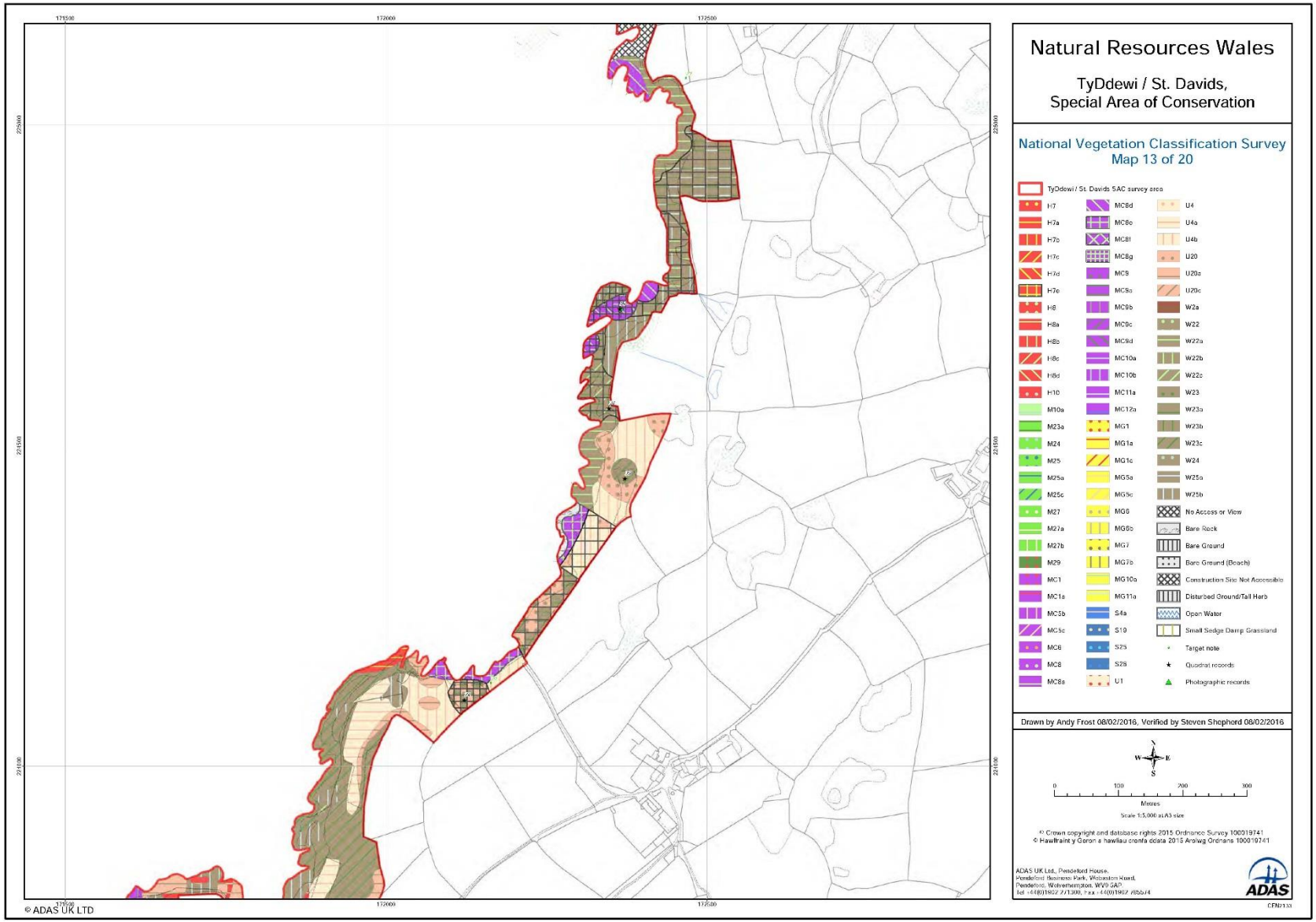
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 13 of 20
TyDdewi / St. Davids SAC survey area
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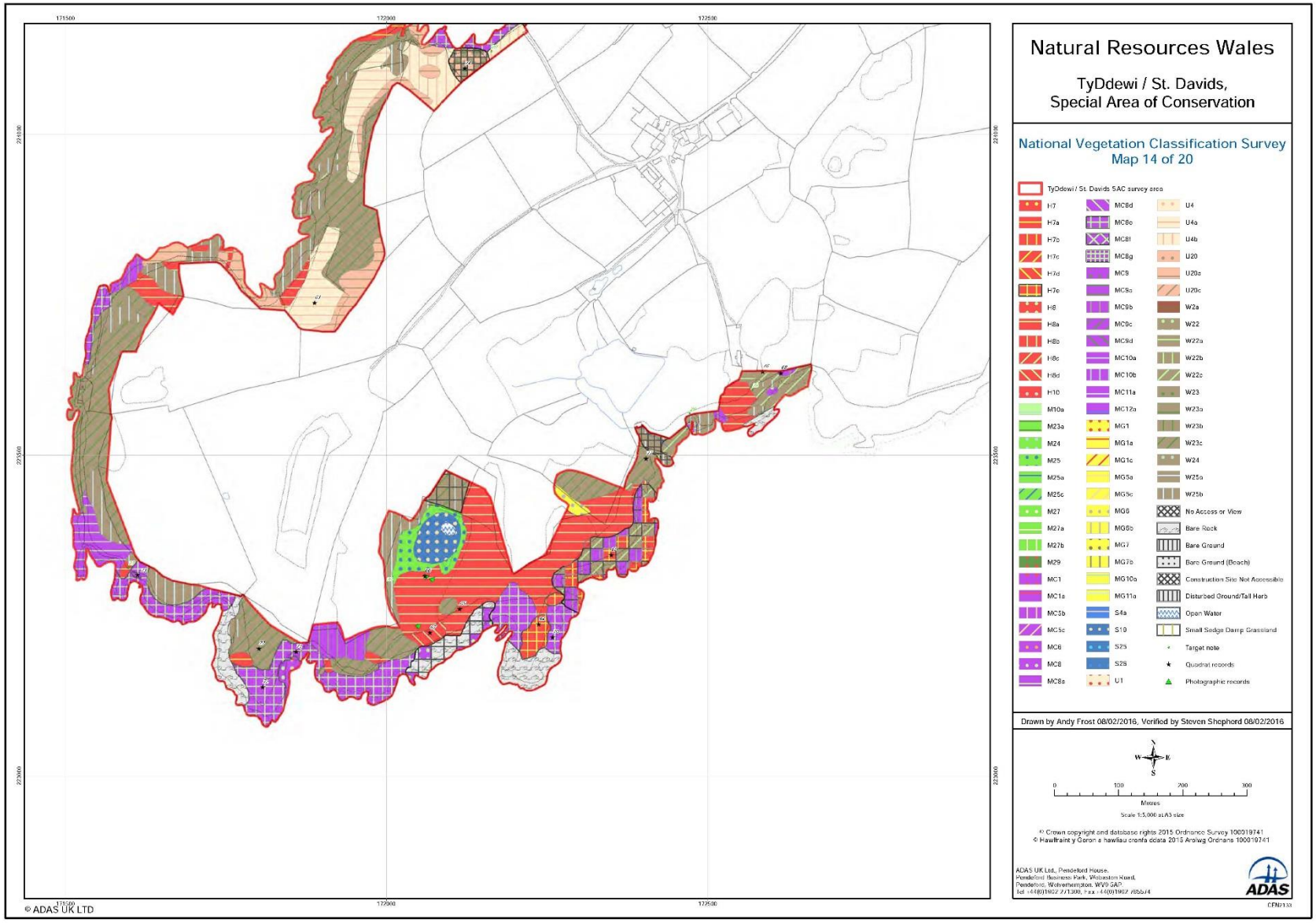
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 14 of 20
TyDdewi / St. Davids SAC survey area
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Target note
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Drawn by Andy Frost 08/02/2016, Verified by Steven Shepherd 08/02/2016
Metres
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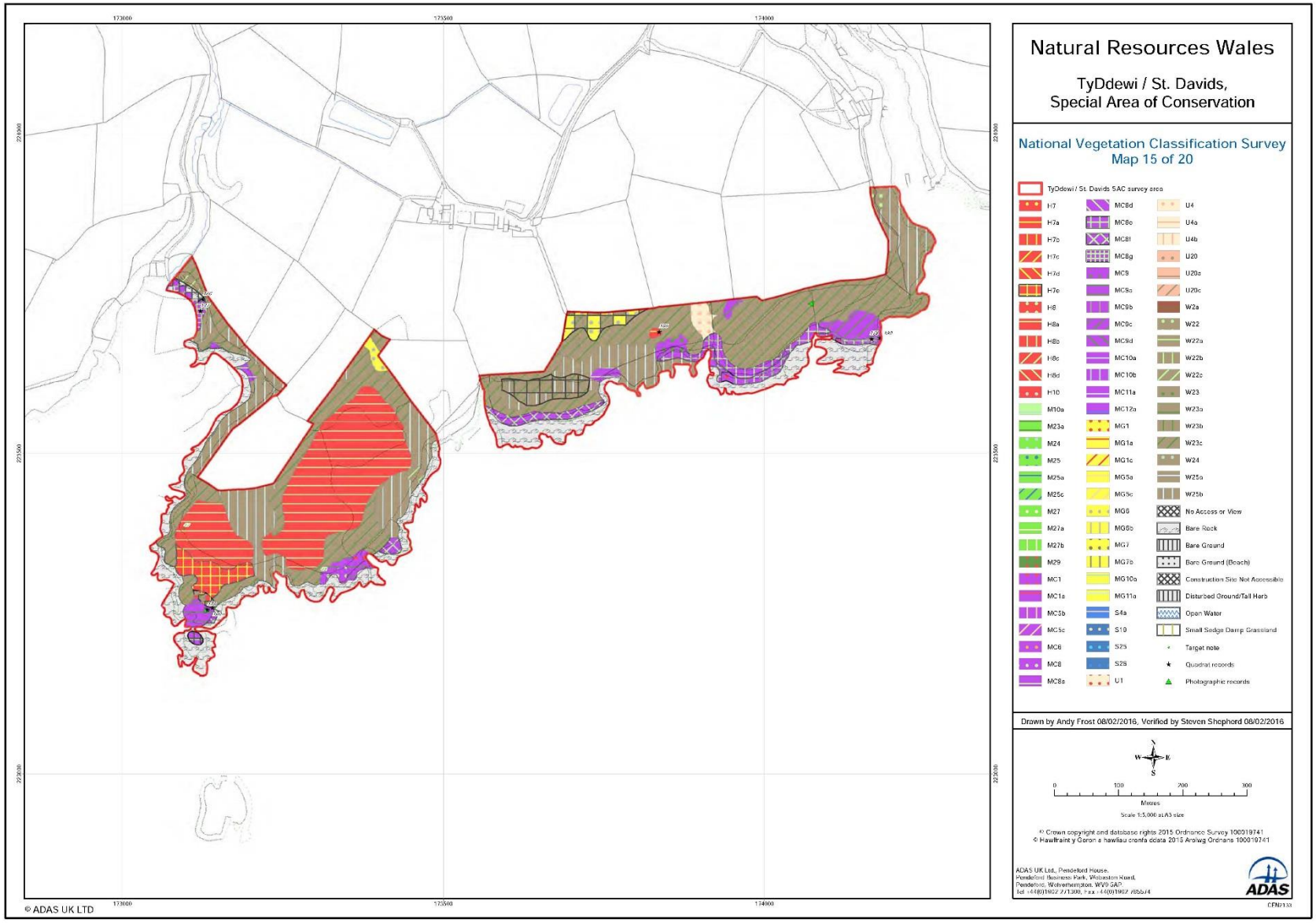
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 15 of 20
TyDdewi / St. Davids SAC survey area
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Bare Rock
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Construction Site Not Accessible
Disturbed Ground/Tall Herb
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Target note
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Photographic records
Drawn by Andy Frost 08/02/2016, Verified by Steven Shepherd 08/02/2016
Metres
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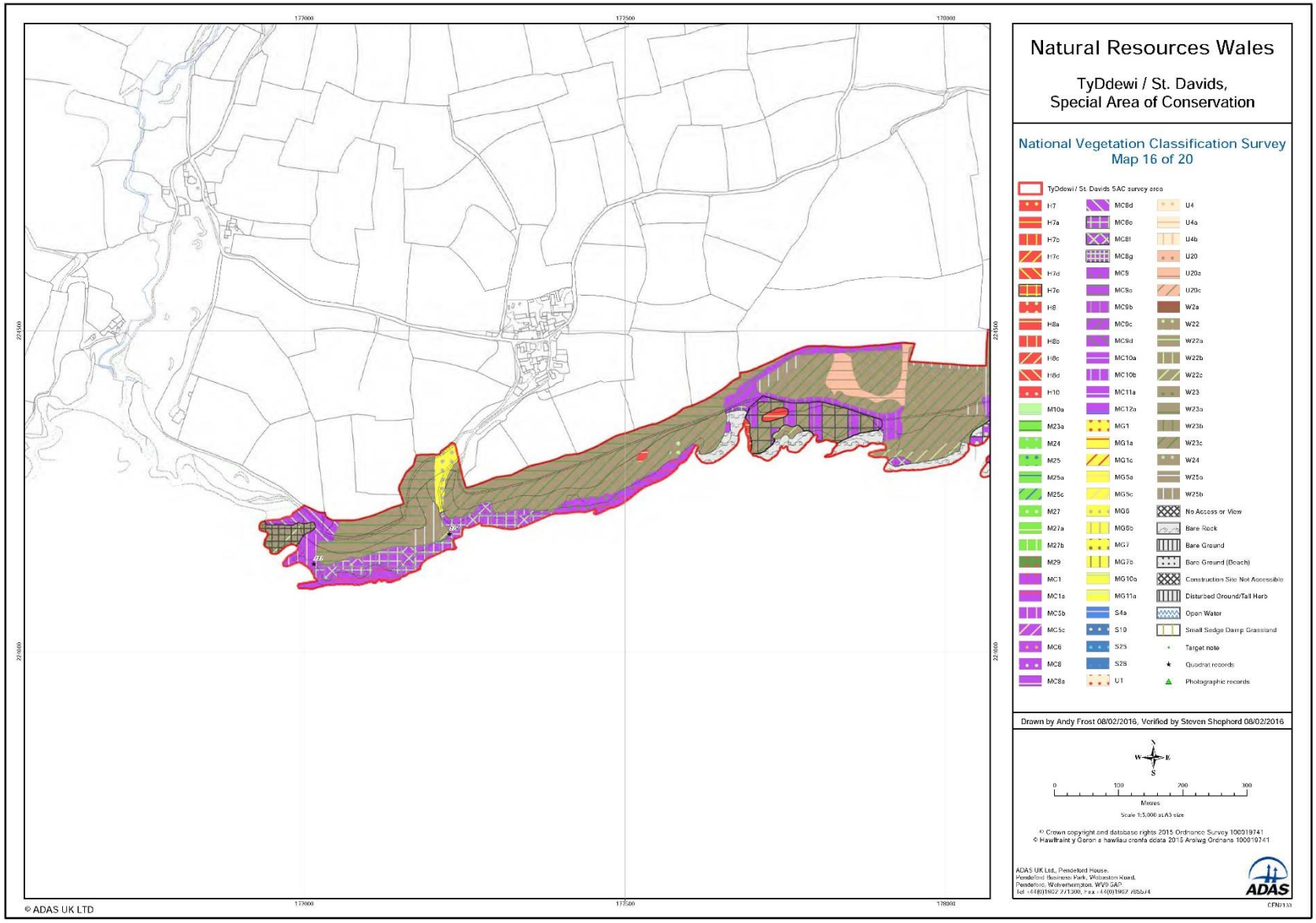
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 16 of 20
TyDdewi / St. Davids SAC survey area
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Bare Ground (Beach)
Construction Site Not Accessible
Disturbed Ground/Tall Herb
Open Water
Small Sedge Damp Grassland
Target note
Quadrat records
Photographic records
Drawn by Andy Frost 08/02/2016, Verified by Steven Shepherd 08/02/2016
Metres
Scale 1:5,000 at A3 size
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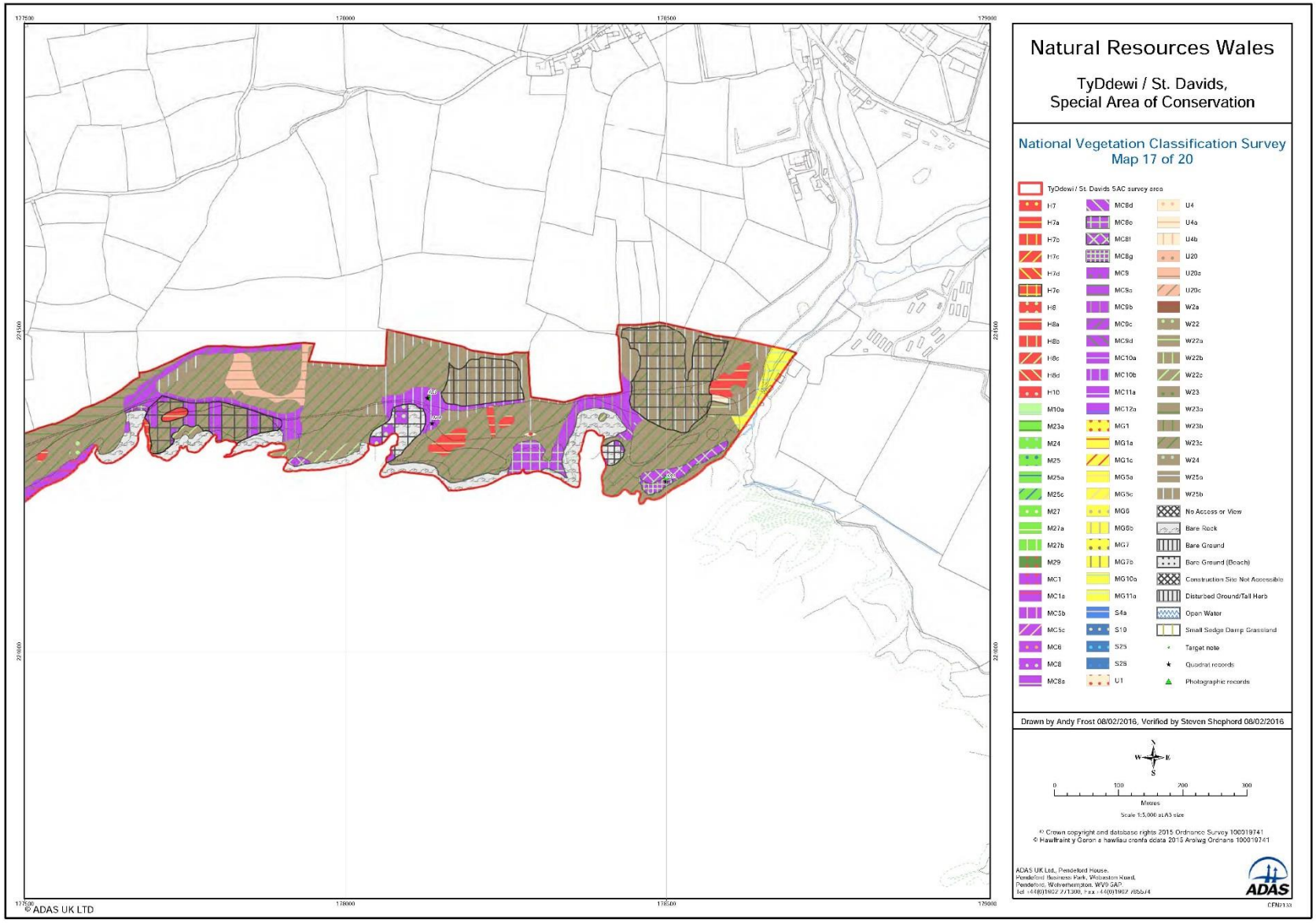
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 17 of 20
TyDdewi / St. Davids SAC survey area
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Construction Site Not Accessible
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Target note
Quadrat records
Photographic records
Drawn by Andy Frost 08/02/2016, Verified by Steven Shepherd 08/02/2016
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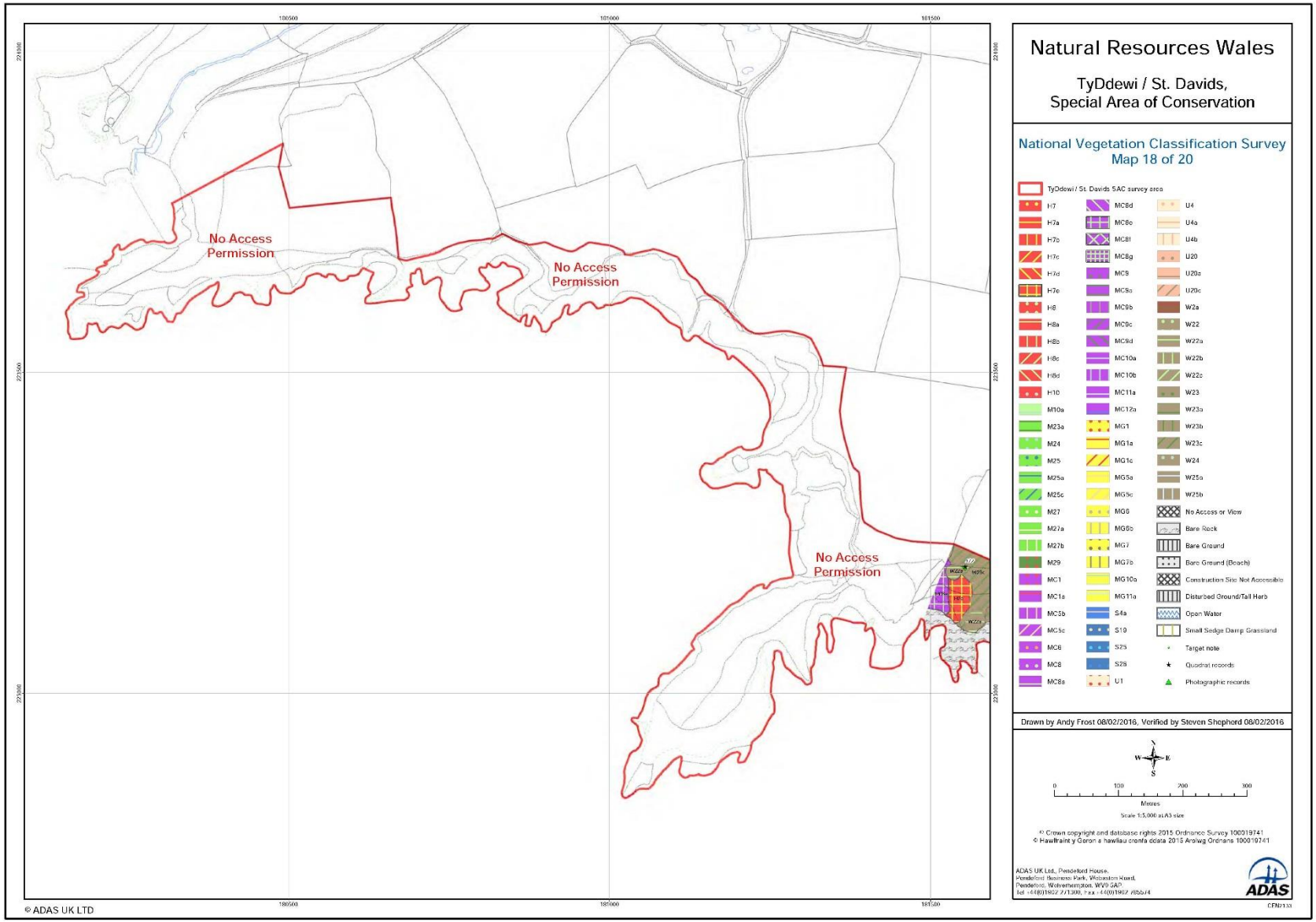
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Natural Resources Wales
TyDdewi / St. Davids, Special Area of Conservation
National Vegetation Classification Survey
Map 18 of 20
TyDdewi / St. Davids SAC survey area
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Construction Site Not Accessible
Disturbed Ground/Tall Herb
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Target note
Quadrat records
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Drawn by Andy Frost 08/02/2016, Verified by Steven Shepherd 08/02/2016
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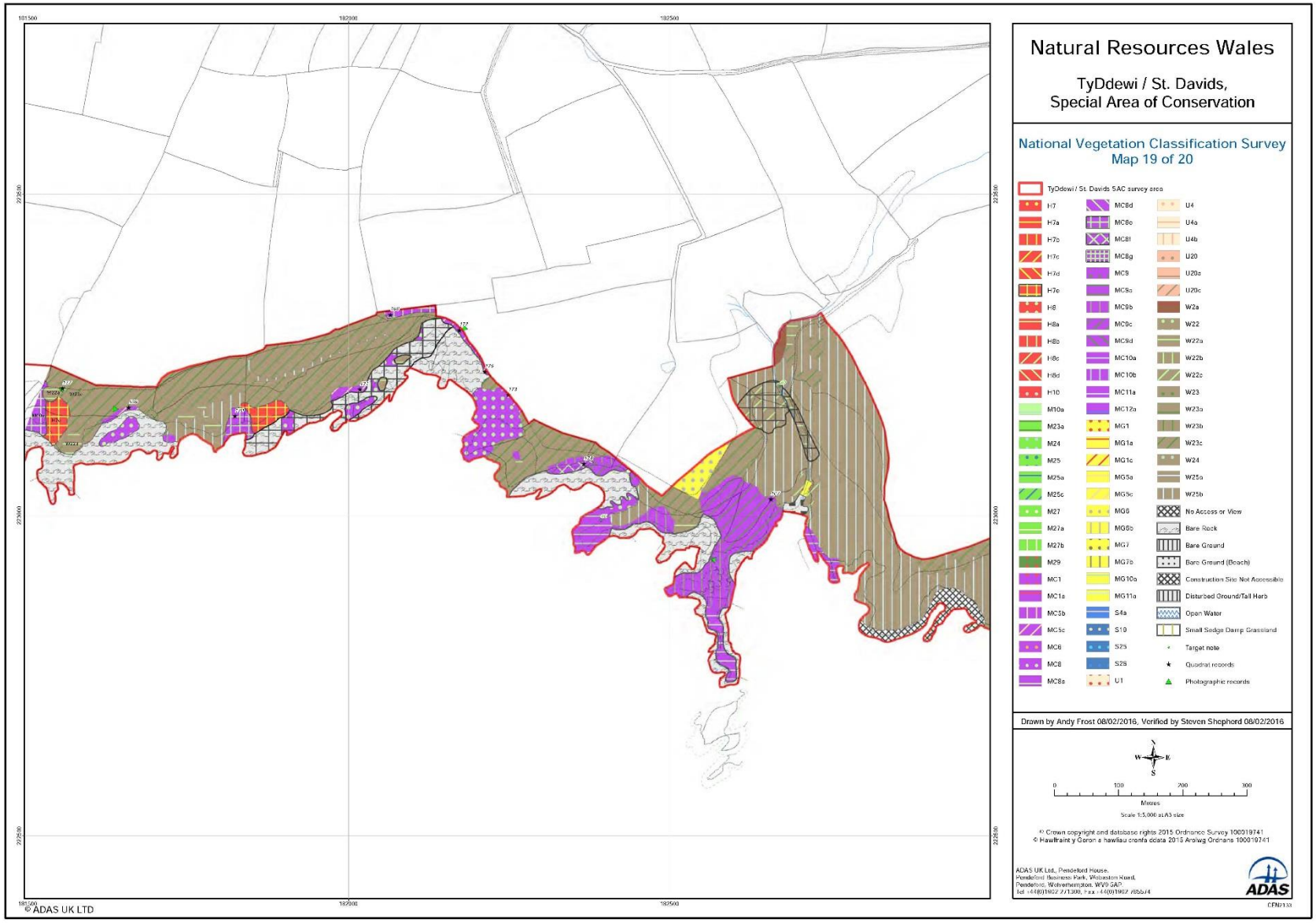
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 19 of 20
TyDdewi / St. Davids SAC survey area
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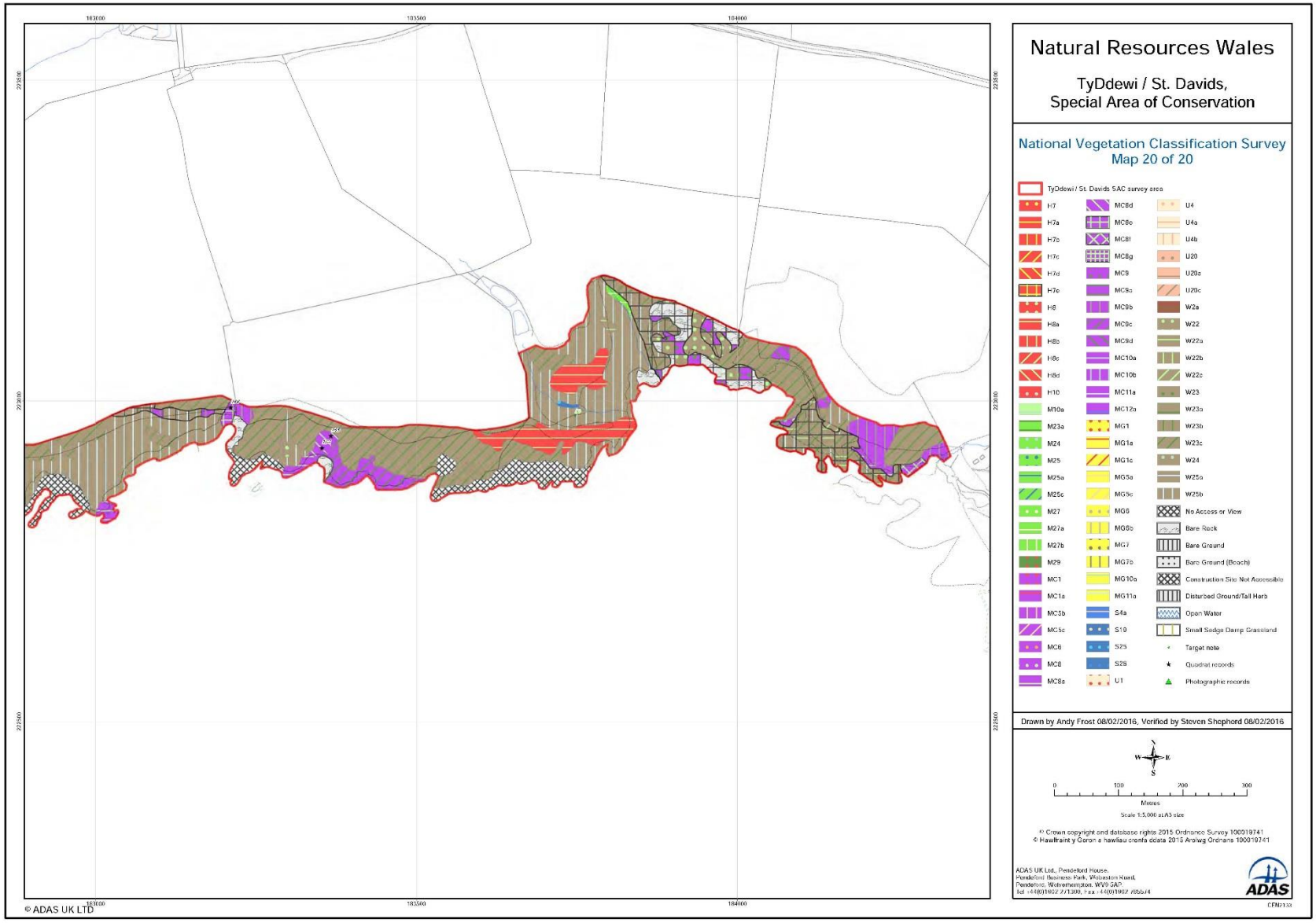
Natural Resources Wales
TyDdewi / St. Davids,
Special Area of Conservation
National Vegetation Classification Survey
Map 20 of 20
TyDdewi / St. Davids SAC survey area
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8. Appendix 1 Photographs

Photo 001. H8a community. St. David's Head

Photo 002. W23c community. St. David's Head

Photo 003. W25b community. St. David's Head

Photo 004. W22c community. St. David's Head

Photo 005. H8a community. St. David's Head

Photo 006. View towards Carn Treliwyd, St. David's Head & extensive W25b community

Photo 007. W23b community. Penclegyr

Photo 008. MC8f Community. Penclegyr

Photo 009. Extensive W25b community. Penclegyr

Photo 010. H8a community. Penbwchdy

Photo 011. W23c (Mv) community. Carreg Fran

Photo 012. MC9a community. Carreg Fran

Photo 013. MC9d community. St. David's Head

Photo 014. MC1a community St. David's Head

Photo 015. MC11a community St. David's Head

Photo 016. W25b (Mv(c)) community St. David's Head

Photo 017. W25b (Mv(c)) community. St. David's Head

Photo 018. Zonation around pool. Pen Dal Aderyn

Photo 019. H8a community. Pen Dal Aderyn

Photo 020. H8d community. St. David’s Head

Photo 021. H8a community. Strumble Head

Photo 022. MC1a community. Strumble Head

Photo 023. W2 community. Strumble Head

Photo 024. M25 & W2 communities. Strumble Head

Photo 025. MC8a community. Penbwchdy

Photo 026. W23c (Mv) & W23c communities. Penbwchdy

Photo 027. W22a community. Dinas Fawr

Photo 028. MC5c community. Dinas Fawr

Photo 029. MC5c community. Dinas Fawr

Photo 030. MC9b community. Dinas Fawr

Photo 031. MC8g community. Carreg y Barcud

Photo 032. MC10b community. Carreg y Barcud

Photo 033. Small sedge-rich damp grassland. St. David's Head

Photo 034. MC10b community. St. David's Head

Photo 035. MC8a community. Pen dal aderyn

Photo 036. *Veronica spicata*. Strumble Head

Photo 037. *Ranunculus tripartitus* Strumble Head

Photo 038. In-filling pond Strumble Head

9. Appendix 2 Target Notes

TN Number	Surveyor	Date	Location	Target Note
001	SS	27/07/2015	SM74469 28784	Cliff-top seepage line/flush. Smll area of approx. 15m x 15m of relatively characteristic M27a but grades into species-poor M25 with constant *Filipendula ulmaria*.
002	SC	27/07/2015	SM734032 29002	Small patch of MC8f amongst H7 and rocks.
003	SC	28/07/2015	SM73612 28822	MC1a - *Crithmum maritimum, Armeria maritima, Festuca rubra* and *Agrostis stolonifera* prominent. Viewed through binoculars only
004	SS	28/07/2015	SM74874 28700	Cliff-top seepage line. In the main relatively characteristic M27b but species-poor example. However, *Rubus fruticosus* agg. constant in some locations, especially on the periphery where it grades into W25b.
005	SS	29/07/2015	SM76852 29491	Species-rich and herb-rich MG5 pasture on steep slope over relatively thin soils. Grades into W25b at top of slope and *Pteridium* is moderately abundant and encroaching over whole field. MG5 grades into improved grassland at bottom of slope. Most characteristic of MG5a. However, some characteristics of MG5c also. Field to NE is of similar composition but perhaps trending slightly to MG6.
006	SS	29/07/2015	SM77130 29698	Herb-rich bank with scattered bracken. Calcifugous species present and trending towards MG5c, but lacking *Danthonia decumbens*. See quadrat for species details.
007	SS	29/07/2015	SM76725 29577	Rank *Dactylis glomerata* dominated with frequent *Potentilla anserina*. Species-poor. See quadrat details. Probably best described as a variant of MG11.
008	SC	29/07/2015	SM73624 28083	W23c (Mv) but burnt about 3-4 years ago.

TN Number	Surveyor	Date	Location	Target Note
009	SC	29/07/2015	SM73598 27880	U1 grassland amongst rock outcrops (v small patches) *Festuca ovina* (D), *Sedum anglicum*. (F), *Scilla verna* (F), *Aira praecox* (F), *Polytrichum juniperinum* (F), *Ramalina siliquosa* (O), *Erica cinerea* (O), *Calluna vulgaris* (O), *Hypochaeris radicata* (O), Bare rock (A), *Rumex acetocella (O)*, *Jasione montana* (R), *Thymus praecox* (R).
010	SC	03/08/2015	SM88626 40210	Small area of *Festuca rubra* dominated grassland with characteristics of MG11 but lacking *Potentilla anserina*. *Festuca rubra* (D) *Agrostis stolonifera* (F), *Holcus lanatus* (F), *Carex arenaria* (O), *Betonica officinalis* (O), *Galium verum* (O), *Agrostis capillaris* (F), *Prunella vulgaris* (R), *Cerastium fontanum* (R), *Lotus pedunculatus* (R), *Achillea millefolium* (O), *Glechoma hederacea* (O), *Juncus articulatus* (O).
011	SC	29/07/2015	SM73313 28260	Damp *Molinia* dominated grassland with wet runnels between *Molinia/Calluna* tussocks. Small sedges frequent. Characteristics of NVC M24 but, at least within the immediate vicinity, lacking *Cirsium dissectum* and *Succisa pratensis.*
012	DA	29/07/2015	SM72955 27673	Small patches of grassland amonst W25 'scrub' and close to kissing gate and main coastal path with Chamomile lawns. *Chamaemelum nobile* (A), *Plantago lanceolata* (F) , *Galium verum* (L), *Thymus praecox* (L), *Pulicaria dysenterica* (O), *Centaurea nigra* (O), *Lolium perenne* (F), *Festuca rubra* (F), *Cynosurus cristatus* (F).
013	DA	29/07/2015	SM73139 27895	MG/W25 see quadrat. One of the larger patches of mesotrophic grassland. Developing along tracks within W25b and H8b, good mix of herbs, grasses and varied structure, abundant violets in places, could be good for fritillary butterflies.
014	DA	29/07/2015	SM73093 28086	Flushed *Molinia/Calluna* 'heath'. Diverse, good structure - quadrat taken, very difficult to determin in NVC terms. Community follows a distinct flushed 'valley' bottom line

TN Number	Surveyor	Date	Location	Target Note
				between/within W25/H8. Horses doing an excellent job grazing the *Molinia* - recorded as M24, but a relatively poor fit and lacking *Cirsium dissectum*.
015	DA	29/07/2015	SM72938 28273	Sedge rich damp grassland with abundant *Hydrocotyle vulgaris* between H8b and W25b, including rarities of *Radiola linoides* and *Lotus subbiflorus*, photo and quadrat taken.
016	DA	29/07/2015	SM72749 28304	Attractive patches of neutral/calcareous grassland with *Serratula tinctoria, Betonica officinalis, Campanula rotundifolia, Scilla verna, Angelica sylvestris, Pimpinella saxifraga* and small sedges within the H8b/W25b mosaic.
017	DA	29/07/2015	SM72666 28224	H7 with *Genista pilosa*
018	DA	29/07/2015	SM72589 28054	See quadrat No. 21. 15 x 15m area dominated by *Eleocharis multicaulis.* Not a close fit to any NVC but some botanical stamp of M29. Grades into tussocky *Calluna/Molinia* dominated zone with frequent with small sedges. *Erica cinerea* and *Erica tetralix* along with *Eleocharis* dominated patches as per quadrat.
019	DA	29/07/2015	SM72510 28149	4 Sea spleenwort *Asplenium marinum* plants under a rock overhang.
020	DA	30/07/2015	SM72163 24130	Very steep cliff below this point which appears to be roughly attributable MC8. However, only possible to view through binoculars. *Festuca rubra* and *Armeria maritima* coastal grassland with *Agrimonia eupatoria* (A), *Centaurea nigra* (F), *Primula vulgaris* (LA), *Heracleum sphondylium* (O), *Hypericum androsaemum* (O).
021	DA	30/07/2015	SM72467 25073	*Trifolium arvense*
022	DA	31/07/2015	SM88303 39651	Scrubby grassland on rocky slope - very botanically rich. Including *Veronica spicata* (F), *Thymus praecox* (F), *Trifolium arvense* (F), *Jasione montana* (F), *Erodium cicutarium* (F), *Festuca rubra* (F), *Scilla verna* (F/A), *Erica cinerea* (O), *Centaurium erythraea* (F), *Rosa pimpinellifolia* (O/F), *Picris*

TN Number	Surveyor	Date	Location	Target Note
				echioides (O), *Dactylis glomerata* (F/A), *Sedum anglicum* (O), *Primula veris* and Sea Spleenwort close by. Photo 1353.
023	DA	31/07/2015	SM88702 39375	In this polygon W23c/H8a *Ulex gallii* is largely replaced by *Ulex europaeus*. Contains some more open patches of H8d but too small to map.
024	SS	30/07/2015	SM72308 25906	Area of disturbed ground with tall herbs. Not characteristic of any NVC community. *Arctium minus* (A), *Urtica dioica* (F), *Senecio jacobaea* (F), *Anthriscus sylvestris*, *Rubus fruticosus* agg (O), *Pteridium aquilinum* (O), *Silene dioica* (O).
025	SS	30/07/2015	SM71993 25690	Enclosed field very species poor. Difficult to assign NVC community. Probably a variant of MG7. Virtually a monoculture of *Dactylis glomerata* with *Hypochoeris radicata* (F), *Achillea millefolium* (O), *Rumex acetosa* (F), *Leontodon autumnalis (R)*. Bracken on periphery.
026	SS	30/07/2015	SM71998 25856	*Genista pilosa* scattered/locally frequent within NVC H7 heath.
027	SC	30/07/2015	SM71598 23325	*Cuscuta epithymum* growing on *Ulex gallii*
028	SC	30/07/2015	SM72570 23602	*Cuscuta epithymum* growing on *Ulex gallii,* occasional in polygon
029	SC	30/07/2015	SM72472 23565	Mosaic of W25b (Mv (c)) 80%: W22c 20%. However interspersed with damper areas with the following species present. *Pulicaria dysenterica* (F), *Lythrum salicaria* (LF), *Oenanthe crocata* (O, LA), *Holcus lanatus* (F), *Juncus articulatus* (F), *Eupatorium cannabinum* (O), *Lathyrus pratensis* (F), *Deschampsia cespitosa* (O), *Pteridium aquilinum* (O), *Potentilla anserina* (LF), *Lotus pedunculatus* (O), *Arrhenatherum elatius* (O).
030	SC	30/07/2015	SM720 233	Area of open water with relatively distinct seral zones. The innermost area adjacent to open water is *Eleocharis* sp. and *Potamogeton natans* dominated, and with characteristics of NVC S10. This trends to a *Hydrocotyle vulgaris. Ranunculus*

TN Number	Surveyor	Date	Location	Target Note
				flammula, Juncus bulbosus dominated outer zone adjacent to grassland that is patchily grazed M25/W25b.
031	SC	31/07/2015	SM90545 40930	Small areas (<5m^2) of MC9b amongst MC10b.
032	SC	31/07/2015	SM90534 40714	W25b *Pteridium* dominated, but species assemblage considerably influenced by moist soil conditions with frequent *Fillipendula ulmaria, Eupatorium cannabinum* and *Carex arenaria*.
033	SC	03/08/2015	SM88548 40245	*Osmunda regalis* in tiny streamway.
034	DA	31/07/2015	SM88138 39683	Roseroot (*Sedum rosea)*, several plants protected in Blackthorn opposite 'bird island'
035	SS	31/07/2015	SM89452 40817	*Juncus articulatus* dominated linear flush/small stream along boundary hedge and between steep banks. Includes occasionally occurring *Parentucellia viscosa*. Other species include: *Filipendula ulmaria* (O), *Carex flacca* (L-F), *Mentha aquatica* (F), *Carex viridula* subsp. *oedocarpa*(O), *Anagalis tenella (O)*, *Apium nodiflorum* (O), *Hypericum pulchrum* (O), *Hydrocotyle vulgaris* (F), *Lythrum salicaria* (R)
036	SS	03/08/2015	SM89314 40841	*Genista pilosa* occurs as scattered plants in H7 heath.
037	SS	03/08/2015	SM88616 40423	*Genista pilosa* occurs as scattered plants in H7 heath.
038	DA	03/08/2015	SM88372 39979	In-filling pond soakaway with (Photo 1359) *Ranunculus tripartitus* (Photo 1358) *Montia fontana, Mentha aquatica,* Bristle club rush, *Potamogeton polygonifolius, Eleocharis multicaulis, Ranunculus flammula, Hydrocotyle vulgaris, Glyceria* sp., *myosotis scorpioides/secunda*
039	DA	03/08/2015	SM88335 39754	W23c (Mv) previously burnt having a positive effect on the flora with *Ulex europaeus* (F), *Ulex gallii* (A), *Erica cinerea* (A), *Calluna vulgaris* (F), *Danthonia decumbens* (O), *Carex pililifera* (F), *Holcus lanatus* (F), *Scilla verna* (F), *Radiola linoides* (LA), *Viola riviniana* (F), *Hypochaeris radicata* (F), *Carex flacca* (O), *Teucrium scorodonia* (R), *Succisa pratensis* (R). Now closer to H8.

TN Number	Surveyor	Date	Location	Target Note
040	DA	03/08/2015	SM88549 40245	Rocky flush below *Phragmites* 'swamp' with Royal Fern, *Filipendula ulmaria, Agrimonia eupatoria, Primula veris, Thymus praecox*.
041	SC	04/08/2015	SM88539 36588	Recently burned (<5yrs), probably was W23c, but now bracken is prominent (F, LA) in grassy sward with frequent *Ulex europaeus, Rubus* is gone = U20a/W23c. Also: *Holcus lanatus* (F, LA), *Agrostis capillaris* (F), *Lotus corniculatus* (O, LF), *Leontodon saxatilis* (O), *Viola* sp. (F), *Potentilla erecta* (F).
042	SC	04/08/2015	SM88102 36904	H8a burned (<5yrs) = grassy *Holcus lanatus* (A), *Plantago lanceolata* (A), *Agrostis capillaris* (O), *Carex pilulifera* (R), *Cerastium fontanum* (O), *Potentilla erecta* (F), *Viola* sp. (F), *Pteridium aquilinum* (O, LF), *Jasione montana* (O), *Leontodon saxatilis* (LF).
043	DA	05/08/2015	SM80483 23684	*Aira caryophyllea* (L), *Aira praceox* (L), *Cerastium diffusum* (F/A), *Stachys botanica* (F/A), *Viola riviniana* (F), *Lotus corniculatus* (F/A), *Potentilla erecta* (F), *Anthyllis vulneraria* (O), *Centaurea erythraea* (F), *Carex flacca* (F/A), *Festuca rubra* (F/A), *Carex pilulifera/caryophyllea* (O), *Dactylis glomerata* (O), Mesotrophic herbs (F), *Galium verum* (R), *Thymus* (F), Scilla verna (F), *Jasione montana* (O)
044	DA	04/08/2015	SM87935 37247	MC8d in this location H7e has been burnt leaving MC8d as the nearest fit.
045	DA	04/08/2015	SM87968 37160	*Genista pilos*a within burnt mW23c, coded as MC8d
046	SC	05/08/2015	SM82393 22992	*Limonium* sp (possibly *procerum procerum*) in MC8a with *Festuca rubra* (dominant) and *Crithmum, Trifolium arvense, Armeria maritima and Atriplex prostrata* and also at SM82580 22827.
047	SS	06/08/2015	SM73095 23382	*Cuscuta epithymum* scattered in NVC H8a. 1-10 plants in immediate vicinity.
048	SS	06/08/2015	SM73309 23313	*Cuscuta epithymum* scattered in NVC W23c 1-10 plants in vicinity.

TN Number	Surveyor	Date	Location	Target Note
049	SS	09/08/2015	SM82672 23200	2 plants of *Osmunda regalis* adjacent to stream in association with *Eupatorium cannabinum*
050	SS	09/08/2015	SM83747 22977	*Eupatorium cannabinum* dominated, very species-poor swamp. Adjacent to small stream. Characteristics of NVC S25 but lacks *Phragmites australis*. Other species: *Molinia caerulea* (F), *Deschampsia caespitosa* (O), *Pulicaria dysenterica* (R)

10. Appendix 3 Quadrat Data

St. David's NVC Quadrat Data

Community	H7a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	185	147	148	143	144								
Grid Reference	SM73836 23689	SM88862 40594	SM188870 40610	SM89550 41355	SM89532 41337								
Date	6/8/15	3/8/15	3/8/15	3/8/15	3/8/15								
Species													
Achillea millefolium	R												R
Agrostis stolonifera	3										20	3	
Agrostis vinealis		2	2								40	2	
Anthoxanthum odoratum	3	2	2								60	2-3	
Anthyllis vulneraria				2							20	2	
Armeria maritima	1		1	3							60	1-3	
Calluna vulgaris	7	5	5	6	6						100	5-7	
Carex caryophyllea		4	3								40	3-4	
Carex flacca		3	2		3						60	2-3	
Centaurium erythraea			R										R
Dactylorhiza sp.		1									20	1	
Danthonia decumbens		3	2								40	2-3	
Erica cinerea		3	4	R							40	1-4	R
Euphrasia agg.		2		2							40	2	
Festuca ovina	6	5	6	7	5						100	5-7	
Galium verum		2									20	2	
Holcus lanatus		1	3	1	4						80	1-4	
Hypnum jutlandicum	3	2	2								60	2-3	

Hypochaeris radicata	2		1	2	2						80	1-2	
Jasione montana	1										20	1	
Koeleria macrantha	2	1	2								60	1-2	
Lotus corniculatus		5	5	3	2						80	2-5	
Pilosella officinarum			1								20	1	
Plantago lanceolata	1	3	3	3	3						100	1-3	
Plantago maritima	2			3	3						60	2-3	
Potentilla erecta		3	2		3						60	2-3	
Primula vulgaris					1						20	1	
Prunella vulgaris		1									20	1	
Scilla verna	3	4	3	3	3						100	3-4	
Serratula tinctoria		1									20	1	
Betonica officinalis		3	4								40	3-4	
Succisa pratensis		2	3								40	2-3	
Thymus praecox	2	6	6								60	2-6	
Trifolium pratense		2									20	2	
Trifolium repens		2									20	2	
Litter													
Bare ground													

Community	H7b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	SC 2	SS 3	SS 4	SS 5	DA 6	7	8	9	10			
Quadrat No.	167	146	145	82	83	20							
Grid Reference	SM82658 23025	SM89321 40859	SM89423 41144	SM71998 25856	SM71998 25834	SM72953 28404							
Date	5/8/15	3/8/15	3/8/15	30/7/15	30/7/15	29/7/15							
Species													
Agrostis capillaris	2			3	3	2					67	2-3	
Agrostis stolonifera						3					17	3	
Agrostis vinealis		3									17	3	
Anthoxanthum odoratum						2					17	2	
Armeria maritima				2	1	1					50	1-2	
Calluna vulgaris	5	7	6	7	8	6					100	5-8	
Campanula rotundifolia						2					17	2	
Carex flacca	1		3			3					50	1-3	
Carex pilulifera	2	1			1						50	1-2	
Centaurium erythraea	1										17	1	
Conopodium majus	2										17	2	
Dactylis glomerata	2	3	3		1						67	1-3	
Danthonia decumbens	1			1		2					50	1-2	
Erica cinerea	6	2	3	7	4	3					100	2-7	
Euphrasia officinalis agg.						3					17	3	
Festuca ovina		5	5	3	3	4					83	3-5	
Festuca rubra	6					5					33	5-6	
Galium saxatile				3							17	3	
Galium verum				3							17	3	
Genista pilosa	1	R		2							33	1-2	R
Hieracium sp.						4					17	4	
Holcus lanatus		3	3		2	3					67	2-3	
Hypnum jutlandicum		3									17	3	

Hypochaeris radicata		1	2	3	1	3					83	1-3	
Jasione montana				2	2						33	2	
Leontodon saxatilis			2			3					33	2-3	
Lotus corniculatus	3	O		2	2	3					67	2-3	
Plantago lanceolata	1	3	2	2	1	2					100	1-3	
Plantago maritima	3		3	1	1	2					83	1-3	
Potentilla erecta	2	2		2		3					67	2-3	
Radiola linoides						O							O
Scilla verna	4	3	3	3	3	3					100	3-4	
Serratula tinctoria	4	3									33	3-4	
Solidago virgaurea						2					17	2	
Betonica officinalis	2	R									17	2	R
Succisa pratensis	3	1		2	1						67	1-3	
Ulex gallii		R											R
Viola sp.	4	3	3	3	1						83	1-4	
Litter													
Bare ground													

Community	H7c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	149	150	151	152	153								
Grid Reference	SM88617 40387	SM88624 40401	SM88629 40410	SM88631 40418	SM88624 40420								
Date	3/8/15	3/8/15	3/8/15	3/8/15	3/8/15								
Species													
Armeria maritima		1		2							40	1-2	
Calluna vulgaris	9	9	8	8	9						100	8-9	
Carex flacca		2	3								40	2-3	
Carex pilulifera	3	2	1	3	3						100	1-3	
Cladonia sp.				1							20	1	
Dactylorhiza sp.	1										20	1	
Danthonia decumbens	1	1	1		1						80	1	
Erica cinerea	3				2						40	2-3	
Erica tetralix	3	3	3	3	1						100	1-3	
Festuca ovina	4	3	3	4	3						100	3-4	
Hypnum jutlandicum		2									20	2	
Hypochaeris radicata	1	1	1	2	1						100	1-2	
Jasione montana		2	1								40	1-2	
Lotus corniculatus	3		2	3	3						80	2-3	
Molinia caerulea	R												R
Plantago maritima	3	1	1	2	2						100	1-3	
Potentilla erecta	3	1	3	3	3						100	1-3	
Scilla verna	3	3	1	2	3						100	1-3	
Succisa pratensis				1							20	1	
Litter													
Bare ground													

Community	H7e												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	DA 1	DA 2	SS 3	SS 4	SS 5	SC 6	7	8	9	10			
Quadrat No.	128	129	109	110	111	64							
Grid Reference	SM88611 40429	SM88603 40417	SM88630 40435	SM88617 40434	SM88629 40441	SM72237 23236							
Date	31/07/15	31/07/15	31/07/15	31/07/15	31/07/15	30/7/15							
Species													
Agrostis capillaris		1									17	1	
Anthoxanthum odoratum						1					17	1	
Calluna vulgaris	8	8	10	8	9	7					100	7-10	
Carex flacca		1									17	1	
Carex pilulifera				3	R						17	3	R
Dactylis glomerata						3					17	3	
Dactylorhiza maculate		1									17	1	
Dactylorhiza sp.			1	1							33	1	
Danthonia decumbens		3									17	3	
Empetrum nigrum						5					17	5	
Erica cinerea	4	5		1	3						67	1-5	
Festuca ovina			3	4	3						50	3-4	
Festuca rubra	3	4				3					50	3-4	
Holcus lanatus		2									17	5	
Hypnum jutlandicum		3									17	3	
Hypochaeris radicata	2	3	1	3	2	3					100	1-3	
Lotus corniculatus	3	4	2	3	2	1					100	1-4	
Plantago lanceolata		1									17	1	
Plantago maritima	1	3	2	3	3						83	1-3	
Polygala vulgaris						1					17	1	
Potentilla erecta	2	2	3	3	1	3					100	1-3	
Ramalina siliquosa	3										17	3	
Rosa spinosissima					1						17	1	
Scilla verna	3	3	3	3	3	3					100	3	
Succisa pratensis					1						17	1	

Thymus praecox *Viola riviniana*		3 2									17 17	3 2	
Litter Bare ground													

Community	H8a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	SS 1	SS 2	SS 3	SS 4	SC 5	SC 6	7	8	9	10			
Quadrat No.	36	39	40	41	65	66							
Grid Reference	SM74548 28767	SM74212 28696	SM74523 28087	SM75046 28298	SM72114 23260	SM72060 23311							
Date	26/07/15	27/7/15	27/7/15	26/7/15	30/7/15	30/7/15							
Species													
Agrostis canina	3	2	3								50	2-3	
Agrostis capillaris		2									17	2	
Anthoxanthum odoratum	2	2									33	2	
Calluna vulgaris	4	5	1	6	7	7					100	1-7	
Carex binervis	2		1								33	1-2	
Carex pilulifera				1							17	1	
Erica cinerea	6	7	6	4	7	4					100	4-7	
Erica tetralix						5					17	5	
Festuca ovina	3		2								33	2-3	
Hypnum jutlandicum	3	3		3							50	3	
Hypochaeris radicata	1										17	1	
Molinia caerulea	1	3				1					50	1-3	
Potentilla erecta	1	2									33	1-2	
Ramalina siliquosa	2										17	2	
Scilla verna	2										17	2	
Teucrium scorodonia	1	1	1								50	1	
Ulex europaeus		2	4								33	2-4	
Ulex gallii	5	6	7	6	6	7					100	5-7	
Litter													
Bare ground													

Community	H8b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	DA 2	3	4	5	6	7	8	9	10			
Quadrat No.	126	17											
Grid Reference	SM88471 39499	SM72953 27815											
Date	31/7/15	29/7/15											
Species													
Agrostis canina	2	2									100	2	
Anthoxanthum odoratum	1	1									100	1	
Calluna vulgaris	3	8									100	3-8	
Carex pilulifera	3										50	3	
Cladonia ciliata		1									50	1	
Dactylorhiza maculata		2									50	2	
Danthonia decumbens	3	3									100	3	
Erica cinerea	8	5									100	5-8	
Festuca rubra		2									50	2	
Molinia caerulea		1									50	1	
Polygala serpyllifolia	1										50	1	
Potentilla erecta	2	1									100	1-2	
Scilla verna	2										50	2	
Ulex gallii	7	4									100	4-7	
Viola riviniana	3												
Litter													
Bare ground													

Community	H8c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	37	38											
Grid Reference	SM74919 28734	SM74922 28789											
Date	26/7/15	26/7/15											
Species													
Agrostis canina	3	2									100	2-3	
Aira caryophyllea	3	3									100	3	
Angelica sylvestris		1									50	1	
Anthoxanthum odoratum	2	3									100	2-3	
Anthyllis vulneraria		2									50	2	
Brachypodium sylvaticum	2	2									100	2	
Calluna vulgaris	5	6									100	5-6	
Carex flacca		1									50	1	
Carex pilulifera	1										50	1	
Centaurea nigra		1									50	1	
Centaurium erythraea													R
Dactylis glomerata	2	2									100	2	
Daucus carota	1										50	1	
Erica cinerea	4	5									100	4-5	
Festuca ovina	4	3									100	4-5	
Festuca rubra		3									50	3	
Holcus lanatus	2										50	2	
Hypochaeris radicata	2	2									100	2	
Jasione montana	2	1									100	1-2	
Leontodon autumnalis		2									50	2	
Lotus corniculatus	2										50	2	
Plantago coronopus		2									50	2	
Plantago lanceolata	3	2									100	2-3	
Potentilla erecta	2	2									100	2	

Pteridium aquilinum		2									50	2	
Scilla verna		1									50	1	
Sedum acre	3										50	3	
Serratula tinctoria	2	1									100	1-2	
Succisa pratensis	1	1									100	1	
Thymus praecox	2										50	2	
Viola sp.	3	2									100	2-3	
Litter													
Bare ground													

Community	H8d												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SS 4	SC 5	SC 6	7	8	9	10			
Quadrat No.	141	142	80	81	8	67							
Grid Reference	SM89571 41291	SM89566 41299	SM72048 25775	SM72070 25810	SM74576 28835	SM72068 23223							
Date	3/8/15	3/8/15	30/7/15	30/7/15	27/7/15	30/7/15							
Species													
Agrostis canina/ vinealis	2	2	3	3							67	2-3	
Agrostis capillaris					2						17	2	
Agrostis stolonifera					2						17	2	
Calluna vulgaris	8	8	7	5	5	7					100	5-8	
Carex binervis					3						17	3	
Carex flacca	R		3	1							33	1-3	R
Carex panicea			1		3						33	1-3	
Carex pilulifera	1	1									33	1	
Carex pulicaris				2							17	2	
Cladonia impexa					3	2					33	2-3	
Dactylis glomerata	O												O
Dactylorhiza sp.	2										17	2	
Danthonia decumbens		2	2	1	1						67	1-2	
Erica cinerea	5	4	6	6	6	5					100	4-6	
Erica tetralix			1								17	1	
Festuca ovina	4	5	3	3	4						83	3-5	
Festuca rubra	3				2						33	2-3	
Holcus lanatus	1	1	R								33	1	R
Hypnum jutlandicum		2				2					33	2	
Hypochaeris radicata	2	3									33	2-3	
Lotus corniculatus	2		R								17	2	R
Pedicularis palustris						2					17	2	
Polygala vulgare					1						17	1	
Potentilla erecta	3	3									33	3	

Rubus fruticosus agg.			R										R
Scilla verna	3	3	3	3	3	4					100	3-4	
Solidago virgaurea		O											O
Succisa pratensis			R										R
Ulex europaeus	O		O										O
Ulex gallii	O		4	7	5	6					67	4-7	O
Litter													
Bare Rock					4						17	4	

Community	MC1												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: DA	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	180												
Grid Reference	SM77180 23680												
Date	6/8/15												
Species													
Anthyllis vulneraria	3											3	
Armeria maritima	4											4	
Beta vulgaris	4											4	
Cerastium diffusum	3											3	
Crithmum maritimum	6											6	
Festuca rubra	6											6	
Leontodon saxatilis	2											2	
Plantago coronopus	1											1	
Plantago maritima	4											4	
Silene maritima	3											3	
Spergularia rupicola	O												O
Litter													
Bare rock													

Community	MC1a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	DA 1	DA 2	DA 3	SC 4	SC 5	6	7	8	9	10			
Quadrat No.	178	162	163	107	73								
Grid Reference	SM74167 23678	SM81033 22863	SM81069 22877	SM88549 40331	SM71612 23313								
Date	6/8/15	5/8/15	5/8/15	3/8/15	30/7/15								
Species													
Armeria maritima	3	5	4	3	3						100	3-5	
Atriplex prostrata		R	1								20	1	R
Crithmum maritimum	3	6	6	5	8						100	3-8	
Festuca rubra	4	5	5	6	3						100	3-6	
Galium aparine				1							20	1	
Lichen sp.	6	6									40	6	
Plantago maritima	5				2						40	2-5	
Silene uniflora				4	2						40	2-4	
Spergularia rupicola	4	2	5								60	2-5	
Tripleurospermum maritimum		1		3							40	1-3	
Xanthoria parietina	4	4	3								60	3-4	
Litter													
Bare rock	8										20	8	

Community	MC5b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: DA	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	181												
Grid Reference	SM77015 24136												
Date	6/8/15												
Species													
Aira caryophyllea	3											3	
Aira praecox	3											3	
Anthyllis vulneraria	3											3	
Armeria maritima	3											3	
Bromus hordeaceus ssp. *ferronii*	4											4	
Cerastium diffusum	3											3	
Dactylis glomerata	5											5	
Festuca rubra	5											5	
Hypochaeris radicata	3											3	
Leontodon saxatilis	2											2	
Lotus corniculatus	2											2	
Plantago coronopus	7											7	
Plantago lanceolata	3											3	
Scilla verna	3											3	
Silene maritima	5											5	
Litter													
Bare rock													

Community	MC5c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	169	171	172	173	175								
Grid Reference	SM81657 23167	SM82018 23195	SM82173 23288	SM82249 23187	SM82213 23223								
Date	5/8/15	5/8/15	5/8/15	5/8/15	5/8/15								
Species													
Aira caryophyllea		6									20	6	
Aira praecox	5	4	4		1						80	1-5	
Armeria maritima	2	2		2	3						80	2-3	
Bromus hordeaceus ssp. *ferronii*	2	2	8		2						80	2-8	
Cerastium diffusum	4	3		3	2						80	2-3	
Dactylis glomerata		2		1	1						60	1-2	
Festuca ovina		6	2	4	1						80	1-6	
Festuca rubra	2	2									40	2	
Glaux maritima				1	1						40	1	
Hypochaeris radicata	1			2							40	1-2	
Jasione montana		2									20	2	
Lotus corniculatus					1						20	1	
Plantago coronopus	4	3	8	6	8						100	3-8	
Plantago maritima	2			1	1						60	1-2	
Sagina maritima			1								20	1	
Sedum anglica	2	2		1							60	1-2	
Silene uniflora		2		2							40	2	
Ulex gallii	2										20	2	
Litter													
Bare rock													

Community	MC8a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	DA 2	SS 3	SS 4	SS 5	6	7	8	9	10			
Quadrat No.	101	94	84	85	86								
Grid Reference	SM90667 40792	SM72364 24712	SM72363 26160	SM72345 26158	SM72335 26157								
Date	31/7/15	30/7/15	30/7/15	30/7/15	30/7/15								
Species													
Agrostis stolonifera		3									20	3	
Anthylllis vulneraria		O	2	1	1						60	1-2	O
Armeria maritima	4	5	3	2	4						100	2-5	
Cochlearia officinalis				1							20	1	
Conopodium majus		4									20	4	
Dactylis glomerata		4									20	4	
Festuca rubra	9	8	8	8	6						100	6-9	
Hypochaeris radicata		3									20	3	
Jasione montana		R											R
Leontodon saxatilis	1										20	1	
Lotus corniculatus	5										20	5	
Plantago coronopus		R											R
Plantago maritima	4	4	5	5	5						100	4-5	
Rumex acetosa		3									20	3	
Scilla verna		3									20	3	
Sedum anglicum			R										R
Silene maritima			4	3	2						60	2-4	
Spergularia rupicola		O											O
Tripleurospermum maritimum		O											O
Viola riviniana		O											O
Litter													
Bare rock													

Community	MC8d												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SC 4	DA 5	SS 6	SC 7	8	9	10			
Quadrat No.	164	165	154	106	95	93	11						
Grid Reference	SM83353 22927	SM83367 22945	SM89574 41357	SM88567 40342	SM88467 40211	SM73594 28864	SM73644 28812						
Date	5/8/15	5/8/15	3/8/15	3/8/15	30/7/15	30/7/15	27/7/15						
Species													
Agrostis capillaris			2			3					29	2-3	
Agrostis stolonifera			3		1						29	1-3	
Anagallis arvensis				1							14	1	
Anthriscus sylvestris						2					14	2	
Anthyllis vulneraria	1					2					29	1-2	
Armeria maritima	1	3	5	4	1		3				71	1-5	
Bellis perennis							2				14	2	
Brachypodium sylvaticum					6						14	6	
Calluna vulgaris							1				14	1	
Carex flacca											14	3	
Cerastium fontanum							3				14	3	
Dactylis glomerata	3	1			3	3					57	1-3	
Daucus carota		1									29	1	
Festuca rubra	8	9	7	9	6	8	6				100	6-9	
Galium verum											14	2	
Heracleum sphondylium					3		2				29	2-3	
Holcus lanatus	3	3	3	5	3	4	5				100	3-5	
Hypochaeris radicata				3	3						29	3	
Jasione montana													
Leontodon saxatilis	1	2			3		2				57	1-3	
Leucanthemum vulgare					3						14	3	
Lotus corniculatus				2							29	2-3	

Plantago lanceolata	2	3	3	1	5	2	5				100	1-5	
Plantago maritima			3	2							29	2-3	
Poa pratense							1				14	1	
Potentilla erecta					3	2	3				43	2-3	
Primula vulgaris											14	5	
Prunella vulgaris											14	3	
Rosa spinosissima											14	4	
Rumex acetosa	2	3			1	3	1				57	1-3	
Scilla verna	1				2	1	2				57	1-2	
Silene uniflora	1										14	1	
Teucrium scorodonia											14	3	
Thymus praecox													
Vicia cracca			2								14	2	
Viola riviniana					3		3				29	3	
Litter													
Bare rock													

Community	MC8e												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	DA 1	SC 2	SC 3	SS 4	SC 5	SC 6	SC 7	SC 8	9	10			
Quadrat No.	179	168	170	166	136	70	71	72					
Grid Reference	SM77226 24183	SM82065 23312	SM81823 23154	SM83210 22989	SM87887 36630	SM72259 23216	SM71859 23193	SM71807 23138					
Date	6/8/15	5/8/15	5/8/15	5/8/15	3/8/15	30/7/15	30/7/15	30/7/15					
Species													
Agrostis stolonifera	3	2	4	3		3	3	2			88	2-4	
Aira caryophyllea				2							13	2	
Anthoxanthum odoratum		7									13	7	
Anthyllis vulneraria	3					1	4	1			50	1-4	
Armeria maritima	4		4	4	4	1		2			75	1-4	
Calluna vulgaris					1						13	1	
Centaurium erythraea								1			13	1	
Cerastium diffusum	LA		2	O	2						25	2	O-LA
Cladonia sp.					3						13	3	
Crithmum maritimum					1						13	1	
Dactylis glomerata	O			2		2	4	2			50	2-4	O
Daucus carota		R			R								R
Festuca ovina			5								13	5	
Festuca rubra	6	5	3	5	9	10	7	8			100	3-10	
Filipendula ulmaria				R									R
Galium verum							3				13	3	
Holcus lanatus			2								13	2	
Hypochaeris radicata	1	3		3		2		1			63	1-3	
Leontodon saxatilis	2	2		R			3	3			50	2-3	R
Lotus corniculatus		2	4		2	1	3	3			75	1-4	
Plantago coronopus	1	F	4	6	4		2	4			75	1-6	F
Plantago lanceolata	R	4		3		1	3	3			63	1-4	R
Plantago maritima	7	2				4	5				50	2-7	
Potentilla erecta			1								13	1	

Prunus spinosa							2				13	2	
Scilla verna	R					1		2			25	1-2	R
Sedum anglicum			3	O		1					25	1-3	O
Senecio jacobaea		2	1								25	1-2	
Silene maritima	2										13	2	
Silene uniflora				1							13	1	
Sonchus oleraceus	2										13	2	
Spergularia rupicola	2										13	2	
Tortula sp.	2										13	2	
Trifolium repens		1									13	1	
Tripleurospermum maritimum			4								13	4	
Viola sp.			2				2				25	2	
Litter													
Bare Ground				4	5						25	4-5	

Community	MC8f												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	SC 2	SS 3	SS 4	SS 5	SS 6	DA 7	SC 8	9	10			
Quadrat No.	174	104	42	43	44	45	35	9					
Grid Reference	SM82366 23080	SM90118 41247	SM76369 29479	SM76372 29489	SM76341 29505	SM776353 29492	SM72352 28013	SM74029 29022					
Date	5/8/15	31/7/15	29/7/15	29/7/15	29/7/15	29/7/15	30/7/15	27/7/15					
Species													
Agrostis capillaris			3	2		1					38	1-3	
Agrostis stolonifera		5		2	2	1	3				63	1-5	
Angelica sylvestris													R
Anthyllis vulneraria	O	3	5	7	5	5	4	2			88	2-7	O
Armeria maritima	6			1	3	2	4	3			75	1-6	
Bromus hordeaceus			3			1					25	1-3	
Calluna vulgaris							R						R
Carex caryophyllea						1					13	1	
Carex flacca			3	3	4	4	O				50	3-4	O
Centaurea nigra				1							13	1	
Centaurium erythraea				1							13	1	
Centaurium littorale			1		1						25	1	
Cerastium diffusum	3						3				25	3	
Crepis capillaris								1			13	1	
Dactylis glomerata	2	3	4	3	1	1					75	1-4	
Daucus carota			2				R				13	2	R
Euphrasia spp.			3	3	3	3					50	3	
Festuca rubra	7	5	7	7	8	7	6	9			100	5-9	
Glaux maritima	4										13	4	
Holcus lanatus	2		5	5	4	5	3	1			88	1-5	
Hydrocotyle vulgaris							4				13	4	
Hypochaeris radicata	1		2				3				38	1-3	
Jasione montana													R
Koeleria macrantha			1	3	1	1					50	1-3	
Leontodon autumnalis					1		2				25	1-2	
Leontodon hispidus			2	1	3						38	1-3	

Leontodon saxatilis		2					1				25	1-2	
Leucanthemum vulgare			1								13	1	
Lotus corniculatus	3	3		1	3	2					63	1-3	
Plantago coronopus	2										13	2	
Plantago lanceolata	2		2	4	3	3		1			75	1-4	
Plantago maritima	1		2		3	3	6	3			75	1-6	
Potentilla erecta			1	1		1	O				38	1	O
Primula vulgaris			2	1		3					38	1-3	
Rumex acetosa						O							O
Sanguisorba minor				1							13	1	
Scilla verna			3	4	3	3	3	1			75	1-4	
Sedum anglica	2	4					O				25	2-4	O
Serratula tinctoria			1	2		3					38	1-3	
Silene maritima							4				13	4	
Silene uniflora	4	3	1		2			2			63	1-4	
Sonchus arvensis							5				13	5	
Sonchus oleraceus			1		1		R				25	1	R
Betonica officinalis						R							R
Succisa pratensis			1								13	1	
Thymus praecox			2								13	2	
Trifolium prantense			3								13	3	
Trifolium repens			2								13	2	
Viola riviniana			3			1					25	1-3	
Litter													
Bare rock								4			13	4	

Community	MC8g												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SC 3	DA 4	DA 5	6	7	8	9	10			
Quadrat No.	186	187	182	139	140								
Grid Reference	SM73125 23740	SM73121 23721	SM78499 24265	SM87859 37168	SM87864 37172								
Date	6/8/15	6/8/15	6/8/15	3/8/15	3/8/15								
Species													
Anthyllis vulneraria			2								20	2	
Agrostis stolonifera	1										20	1	
Armeria maritima	6	7	6	4	6						100	4-7	
Calluna vulgaris				3							20	3	
Cerastium diffusum			1	3	3						60	1-3	
Cochlearia officinalis	2										20	2	
Dactylis glomerata				3	3						40	3	
Festuca rubra	5	5	4	5							80	4-5	
Heracleum sphondylium				1	2						20	1-2	
Holcus lanatus					4						20	4	
Hypochaeris radicata				3	2						40	2-3	
Jasione montana				1	1						40	1	
Leontodon autumnalis				1	2						40	1-2	
Lichen sp.				5							20	5	
Matricaria maritima	2										20	2	
Plantago coronopus			2								20	2	
Plantago lanceolata	1				1						40	1	
Plantago maritima				5	1						40	1-5	
Rumex acetosa					2						20	2	
Scilla verna				3	1						40	1-3	
Senecio vulgaris					1						20	1	
Silene maritima				3	4						20	3-4	
Silene uniflora		1	1								40	1	

Sonchus asper *Spergularia media*		1			2						20 20	2 1	
Litter Bare rock	7	5									40	5-7	

Community	MC9a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	DA 3	DA 4	SC 5	6	7	8	9	10			
Quadrat No.	188	189	137	138	134								
Grid Reference	SM73132 23256	SM73140 23259	SM88230 39597	SM88222 39603	SM88309 35354								
Date	6/8/15	6/8/15	3/8/15	3/8/15	3/8/15								
Species													
Achillea millefolium		2									20	2	
Agrostis stolonifera	2	3			2						60	2-3	
Aira caryophyllea	3										20	3	
Anthoxanthum odoratum		2									20	2	
Anthylllis vulneraria	2		3	4							60	2-4	
Armeria maritima	O	1	2	1	3						80	1-3	O
Brachypodium sylvaticum			4								20	4	
Carex caryophyllea	2	3									40	2-3	
Centaurium erythraea	3										20	3	
Centaurium erythraea	1										20	1	
Cerastium diffusum	2										20	2	
Cerastium fontanum		2									20	2	
Dactylis glomerata			4	4	2						60	2-4	
Danthonia decumbens			1								20	1	
Euphrasia spp.	2	3									40	2-3	
Festuca rubra	5	5	6	5	6						100	5-6	
Gallium verum	R												R
Holcus lanatus	4	3	4	4	1						100	1-4	
Hypochaeris radicata	1	2	3	3	1						100	1-3	
Jasione montana				1							20	1	
Leontodon autumnalis		1	2	2							60	1-2	
Lotus corniculatus	4	4	3	3	7						100	3-7	

Pimpinella saxifraga				O									O
Plantago coronopus	1										20	1	
Plantago lanceolata	3	4	4	4	1						100	1-4	
Plantago maritima	5	4	6	7	5						100	4-7	
Poa humilis	1										20	1	
Potentilla erecta		O	3	2	2						60	2-3	O
Primula veris				O	1						20	1	O
Rosa spinosissima				3							20	3	
Rumex acetosa	1		3								40	1-3	
Scilla verna	2	2			2						60	2	
Sedum anglicum		R											R
Senecio jacobaea		1									20	1	
Serratula tinctoria			2								20	2	
Silene sp.					2						20	2	
Silene maritima			2								20	2	
Sonchus asper				3							20	3	
Betonica officinalis				O									O
Thymus praecox	1										20	1	
Trifolium repens	2	2	1	1							80	1-2	
Viola riviniana		1	2	3							60	1-3	
Viola sp.					2						20	2	
Litter													
Bare rock													

Community	MC9b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SC 4	SC 5	SS 6	DA 7	8	9	10			
Quadrat No.	87	88	89	68	69	58	34						
Grid Reference	SM72326 26129	SM72329 26121	SM71973 25761	SM72615 23627	SM72350 23344	SM76658 29655	SM72478 28052						
Date	30/7/15	30/7/15	30/7/15	30/7/15	30/7/15	29/7/15	29/7/15						
Species													
Achillea millefolium	O	O				2					14	2	O
Agrostis capillaris				3		3					29	3	
Agrostis stolonifera					2		3				29	2-3	
Aira caryophyllea						1					14	1	
Aira praecox				2							14	2	
Anagallis arvensis							1				14	1	
Anthylllis vulneraria	1	1	1		2		2				71	1-2	
Armeria maritima	2	1	1		1		3				71	1-3	
Arrhenatherum elatius				1							14	1	
Calluna vulgaris							2				14	2	
Centaurea nigra						R							R
Cerastium diffusum							3				14	3	
Cerastium fontanum				3							14	3	
Cirsium arvense							2				14	2	
Dactylis glomerata	2	3	3	7	2	7	3				100	2-7	
Daucus carota	3	2	4		1	2	7				86	1-7	
Festuca ovina					2						14	2	
Festuca rubra	7	7	7	7	8	5	6				100	5-8	
Gallium verum			R		1	1					29	1	R
Heracleum sphondylium	R	R											R
Holcus lanatus	2	3	4	2	3	4					86	2-4	
Hypochaeris radicata		1	3		3	2	2				71	1-3	
Leontodon saxatilis					2		3				29	2-3	
Lolium perenne				3							14	3	

Lotus corniculatus		1			1	3					43	1-3	
Plantago coronopus					1		2				29	1-2	
Plantago lanceolata	1	1	5	1	3		4				86	1-5	
Plantago maritima	5	5	1			3					57	1-5	
Polygala vulgaris					2						14	2	
Potentilla erecta	O	O	1								14	1	O
Pteridium aquilinum				5							14	5	
Rubus fruticosus				1							14	1	
Rumex acetosa						R							R
Scilla verna	3	3	3		3						57	4	
Silene uniflora							5				14	5	
Sonchus arvensis			2								14	2	
Sonchus oleraceus				1							14	1	
Trifolium repens	2		3				1				43	1-3	
Tripleurospermum maritimum							O						O
Urtica dioica				1							14	1	
Viola riviniana	4	4									29	4	
Litter													
Bare rock													

Community	MC9c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SS 4	SS 5	SS 6	7	8	9	10			
Quadrat No.	133	46	47	48	49	50							
Grid Reference	SM88258 35427	SM76423 29512	SM76433 29518	SM76420 29514	SM76412 29512	SM76436 29516							
Date	2/8/15	29/7/15	29/7/15	29/7/15	29/7/15	29/7/15							
Species													
Achillea millefolium	1	3	1	2		1					83	1-3	
Agrostis capillaris	2	3	5	2	3	3					100	2-5	
Angelica sylvestris				R									R
Anthylllis vulneraria		2			2						33	2	
Betonica officinalis	4										17	4	
Brachypodium sylvaticum					O								O
Bromus hordeaceus		2	1		1						50	1-2	
Calluna vulgaris	2	3	1	3	4	1					100	1-4	
Carex caryophyllea		2									17	2	
Carex flacca		3	2	3	3	2					83	2-3	
Carex pilulifera			1								17	1	
Centaurea nigra			R			4					17	4	R
Dactylis glomerata	5	1	1	1	2	2					100	1-5	
Dactylorhiza sp.			1	1		1					50	1	
Daucus carota		2	2	1	1	2					83	1-2	
Erica cinerea						1					17	1	
Euphrasia spp.		3	3	3	3						67	3	
Festuca rubra	6	6	5	6	6	6					100	5-6	
Gallium verum	2		1	1		1					67	1-2	
Holcus lanatus	2	6	5	5	5	6					100	2-6	
Hypericum perforatum			1								17	1	
Hypochaeris radicata	1	1	1	1	1						83	1	
Jasione montana		2		2							33	2	

Koeleria macrantha		2	1	2	2						67	1-2	
Leontodon hispidus		3									17	3	
Leucanthemum vulgaris			1	2							33	1-2	
Lotus corniculatus	4	2		2	2	3					83	2-4	
Plantago lanceolata		3	2	3	3	3					83	2-3	
Plantago maritima	2		1		1						50	1-2	
Potentilla erecta	3	1		3	3	3					83	1-3	
Primula vulgaris		2	1	2	2	1					83	1-2	
Prunella vulgaris		2				3					33	2-3	
Pteridium aquilinum			1	1	1	2					67	1-2	
Rosa spinosissima	3										17	3	
Rubus fruticosus agg.			R										R
Sanguisorba minor				1							17	1	
Scilla verna	4	3	3	3	3	2					100	2-4	
Sedum anglicum				R									R
Serratula tinctoria		1	2	2	2	1					83	1-2	
Betonica officinalis		5	5	5	4	3					83	3-5	
Succisa pratensis		4	3	4	4	2					83	2-4	
Taraxacum officinale agg.			1								17	1	
Trifolium pratense	2	3	2	2		3					83	2-3	
Trifolium repens		1	1			1					50	1	
Viola riviniana				2	2	2					50	2	
Viola sp.	5										17	5	
Litter													
Bare rock													

Community	MC9d												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	121	122	123	124	125	10							
Grid Reference	SM89634 41366	SM89633 41372	SM89610 41362	SM89621 41369	SM89605 41372	SM73826 28935							
Date	31/7/15	31/7/15	31/7/15	31/7/15	31/7/15	27/7/15							
Species													
Agrostis capillaris	4	3	3	4							67	3-4	
Agrostis stolonifera			2	3		2					50	2-3	
Angelica sylvestris		1	1	1							50	1	
Armeria maritima	1		1		1						50	1	
Carex flacca			3	2	3	1					67	1-3	
Crepis capillaris					1						17	1	
Dactylis glomerata	3	1	3	3	4						83	1-4	
Dactylorhiza sp.		1									17	1	
Festuca rubra	5	5	6	6	7	7					100	5-7	
Holcus lanatus	5	7	5	5	4	4					100	4-7	
Hydrocotyle vulgaris						1					17	1	
Hypochaeris radicata		1			1						33	1	
Leucanthemum vulgare	1	1									33	1	
Lotus corniculatus	1				5	2					67	1-5	
Lotus pedunculatus	2		2	1							50	1-2	
Ononis repens	R												R
Plantago lanceolata	4	3	4	3	4	2					100	2-4	
Plantago maritima					1	4					33	1-4	
Potentilla erecta	4	3	3	3	1	2					100	1-4	
Primula vulgaris	2	2	2	3	1	1					100	1-3	
Prunella vulgaris						3					17	3	
Rumex acetosa	2	3	2	2							67	2-3	
Scilla verna	1		1		3	5					67	1-5	
Senecio jacobaea		1									17	1	

Serratula tinctoria	1				2						33	1-2	
Solidago virgaurea		R											R
Betonica officinalis	1										17	1	
Succisa pratensis	1										17	1	
Trifolium repens	R												R
Vicia cracca	R												R
Viola sp.	5	3									33	3-5	
Litter													
Bare ground													

Community	MC10a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	SC 2	SS 3	SS 4	SS 5	SC 6	7	8	9	10			
Quadrat No.	135	105	90	91	92	13							
Grid Reference	SM88212 35520	SM90110 41348	SM72266 26063	SM72255 26064	SM72246 26065	SM73248 28585							
Date	3/8/15	31/7/15	30/7/15	30/7/15	30/7/15	27/7/15							
Species													
Agrostis stolonifera	3	4	3	2	3						83	2-4	
Anthyllis vulneraria		1	1	1							50	1	
Armeria maritima			3	4	3						50	3-4	
Calluna vulgaris		1				1					33	1	
Carex flacca						2					17	2	
Dactylis glomerata		2									17	2	
Daucus carota			O										O
Euphrasia spp	1		2								33	1-2	
Festuca ovina	5										17	5	
Festuca rubra	5	7	5	5	6	5					100	5-7	
Holcus lanatus					3	2					33	2-3	
Hydrocotyle vulgaris						2					17	2	
Hypochaeris radicata	1										17	1	
Leontodon hispidus			O										O
Leontodon saxatilis						3					17	3	
Lotus corniculatus	2	4		2	1						67	1-4	
Plantago coronopus	5										17	5	
Plantago lanceolata	3					4					33	3-4	
Plantago maritima	5	7	7	7	7	9					100	5-9	
Potentilla erecta			R			1					17	1	R
Primula vulgaris						1					17	1	
Scilla verna	3	2	1			4					67	1-4	
Litter													
Bare rock													

Community	MC10b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	183	184	102	103									
Grid Reference	SM78128 24395	SM78135 24355	SM90529 40978	SM90529 40963									
Date	6/08/15	6/08/15	31/7/15	31/7/15									
Species													
Achillea millefolium	1	2									50	1-2	
Agrostis capillaris			2	3							50	2-3	
Aira caryophyllea	2	2									50	2	
Anthyllis vulneraria		1									25	1	
Calluna vulgaris	1	1	1								75	1	
Carex panicea	1		1								50	1	
Cerastium diffusum		2									50	2	
Dactylis glomerata		1									50	1	
Euphrasia spp.			2								50	2	
Festuca rubra	7	5	6	7							100	5-7	
Hypochaeris radicata		1		4							50	1-4	
Jasione montana				1							25	1	
Leontodon saxatilis	3	3	3	2							100	2-3	
Lotus corniculatus	4	3	7	5							100	3-7	
Plantago coronopus	3	4									50	3-4	
Plantago lanceolata	4	4									50	4	
Plantago maritima	6	4	8	4							100	4-8	
Potentilla erecta			2	4							50	2-4	
Scilla verna			2	2							50	2	
Senecio jacobaea				1							25	1	
Thymus praecox	3	4									50	3-4	
Viola riviniana	1										25	1	
Litter													
Bare rock													

Community	MC11a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	12												
Grid Reference	SM73533 28758												
Date	27/7/15												
Species													
Aira caryophyllea	2											2	
Anthyllis vulneraria	2											2	
Armeria maritima	4											4	
Dactylis glomerata	R												R
Daucus carota	5											5	
Festuca rubra	5											5	
Leontodon saxatilis	1											1	
Plantago maritima	4											4	
Primula vulgaris	2											2	
Silene uniflora	2											2	
Litter													
Bare rock													

Community	MC12a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	SS 2	SS 3	SC 4	5	6	7	8	9	10			
Quadrat No.	176	157	158	108									
Grid Reference	SM89746 41338	SM87686 37300	SM87768 37291	SM89735 41338									
Date	5/8/15	4/8/15	4/8/15	3/8/15									
Species													
Achillea millefolium	1										25	1	
Agrostis stolonifera	2										25	2	
Angelica sylvestris				2							25	2	
Armeria maritima			2								25	2	
Arrhenatherum elatius	3										25	3	
Brachypodium sylvaticum	2										25	2	
Carex flacca				1							25	1	
Centaurea nigra				2							25	2	
Cochlearia sp.	1										25	1	
Dactylis glomerata	4	3	4	2							100	2-4	
Festuca rubra	8	8	8	7							100	7-8	
Galium verum	2										25	2	
Holcus lanatus	2	4	4	6							100	2-6	
Hyacinthoides non-scripta	3	5	3	3							100	3-5	
Hypochaeris radicata		1	3								50	1-3	
Lotus corniculatus	1										25	1	
Plantago lanceolata	1			3							50	1-3	
Potentilla erecta				4							25	4	
Primula veris				1							25	1	
Prunus spinosa	1										25	1	
Rumex acetosa	1	R	1								50	1	R
Sedum telephium	2										25	2	

Silene uniflora *Sonchus oleraceus* *Teucrium scorodonia* *Viola* sp.	2 2 2	4 2	4 2								75 50 25 25	2-4 2 2 2	
Litter Bare rock													

Community	M10a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	25												
Grid Reference	SM73834 28525												
Date	29/7/15												
Species													
Achillea millefolium	1											1	
Angelica sylvestris	R												R
Brachypodium sylvaticum	O												O
Carex flacca	2											2	
Carex panicea	6											6	
Carex viridula subsp. *oedocarpa*	4											4	
Dactylis glomerata	2											2	
Festuca ovina	6											6	
Holcus lanatus	3											3	
Hypochaeris radicata	2											2	
Molinia caerulea	3											3	
Pedicularis sylvatica	2											2	
Plantago lanceolata	2											2	
Potentilla erecta	3											3	
Prunella vulgaris	3											3	
Pteridium aquilinum	1											1	
Ranunculus flammula	2											2	
Rhinanthus minor	2											2	
Rubus fruticosus agg.	R												R
Sedum anglicum	R												R
Succisa pratensis	1											1	
Viola sp.	1											1	
Litter													
Bare rock													

Community	M24												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	DA 2	3	4	5	6	7	8	9	10			
Quadrat No.	191	18											
Grid Reference	SM73313 28260	SM73093 28086											
Date	29/07/15	29/7/15											
Species													
Agrosti capillaris		3									50	3	
Anagallis tenella		2									50	2	
Angelica sylvestris	1	3									100	1-3	
Anthoxanthum odoratum	1	3									100	1-3	
Calluna vulgaris	4	6									100	4-6	
Campylopus introflexus		1									50	1	
Carex flacca		2									50	2	
Carex panicea	4										50	4	
Carex pulicaris		3									50	3	
Carex viridula subsp. *oedocarpa*	3	O									50	3	O
Crataegus monogyna		R											R
Danthonia decumbens		3									50	3	
Dryopteris affinis		1									50	1	
Eleocharis multicaulis	2										50	2	
Epilobium brunnescens	2										50	2	
Erica cinerea		3									50	3	
Festuca ovina		2									50	2	
Festuca rubra		3									50	3	
Galium verum		2									50	2	
Holcus lanatus	2	3									100	2-3	
Hydrocotyle vulgaris	4										50	4	
Hypnum jutlandicum		3									50	3	

Juncus acuitiflorus	5										50	5	
Juncus bulbosus	4										50	4	
Juncus conglomeratus	3										50	3	
Juncus effusus		O											O
Lotus corniculatus		O											O
Luzula multiflora		O											O
Lythrum salicaria	1										50	1	
Molinia caerulea	7	6									100	6-7	
Phragmities australis	1										50	1	
Plantago lanceolata		1									50	1	
Potentilla erecta	3	3									100	3	
Prunella vulgaris	2	3									100	2-3	
Pteridium aquilinum		O											O
Pulicaria dysenterica		O											O
Rubus fruticosus agg.		3									50	3	
Scutellaria minor	2										50	2	
Succisa pratensis		3									50	3	
Trifolium repens		2									50	2	
Ulex gallii	1	R									50	1	R
Viola riviniana		2									50	2	
Litter													
Bare ground													

Community	M25a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	115	116	117	118	119								
Grid Reference	SM88999 40487	SM88979 40505	SM88996 40523	SM89022 40538	SM89040 40539								
Date	31/7/15	31/7/15	31/7/15	31/7/15	31/7/15								
Species													
Agrostis capillaris	3				1						40	1-3	
Anthoxanthum odoratum	1			5	2						60	1-5	
Carex panicea		3	1	3	4						80	1-4	
Dactylorhiza sp.				1							20	1	
Danthonia decumbens		1			1						40	1	
Erica tetralix				3							20	3	
Festuca rubra		2	1	1	3						80	1-3	
Galium palustre	1										20	1	
Holcus lanatus	4	4	4	5	4						100	4-5	
Hydrocotyle vulgaris	2	3	3	5	5						100	2-5	
Juncus articulatus	2	4	4	3	2						100	2-4	
Juncus effusus		2									20	2	
Lotus corniculatus	1	1			1						60	1	
Mentha aquatica		1			1						40	1	
Molinia caerulea	9	9	10	8	9						100	8-10	
Potentilla anserina	1										20	1	
Potentilla erecta	2	1		2	1						80	1-2	
Potentilla reptans	1										20	1	
Ranunculus acris	2	1									40	1-2	
Rumex acetosa	1										20	1	
Trifolium repens	2										20	2	
Litter													
Bare ground													

Community	M25c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	DA 1	SC 2	3	4	5	6	7	8	9	10			
Quadrat No.	127	7											
Grid Reference	SM88512 40176	SM74046 28875											
Date	3/8/15	27/7/15											
Species													
Angelica sylvestris	4	1									100	1-4	
Brachypodium sylvaticum		4									50	4	
Calluna vulgaris	R												R
Carex flacca	1										50	1	
Centaurea nigra		1									50	1	
Cirsium arvense	L												L
Dactylis glomerata	O												O
Eupatorium cannabinum		2									50	2	
Festuca rubra	2										50	2	
Filipendula ulmaria	L												L
Holcus lanatus		2									50	2	
Juncus acutiflorus	1										50	1	
Lotus pedunculatus	4										50	4	
Lythrum salicaria	R	2									50	2	R
Molinia caerulea	9	10									100	9-10	
Rubus fruticosus	R												R
Serratula tinctoria	1	3									100	1-3	
Litter													
Bare ground													

Community	M27a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	5												
Grid Reference	SM74469 28784												
Date	27/7/15												
Species													
Angelica sylvestris	1											1	
Cirsium palustre	1											1	
Dryopteris dilatata	1											1	
Filipendula ulmaria	8											8	
Juncus articulatus	2											2	
Lotus pedunculatus	1											1	
Lythrum salicaria	2											2	
Mentha aquatica	2											2	
Litter													
Bare ground													

Community	M27b												
	Quadrats (Number & Domin Score)										Constancy	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	6												
Grid Reference	SM74874 28700												
Date	27/7/15												
Species													
Angelica sylvestris	1											1	
Arrhenatherum elatius	2											2	
Brachypodium sylvaticum	2											2	
Dryopteris dilatata	1											1	
Filipendula ulmaria	8											8	
Holcus lanatus	2											2	
Lythrum salicaria	5											5	
Rubus fruticosus agg.	4											4	
Urtica dioica	O												O
Litter													
Bare ground													

Community	M29												
	Quadrats (Number & Domin Score)										Constancy	Domin Range	DAFOR
Surveyor: DA	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	21												
Grid Reference	SM73237 28196												
Date	29/07/15												
Species													
Agrostis vinealis	O												O
Anagallis tenella	O												O
Calluna vulgaris	O												O
Carex panicea	4											4	
Carex viridula subsp. *oedocarpa*	3											3	
Danthonia decumbens	O												O
Eleocharis multicaulis	8											8	
Hydrocotyle vulgaris	4											4	
Hypericum eloides	O												O
Jasione montana	R												R
Juncus articulatus	3											3	
Mentha aquatica	R												R
Molinea caerulea	3											3	
Pulicaria dysenterica	R												R
Ranunculus flammula	3											3	
Samolus valerandi	O												O
Litter													
Bare rock													

Community	MG5a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	53	54	55	56	57								
Grid Reference	SM76911 29466	SM76890 29469	SM76852 29491	SM76813 29507	SM76782 29519								
Date	29/7/15	29/7/15	29/7/15	29/7/15	29/7/15								
Species													
Achillea millefolium				L-F									L-F
Agrostis capillaris	5	5	7	5	5						100	5-7	
Aira caryophyllea	3	3		2							60	2-3	
Anthoxanthum odoratum	2										20	2	
Bellis perennis	2	3	3	3	2						100	2-3	
Carex caryophyllea				L-F									L-F
Centaurium erythraea				1	1						40	1	
Cerastium diffusum	1										20	1	
Cerastium fontanum	3	3	3	3	3						100	3	
Cirsium arvense				2							20	2	
Cirsium vulgare				O									O
Crataegus monogyna (seedling)				R									R
Cynosurus cristatus	5	5	6	5	6						100	5-6	
Dactylis glomerata	3	3	4	3	3						100	3-4	
Euphrasia spp.		1		1							40	1	
Festuca rubra	6	5	3	5	5						100	3-6	
Hypochaeris radicata	3	3	3	3	4						100	3-4	
Leontodon autumnalis	2	2	2	1							80	1-2	
Leontodon hispidus	2	2									40	2	
Linum catharticum		3	1	2	2						80	1-3	
Lotus corniculatus	3	2	2	3	2						100	2-3	
Odontites vernus			1								20	1	
Pilosella officinarum	3	1									40	1-3	
Plantago lanceolata	3	3	3	3	2						100	2-3	

Polygala vulgaris				R									R
Potentilla erecta	2			2	2						60	2	
Primula vulgaris				O									O
Prunella vulgaris	3	3	4	3	4						100	3-4	
Pteridium aquilinum				F									F
Ranunculus acris					2						20	2	
Ranunculus repens		2	3	3	2						80	2-3	
Rhinanthus minor			1	1							40	1	
Rubus fruticosus agg.				O									O
Sagina procumbens	1										20	1	
Senecio jacobaea	3	2	3	3	2						100	2-3	
Taraxacum officinale agg					1						20	1	
Trifolium dubium	1										20	1	
Trifolium pratense	4	5	3	3	2						100	2-5	
Trifolium repens	3	3	3	3	3						100	3	
Veronica serpyllifolia	2	1									40	1-2	
Vicia cracca				1							20	1	
Viola sp.					4						20	4	
Litter													
Bare rock													

Community	MG5c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	51												
Grid Reference	SM77130 29688												
Date	29/7/15												
Species													
Achillea millefolium	1											1	
Agrostis capillaris	4											4	
Anthoxanthum odoratum	2											2	
Carex caryophyllea	2											2	
Carex flacca	2											2	
Centaurea nigra	5											5	
Conopodium majus	1											1	
Dactylis glomerata	3											3	
Daucus carota	O												O
Euphrasia agg	3											3	
Festuca rubra	6											6	
Holcus lanatus	4											4	
Hypochaeris radicata	3											3	
Leontodon hispidus	2											2	
Plantago lanceolata	3											3	
Potentilla erecta	3											3	
Prunella vulgaris	3											3	
Pteridium aquilinum	2											2	
Betonica officinalis	4											4	
Succisa pratensis	1											1	
Trifolium pratense	3											3	

Litter Bare ground													

Community	MG10a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	194												
Grid Reference	SM78666 244455												
Date	6/8/15												
Species													
Anthriscus sylvestris	1											1	
Athyrium felix-femina	4											4	
Epilobium palustre	1											1	
Festuca rubra	3											3	
Fillipendula ulmaria	1											1	
Holcus lanatus	6											6	
Hydrocotle vulgaris	3											3	
Juncus effusus	6											6	
Lolium perenne	2											2	
Pulicaria dysenterica	2											2	
Litter													
Bare ground													

Community	MG11a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	52												
Grid Reference	SM76725 29577												
Date	29/7/15												
Species													
Agrostis capillaris	3											3	
Cerastium fontanum	2											2	
Cirsium arvense	R												R
Dactylis glomerata	8											8	
Festuca rubra	3											3	
Heracleum sphondylium	O												O
Holcus lanatus	4											4	
Leontodon autumnalis	4											4	
Plantago lanceolata	3											3	
Potentilla anserina	5											5	
Rumex acetosa	2											2	
Senecio jacobaea	O												O
Trifolium pratense	3											3	
Trifolium repens	2											2	
Litter													
Bare ground													

Community	S4a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	190												
Grid Reference	SM8853 640211												
Date	3/8/15												
Species													
Agrostis capilaris	4											4	
Angelica sylvestris	1											1	
Epilobium palustre	2											2	
Hydrocotyle vulgaris	8											8	
Juncus articulatus	LA												LA
Lotus pedunculatus	3											3	
Mentha aquatica	O												O
Phragmities australis	10											10	
Litter Bare ground													

Community	U1												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SS	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	14	15	16										
Grid Reference	SM77530 0 28471	SM75293 28480	SM75249 28542										
Date	27/7/15	27/7/15	27/7/15										
Species													
Achillea millefolium		1	1								67	1	
Agrostis capillaris	3		2								67	2-3	
Aira praecox	3	3	3								100	3	
Bromus hordeacus	1	2									67	1-2	
Anthoxanthum odoratum	1		3								67	1-3	
Calluna vulgaris	2										33	2	
Cladonia sp.	2	2	1								100	1-2	
Cerastium fontanum		1									33	1	
Digitalis purpurea	1										33	1	
Erica cinerea		1	3								67	1-3	
Festuca ovina	5	7	6								100	5-7	
Galium saxatile	3	3	3								100	3	
Hypnum jutlandicum	3	3	3								100	3	
Hypochaeris radicata	1	1	1								100	1	
Jasione montana	1										33	1	
Leontodon taraxacoides	1										33	1	
Potentilla erecta		1	1								67	1	
Ramalina siliquosa	3										33	3	
Scilla verna		1	1								67	1	
Sedum anglicum	5	4	5								100	4-5	

Litter Bare ground	4										33	4	

Community	U4a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SC 4	5	6	7	8	9	10			
Quadrat No.	112	113	114	63									
Grid Reference	SM88988 40462	SM89004 40480	SM89003 40462	SM71888 23737									
Date	31/7/15	31/7/15	31/7/15	30/7/15									
Species													
Achillea millefolium		2	3								50	2-3	
Agrostis capillaris	5	6	5	10							100	5-10	
Agrostis stolonifera	2										25	2	
Anthoxanthum odoratum	3	3	2								75	2-3	
Carex flacca			3	2							50	2-3	
Carex panicea	5	3									50	3-5	
Centaurea nigra			2								25	2	
Cerastium fontanum		1									25	1	
Cirsium arvense	R												R
Crepis capillaris				2							25	2	
Cynosurus cristatus	2										25	2	
Dactylis glomerata			2								25	2	
Danthonia decumbens	1										25	1	
Euphrasia agg	2										25	2	
Festuca ovina	5	5	5								75	5	
Festuca rubra				3							25	3	
Galium verum			3								25	3	
Holcus lanatus	5	6	5	3							100	3-6	
Koeleria macrantha		1									25	1	
Leontodon saxatilis	4	4	4								75	4	
Lolium perenne	R												R
Lotus corniculatus	3	3	3								75	3	
Luzula campestre / multiflorum		2									25	2	

Plantago lanceolata	2	3	4								75	2-4	
Potentilla erecta	3	3	2								75	2-3	
Potentilla reptans	3	3	2								75	2-3	
Prunella vulgaris	2	2	3								75	2-3	
Ranunculus acris		2	2								50	2	
Ranunculus repens	3										25	3	
Rumex acetosa				1							25	1	
Betonica officinalis	R												R
Taraxacum officinale agg		1	1								50	1	
Trifolium pratense		2	1								50	1-2	
Trifolium repens	2	2	1	2							100	1-2	
Veronica chamaedrys				3							25	3	
Litter													
Bare ground													

Community	U4b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	192												
Grid Reference	SM73907 28047												
Date	29/7/15												
Species													
Agrostis capillaris	8											8	
Aira caryophyllea	LF												LF
Anthoxanthum odoratum	2											2	
Betonica officinalis	R												R
Cerastium fontanum	3											3	
Dactylis glomerata	5											5	
Holcus lanatus	2											2	
Jasione montana	R												R
Plantago lanceolata	2											2	
Pteridium aquilinum	1											1	
Rubus fruticosus agg.	1											1	
Rumex acetosa	1											1	
Seneecio jacobaea	1											1	
Teucrium scorodonia	2											2	
Ulex gallii	1											1	
Viola sp.	2											2	
Litter													
Bare ground													

Community	W2												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	22	23											
Grid Reference	SM73424 42859	SM90466 40623											
Date	28/7/15	28/7/15											
Species													
Anthriscus sylvestris		1									50	1	
Equisetum arvense		3									50	3	
Eupatorium cannabinum		2									50	2	
Filipendula ulmaria		3									50	3	
Holcus lanatus	2	2									100	2	
Lolium perenne		2									50	2	
Lonicera periclymenum	7										50	7	
Mentha aquatica		1									50	1	
Oenanthe crocata		2									50	2	
Phragmites australis	6										50	6	
Poa trivialis		4									50	4	
Prunella vulgaris		1									50	1	
Pteridium aquilinum	2										50	2	
Rubus fruticosus agg.	6	2									100	2-6	
Salix cinerea	10	10									100	10	
Ulex gallii		6									50	6	
Urtica dioica		1									50	1	
Litter													
Bare ground													

Community	W22a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SC 2	SC 3	SC 4	SC 5	6	7	8	9	10			
Quadrat No.	120	98	99	177	78								
Grid Reference	SM89611 41294	SM90811 40778	SM90579 40707	SM81554 23197	SM72586 23630								
Date	31/7/15	31/7/15	31/7/15	5/8/15	30/7/15								
Species													
Agrostis capillaris			6								20	6	
Agrostis stolonifera		4									20	4	
Apium nodiflorum		2									20	2	
Athyrium filix-femina		1									20	1	
Brachypodium sylvaticum		4									20	4	
Chaerophyllum temulum		2									20	2	
Dactylis glomerata	3	2	2								60	2-3	
Digitalis purpurea		1									20	1	
Geranium robertianum		3									20	3	
Glechoma hederacea		3									20	3	
Hedera helix		3	8		8						60	3-8	
Heracleum sphondylium	1										20	1	
Holcus lanatus	3	4	2	3							80	2-4	
Lonicera periclymenum					2						20	2	
Oenanthe crocata		2									20	2	
Phyllitis scolopendrium		1	2								40	1-2	
Prunus spinosa	10	10	10	9	9						100	9-10	
Ranunculus repens		2									20	2	
Rubus fruticosus agg.	2		5		5						60	2-5	
Senecio jacobaea		1									20	1	

Silene dioica	2	4		4	2						80	2-4	
Stachys sylvatica		1									20	1	
Stellaria media		3									20	3	
Teucrium scorodonia				1							20	1	
Ulex europaeus	4										20	4	
Urtica dioica		4									20	4	
Viola sp.		4									20	4	
Litter													
Bare ground													

Community	W22c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	DA 2	3	4	5	6	7	8	9	10			
Quadrat No.	4	76											
Grid Reference	SM75276 28478	SM72347 24557											
Date	27/7/15	30/7/15											
Species													
Armeria martima		3									50	3	
Arrhenatherum elatius		4									50	4	
Brachypodium sylvaticum		2									50	2	
Carex flacca		1									50	1	
Dactylis glomerata		3									50	3	
Dactylis glomerata	3										50	3	
Festuca rubra	4	5									100	4-5	
Hedera helix		3									50	3	
Hyacinthoides non-scripta		1									50	1	
Jasione montana		2									50	2	
Leucanthemum vulgare		2									50	2	
Poa humilis	1										50	1	
Potentilla erecta		3									50	3	
Prunus spinosa	9	8									100	8-9	
Pteridium aquilinum	5	3									100	3-5	
Rubus fruticosus agg.		4									50	4	
Rumex acetosa		2									50	2	
Scilla verna		3									50	3	
Silene dioica	2										50	2	
Silene uniflora		2									50	2	
Betonica officinalis		1									50	1	
Stellaria holostea		1									50	1	

Teucrium scorodonia *Viola riviniana*	3	2 3									100 50	2-3 3	
Litter Bare ground													

Community	W23a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: DA	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	74												
Grid Reference	SM72122 24103												
Date	30/7/15												
Species													
Agrostis capillaris	3											3	
Anthoxanthum odoratum	3											3	
Dactylis glomerata	5											5	
Digitalis purpurea	3											3	
Hedera helix	4											4	
Holcus lanatus	4											4	
Hyacinthoides non-scripta	3											3	
Potentilla erecta	O												O
Pteridium aquilinum	O												O
Rubus fruticosus agg.	1											1	
Rumex acetosa	4											4	
Silene dioica	O												O
Teucrium scorodonia	O												O
Ulex europaeus	8											8	
Litter													
Bare ground													

Community	W23c												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SS 4	SS 5	6	7	8	9	10			
Quadrat No.	2	59	60	61	62								
Grid Reference	SM74507 28071	SM74505 28058	SM72308 26132	SM75273 28471	SM72286 25903								
Date	27/7/15	27/7/15	27/7/15	27/7/15	27/7/15								
Species													
Achillea millefolium			1								20	1	
Agrostis capillaris	3				3						40	3	
Anthoxanthum odoratum					1						20	1	
Crataegus monogyna (seedling)	1										20	1	
Dactylis glomerata	2	3	3	3	2						100	2-3	
Daucus carota		2									20	2	
Digitalis purpurea		R											R
Heracleum sphondylium				1							20	1	
Holcus lanatus	2	3	2	4							80	2-4	
Hypochaeris radicata	1	2									40	1-2	
Jasione montana		R											R
Potentilla erecta	1										20	1	
Pteridium aquilinum	4			4							40	4	
Rubus fruticosus agg.	4	4	2	3	5						100	2-5	
Rumex acetosa		O											O
Senecio jacobaea				1	1						40	1	
Silene maritima			2								20	2	
Solanum dulcamara	2	1									20	1-2	
Betonica officinalis		R											R
Teucrium scorodonia	3			3	4						60	3-4	
Ulex europaeus	7	9	9	8	8						100	7-9	
Ulex gallii	4	R									20	4	R
Vicia cracca		R			1						20	1	R

Viola riviniana			2	2							40	2	
Litter Bare ground													

Community	W23c Maritime variant												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	DA 1	SC 2	SC 3	DA 4	SC 5	SC 6	7	8	9	10			
Quadrat No.	132	77	79	75	27	28							
Grid Reference	SM88448 39978	SM72404 23494	SM71801 23198	SM72372 24448	SM73624 28083	SM73915 28031							
Date	3/8/15	30/7/15	30/7/15	30/7/15	29/7/15	29/7/15							
Species													
Agrostis capillaris					5	3					33	3-5	
Agrostis stolonifera	4										17	4	
Aira caryophyllea				2							17	2	
Aira praecox				O									O
Anthoxanthum odoratum	3			3							33	3	
Brachypodium sylvaticum				3							17	3	
Calluna vulgaris	5				2						33	2-5	
Carex binervis	4				1						33	1-4	
Carex pilulifera	3										17	3	
Crepis capillaris			1								17	1	
Dactylis glomerata		1	4	5		2					67	1-5	
Dactylorhiza maculata	3										17	3	
Danthonia decumbens	3										17	3	
Digitalis purpurea				4	1						33	1-4	
Erica cinerea	6		4		5						50	4-6	
Festuca ovina	3				2						33	2-3	
Festuca rubra				2	3						33	2-3	
Galium aparine		1									17	1	
Hedera helix		2		3							33	2-3	
Holcus lanatus			1		2	1					50	1-2	
Hyacinthoides non-scripta				4							17	4	

Hypochaeris radicata	3				2	1					50	1-3	
Jasione montana				3							17	3	
Molinia caerulea					2						17	2	
Polygala serpyllifolia	1										17	1	
Potentilla erecta	3				4	2					50	2-4	
Prunella vulgaris					2						17	2	
Prunus spinosa		2		R							17	2	R
Pteridium aquilinum		2		F	1	4					50	1-4	F
Ramalina siliquosa				2							17	2	
Rubus fruticosus agg.	4	7	7	4	2	6					100	2-7	
Rumex acetosa				3							17	3	
Scilla verna	3			R							17	3	R
Sedum anglicum				3							17	3	
Senecio sylvaticus				2							17	2	
Silene uniflora				3							17	3	
Sonchus oleraceus				1							17	1	
Teucrium scorodonia	3		5			3					50	3-5	
Ulex europaeus	6			7							33	6-7	
Ulex gallii	7	9	8		6	8					83	6-9	
Umbilicus rupestris				2							17	2	
Viola sp.					2						17	2	
Litter													
Bare ground													

Community	W24												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: DA	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	160	161											
Grid Reference	SM81108 23662	SM81090 23645											
Date	5/8/15	5/8/15											
Species													
Achillea millefolium	1										50	1	
Armeria maritima	O												O
Brachypodium sylvaticum	3	4									100	3-4	
Centaurea nigra		R											R
Cirsium vulgare		1									50	1	
Dactylis glomerata	4	5									100	4-5	
Festuca rubra		O											O
Galium aparine		2									50	2	
Glechoma hederacea		1									50	1	
Hedera helix		1									50	1	
Jasione montana	O												O
Leucanthemum vulgare	3	2									100	2-3	
Pimpinella saxifraga	1										50	1	
Plantago lanceolata	2										50	2	
Prunus spinosa	5										50	5	
Raphanus maritimus	7	7									100	7	
Rubus fruticosus agg.	6	6									100	6	
Rumex acetosa		2									50	2	
Rumex obtusifolius	2										50	2	
Sedum anglicum		R											R
Senecio jacobaea		3									50	3	
Silene uniflora	O												O
Sonchus oleraceus	3										50	3	O

Teucrium scorodonia	3	4									100	3-4	
Litter Bare ground													

Community	W25a												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	DA 1	SC 2	SC 3	SC 4	5	6	7	8	9	10			
Quadrat No.	130	96	97	100									
Grid Reference	SM88847 40215	SM90523 40915	SM90518 40772	SM88815 40227									
Date	3/8/15	31/7/15	31/7/15	31/7/15									
Species													
Agrostis capillaris		2									25	2	
Angelica sylvestris	1										25	1	
Anthoxanthum odoratum	1	2									50	1-2	
Arrhenatherum elatius	4	8	3								75	3-8	
Crepis capillaris				1							25	1	
Dactylis glomerata	4	2									50	2-4	
Digitalis purpurea	1										25	1	
Dryopteris dilatata	1										25	1	
Epilobium angustifolium	3										25	3	
Hedera helix			3								25	3	
Holcus lanatus	4										25	4	
Hyacinthoides non-scripta	3	3	1	3							100	1-3	
Potentilla erecta				2							25	2	
Pteridium aquilinum	8	10	10	10							100	8-10	
Rubus fruticosus agg.	5	5	8	5							100	5-8	
Silene dioica			1								25	1	
Solidago virgaurea		1									25	1	
Teucrium scorodonia	1										25	1	
Ulex europaeus	4										25	4	
Viola sp.		2		2							50	2	

Litter Bare ground													

Community	W25b												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SS 1	SS 2	SS 3	SC 4	SC 5	6	7	8	9	10			
Quadrat No.	1	3	155	29	30								
Grid Reference	SM7516528677	SM74515 28190	SM88390 37679	SM73911 27981	SM73840 27828								
Date	27/7/15	27/7/15	4/8/15	29/7/15	29/7/15								
Species													
Agrostis capillaris	4	2	4		3						80	2-4	
Anthoxanthum odoratum		2			1						40	1-2	
Arrhenatherum elatius		3		2	2						60	2-3	
Dactylis glomerata	4	4			2						60	2-4	
Digitalis purpurea			O										O
Festuca rubra			3								20	3	
Fragaria vesca	1										20	1	
Glechoma hederacea	1										20	1	
Holcus lanatus	3	3	4	1							80	1-4	
Lonicera periclymenum				2	5						40	2-5	
Potentilla erecta	1		3		4						60	1-4	
Pteridium aquilinum	7	6	8	9	10						100	6-10	
Rubus fruticosus agg.	4	6	4	10	8						100	4-10	
Silene dioica	1										20	1	
Teucrium scorodonia	3	2	2	2	3						100	2-3	
Ulex europaeus	4	4	2								60	2-4	
Ulex gallii				1							20	1	
Viola riviniana			1								20	1	
Viola sp.					2						20	2	

Litter Bare ground													

Community	W25b Maritime variant (*Calluna*)												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor:	SC 1	SC 2	SC 3	DA 4	DA 5	SS 6	7	8	9	10			
Quadrat No.	31	32	26	33	131	156							
Grid Reference	SM73250 28075	SM73492 28263	SM73564 28386	SM73139 27895	SM88605 40100	SM88475 37734							
Date	29/7/15	29/7/15	29/7/15	29/7/15	3/8/15	4/8/15							
Species													
Agrostis capillaris		2	4	5							50	2-5	
Anthoxanthum odoratum		2		4							33	2-4	
Betonica officinalis		2									17	2	
Calluna vulgaris		3	2		4	5					67	2-5	
Dactylis glomerata		4	2	3	3						67	2-4	
Dryopteris dilatata					1						17	1	
Erica cinerea	2	2		R	7						50	2-7	R
Euphrasia spp.				O									O
Festuca ovina		1									17	1	
Festuca rubra		2	4	5							50	2-5	
Holcus lanatus		5	2	3							50	2-5	
Hyacinthoides non-scripta					R								R
Hypochaeris radicata				4							17	4	
Lathyrus linifolius		1									17	1	
Leontodon autumnalis				1							17	1	
Lonicera periclymenum			3								17	3	
Lotus corniculatus				3							17	3	
Molinia caerulea					LA								LA
Pedicularis sylvatica				3							17	3	
Plantago lanceolata		2	2	3							50	2-3	
Poa trivialis			2								17	2	

Potentilla erecta		2		4	R	1					50	1-4	R
Prunella vulgaris				3							17	3	
Pteridium aquilinum	9	9	9	5	7	9					100	5-9	
Rhinanthus minor				4							17	4	
Rosa spinosissima		5		1	3						50	1-5	
Rubus fruticosus agg.	5	5	5	5	5						83	5	
Senecio jacobaea				1							17	1	
Serratula tinctoria					R								R
Betonica officinalis					O								O
Teucrium scorodonia			4	R		2					33	2-4	R
Thymus praecox				O									O
Trifolium repens				1							17	1	
Ulex gallii	8		4		7	4					67	4-8	
Viola riviniana				4							17	4	
Viola sp.		2									17	2	
Litter													
Bare ground													

Community	W25b Maritime variant												
	Quadrats (Number & Domin Score)										Constancy (%)	Domin Range	DAFOR
Surveyor: SC	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	159												
Grid Reference	SM88075 37118												
Date	4/8/15												
Species													
Agrostis capillaris	5											5	
Achillea millefolium	2											2	
Carex flacca	1											1	
Daucus carota	1											1	
Dactylis glomerata	4											4	
Holcus lanatus	3											3	
Hypochoeris radicata	O												O
Lotus corniculatus	2											2	
Potentilla erecta	3											3	
Pteridium aquilinum	9											9	
Rosa spinosissima	3											3	
Rubus fruticosus agg.	5											5	
Scilla verna	2											2	
Teucrium scorodonia	4											4	
Viola sp.	4											4	
Litter													
Bare ground													

Community	Small sedge-rich damp grassland												
	Quadrats (Number & Domin Score)										Constancy	Domin Range	DAFOR
Surveyor: DA	1	2	3	4	5	6	7	8	9	10			
Quadrat No.	19												
Grid Reference	SM72928 28275												
Date	29/07/15												
Species													
Agrostis vinealis	5											5	
Anagallis tenella	3											3	
Calluna vulgaris	3											3	
Carex flacca	5											5	
Carex nigra	4											4	
Carex panicea	3											3	
Carex viridula subsp. *oedocarpa*	3											3	
Danthonia decumbens	5											5	
Festuca rubra	3											3	
Holcus lanatus	2											2	
Hydrocotyle vulgaris	5											5	
Juncus bufonius	1											1	
Leontodon saxatilis	4											4	
Lotus corniculatus	3											3	
Lythrum salicaria	O												O
Molinea caerulea	3											3	
Pedicularis sylvatica	O												O
Plantago maritima	1											1	
Potentilla erecta	3											3	
Prunella vulgaris	2											2	
Pulicaria dysenterica	2											2	
Radiola linoides	O												O
Ranunculus flammula	3											3	
Salix caprea	O												O
Scutellaria minor	R												R

Sphagnum compactum *Trifolium repens*	O 1											1	O
Litter Bare ground													

Data Archive Appendix

Data outputs associated with this project are archived on server–based storage at Natural Resources Wales:

- The GIS Data is stored in NRW Corporate Data Store.
- The images are stored in NRW Image Store.
- The documents are stored in the NRW Document Management System (DMS).

The data archive contains:

- The final report in Microsoft Word and Adobe PDF formats.
- A full set of maps produced in JPEG format.
- A series of GIS layers on which the maps in the report are based.
- A full set of images produced in jpg format.

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue http://libcat.naturalresources.wales/webview/ (English Version) and http://libcat.naturalresources.wales/cnc/ (Welsh Version) by searching 'Dataset Titles'. The metadata is held as record no. 116462.

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