5. EVALUATION

5.1 Site condition and management

The central area of Bwlch Corog and Pemprys (compartments A-F) are currently sheep grazed, while Cefn Coch is cattle grazed. At the time of survey, the density of sheep was very low: in the different compartments the numbers noted were as follows: A (12), B (15), C (3), D (2), E (0), F (17), G (4), H (0), I (0) and J (0)

Across the site, grasses were flowering freely and growing very lushly. The height of the vegetation in many compartments attests to the current grazing pressure being low. There was no evidence of recent grazing in compartments H, I and J.

The large areas of species-poor *Molinia*-vegetation, particularly noticeable in compartment F, are indicative of a historical regime of frequent burning and heavy grazing. The cessation of frequent burning obviously predates the planting of the adjacent forestry, and may be much older, but its legacy remains. Recent low grazing pressure has allowed much of this *Molinia* to become tussocky and overgrown; the presence of **M25c** in compartment H is significant as this community can be taken as an indication of undergrazing or abandonment in lowland contexts.

The presence of much **OV25** *Urtica-Cirsium* vegetation in compartments I and J in areas recorded as improved grassland in the mid 1990s, according to the Phase 1 survey (Map A3.4.1), also indicate possible former overgrazing and disturbance to the sward (Rodwell *et al.* 2005). The complex mosaics in which the **OV25** is now set in compartment J, with acid grassland, marshy grassland, dry heath and blanket mire indicate the beginning of a reversion to semi natural vegetation. Residual nitrogen in the soil might, however, take some time to reduce to levels comparable with nearby semi-natural vegetation and so the **OV25** could persist for some time.

Compartment C has a large area of *Juncus effusus*-dominated vegetation which is in marked contrast to the more *Molinia*-dominated vegetation in compartments B and D on either side. The Upland Vegetation Survey (Map A3.31) shows this area was improved grassland in 1980 and the soil survey (Rudeforth 1970) shows that the underlying soils are iron-pan stagnopodzols and peat soils with much impeded drainage. The indications are that at some point in the past it was ploughed and reseeded, but that the sub-soil iron-

pan has provided the ideal growth situation for *J. effusus*. Much of the vegetation is **MG10** *Holcus*-Juncus rush-pasture which has a ground layer of mesotrophic grasses and herbs indicating that the soil nitrogen status is higher than in the two adjacent compartments.

Many other features of the site are similar to those recorded in 1980, allowing for the different classification used then, the different scale of mapping and the fact that some habitats (e.g. **M17** *Scirpus-Eriophorum* blanket mire) were under-recorded due to the Scottish bias in the classification. Compartment A shows the same broad distribution of habitats. Compartment B shows more *Nardus stricta*-dominated vegetation and less *Pteridium* then. Compartment E, by contrast, shows some decrease in bracken-dominated vegetation.

The large area of acid grassland (**U4** *Festuca-Agrostis-Galium* and **U6** *Juncus-Festuca grasslands* with **M25** *Molinia-Potentilla* mire and **MG9** *Holcus-Deschampsia* grassland) in compartment D can be seen to be present in 1980, although perhaps smaller in extent. Elsewhere in this compartment, the 1980 vegetation is equivalent to **M17** *Scirpus-Eriophorum* blanket mire and **M25** which more or less covers the present day habitat. In compartment F to the north, the suite of vegetation types recorded by the WFU is similar to 2005, except for a strip of *Pteridium*-dominated vegetation crossing the hillside at between 330m-360m on eastern side of the highest part of the site. This may correspond with a strip of **U4a** and **U4e** *Festuca-Agrostis-Galium* grassland recorded in 2005, but the disappearance of the bracken is intriguing. In this compartment, the wet heath and blanket bog vegetation does not appear very clearly on the 1980 map and this may indicate some recovery of the vegetation from *Molinia*-dominated vegetation which resulted from the burning and grazing regime in earlier times.

Compartment H, which in 1980 is shown as improved grassland, now shows a complex range of acid grassland, marshy grassland, wet heath, bracken, scrub and even some blanket mire. Whether this is a true change or the result of imprecise boundary drawing by the 1980 surveyors is unclear. It is more likely to be the latter as such a complete reversion to semi-natural vegetation in 25 years would be unprecedented.

In summary, compartments B, D, F and H support the most semi-natural vegetation. Compartments C, G and I have large areas of modified vegetation and must be regarded

as being in unfavourable condition for conservation purposes. Compartment J appears to be reverting to semi-natural vegetation slowly. Compartments A and E have large areas of bracken. None of the vegetation on the site is in really good condition, but it is typical of much of the habitat in the Cambrian Uplands.

In relation to other land-use practises, there is no recorded history of peat-cutting on the site, but horizontal lines in an area of blanket mire on the top of Bwlch Corog hill with corresponding changes in level, suggest that this practice has occurred in the past.

5.2 Bwlch Corog in a regional context

The vegetation of the site is similar to that found on other sites of conservation interest in Cambrian Uplands such as Pumlumon and Elenydd, though on a more subdued scale. Yeo and Blackstock's (2002) biogeographical analysis of the upland vegetation of Wales, put Bwlch Corog (as part of the Pumlumon massif) into the North-Central Moorlands group. This group includes such sites as Mynydd Hiraethog and Migneint with it's southern boundary at Pumlumon. Elenydd, although geographically close, falls in the South-Central Moorlands group lacking some of the more oceanic vegetation communities, the two main examples of which at Bwlch Corog are **M17** *Scirpus-Eriophorum* blanket mire and **H21** *Calluna-Vaccinium-Sphagnum* heath, the latter appearing in a degraded form as the **Sphagnum capillifolium** form of **H18** *Vaccinium-Deschampsia* heath. As part of the North-Central Moorlands group, Bwlch Corog lacks many of the more upland vegetation types which characterize the Snowdonian mountains.

Although Elenydd falls in a different biogeographical group, Bwlch Corog shares with it large areas of species-poor *Molinia*-dominated vegetation, much of which is almost certainly derived from **M17** blanket mire by historical burning and overgrazing.

The vegetation of conservation interest in the two adjacent SSSI of Pengarreg-gopa a Moel Hyrddod and Pencreigiau'r Llan is blanket mire, dry and wet heath. Although these areas were not visited, it was clearly evident from casual inspection of aerial photos of the sites that the vegetation in these two area was of a much better quality than in Bwlch Corog. The site, therefore, can be viewed as a link between these two areas and as such

the type of habitat on the site which is most valuable is that which it shares with its neighbours.

5.3 Potential for restoration

All the land on the two holdings lies below the potential tree-line, so theoretically the whole site could be restored to some form of native woodland. This would be easier on some of the more fertile areas on the site and probably quite difficult in some of the *Molinia*-dominated vegetation over deep peat.

Another way of looking at the restoration potential of the site is to consider what is there and try to build on that. Further, as the site forms a bridge between the two adjacent SSSIs, it makes sense that some priority should be given to the blanket mire, dry and wet heath vegetation.

Reverting compartments such as C or I to any of these three types of vegetation would be difficult given the degree of modification, so it makes sense to concentrate any attempt in the compartments where there are remnant or precursor vegetation. Compartment F would seem to be the best candidate if this approach is followed through, already having all three vegetation types plus areas of *Molinia*-dominated vegetation, some of which almost certainly lie over deep peat. In order to break up the large tussocks of *Molinia*, some short-term heavy stocking with cattle is probably necessary. A breed with not too fussy a palate such as Welsh Black would be a good choice. Once the *Molinia* tussocks had been broken up, the grazing pressure could be brought down to more manageable levels. This could be followed by spreading heather cuttings to increase the amount of ericoid seeds falling onto the sward. Sheep grazing would be counterproductive during this period as sheep have a more discerning palate and avoid coarse grasses and sedges and could graze *Calluna* seedlings. Other locations where this approach could be followed include compartments B and J.

The choice on whether to extend recovery measures to all compartments on the two farms must depend on whether the intention is to make the land financially viable through agriculture or not. If the concern is for further environmental recovery, then the remaining compartments could be considered for woodland regeneration. Compartments A, E and H, for example have significant areas of bracken and could be planted up with *Quercus*

petraea, *Betula pubescens/pendula* and/or *Sorbus aucuparia* to recreate/extend the current areas of **W11** *Quercus-Betula-Oxalis* woodland. The current stands of woodland could also be cleared of planted conifers.

Compartments G and I which have a degree of nitrogen enrichment could be planted up to create more mixed woodland by including additional species such as *Fraxinus excelsior*, *Alnus glutinosa*, *Corylus avellana*, *Populus tremula* or *Prunus padus*. Compartment C, which is underlain by soils with a more impeded drainage than compartments G and I, could be planted with mix of species more suitable for damper ground e.g. *Salix cinerea*, *S. caprea*, *Alnus glutinosa* or *Betula pubescens*.

6. ACKNOWLEDGEMENTS

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APPENDIX 1

Target notes

T1. BWCOROG/1

Barbilophozia atlantica at SN7157093890 with *Cynodontium bruntonii* and *Phegopteris connectilis*.

T2. BWCOROG/2

Dryopteris carthusiana in **S3** *Carex paniculata* swamp at SN7310895653

T3. BWCOROG/3

Sphagnum subsecundum in **M6a** *Carex-Sphagnum* mire at SN7131394168

T4. BWCOROG/4

Possible former peat cutting at SN73449505

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APPENDIX 2

Quadrat data

H8e *Calluna vulgaris – Ulex gallii* heath, *Vaccinium myrtillus* sub-community

Quadrat number	Q15	STAND
Date	04-Aug-05	04-Aug-05
Recorder	AJT	AJT
Calluna vulgaris		F.C
Erica cinerea	5	C.A
Ulex gallii	8	D
Vaccinium myrtillus	6	F.C
Blechnum spicant	2	F
Dryopteris dilatata	2	F.O
Oreopteris limbosperma	1	O
Carex binervis	4	F.C
Agrostis canina	5	F
Anthoxanthum odoratum		O
Festuca ovina	3	F
Molinia caerulea	1	O.R
Digitalis purpurea		O
Galium saxatile	5	F.O
Sedum anglicum	1	O
Hypnum jutlandicum	3	F
Racomitrium heterostichum	1	R
Diplophyllum albicans	1	R
Lophozia excisa	1	R
Lophozia sudetica	1	R
Cladonia portentosa		R
Cladonia pyxidata	1	R
Cladonia uncialis	2	R
Hypogymnia physodes	3	F

Dwarf shrub height (cm)	1->25
Easting	SN 73310
Northing	94060
Altitude (m) (GPS)	315
Slope	80
Aspect	152
Grazers (type)	Ungrazed
Dung quantity (estimated cm3)	0
Grazing intensity	-

H18aSc *Vaccinium myrtillus – Deschampsia flexuosa* heath, *Hylocomium splendens – Rhytidiadelphus loreus* sub-community, *Sphagnum capillifolium* variant

Quadrat number	Q11	STAND
Date	03-Aug-05	03-Aug-05
Recorder	AJT	AJT
Calluna vulgaris	2	F.O
Vaccinium myrtillus	8	O.A
Juncus effusus		O
Anthoxanthum odoratum	2	O.F
Deschampsia flexuosa	4	F.C
Molinia caerulea	4	F
Nardus stricta	2	O.F
Galium saxatile	3	F
Plagiothecium undulatum	2	F
Pleurozium schreberi	3	C
Polytrichum commune	3	C
Rhytidiadelphus loreus	5	C.A
Sphagnum capillifolium rubellum	4	F.C
Sphagnum quinquefarium	4	F

Litter (%)	0
Dwarf shrub cover	8
Grass cover	4
Bryo cover	6
Sphagnum cover	4
Lichen cover	0
Dwarf shrub height (cm)	15
Field layer height (cm)	20
Easting	SN 71719
Northing	93845
Altitude (m) (GPS)	297
Slope	35
Aspect	5
Grazers (type)	Sheep
Dung quantity (estimated cm3)	0
Grazing intensity	Low

M15b/d *Scirpus cespitosus – Erica tetralix* wet heath, intermediate between Typical subcommunity and *Vaccinium myrtillus* subcommunity

Quadrat number	Q01
Date	04-Aug-05
Recorder	DR
Calluna vulgaris	4
Erica tetralix	5
Vaccinium myrtillus	3
Juncus squarrosus	4
Trichophorum cespitosum	7
Agrostis canina	2
Anthoxanthum odoratum	2
Molinia caerulea	6
Nardus stricta	2
Narthecium ossifragum	3
Potentilla erecta	3
Dicranum scoparium	3
Hypnum jutlandicum	6
Polytrichum commune	4
Racomitrium lanuginosum	3
Rhytidiadelphus loreus	2
Rhytidiadelphus squarrosus	3
Sphagnum capillifolium s.l.	2
Sphagnum papillosum	5
Sphagnum subnitens	5
Sphagnum tenellum	4
Diplophyllum albicans	3
Gymnocolea inflata	2
Odontoschisma sphagni	4
Cladonia portentosa	1
Litter (%)	5
Dwarf shrub cover	5
Grass cover	8
Bryo cover	6
Sphagnum cover	6
Lichen cover	0
Dwarf shrub height (cm)	5-15
Field layer height (cm)	12-28
Easting	SN73656
Northing	96305
Altitude (m) (GPS)	263
Slope	3
Aspect	30
Soil depth (cm)	25-30
Grazers (type)	Sheep
Grazing intensity	OK

M17a *Scirpus cespitosus – Eriophorum vaginatum* blanket mire, *Drosera rotundifolia – Sphagnum* subcommunity

Quadrat number	Q04	Q06
Date	04-Aug-05	04-Aug-05
Recorder	DKR	DKR
Erica tetralix	6	5
Eriophorum angustifolium	5	5
Eriophorum vaginatum	4	4
Trichophorum cespitosum	6	6
Molinia caerulea	5	7
Drosera rotundifolia	3	3
Narthecium ossifragum	4	5
Polygala serpyllifolia		3
Potentilla erecta	3	
Hypnum jutlandicum	5	5
Rhytidiadelphus squarrosus		3
Sphagnum auriculatum s.l.	6	
Sphagnum capillifolium s.l.	4	3
Sphagnum fallax		5
Sphagnum papillosum	6	8
Sphagnum subnitens	3	
Sphagnum tenellum		3
Calypogeia fissa		3
Diplophyllum albicans	3	
Odontoschisma sphagni	5	4
Litter (%)	5	10
Dwarf shrub cover	6	5
Grass cover	8	8
Bryo cover	5	5
Sphagnum cover	8	9
Lichen cover	0	0
Dwarf shrub height (cm)	5-15	
Field layer height (cm)	6-30	
Easting	SN 73448	SN 73541
Northing	95063	95272
Altitude (m) (GPS)	363	352
Slope	0	0
Aspect	-	-
Soil depth (cm)	>50	>50
Grazers (type)	Sheep	Sheep
Dung quantity (estimated cm3)		
Grazing intensity	OK	

M17c *Scirpus cespitosus – Eriophorum vaginatum* blanket mire, *Juncus squarrosus – Rhytidiadelphus loreus* subcommunity

Quadrat number	Q02	Q03	Q13	STAND
Date	04-Aug-05	04-Aug-05	04-Aug-05	04-Aug-05
Recorder	DKR	DKR	AJT	AJT
Calluna vulgaris	3	4	3	F
Erica tetralix	5	5		
Vaccinium myrtillus	3	4	5	C
Carex echinata	2			O.F
Carex nigra			3	O.F
Eriophorum angustifolium		3		
Eriophorum vaginatum	5	5	4	F.C
Juncus squarrosus	4			F
Trichophorum cespitosum	6	7	6	O.F
Anthoxanthum odoratum	2			
Deschampsia flexuosa	4	3	4	F
Festuca ovina			4	F
Molinia caerulea	4	6	4	A
Nardus stricta	2			
Narthecium ossifragum	2	3		
Potentilla erecta	3			O.F
Aulacomnium palustre	2			
Dicranum scoparium	2			
Hypnum jutlandicum	5	5		
Plagiothecium undulatum		3		
Pleurozium schreberi	2	4		
Polytrichum strictum			3	F
Polytrichum commune	3	4	4	C
Rhytidiadelphus loreus		3	3	F
Rhytidiadelphus squarrosus			2	O
Sphagnum capillifolium s.l.	6	5	7	C.A
Sphagnum fallax	4		5	F.O
Sphagnum papillosum	5	5		
Sphagnum subnitens	4	5		
Sphagnum tenellum	3			
Lophozia ventricosa	3			
Odontoschisma sphagni	3	3		
Scapania sp.	3			
Litter (%)	5	15	3	
Dwarf shrub cover	5	5	5	
Grass cover	8	8	5	
Bryo cover	5	5	8	
Sphagnum cover	8	7	8	
Lichen cover	0	0	9	
Dwarf shrub height (cm)	5-15	5-25	5-10	
Field layer height (cm)	10-25	10-30	10-20	

Quadrat number	Q02	Q03	Q13	STAND
Easting	SN73751	SN 73638	SN 73847	
Northing	96170	95555	94932	
Altitude (m) (GPS)	270	354	365	
Slope	3	3	10	
Aspect	40	29	22	
Soil depth (cm)	20	>50		
Grazers (type)	Sheep	Sheep	Sheep?	
Dung quantity (estimated cm3)			0	
Grazing intensity	OK	OK	L	

M21b *Narthecium ossifragum – Sphagnum papillosum* valley mire, *Vaccinium oxycoccos – Sphagnum recurvum* subcommunity

Quadrat number	Q05
Date	04-Aug-05
Recorder	DKR
Erica tetralix	5
Eriophorum angustifolium	6
Trichophorum cespitosum	3
Molinia caerulea	5
Drosera rotundifolia	3
Narthecium ossifragum	6
Polygala serpyllifolia	3
Potentilla erecta	1
Hypnum jutlandicum	4
Sphagnum auriculatum s.l.	3
Sphagnum cuspidatum	5
Sphagnum fallax	5
Sphagnum papillosum	6
Sphagnum subnitens	3
Sphagnum tenellum	3
Odontoschisma sphagni	4
Litter (%)	30
Dwarf shrub cover	6
Grass cover	8
Bryo cover	5
Sphagnum cover	8
Lichen cover	0
Dwarf shrub height (cm)	6-10
Field layer height (cm)	8-25
Easting	SN 73429
Northing	95013
Altitude (m) (GPS)	364
Slope	0
Aspect	-
Soil depth (cm)	>50
Grazers (type)	S
Dung quantity (estimated cm3)	
Grazing intensity	OK

Nodum 19c *Vaccinium oxycoccos – Sphagnum recurvum* nodum, *Vaccinium myrtillus* sub-type

Quadrat number	Q08	STAND	Q07	STAND
Date	03-Aug-05	03-Aug-05	03-Aug-05	03-Aug-05
Recorder	AJT	AJT	AJT	AJT
Calluna vulgaris	2	F.A		
Erica tetralix	2	F.O	5	F.C
Vaccinium myrtillus	6	A.D	1	O
Dryopteris dilatata		O.F		
Pteridium aquilinum		O.F		
Eriophorum angustifolium			2	F
Eriophorum vaginatum	2	F.C	5	A
Juncus effuses		O		
Juncus squarrosus	2	O.F		R.F
Luzula sylvatica				O.F
Trichophorum cespitosum	3	F		F
Deschampsia flexuosa	6	C.A	4	O
Festuca ovina			3	F.A
Molinia caerulea			6	F
Narthecium ossifragum	7	A	3	A
Vaccinium oxycoccos	4	F.C	4	F
Aulacomnium palustre	5	F	5	F
Pleurozium schreberi	2	F.C	2	C.F
Polytrichum alpestre	2	F.C		O
Polytrichum commune			1	F
Rhytidiadelphus loreus	2	F.C	7	O.F
Sphagnum angustifolium				A.D
Sphagnum capillifolium rubellum				O
Sphagnum fallax				
Sphagnum papillosum				
Sphagnum subnitens				
Litter (%)	3		0	
Dwarf shrub cover	7		5	
Grass cover	6		6	
Bryo cover	8		8	
Sphagnum cover	3		7	
Lichen cover	0		0	
Dwarf shrub height (cm)	20		10	
Field layer height (cm)	30		15	
Easting	SN 71843		SN 72790	
Northing	93771		93702	
Altitude (m) (GPS)	347		306	
Slope	25		0	
Aspect	355		-	
Grazers (type)	S		S	
Dung quantity (estimated cm3)	0		0	
Grazing intensity	L		L	

U4d *Festuca ovine – Agrostis capillaris – Galium saxatile* grassland, *Luzula multiflora – Rhytidiadelphus loreus* subcommunity

Quadrat number	Q10
Date	03-Aug-05
Recorder	AJT
Vaccinium myrtillus	2
Agrostis capillaris	3
Anthoxanthum odoratum	4
Deschampsia caespitosa	8
Deschampsia flexuosa	3
Festuca ovina	2
Holcus lanatus	2
Pleurozium schreberi	2
Polytrichum commune	5
Litter (%)	3
Dwarf shrub cover	2
Grass cover	10
Bryo cover	5
Sphagnum cover	0
Lichen cover	0
Dwarf shrub height (cm)	5
Field layer height (cm)	25
Easting	SN 71556
Northing	93890
Altitude (m) (GPS)	285
Slope	35
Aspect	0
Grazers (type)	Sheep
Dung quantity (estimated cm3)	O
Grazing intensity	Low

U4d *Festuca ovine – Agrostis capillaris – Galium saxatile* grassland, *Luzula multiflora – Rhytidiadelphus loreus* subcommunity

Quadrat number	Q10
Date	03-Aug-05
Recorder	AJT
Vaccinium myrtillus	2
Agrostis capillaris	3
Anthoxanthum odoratum	4
Deschampsia caespitosa	8
Deschampsia flexuosa	3
Festuca ovina	2
Holcus lanatus	2
Pleurozium schreberi	2
Polytrichum commune	5
Litter (%)	3
Dwarf shrub cover	2
Grass cover	10
Bryo cover	5
Sphagnum cover	0
Lichen cover	0
Dwarf shrub height (cm)	5
Field layer height (cm)	25
Easting	SN 71556
Northing	93890
Altitude (m) (GPS)	285
Slope	35
Aspect	0
Grazers (type)	Sheep
Dung quantity (estimated cm3)	O
Grazing intensity	Low

U4ePc *Festuca ovine – Agrostis capillaris – Galium saxatile* grassland, *Vaccinium myrtillus – Deschampsia flexuosa* subcommunity, *Polytrichum commune* variant

Quadrat number	Q14	STAND
Date	04-Aug-05	04-Aug-05
Recorder	AJT	AJT
Vaccinium myrtillus	2	O.F
Carex binervis	2	F.C
Carex panicea	2	O.F
Carex pilulifera	1	O
Juncus effusus		O
Agrostis capillaris	3	F.C
Anthoxanthum odoratum	4	F.C
Deschampsia flexuosa	5	C
Festuca ovina	3	F
Molinia caerulea	1	F.C
Nardus stricta	4	F
Galium saxatile	4	F.A
Potentilla erecta	5	F.C
Pleurozium schreberi	3	F
Polytrichum commune	8	D.A
Rhytidiadelphus squarrosus	4	F.R

Litter (%)	
Dwarf shrub cover	2
Grass cover	6
Bryo cover	9
Sphagnum cover	0
Lichen cover	0
Dwarf shrub height (cm)	5
Field layer height (cm)	5-25
Easting	SN 73887
Northing	94378
Altitude (m) (GPS)	368
Slope	10
Aspect	8
Grazers (type)	Sheep
Dung quantity (estimated cm3)	0
Grazing intensity	Low

U16c *Luzula sylvatica – Vaccinium myrtillus* tall-herb community, Species-poor sub-community

Quadrat number	Q09
Date	03-Aug-05
Recorder	AJT
Vaccinium myrtillus	2
Luzula sylvatica	10
Deschampsia flexuosa	1
Plagiothecium undulatum	3
Pleurozium schreberi	2
Polytrichum commune	2
Rhytidiadelphus loreus	3
Rhytidiadelphus squarrosus	1
Litter (%)	3
Dwarf shrub cover	2
Grass cover	1
Bryo cover	3
Sphagnum cover	0
Lichen cover	0
Dwarf shrub height (cm)	5
Field layer height (cm)	15
Easting	SN 71521
Northing	93886
Altitude (m) (GPS)	299
Slope	40
Aspect	0
Soil depth (cm)	
Grazers (type)	Sheep
Dung quantity (estimated cm3)	0
Grazing intensity	Low

U19 *Thelypteris limbosperma – Blechnum spicant* community.

Quadrat number	Q12	STAND
Date	04-Aug-05	04-Aug-05
Recorder	AJT	AJT
Vaccinium myrtillus		O.C
Blechnum spicant	2	F
Oreopteris limbosperma	6	A.D
Pteridium aquilinum	1	O.F
Carex binervis		O
Juncus effusus	1	O.F
Agrostis canina	4	A.C
Agrostis capillaris	3	C.F
Anthoxanthum odoratum	5	C.F
Deschampsia caespitosa	1	O
Deschampsia flexuosa	6	C.A
Festuca ovina	3	F
Galium saxatile	4	C
Oxalis acetosella	4	F.O
Potentilla erecta	4	C.A
Hylocomium splendens	4	F
Mnium hornum	1	O
Plagiothecium denticulatum	1	O
Plagiothecium undulatum	3	F.O
Pleurozium schreberi	3	F
Polytrichum commune	5	F.A
Rhytidiadelphus loreus	6	A.F
Rhytidiadelphus squarrosus	3	O.F
Sphagnum fallax	3	O.F
Sphagnum subnitens	3	F.A
Calypogeia muelleriana	2	
Diplophyllum albicans	1	
Lophocolea bidentata	2	
Lophozia sudetica	1	
Cladonia portentosa		R.C
Dwarf shrub cover	0	
Grass cover	7	
Bryo cover	8	
Sphagnum cover	3	
Field layer height (cm)	10-30	
Easting	SN 73961	
Northing	95084	
Altitude (m) (GPS)	300	
Slope	50	
Aspect	330	
Grazers (type)	Sheep?	
Grazing intensity	L	

APPENDIX 3 MAPS

A3.1 Location Maps

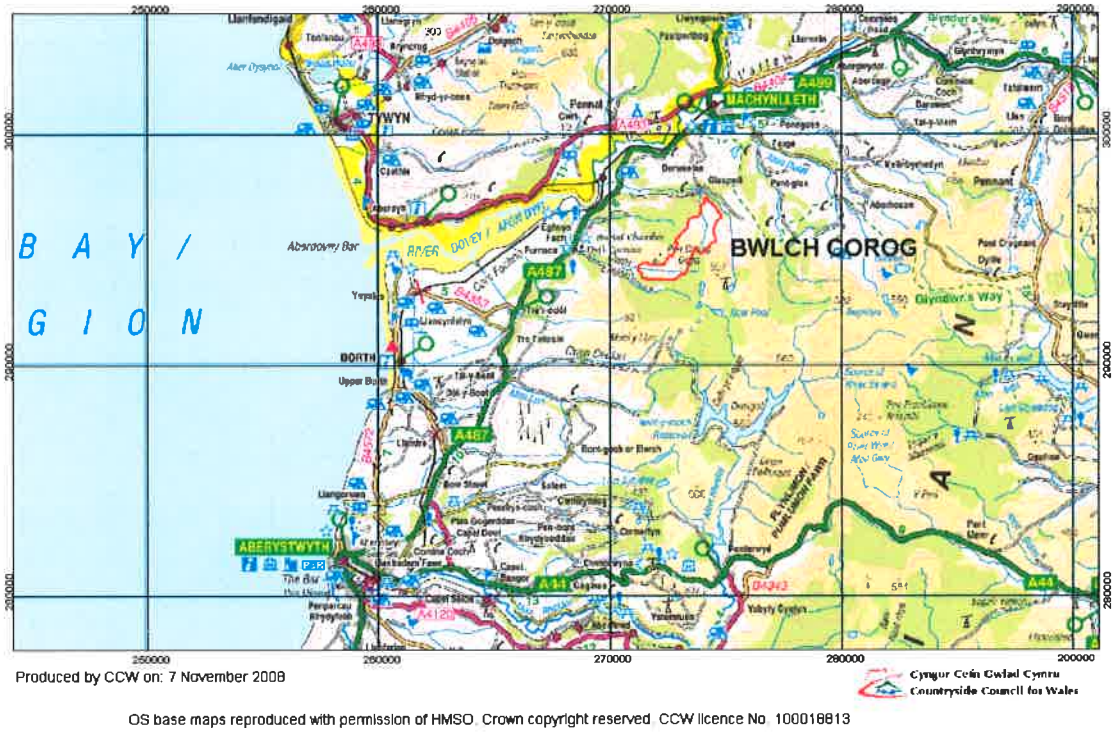


Figure A3.1.1 The location of Bwlch Corog

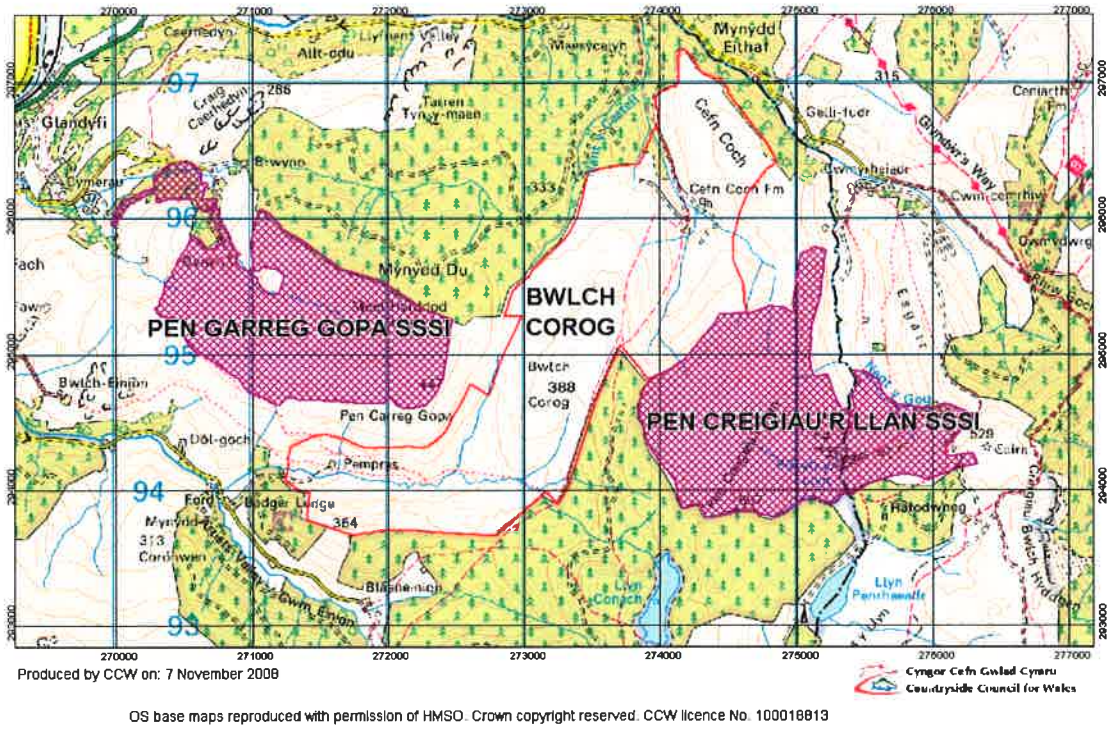
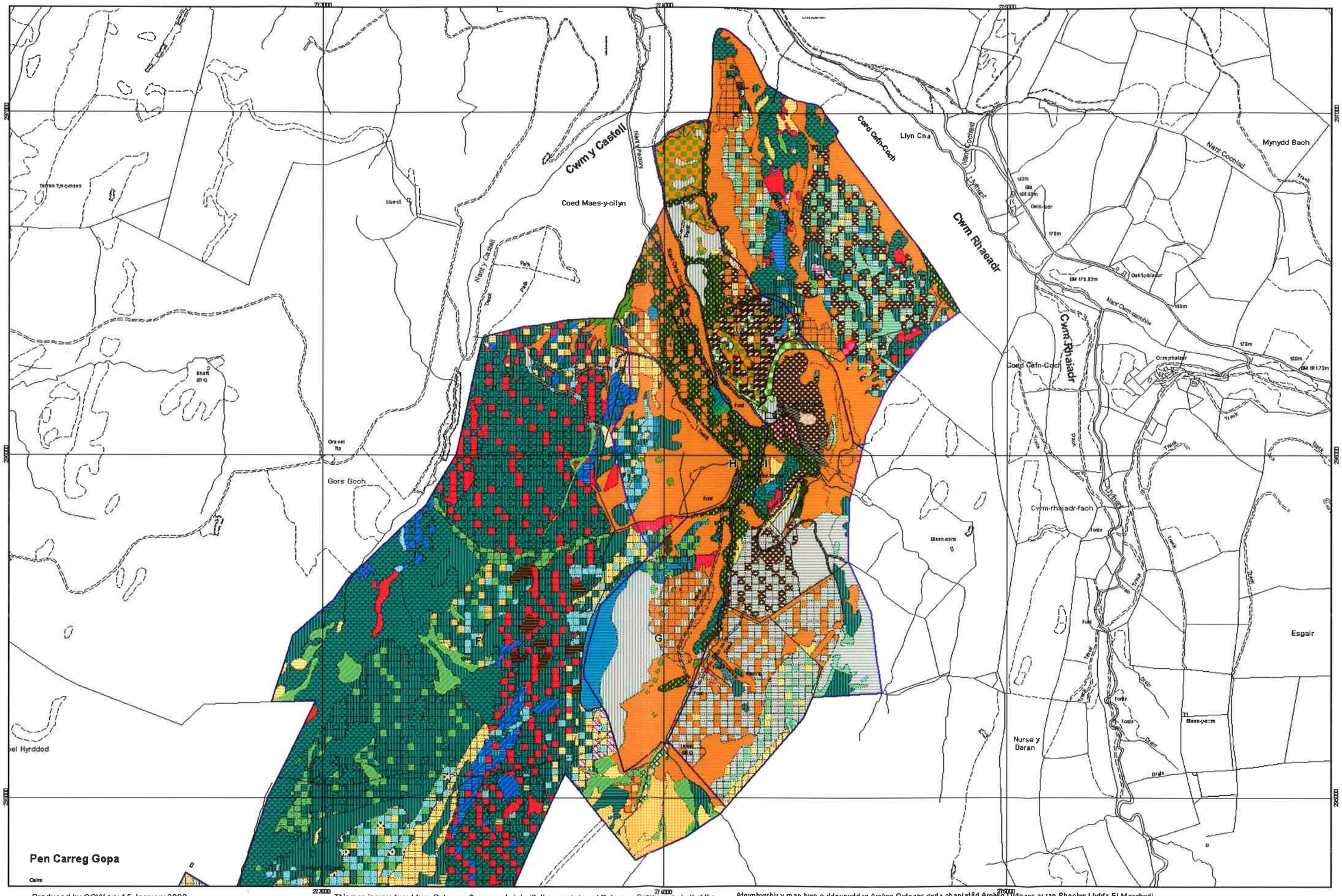


Figure A3.1.2 The survey area in relation to Pengarreg-gopa a Moel Hyrddod SSSI and Pencreigiau'r Llan SSSI

A3.2 NVC Community Maps

Map A3.2.1 Bwlch Corog (North) - NVC Communities



Produced by CCW on: 15 January 2009

Scale 1:10000

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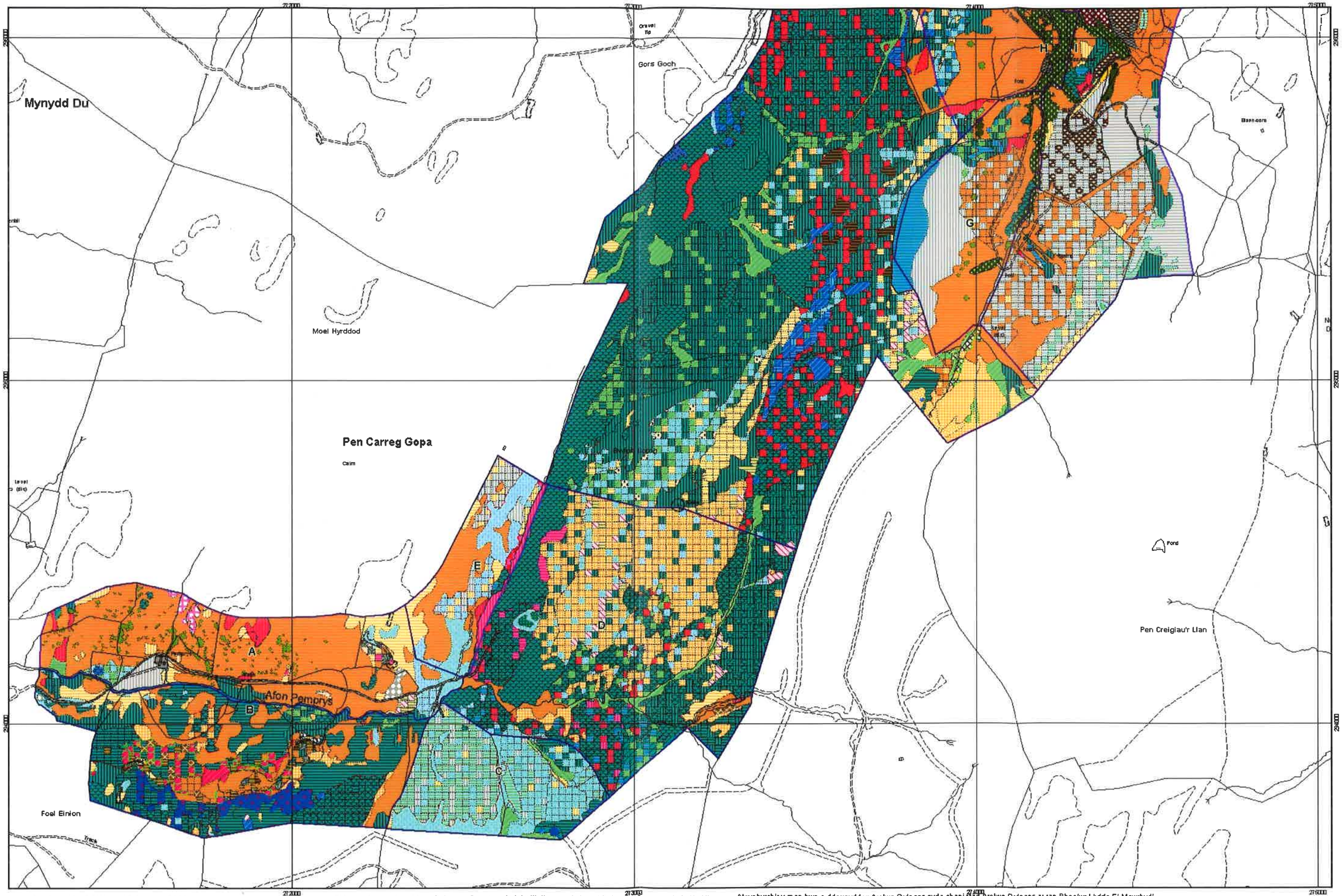
Map A3.2.2 Bwlch Corog (South) - NVC Communities



Produced by CCW on: 15 January 2009

Scale 1:10000

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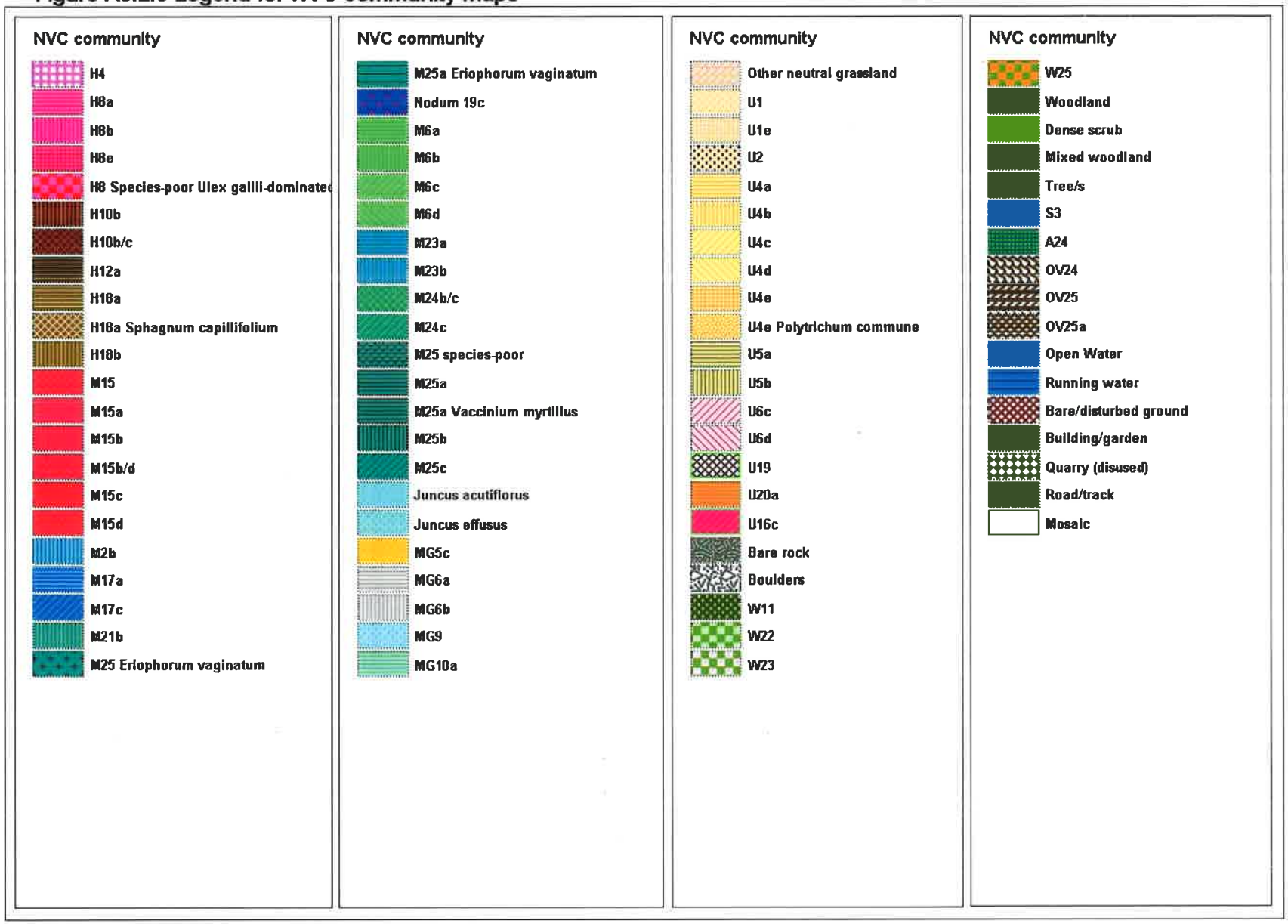
Figure A3.2.3 Legend for NVC community maps



Key to NVC communities on Maps A3.2.1 and A3.2.2

Map Code	NVC Community
Heaths	
H4	*Ulex gallii-Agrostis curtisii* heath
H8a	*Calluna vulgaris-Ulex gallii* heath, Species-poor subcommunity
H8SP	*Calluna vulgaris-Ulex gallii* heath, Species-poor *Ulex*-dominated form
H8b	*Calluna vulgaris-Ulex gallii* heath, *Danthonia decumbens* subcommunity
H8e	*Calluna vulgaris-Ulex gallii* heath, *Vaccinium myrtillus* subcommunity
H10b	*Calluna vulgaris-Erica cinerea* heath, *Racomitrium lanuginosum* subcommunity
H10b/c	*Calluna vulgaris-Erica cinerea* heath, *Racomitrium lanuginosum/Festuca-Anthoxanthum* intermediate subcommunity
H12a	*Calluna vulgaris-Vaccinium myrtillus* heath, *Calluna* subcommunity
H18a	*Vaccinium myrtillus-Deschampsia flexuosa* heath, *Hylocomium splendens-Rhytidiadelphus loreus* subcommunity
H18aSc	*Vaccinium myrtillus-Deschampsia flexuosa* heath, *Hylocomium splendens-Rhytidiadelphus loreus* subcommunity, *Sphagnum capillifolium* form
H18b	*Vaccinium myrtillus-Deschampsia flexuosa* heath, *Alchemilla alpina-Carex pilulifera* subcommunity
M15	*Scirpus cespitosus-Erica tetralix* wet heath
M15a	*Scirpus cespitosus-Erica tetralix* wet heath, *Carex panicea* subcommunity
M15b	*Scirpus cespitosus-Erica tetralix* wet heath, Typical subcommunity
M15b/d	*Scirpus cespitosus-Erica tetralix* wet heath, Typical/*Vaccinium myrtillus* intermediate subcommunity
M15c	*Scirpus cespitosus-Erica tetralix* wet heath, *Cladonia* subcommunity
M15d	*Scirpus cespitosus-Erica tetralix* wet heath, *Vaccinium myrtillus* subcommunity
Mire and flush vegetation	
M2b	*Sphagnum cuspidatum-Sphagnum recurvum* bog pools, *Sphagnum recurvum* subcommunity
M6a	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Carex echinata* subcommunity
M6b	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Carex nigra-Nardus stricta* subcommunity
M6c	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Juncus effusus* subcommunity
M6d	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Juncus acutiflorus* subcommunity
M17a	*Scirpus cespitosus-Eriophorum vaginatum* blanket mire, *Drosera rotundifolia-Sphagnum* spp subcommunity
M17c	*Scirpus cespitosus-Eriophorum vaginatum* blanket mire, *Juncus squarrosus* subcommunity
M21b	*Narthecium ossifragum-Sphagnum papillosum* valley mire, *Sphagnum recurvum-Vaccinium oxycoccos* subcommunity
M25Ev	*Molinia caerulea-Potentilla erecta* mire, *Eriophorum vaginatum* form
M25aEv	*Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* subcommunity, *Eriophorum vaginatum* form
M32b	*Philonotis fontana-Saxifraga stellaris* spring, *Montia fontana-Chrysosplenium oppositifolium* subcommunity
N19c	*Vaccinium oxycoccos-Sphagnum recurvum* vegetation, *Vaccinium myrtillus* type
Grasslands	
M23a	*Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus acutiflorus* subcommunity
M23b	*Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus effusus* subcommunity

M24b/c	*Molinia caerulea-Cirsium dissectum* fen-meadow, Typical/*Juncus acutiflorus-Erica tetralix* intermediate subcommunity
M24c	*Molinia caerulea-Cirsium dissectum* fen-meadow, *Juncus acutiflorus-Erica tetralix* subcommunity
M25s	*Molinia caerulea-Potentilla erecta* mire, Species-poor form
M25a	*Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* subcommunity
M25aVm	*Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* subcommunity, *Vaccinium myrtillus* form
M25b	*Molinia caerulea-Potentilla erecta* mire, *Anthoxanthum odoratum* subcommunity
M25c	*Molinia caerulea-Potentilla erecta* mire, *Angelica sylvestris* subcommunity
MG5c	*Cynosurus cristatus-Centaurea nigra* meadow and pasture, *Danthonia decumbens* subcommunity
MG6a	*Lolium perenne-Cynosurus cristatus* pasture, Typical subcommunity
MG6b	*Lolium perenne-Cynosurus cristatus* pasture, *Anthoxanthum odoratum* subcommunity
MG9	*Holcus lanatus-Deschampsia cespitosa* grassland
MG10a	*Holcus lanatus-Juncus effusus* rush-pasture, Typical subcommunity
U1	*Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland
U1e	*Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, *Galium saxatile-Potentilla erecta* subcommunity
U2	*Deschampsia flexuosa* grassland
U4a	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, Typical subcommunity
U4b	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Holcus lanatus-Trifolium repens* subcommunity
U4c	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Lathyrus montanus-Stachys betonica* subcommunity
U4d	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Luzula multiflora-Rhytidiadelphus loreus* subcommunity
U4e	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Vaccinium myrtillus-Deschampsia flexuosa* subcommunity
U4ePc	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Vaccinium myrtillus-Deschampsia flexuosa* subcommunity, *Polytrichum commune* form
U5a	*Nardus stricta-Galium saxatile* grassland, Species-poor subcommunity
U5b	*Nardus stricta-Galium saxatile* grassland, *Agrostis canina-Polytrichum commune* subcommunity
U6c	*Juncus squarrosus-Festuca ovina* grassland, *Vaccinium myrtillus* subcommunity
U6d	*Juncus squarrosus-Festuca ovina* grassland, *Agrostis capillaris-Luzula multiflora* subcommunity
Ja	*Juncus acutiflorus* grassland
Je	*Juncus effusus* grassland
ONG	Other neutral grassland

Fern-dominated vegetation

U19	*Thelypteris limbosperma-Blechnum spicant* community
U20a	*Pteridium aquilinum-Galium saxatile* community, *Anthoxanthum odoratum* subcommunity
W25	*Pteridium aquilinum-Rubus fruticosus* agg underscrub

Rock and scree vegetation

U16c	*Luzula sylvatica-Vaccinium myrtillus* tall-herb community, Species-poor subcommunity
BR	Bare rock
B	Boulders

Woodland

W11	*Quercus petraea-Betula pubescens-Oxalis acetosella* woodland
W22	*Prunus spinosa-Pteridium aquilinum* scrub
W23	*Ulex europaeus-Rubus fruticosus* agg scrub
DS	Dense scrub
MW	Mixed woodland
T	Tree/s
W	Woodland

Swamp and aquatic vegetation

S3	*Carex paniculata* swamp
A24	*Juncus bulbosus* community
OW	Open water
RW	Running water

Other habitats

OV24	*Urtica dioica-Galium aparine* community
OV25	*Urtica dioica-Cirsium arvense* community
OV25a	*Urtica dioica-Cirsium arvense* community, *Holcus lanatus-Poa annua* subcommunity
BG	Bare/disturbed ground
Bg/Gn	Building/ garden
Q(DIS)	Quarry (disused)
Rd/Tk	Road/track

A3.3 1980 Upland Vegetation Survey Map

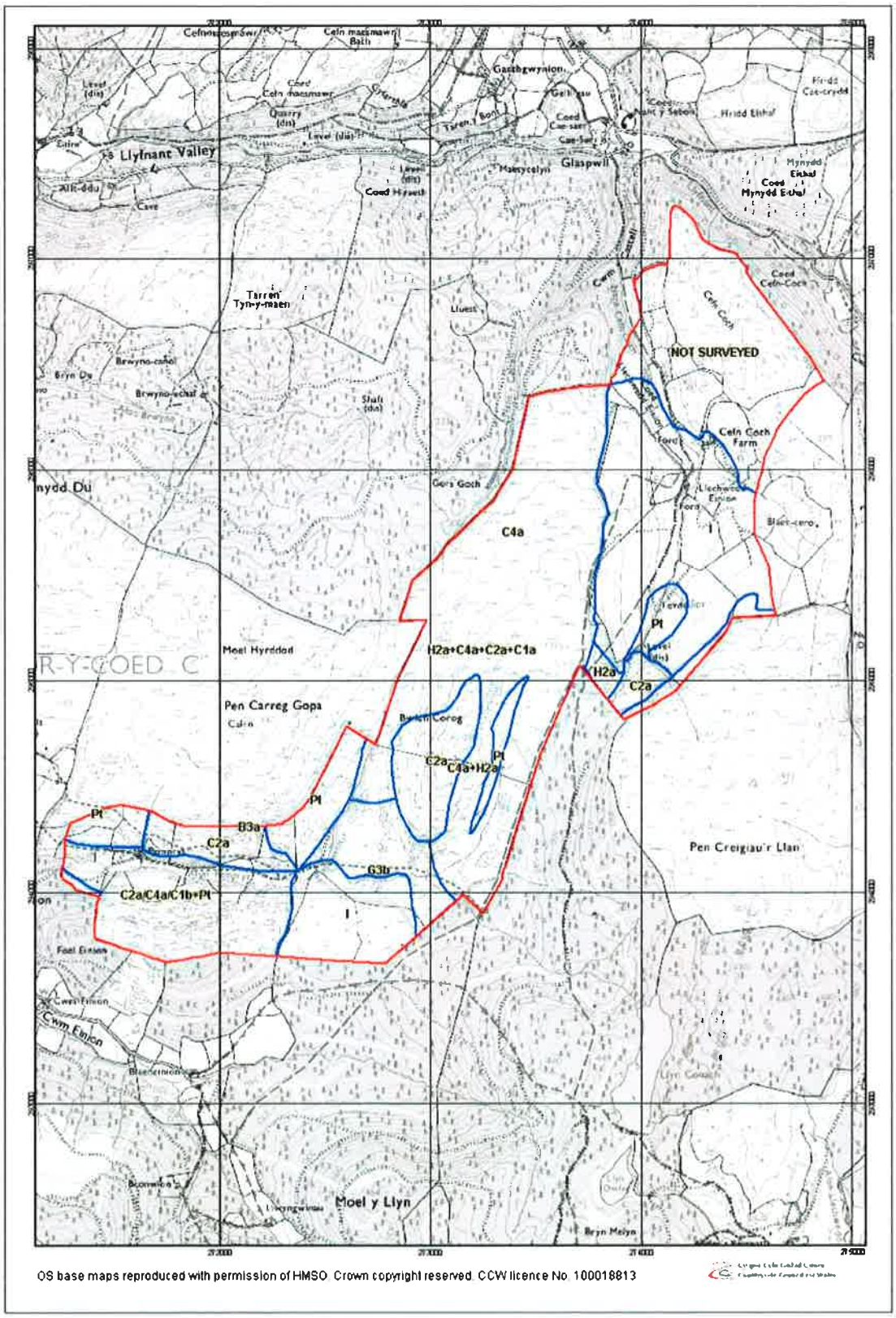


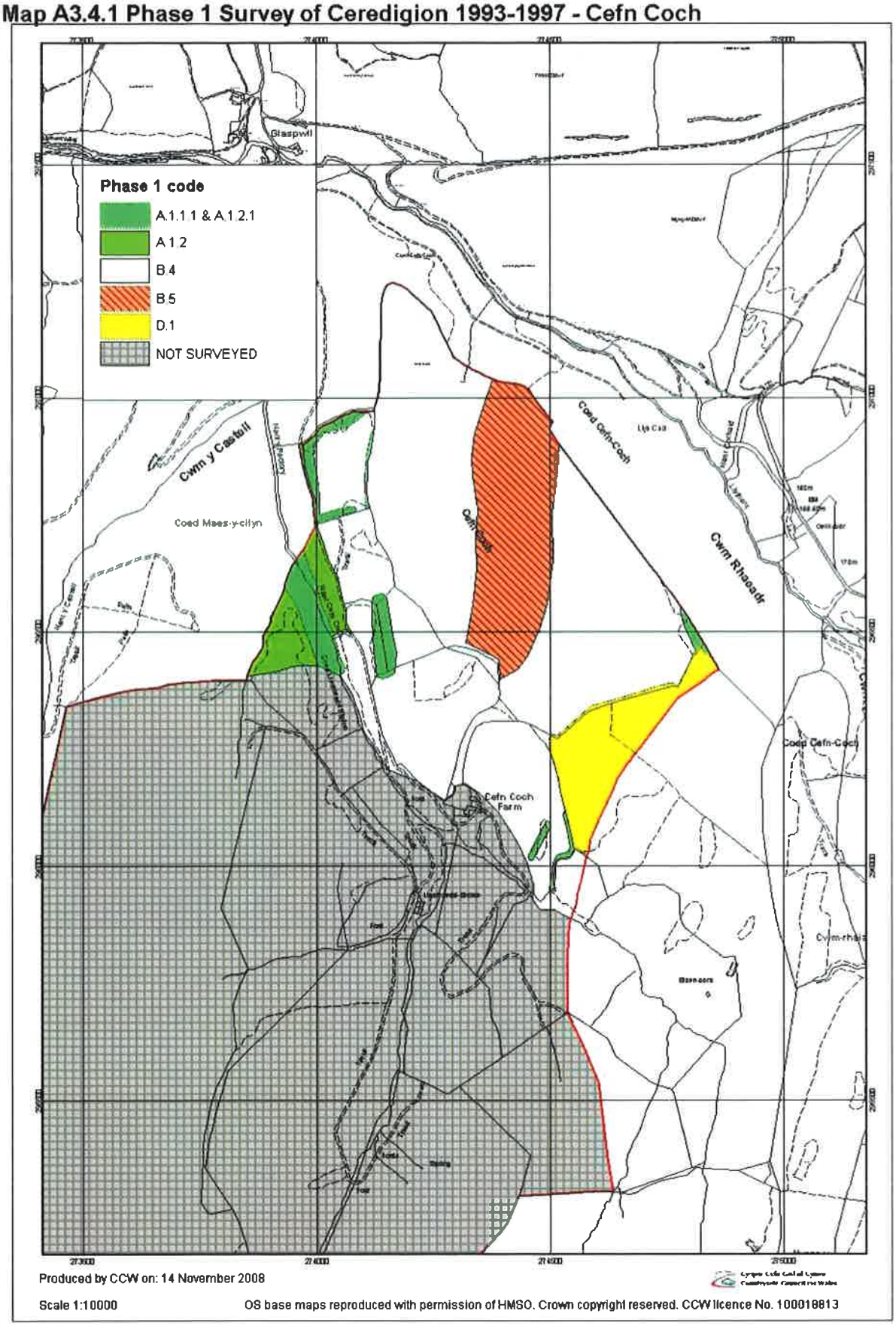
Figure A3.3.1 Bwlch Corog in 1980 from the Wales Field Unit's Upland Vegetation Survey. Vegetation types based on the Ratcliffe-Birks classification (1980)

Table 3.3.1 Birks-Ratcliffe vegetation categories with approximate Welsh NVC equivalents from Yeo (1997).

Birks-Ratcliffe category	Name	Description	NVC equivalent
B3a	**Southern *Vaccinium* heaths**	Heaths dominated by *Vaccinium myrtillus* on well drained sites, sometimes on rocky slopes or stabilised screes. Associates include Festuca ovina, Galium saxatile, Hypnum cupressiforme and *Pleurozium schreberi*	**H18a, c pp**
C1a	***Agrostis vinealis* - *A.capillaris* grassland**	Species-poor. With *Galium saxatile*, *Potentilla erecta*, *Carex pilulifera* and *Luzula campestris*. *Festuca ovina* has lower cover.	**U4a-e**
C1b	***Festuca ovina* grassland**	As C1a but *Festuca ovina* has a higher cover than *Agrostis* spp.	**U4a-e**
C2a	**Sub-montane *Nardus* grassland (spp.poor)**	*Nardus stricta*, usually forming extensive stands on podsolised soils. Associates include *Festuca ovina*, *Agrostis capillaris*, *Carex pilulifera*, *Galium saxatile*, *Potentilla erecta* and *Rhytidiadelphus squarrosus*	**U5a,b,d,e**
C4a	**Spp.poor *Molinia* grassland**	Dominated by *Molinia caerulea* usually with *Festuca ovina*, *Deschampsia flexuosa* and *Juncus squarrosus*. Becomes tussocky in the absence of grazing.	**M25b**
G3b	***Molinia caerulea* - *Erica tetralix* - *Sphagnum* mire**	Vegetation dominated by *Molinia caerulea* with frequent *Erica tetralix* and *Sphagnum papillosum*, the latter being often dominant. Found on deeper peat along stream channels and in wet hollows.	**M17, M20, M25a,b**
H2a	***Juncus effusus* - *Sphagnum recurvum* mire**	*Juncus effusus* is physiognomic dominant with ground layer of *Sphagnum recurvum* and *Polytrichum commune*, with *Epilobium palustre* and *Agrostis stolonifera*.	**M6c**
I	-	Improved grassland	**MG6-7**
Pt	-	Dominated by *Pteridium aquilinum*	**U20**

A3.4 Phase 1 Habitat Maps

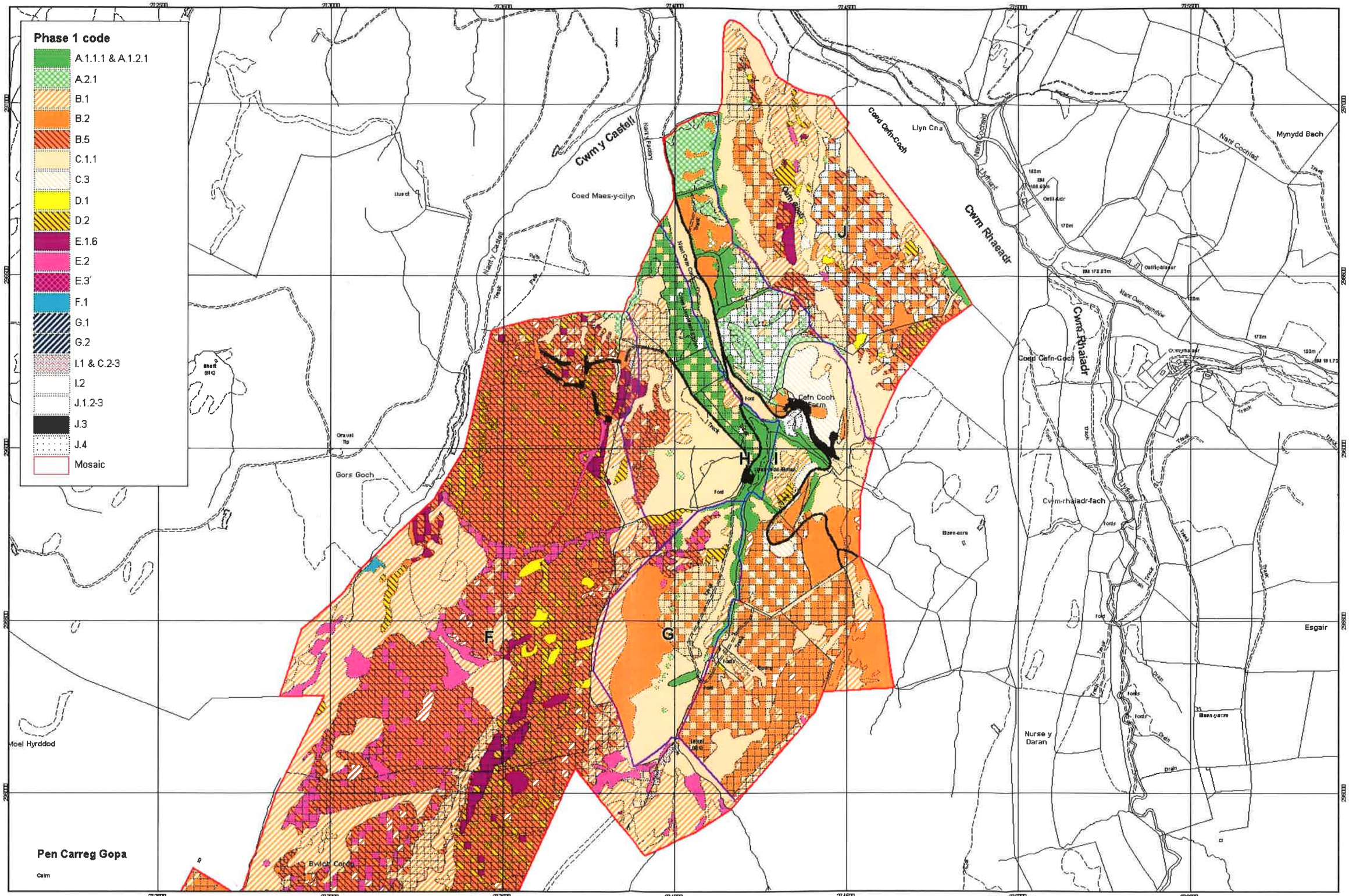
Map A3.4.1 Phase 1 Survey of Ceredigion 1993-1997 - Cefn Coch



Key to Phase 1 habitats at Bwlch Corog

Phase 1 code	Phase 1 habitat
A.1.1.1 & A.1.2.1	Semi-natural woodland
A.1.3.2	Mixed plantation
A.2.1	Scrub
B.1	Acid grassland
B.2	Neutral grassland
B.5	Marshy grassland
C.1.1	Continuous bracken
C.3	Other tall herb and fern
D.1	Dry heath
D.2	Wet heath
E.1.6	Blanket bog
E.2	Flush and spring
E.3	Fen
F.1	Swamp
G.1	Standing water
G.2	Running water
I.1 & C.2-3	Natural inland rock exposures, screes & upland ledges
I.2	Artificial rock exposures
J.1.2-3	Cultivated/disturbed land
J.3	Built-up areas
J.4	Bare ground

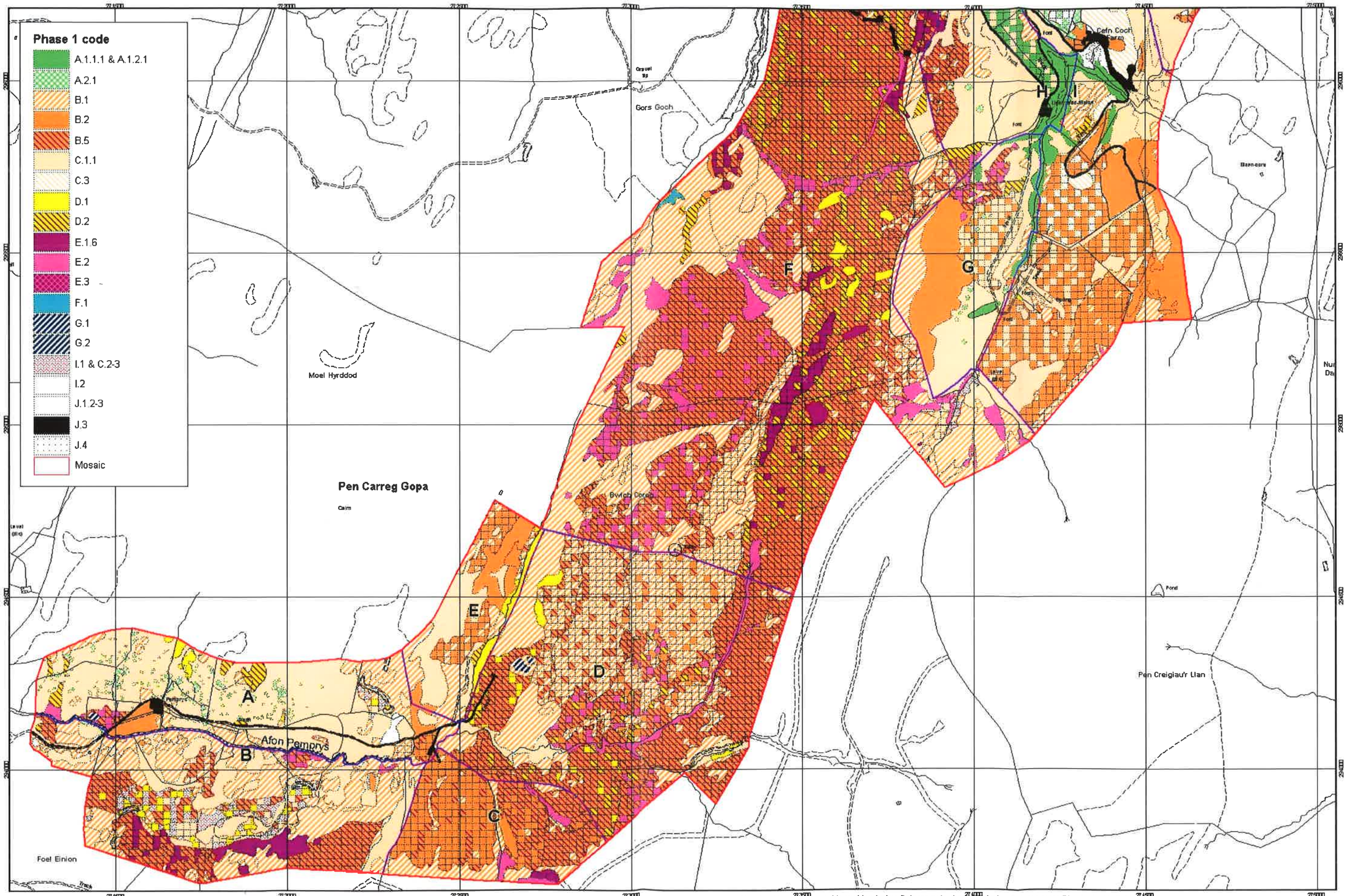
Map A3.4.2 Bwlch Corog (North) - Phase 1 Habitats



Produced by CCW on: 14 November 2008

Scale 1:10000

Map A3.4.3 Bwlch Corog (South) - Phase 1 Habitats



Produced by CCW on: 14 November 2008

Scale 1:10000

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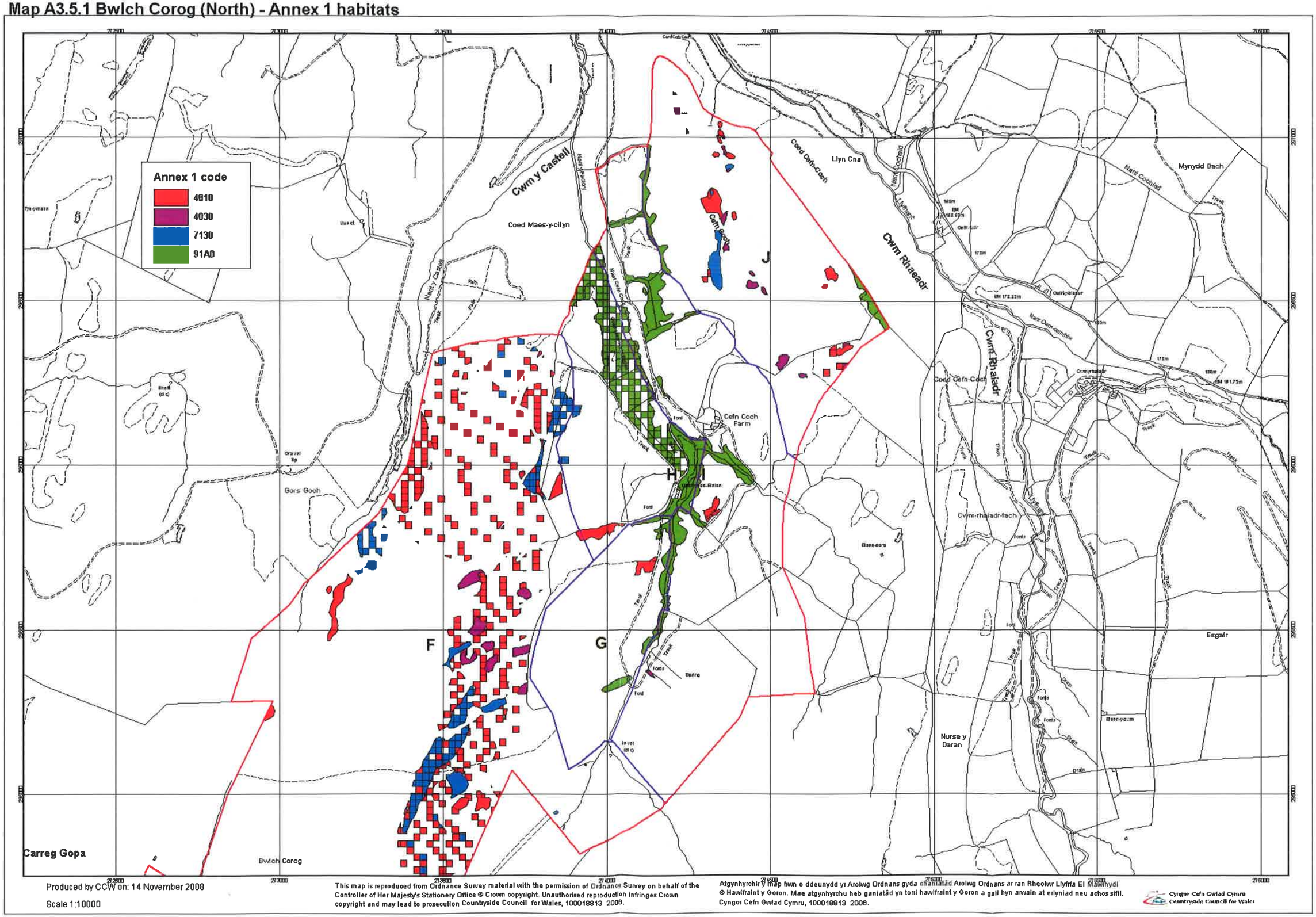
A3.5 Annex 1 Habitat Maps

Map A3.5.1 Bwlch Corog (North) - Annex 1 habitats



Produced by CCW on: 14 November 2008

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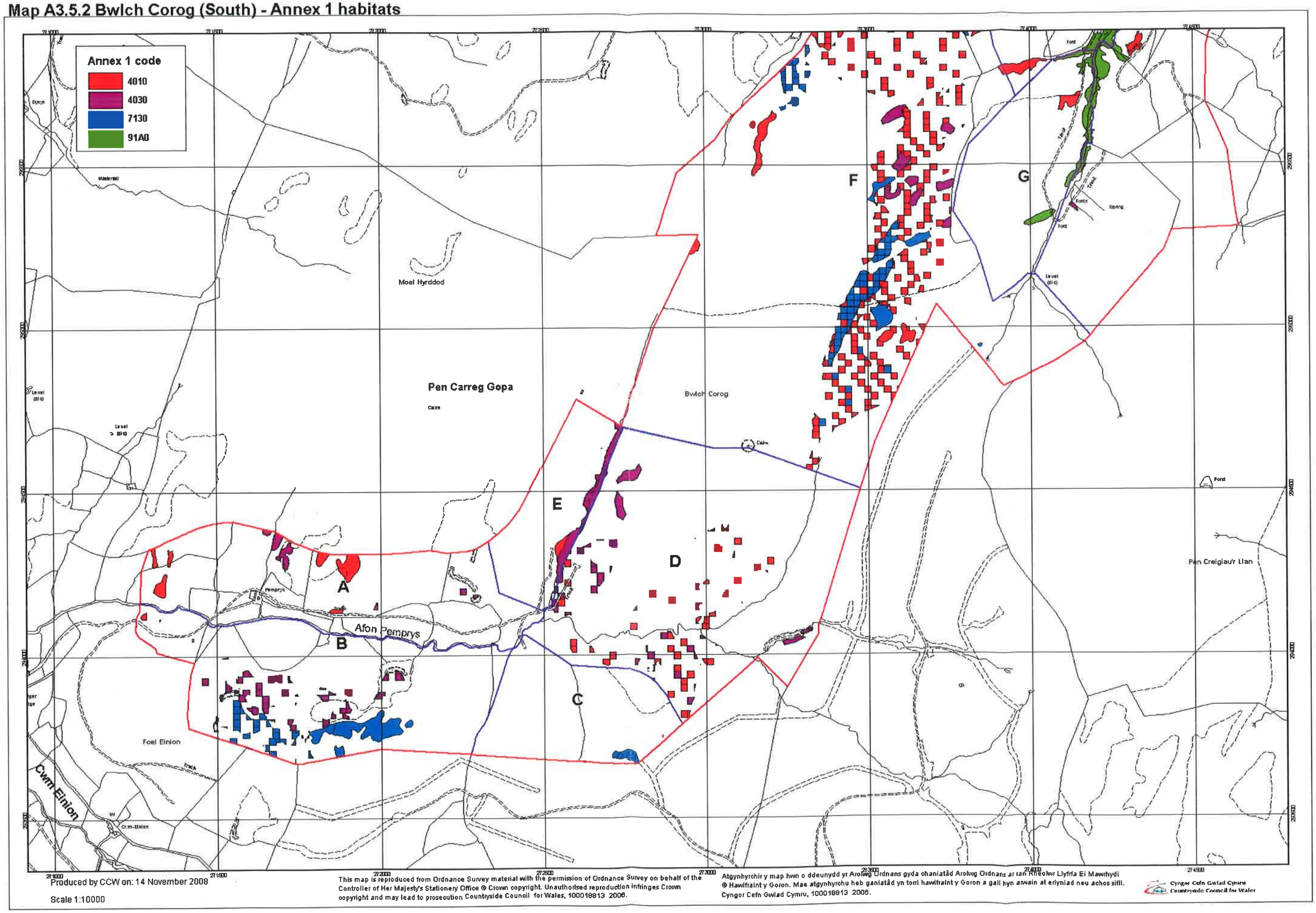
Map A3.5.2 Bwlch Corog (South) - Annex 1 habitats



Produced by CCW on: 14 November 2008

Scale 1:10000

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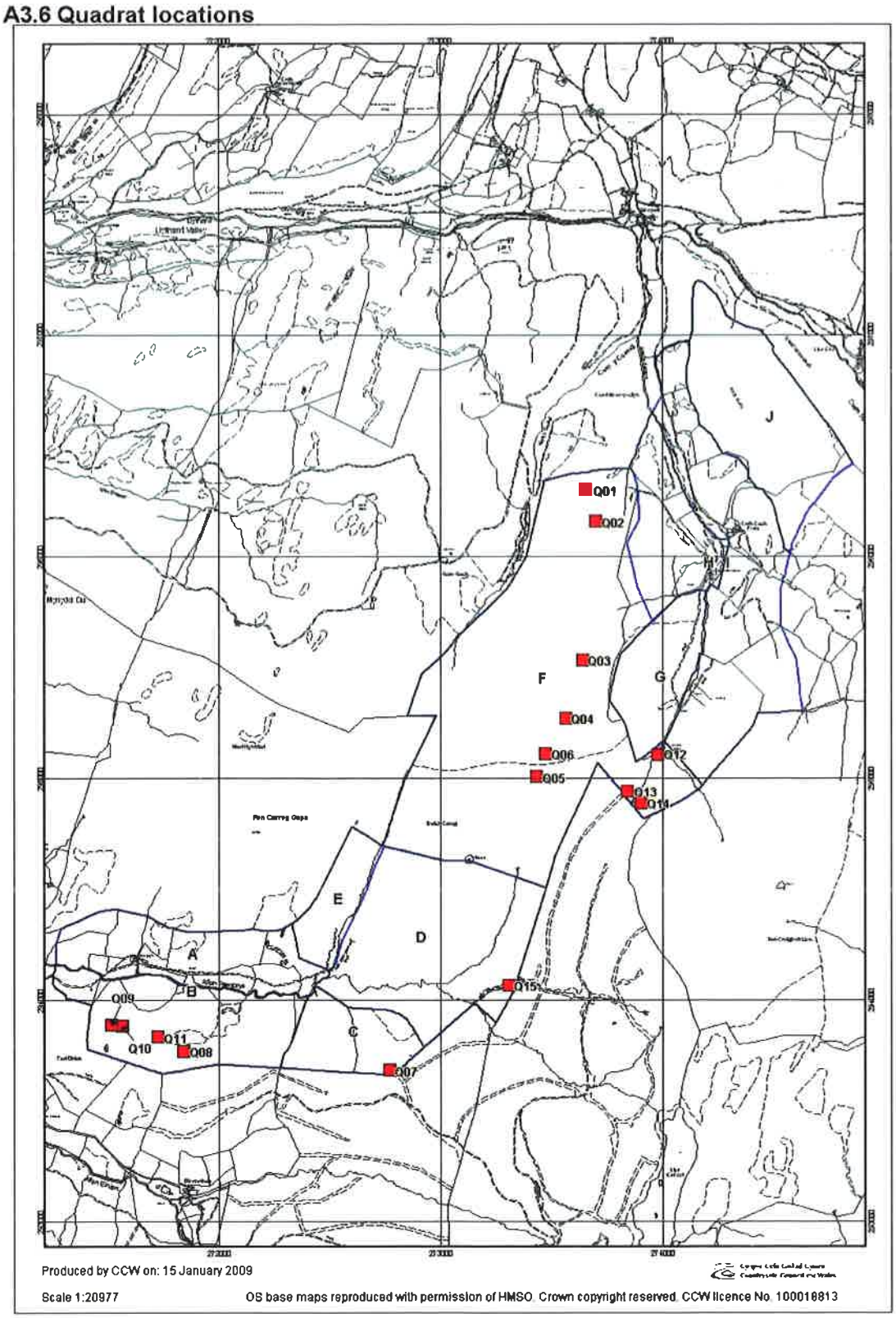
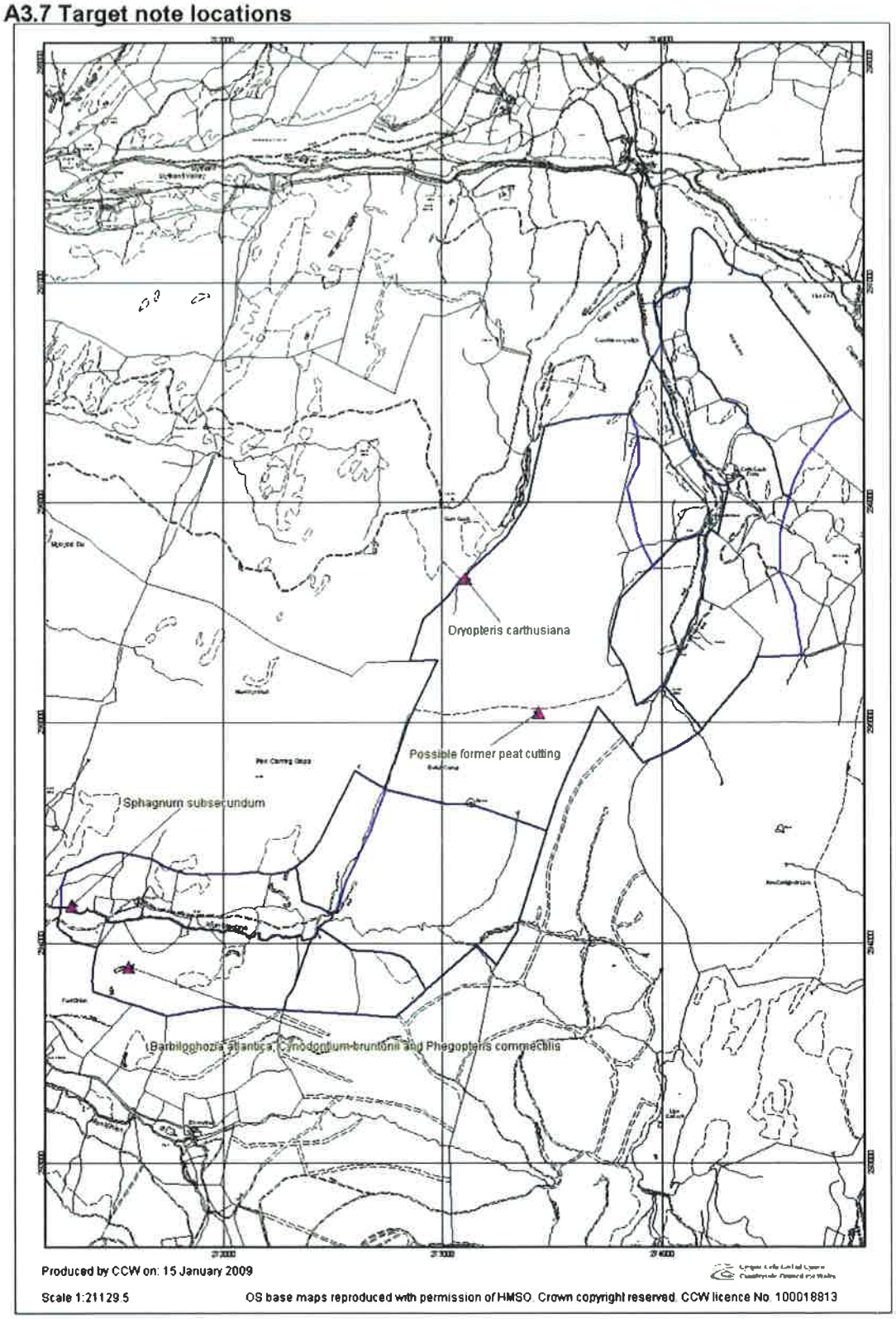
Map A3.6 Quadrat locations



Map A3.7 Target note locations



APPENDIX 4 PHOTOGRAPHS

Plate A4.1 Woodland, scrub and bracken-dominated vegetation in compartments I and J of Cefn Coch

Plate A4.2 M25 species-poor in compartment F

Plate A4.3 From the SE corner of Compartment J looking NW

Plate A4.4 The head of Nant Cefn Coch; vegetation in the foreground is **M25b** with **U4e** beyond.

Plate A4.5 Afon Pemprys looking from the northern slopes of Foel Einion.

Plate A4.6 Mosaic of **M25, MG10, U20** and in the distance **OV25** in compartment J.

Plate A4.7 U20 clothing the upper part of Cefn Coch (compartment J).

Plate A4.8 Looking from the slopes above Nant Cefn Coch to compartments H and F

Plate A4.9 Small stand of **H8e** along the course of the Afon Pemprys; **M25** on far bank and **U20** below.

Plate A4.10 Looking to Bwlch Corog from the northern slopes of Foel Einion