

COEDYDD ABER P.N.N.R.

COED CAE'R MMYDD

A Supplementary Report on the Scientific
Status of Sites on the western side
of the Aber Valley, Carmarvonshire

by

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SUMMARY

Further survey of block (5) - Coed Cae'r Mynydd, confirms that it is of Grade 1 elite status and should be incorporated into the Coedydd Aber P.N.N.R. Boundary changes to include all land under the 780 ft. contour should receive consideration. Block 8 - wood near Maes-y-Gaer, was found not to warrant elite status, but should be retained under deciduous woodland cover if possible.

Introduction

In the previous report (30th October 1969) examining the scientific status of Coedydd Aber P.N.N.R. and other sites in the Aber Valley, only a preliminary assessment was made of block 5 - Coed Cae'r Mynydd. It was suggested in the report, that this area could constitute a valuable extension of the notified P.N.N.R. but that a more detailed survey would be required before a final recommendation on this point was possible. The following report is based on an additional survey carried out on 19th November 1969. The majority of the time available was spent in Coed Cae'r Mynydd but a brief survey was also carried out in block 8 - the wood south-east of Maes-y-Gaer (see map in previous report).

Site Description

The wood, as shown on the map in the previous report, occupies the slopes to the west of the Afon Aber and its tributary the Afon Rhoeadr-fawr, extending for about $1\frac{1}{2}$ miles from the mouth of the valley above the village of Aber to the confluence with the Afon Rhoeadr-bach. There is a limited range of aspects from north-east to east and the site is thus well sheltered from the prevailing south-west wind. Altitude varies from 150 ft to 700 ft. O.D.. The slope of the valley side is steep in the north but becomes gradually less so towards the south. In the section of the wood between Aber and Bont Newydd (about 500 yards), the slope is broken by three pronounced rock ridges running directly up and down the slope, which result in a range of soils and drainage conditions. To the south the rest of the valley slope is more uniform, most of the solid geology being masked by a covering of glacial drift or colluvium. This material, however, lies in a series of shallow undulations orientated in the line of the slope, resulting in a fairly regular pattern of drainage conditions; seepage lines alternating with more freely drained soils. In the mid-valley section of the wood, the even slopes steepen abruptly above the river and form the western side of the gorge referred to in the previous report.

The solid geology is thought to be mainly Upper Cambrian sedimentaries with the probability of some contribution from the Lower Ordovician (Arenig) in the southern part. However, as previously discussed, most of this is covered by a layer of drift or colluvium and the composition or origin of this material is not known at the present time. Other more general information on geology, soils and climate was included in the previous report.

Site History

There is a small slate quarry and its associated waste tip in the north

end of the block and several other much smaller trial levels were noted elsewhere. None of these sites have been worked for many years and have now become to a large extent grown over by trees and other vegetation. In general the wood seems to have been pretty free from recent disturbance; there are no stumps or evidence of planted trees. The rather open character of much of the wood is, however, open to several interpretations.

(1) That this condition has resulted from natural mortality of the trees and heavy grazing has precluded effective regeneration.

(2) That there was heavy, but by no means a complete felling or exploitation of the wood in the past (probably over 50 years ago) and natural regeneration has been sparse for the same reason as in (1) above.

(3) That the present wood represents a natural re-invasion of a largely de-forested site, the result of 100-150 years growth perhaps.

Little information is available at the present time on which to base a choice between these alternative theories, but a study of the documented history (if this exists) and/or investigations of tree age and growth patterns should doubtless arrive at a solution. The presence of much hawthorn scrub both within and on the slope above the wood might be taken to support the last theory, but may in fact only indicate a long history of grazing pressure, possibly with periodic reductions in which this resistant species was able to regenerate. The fact that many of the hawthorn bushes are dead or moribund suggests that there has been a marked canopy closure of the taller species in recent years. The presence of patches of previously vigorous, but now dead or dying, Erica cinerea in several of the more rocky areas adds weight to the theory.

Excluding the question of the long term history of the wood (pre-1850 say) and whether it is primary or secondary woodland in the strict sense of the word, Coed Cae'r Mynydd has much in its recent history that is in its favour.

- (a) No evidence of recent disturbance
- (b) No evidence of planting
- (c) Extremely limited distribution of exotic species
- (d) No evidence of systematic management for any purpose.

Vegetation

The species list for the woodland is given in Appendix 1. and the wide range of species present is taken to be an expression of the diversity of

habitat conditions that exist within Coed Cae'r Mynydd. In descriptive terms the following vegetation types were distinguished.

(1) Moist - oak woodland - much of the central section of Coed Cae'r Mynydd belongs to this type. The rather irregular and often open tree canopy which is characteristic of most of the wood on the middle and upper slopes, consists mainly of Quercus petraea, but locally Betula spp. dominant. Many of the oak trees are probably maidens and although some coppice is present, the wood does not appear to have been systematically managed by the method. The ground flora reflects grazing pressure and under the trees consists mainly of Agrostis tenuis and Deschampsia flexuosa, with patches of Calluna vulgaris and Erica cinerea in the rockier areas. The bryophyte cover is well developed, in contrast to Maes-y-Gaer on the south and south-west facing slope opposite. Thuidium tamariscinum, Hylocomium splendens and Dicranum majus are the most prominent species. In the more open areas, which occur frequently, Pteridium aquilinum forms dense stands with a sparse cover beneath.

(2) Flushed areas - following the seepage lines in the complex pattern of drainage and at the base of the slope below type (1), are locally enriched areas in which a wider range of basiphilous species are present. In these areas the canopy is formed mainly by Ulmus glabra, Alnus glutinosa or Fraxinus excelsior. The ground flora is related mainly to the water supply and increased nutrient status of the soil. In the drier areas a range of species is present with Rubus fruticosus locally abundant, whereas in the wetter areas Filipendula ulmaria and Ranunculus repens are prominent. Locally within the type, are slopes covered with ferns, mainly Athyrium filix-femina and Dryopteris filix-mas. Mnium hornum and Atrichum undulatum are common bryophytes in this type.

(3) Ash woodland - towards the upper limit of the gorge in the middle section of the wood, Quercus gives way to Fraxinus excelsior, although is still abundant locally. Within the type individual ash trees attain a height of 80-90 ft. The ground flora is variable but Rubus fruticosus is abundant with Agrostis tenuis and Dactylis glomerata as frequent associates. Atrichum undulatum and Eurhynchium strictum are common in the ground layer. Local variations are due mainly to ground water, previously referred to in relation to the drainage regime, ash and Salix spp. becoming locally abundant in very wet areas. The ground flora in these areas is often composed of Athyrium filix-femina,

Rubus fruticosus and Ranunculus repens. In both wet and dry facies of this type there are a wide range of associated species.

(4) Hawthorn - birch scrub - at the upper margin of the wood, which is itself rather irregular, forming a series of tongues extending up the slope, there is a transition into a fringe woodland. In some parts birch is actively colonising this area, particularly in the north of the block, whereas towards the southern end the hawthorn (Crataegus monogyna) scrub appears to be relatively static. Throughout most of the area Pteridium aquilinum forms a dense ground cover, although locally on seepage lines, Molinia caerulea may become important.

(5) Mountain grassland - above the scrub and bracken is an area of agriculturally low quality mountain grassland containing species such as Nardus stricta and Juncus effusus in the wetter areas and Calluna vulgaris and Erica cinerea on the drier rocky sites. One area within this type has been fenced by the U.C.N.W. Forestry Department and planted with oak and larch. At the upper fringes there is a fairly sharp transition into the improved grasslands of the College Farm.

In all of the woodland types (1-4) described above there are good examples of vigorous natural regeneration which include nearly all the main tree species. As previously described, the tree canopy is rather open in parts and in all the larger gaps regeneration of a wide range of ages, from young seedlings up to well established saplings, can be observed, often in association with Rubus fruticosus. This has apparently occurred despite the heavy grazing pressure of sheep from the College Farm. Most young trees show evidence of repeated browsing, and are still in partial check as a result, whilst others have succeeded in growing up out of range (above 4-5 ft. in height). The important factors in the obvious success of tree regeneration in this wood are probably the open canopy resulting in gaps large enough to give conditions where over 50% of full daylight is available. The comparatively high nutrient status of the soils in Coed Cae'r Mynydd may also have contributed. Little is known of the history of sheep grazing pressure, but periodic reductions may have occurred and could doubtless be investigated from the well documented management records of the College Farm. Exclusion or a substantial reduction of grazing over quite a limited period, would undoubtedly result in a very rapid re-colonisation of the more open parts of the wood. Both hawthorn and

bramble may have assisted in this process in the past, by conferring a certain amount of physical protection from browsing animals.

Position in the National Association - Analysis

The position of Coed Cae'r Mynydd in the National Association - Analysis (Group 35 see previous report) is unaltered by the additional intensive survey. The divisive species which separates off Group 35, spindle (*Euonymus europaeus*), is however of very limited distribution in the wood (it is probably a new record for the 10 km. square). Had the presence of spindle been missed in the survey the site would have run down to the adjacent Group 36; a group of similar but slightly less diverse sites, which although they are quite common elsewhere (i.e. in north-west England) are most uncommon in North Wales. The presence of spindle (which separates off the group at a high level of Δ , is taken to indicate a very real difference between the groups and a full discussion of Group 35 and its implications in relation to both Regional and Great Britain distributions appears in the previous report (p. 16, 24 and 25) and there is no need to add to this.

As indicated in the covering letter sent out with the interim report on the National Association - Analysis (R. G. H. Bunce February 1970), and circulated to all Regional Officers, information on the relationship of the Association - Analysis groups is as yet incomplete, being primarily based on an interpretation of the divisive species (their ecological requirements) and the geographical and geological distributions of the groups. A more detailed understanding of the group relationship will emerge in the next few months, when it should be possible to make more objective decisions about group representation (i.e. which groups should be represented and how many of each) as a basis for a national policy for woodland conservation.

Appendix 3 shows the relationship of Coedydd Aber and its component blocks with other Grade 1 elite sites in North Wales, in terms of the National Association - Analysis groups. As explained above, this is not considered to be a completely satisfactory basis for evaluation of site differences, but until such time as better methods are available it can be taken as indicating that overlap or duplication by Coedydd Aber with the other North Wales elites is minimal, and also that there is not undue duplication within the latter.

Discussion

In terms of the descriptive types used in the previous report, Coed Cae'r Mynydd contains representatives of all but the dry acidic oakwood type found in Coed Nant and parts of Maes-y-Gaer. The greater part of the wood is occupied by two main types, moist acid oakwood (1) and ash woodland (3), both of which are represented in the blocks previously described (Maes-y-Gaer and Wern Goch) but these latter are of more limited extent and less well developed. Individual trees in the ash type of Coed Cae'r Mynydd attain a height of 80-90 ft. (exceptional growth in North Wales) and many of the oak trees on the lower slopes are of equally impressive stature.

The altitudinal range of the wood, the complex of drainage conditions and the fact that it occupies one complete side of a valley (about $1\frac{1}{4}$ miles in length) in which there is known to be a quite marked climatic gradient, are other important features of Coed Cae'r Mynydd. In fact serious consideration, either short or long-term, should be given to extending the boundaries suggested in the previous report (see map) to include all ground under the 700 ft., or even the 800 ft., contour as far south as the cliffs surrounding Rhaeadr Bach. Much of this additional area only contains scattered scrub at the present time, but most of it would probably return quite rapidly to woodland without assistance, apart from a reduction in grazing pressure. More rapid results could be obtained by artificial means.

In addition to the above discussion, most of the general points given in the previous report, and particularly pages 23-25, apply to Coed Cae'r Mynydd. Unlike other parts of the valley (e.g. Wern Goch and Creigiau Rhaeadr Fawr) the site is not subject to heavy public pressure, mainly because of the lack of well marked paths, its steepness, inaccessibility and the presence of wetter areas. This could be a useful feature to retain if and when a National Nature Reserve is established in the valley: concentrating public pressure in the woods to the east of the river thus leaving those to the west relatively undisturbed. This could be of considerable importance for maintenance of the woodland fauna in a valley which is subject to public pressure.

Additional Block (8) near Maes-y-Gaer

In the previous report attention was drawn to one block of woodland that had been completely overlooked in the original survey (see 8 on map with that report). The block was briefly surveyed in the course of the second visit and a description is given below.

Site Description

The area is similar to Coed Nant and the mid-slopes of Maes-y-Gaer, from which they are separated by a band, about 300 yards wide, of young conifer plantation. The slope is 15° - 25° with a few small outcrops of rock, and there is no known difference in solid geology, drift coverage or soils from the general description for similar areas in the other blocks.

Site History

Presumably similar to the blocks previously discussed.

Vegetation

The vegetation is almost entirely composed of the dry acid oakwood type previously described for Coed Nant and parts of Maes-y-Gaer. The range of species recorded is given in Appendix 2. There is however a limited area of flushed vegetation approximating to the lowland alder type previously described.

Position in the National Association - Analysis

The block runs down into the same group (Group 41) as block (4) Afon Anafon and the same comments apply (see page 13). The reason for this position is the small area of flushed vegetation described above which includes Filipendula ulmaria, the divisive species that separates off the 'branch' that includes Group 41.

Discussion

The woodland is heavily grazed by sheep and cattle - the highest grazing pressure observed in any of the areas surveyed in the Aber Valley. The

two sides of the Forestry Commission fence, which forms the north-western boundary of the block, show the effects of excluding grazing. Within the fenced area, which includes the extreme margin of the wood, a dense growth of Rubus fruticosus has developed and is indicative of what can be expected to result from total exclusion of grazing. Regeneration of oak, birch and other species has already occurred in this area and amongst the young conifers. In the eastern end of the wood some attempt had been made to improve the pasture under the open tree canopy in that area. Strips had been ploughed and harrowed and some attempt had been made to grow kale.

In general, block 3 has no features which render it of high scientific interest. It contributes nothing significant to the range of variation already included in the other blocks and there is no particular justification for its incorporation into the P.N.N.R. or listing as an elite site. However, it does constitute a useful addition to the deciduous woodland habitat within the valley, and should be treated under the same general policy of 'retaining hardwood areas', as discussed in the previous report (pages 21 and 22). The present ownership is not known but is probably the nearest farm, Wern-y-pandy.

CONCLUSIONS

The main conclusion is that block (5) Coed Cae'r Mynydd should be allocated a Grade 1 elite status and should therefore be incorporated in the Coedydd Aber P.N.N.R. Further extension of the boundaries to include all land under the 700 ft. contour should receive serious consideration. The main reasons for the high scientific status are:

- (a) Its position in the National Association - Analysis, considered on both a Great Britain and North Wales basis (i.e. it is an important example both within a national and North Wales series).
- (b) Its contribution to the woodland complex within the Aber Valley.

All the other reasons for justifying P.N.N.R. (Grade 1) status for the Aber Valley woods (see pages 24 and 25 of the previous report) apply equally to Coed Cae'r Mynydd. In terms of site history and 'naturalness' (see page 2 of this report) it also seems to have some desirable features; or rather an absence of undesirable features that exist in many other woods.

Block (8) - wood near Maes-y-Gaer, was not considered to have any outstanding scientific interest and has not therefore been graded as an elite site. It should, however, be retained under a deciduous woodland cover if possible and if grazing continues indefinitely as the present high level this may require active steps to ensure regeneration.

Species List for (5) Coed Cae'r Mynydd

<i>Acer pseudoplatanus</i>	<i>Hypochaeris radicata</i>
<i>Achillea millefolium</i>	<i>Ilex aquifolium</i>
<i>Agrostis tenuis</i>	<i>Jasione montana</i>
<i>Aira caryophylla</i>	<i>Juncus articulatus</i>
<i>Ajuga reptans</i>	<i>Juncus effusus</i>
<i>Alliaria petiolata</i>	<i>Lapsana communis</i>
<i>Alnus glutinosa</i>	<i>Larix</i> spp.
<i>Angelica sylvestris</i>	<i>Lonicera periclymenum</i>
<i>Anisantha sterilis</i>	<i>Lotus corniculatus</i>
<i>Anthoxanthum odoratum</i>	<i>Luzula campestris</i>
<i>Asperula odorata</i>	<i>Luzula sylvatica</i>
<i>Asplenium trichomanes</i>	<i>Lysimachia nemorum</i>
<i>Athyrium filix-femina</i>	<i>Malus sylvatica</i>
<i>Betula</i> spp.	<i>Melandrium rubrum</i>
<i>Blechnum spicant</i>	<i>Melica nutans</i>
<i>Brachypodium sylvaticum</i>	<i>Mentha aquatica</i>
<i>Calluna vulgaris</i>	<i>Mercurialis perennis</i>
<i>Campanula rotundifolia</i>	<i>Molinia caerulea</i>
<i>Cardamine hirsuta</i>	<i>Montia fontinalis</i>
<i>Carex nigra</i>	<i>Nardus stricta</i>
<i>Centaurea nigra</i>	<i>Oxalis acetosella</i>
<i>Cerastium vulgatum</i>	<i>Plantago lanceolata</i>
<i>Chamaenerion angustifolium</i>	<i>Poa annua</i>
<i>Chrysosplenium oppositifolium</i>	<i>Poa trivialis</i>
<i>Circaea lutetiana</i>	<i>Polypodium vulgare</i>
<i>Cirsium palustre</i>	<i>Potentilla erecta</i>
<i>Corydalis claviculata</i>	<i>Potentilla sterilis</i>
<i>Corylus avellana</i>	<i>Primula vulgaris</i>
<i>Cotoneaster simmondsii</i>	<i>Prunus avium</i>
<i>Crataegus monogyna</i>	<i>Prunus spinosa</i>
<i>Dactylis glomerata</i>	<i>Pteridium aquilinum</i>
<i>Deschampsia caespitosa</i>	<i>Quercus (robus + petraea)</i>
<i>Deschampsia flexuosa</i>	<i>Ranunculus acris</i>
<i>Digitalis purpurea</i>	<i>Ranunculus flammula</i>
<i>Dryopteris austriaca</i>	<i>Ranunculus repens</i>
<i>Dryopteris borreieri</i>	<i>Rosa</i> agg.
<i>Dryopteris filix-mas</i>	<i>Rubus idaeus</i>
<i>Endymion non-scriptus</i>	<i>Rubus fruticosus</i> agg.
<i>Epilobium montanum</i>	<i>Rumex acetosa</i>
<i>Erica cinerea</i>	<i>Rumex crispus</i>
<i>Euonymus europaeus</i>	<i>Salix</i> spp.
<i>Eupatorium cannabinum</i>	<i>Sambucus nigra</i>
<i>Euphrasia</i> agg.	<i>Sedum anglicum</i>
<i>Fagus sylvatica</i>	<i>Senecio jacobaea</i>
<i>Festuca gigantea</i>	<i>Sieglingia decumbens</i>
<i>Festuca ovina</i>	<i>Solidago virgaurea</i>
<i>Filipendula ulmaria</i>	<i>Sorbus aucuparia</i>
<i>Fraxinus excelsior</i>	<i>Stellaria nemorum</i>
<i>Galeopsis tetrahit</i>	<i>Tamus communis</i>
<i>Galium aparine</i>	<i>Taraxacum officinale</i>
<i>Galium hercynicum</i>	<i>Teucrium scorodonia</i>
<i>Galium palustre</i>	<i>Thymus drucei</i>
<i>Geranium robertianum</i>	<i>Ulex europaeus</i>
<i>Geum urbanum</i>	<i>Umbilicus rupestris</i>
<i>Glechoma hederacea</i>	<i>Urtica dioica</i>
<i>Glyceria</i> spp.	<i>Vaccinium myrtillus</i>
<i>Hedera helix</i>	<i>Veronica beccabunga</i>
<i>Holcus lanatus</i>	<i>Veronica chamaedrys</i>
<i>Holcus mollis</i>	<i>Veronica officinalis</i>
<i>Hypericum androsaemum</i>	<i>Viola palustris</i>
<i>Hypericum pulchrum</i>	<i>Viola</i> spp.

APPENDIX 2

Species List for (8) Wood near Maes-y-Gaer

<i>Agrostis tenuis</i>	<i>Holcus mollis</i>
<i>Aira caryophylllea</i>	<i>Hypericum pulchrum</i>
<i>Alnus glutinosa</i>	<i>Juncus effusus</i>
<i>Anthoxanthum odoratum</i>	<i>Lysimachia nemorum</i>
<i>Athyrium filix-femina</i>	<i>Malus sylvestica</i>
<i>Betula</i> spp.	<i>Mentha aquatica</i>
<i>Campanula rotundifolia</i>	<i>Oxalis acetosella</i>
<i>Cardamine hirsuta</i>	<i>Prunella vulgaris</i>
<i>Carex nigra</i>	<i>Prunus spinosa</i>
<i>Carex remota</i>	<i>Pteridium aquilinum</i>
<i>Carex sylvatica</i>	<i>Quercus (petraea + robur)</i>
<i>Cerastium vulgatum</i>	<i>Ranunculus repens</i>
<i>Chrysosplenium oppositifolium</i>	<i>Rumex acetosa</i>
<i>Cirsium palustre</i>	<i>Sedum anglicum</i>
<i>Crataegus monogyna</i>	<i>Senecio jacobaea</i>
<i>Dactylis glomerata</i>	<i>Sorbus aucuparia</i>
<i>Dryopteris filix-mas</i>	<i>Stellaria media</i>
<i>Festuca ovina</i>	<i>Ulmus glabra</i>
<i>Filipendula ulmaria</i>	<i>Urtica dioica</i>
<i>Fraxinus excelsior</i>	<i>Veronica chamaedrys</i>
<i>Galium hercynicum</i>	<i>Veronica officinalis</i>
<i>Galium palustre</i>	<i>Viola</i> Spp.
<i>Glechoma hederacea</i>	

(47 spp.)

APPENDIX 3

Position of Coedydd Aber and its various blocks in the
National Association-Analysis in relation to
other Grade 1 Elite Sites in North Wales*

Other Elites

Coed Gorswen - Group 2

Benglog Ashwood - Group 40

Coed Cymerau - Group 41 /

Coed-y-Rhygen and Cwm
Glas Crafnant - Group 42

Coed Dolgarrog - Group 47

Coed Ganllwyd - Group 57

Coed Carreg Wen - Group 66

Coedydd Maentwrog, Coed
Camlyn, and Ceunant Dulyn
- Group 75

Coed Tremodoc - Group 82

Coedydd Aber

Coedydd Aber (all blocks) and Coed
Cae'r Mynydd - Group 35

Maes-y-Gaer and Wern Goch - Group 37

Afon Anafon and wood near Maes-y-Gaer
- Group 41

Creigiau Rhacadr Fawr - Group 42

Coed Nant - Group 87

*List of Grade I Elites as given in draft version of Reserve Review.

/ Known to be mis-classified - should be in group 37.