

A review of the application to restore the dwelling house at Pantygarn, Carmel, Dyfed

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by
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For an on behalf of
The Campaign for the Protection of the Gwentlais Valley

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Introduction

As the consultant acting on behalf of the Campaign for the Protection of the Gwenlais Valley I have undertaken a review of the application by Ms F. Dowling to rebuild the farmhouse - 'Pantygarn' - for use as an agricultural dwelling. I have been asked to undertake this review by the group on the grounds that construction work has already begun at the site without planning permission, and because the restoration of this dwelling could have a damaging impact upon the Coedydd Carmel and Pant-y-Llyn Site of Special Scientific Interest (SSSI).

This review looks at...

- * the developments on the site to date;
- * the planning grounds for allowing/refusing permission to redevelop the farmhouse;
- * the wider implications in terms of conservation policy and the future protection of the SSSI.

As part of this review the position of the Countryside Council for Wales (CCW), and Dinefwr Borough Council, is also examined.

The conclusions of the review are summarised at the end of the report.

1. Development to date

Ms. Dowling, the applicant, bought the land at Pantygarn in late 1992. Restoration work at Pantygarn began in 1993.

In my opinion, this application contains a 'retrospective' element (an issue not addresses on the application) in that some restoration work has already been

carried out on site. Also, services such as piped water have already been installed. To date this work has been carried out by Ms. Dowling's 'associate', Mr. Woolacott. The work began in mid/late 1993, and has continued in one form or another until quite recently. In October last year an planning contravention notice was issued by Dinefwr Borough Council ordering that the developer account for the work which has taken place. It was only after this that the landowner applied for permission to redevelop the dwelling.

The work carried out on the site has not only involved the dwelling itself. The area around the dwelling has been cleared of trees and vegetation. A trench has been excavated across the SSSI for a water pipe to the derelict building. Parts of the building have been rebuilt and some walls have been demolished. Many hedges in the area have been cleared, and trackways have been scraped clear of vegetation and topsoil. Following this work, areas have been seeded and cultivated plants have been introduced; this work clearly breaches the CCW's list of 'damaging operations'.

The photographs in this report were taken around the Pantygarn site during the period in which development work was taking place, and show the effects of the work on the SSSI.

In response to a planning contravention notice issued by Dinefwr Borough Council in 1993, the agents for Ms. Dowling and Mr. Woolacott, S.G. Williams and Associates, prepared a response in defence of the activities which had taken place on the site. This response stated that the land was being used for agricultural purposes, and so no planning consent was required, and thus that the owner was acting lawfully. However, this response is not entirely correct.

Part 6 of Schedule 2, of the Town and Country Planning General Development Order 1988, states that where a building is being constructed or modified, then the owner shall inform the local authority before work begins of the design of the building, in order to ensure that the design conforms to local standards [Ref. 1]. From discussions with Dinefwr planning department, and from documents obtained, it appears that this condition was not fulfilled. The landowner is also required to give notice of any work liable to breach the list of damaging operations, but again, it has not been possible to clarify whether this was done or not.

Mr. Tim Shaw of Dinefwr Green Group raised the issue of the developments at Pantygarn with Dinefwr's Director of Planning, Marcus Jones, in a letter on 25th November, 1993. This letter enclosed photographs showing the effects of the development on the SSSI. In a reply on 17th February, 1994, Marcus Jones stated that, "*At present Mr. Woolacott does not appear to have undertaken any*

works that require planning permission and as such there is no scope for the Local Planning Authority to implement a course of enforcement action". As has been highlighted above this is not true since the provisions of the General Development Order require that the authority be consulted upon the design of the proposed building, and that they approve the plans either formally or by specifying some form of development brief for the developer to follow.

The excavation of a trench for a water pipe across the SSSI was also done on the basis of 'agricultural use', as allowed under the General Development Order. In the letter from Marcus Jones on 17th February 1994, it is stated that, "*The trench recently excavated to introduce water to the house/outbuilding area is, it is claimed by Mr Woolacott, to ensure the ready provision of water for the imminent birth of a calf expected by one of the cattle on the land. Whatever the merits of agricultural need explanation given, I consider that it would be sufficient to defeat any assertion by the Local Planning Authority that planning permission is required for excavation*".

This explanation is obviously nonsensical. It would require less expense and effort to remove the cow, even in a wagon or horse-box, rather than use heavy equipment to lay a pipe to where the cow is. Also, if the birth was imminent, it would make more sense to tow a water bowser up to the barn rather than dig a trench to it. In fact, the construction of the trench for the pipe is related to the redevelopment of the house - the pipe terminates at the house near to Mr. Woolacott's cement mixer. Being ancillary to the development of the house I would take it to be part of the same 'planning unit', and liable to control by the local authority.

The clearance of trees and hedges has, nominally, been carried out with the permission of the CCW. However, the standards which the CCW would normally require of such work have not been met. In the response to the planning contravention notice the developers consultants stated that consent had been given by the CCW under Section 28(5) of the Wildlife and

Countryside Act. In fact, this consent was to lay the hedges and clear some trees.

The works carried out under this 'consent' bear no relation to hedge laying. In a private conversation with a representative of the CCW it was agreed that the work was not hedge laying; the official defended the CCW's position by stating that it was 'linear coppicing'. I have never heard of such a term being used by any conservation body before.

All this of course raises the question about the legality of the damage caused to the SSSI, and the execution of the consent from the CCW under the Wildlife and Countryside Act. Under planning law, there is a lawful exemption from the offence of damaging a SSSI if the person causes the damage under the terms of a granted planning permission (Wildlife and Countryside Act 1991, s.28(8)). But if the consent by the CCW was improperly exercised, then the CCW should also be looking at taking enforcement action for the 'damaging operations' which have been carried out.

The work which has taken place to date has caused some damage to the SSSI by the virtue of the fact it breaches eleven of the twenty-eight 'damaging operations' listed by the CCW [Ref. 2]. This has implications/sets precedents for the future management of other SSSI's by the CCW and the for the exercise of the planning control responsibilities of Dinefwr Borough Council too. These issues will be investigated further in the third section of this report.

2. Planning grounds for approval/refusal

The reason for redeveloping this derelict dwelling is to provide a base from which the surrounding farm can be run. The applicant already farms in the Gower, and the distance between the farms requires that a dwelling be established at Pantygarn.

There was a similar application for outline permission to rebuild the same derelict dwelling in 1991 [Ref. 3] which was refused planning permission [Ref. 4]. The reasons for refusal were that...

* Insufficient evidence had been submitted to justify a departure from the planning policy which presumes against new residential development in the countryside except where it is clearly needed to house a worker in agriculture, forestry or other appropriate employment who must live on the spot rather than

in a nearby settlement;

* The granting of permission would be contrary to Policy EN10 of the Approved County Structure Plan;

* The site is located within the Carmel Woods/Pant-y-Llyn Site of Special Scientific Interest and the granting of permission would have a deleterious effect on aspects of wildlife interest on the area.

Physical effects of development

This application [Ref. 5] is for full permission - hence we must assume that the application stands as it is and there will be no outstanding 'reserved matters' for approval at a later date.

According to the details supplied with the application there will be parking spaces for two vehicles - this implies the construction of a vehicle access. The foul sewer will drain to a septic tank - this implies that the vehicle access must be of a standard to get the pumping lorry to the septic tank. However, according to the details, there will be no changes to the current access. This does not make sense since the current access is of a standard suitable only for 'off-road' vehicles.

Next, services. It is not stated how water and electricity will be connected to the dwelling. We may assume that the existing pipe laid to the dwelling is to be used, but I am not sure if, in its current state, it would meet the necessary standard of the local water company. The report from the applicant's consultants, Rees Richards & Partners [Ref. 6], states that, "*Mains water has been piped to the homestead*" - this would also support my earlier assertion that the laying of the water pipe must be considered part of the development.

The nearest electricity points are also some distance away. connection would require the laying of a cable, or as is more likely erecting an overhead line. The erection of an overhead line - normally 11kV (kilo-Volts) - requires that a wide corridor be cleared through any tree covered areas so that the line is not fouled or shorted. This has obvious implications for damage to the SSSI.

A further report was commissioned by the applicants from S.G. Williams, Chartered Town Planners and Tourism Consultants [Ref. 7], which examined the historic, archaeological and environmental matters associated with the development of the dwelling. However, it did not address the matters of the provision of access and services, and the effects of this upon the SSSI.

The redevelopment of this dwelling, even if we only consider the needs of vehicular access and the provision of services, must have a damaging effect on the SSSI.

Consideration of planning policy matters

At no point does the Rees Richards report or the S.G. Williams report consider planning policy, and the planning grounds for or against the development. This is a serious lapse on the part of the consultants because local and national planning policy, which tends to deter residential development in the open countryside, is the prime issue when determining whether this application should be approved or refused. Issues such as the state of the farm, management agreements for the SSSI, and the running of the smallholding, while material considerations, are secondary.

In considering planning policy, we must look closely at the grounds for refusal of the previous application. Since the issue of the refusal notice there has been no change in the County's position on ribbon/rural development - Policy EN10. Likewise, it does not appear that there is a case for allowing this development upon the grounds it is necessary for agricultural purposes. The site is near a number of villages where properties could be bought/built so making development within the SSSI unnecessary.

If we turn to the Dinefwr Borough Local Plan Consultative Draft (the deposit draft was not available at the time of writing) of July 1992, we see indications of the policies Dinefwr wish to adopt in relation to the protection of SSSIs. Policy DLPEN6 of this draft specifically resists all development, '*that would affect notified or proposed Sites of Special Scientific Interest*'. We could also bring in Policy DLPEN11 relating to the damaging of ancient woodland.

We should also consider the responses from the Countryside Council for Wales. In their response of the 4th May, 1994, they note that it the landowner should be encouraged to develop a property within an existing village in line with the County Structure Plan. They also pick up the point about the Rees Richards report lacking detail.

The only factor which weights in the applicants' favour is the fact that the dwelling will be for agricultural purposes, and that an existing derelict site will be redeveloped. however, as stated earlier, and as noted by the CCW in their letter of 4th May, 1994, the applicant has not presented a sound case for

allowing this development on the grounds of agricultural need. It should be realised that there is little hope of developing this farm 'unit' beyond its current state - any changes in use would be contrary to the protection of the SSSI (for example, the application of fertiliser to the fields). For this reason, I do not see that how the applicant can argue it represents a 'viable' farming unit, given its size, and its remoteness from the applicant's existing holding in the Gower.

It may be possible to make other arguments in favour of this development using references to other Planning Policy Guidances and Departmental Circulars. However, such other references tend to be over-ridden by other guidance relating to the protection of SSSIs.

3. Nature conservation policy

Included in the appendices of this report are the notification for the Coedydd Carmel & Pant-y-Llyn SSSI, and the list of 'damaging operations' drawn up by the CCW. There is also a map of the SSSI boundaries. This is provided for information purposes (they are copies of CCW documents).

This site is exceptional, both in terms of its nature conservation value and in terms of its 'geophysical' qualities. The SSSI has a number of rare flora and fauna, and habitats which are important and endangered in both the UK and European context. The geophysical features are also important, though perhaps not as threatened by the development. There is the turlough, and the position of the site on the fringe of the South Wales coal field gives it a distinct geology (in turn, it is this geology which has allowed the special habitats to develop).

Oliver Rackham, a woodlands expert, and who is listed in the references of the S.G. Williams report, has said of this SSSI...

"The site is a very important one as whole rather than in its parts. Some of the individual groves are quite distinguished for rare and uncommon plants, but it is the whole combination of woods, pasture, landforms and hydrology that is unique. It was created and has been preserved through an exceptional combination of geomorphological and cultural circumstances. It cannot be conserved without maintaining its integrity".

I believe the statement from Oliver Rackham makes it very clear that we cannot simply consider the part of the SSSI which the development occurs in - we must consider the entire site when considering this application. This site has been described by some as 'one of the best'. As such its management is very important because if damaging practices are allowed to take place here, there is little hope of stopping them on other 'less important' sites.

Responses from conservation bodies

As outlined in the previous section, it is difficult to support this application on planning grounds. Similar arguments can be advanced on nature conservation grounds, but nature conservation issues are much harder to fit into the 'framework' of Town Planning, partly due to their sometimes imprecise and unquantifiable nature, and partly because responsibility for nature conservation matters is split between a number of 'responsible authorities'. In assessing this application, Dinefwr's planners should take note of the responses from various conservation bodies.

The CCW (and by their dependence upon the CCW the Dyfed Wildlife Trust), are having a hard time at the moment. The Welsh Office has been putting pressure upon the CCW recently with regard to the notification of new SSSIs, and the protection of existing ones. A good example of this clash is the proposed M4 Gwent Levels motorway bypass, and the Usk barrage at Newport (where the Welsh Office also faces opposition from the National Rivers Authority). These problems, I believe, have resulted in a very non-committal approach to the protection of SSSIs in Wales - including this one.

The letter from the CCW to Dinefwr's Director of Planning on the 4th May, 1994, outlines the many damaging impacts this development could have upon the SSSI, but it stops short of advising refusal of permission. Instead, it asks for conditions to be added if Dinefwr decide to give planning permission.

If we then look at a letter from Dr. Greg Carson of the Royal Society for Nature Conservation (RSNC) to Ray woods of the CCW, the emphasis is very different...

"As you are aware, the site sits within the SSSI and is 'unique' in respect of it being the only part of the SSSI which is not under threat by the McAlpines IDO application.

As I understand it, the site (containing some former dwellings) was purchased not too long ago by Mr. R. Woolacott by auction (where the CCW were also bidding for the property).

It appears that Mr. Woolacott has been liaising with the local CCW officer on managing the site in a manner appropriate to the SSSI designation. however, on visiting the site, it is evident that no careful management is being applied. apart from the felling of many standard trees along laid hedges and the quality of the hedgelaying generally, the land is generally being devastated by the plant and machinery present. The very features contributing to the SSSI designation are now being undermined. The most recent example of this is a water supply ditch, a quarter of a mile long, that has been excavated across ancient meadows between wooded areas.

I would be most grateful if you could let me know whether this work has been authorised. I was under the impression that in such a situation, a formal management plan would have been drawn up since the work being carried out comprises numerous PDO's [potentially damaging operations]. If no formal agreement exists, I feel it is vital that you visit the site yourself as soon as possible before further serious damage is incurred."

Having inspected the site myself in May, I would concur with Dr. Carson's statements. The effect of Mr. Woolacott's 'agricultural' activities is causing damage to the site, and compromises the future of a large portion of the SSSI through various forms of development, changes in management practice, and the running of stock through the woods which is destroying the ground flora.

It is clear to me, taking into account the views of conservation professionals, that this development would have a serious impact on the SSSI if it is allowed to go ahead.

Conservation policy

Through a number of regulations, and departmental circulars, local authorities

have some responsibility for the protection of SSSIs. However, the level of this responsibility will dramatically increasing over the rest of this year.

In order to meet the provisions of the EC Habitats Directive [Ref. 7] the Government is implementing new regulations for those sites of exceptional conservation interest. These provisions were described in a consultation paper [Ref. 8] published last year. This outlines the designation of new nature conservation sites - Special Areas of conservation (SACs) - and how they are to be protected.

The Coedydd Carmel & Pant-y-Llyn SSSI, as I and a number of others see it, is of a standard which should make it an SAC. However, as with the designation of bathing waters in the 1980s, the general view is that the Government will try and designate as few SACs, and their marine counterpart SPAs (Special Protection Areas), as is possible. However, as I have told the Campaign for the Protection of the Gwenlais Valley, following the CCW's reluctance to disclose whether they will be recommending this site for SAC status, there is no reason why local people cannot bypass 'local' agencies and appeal directly to the European Commission to make Coedydd Carmel & Pant-y-Llyn SSSI an SAC.

The Government have already made their intentions clear. In a Parliamentary Answer by the minister for Local Government and Planning, Mr David Curry, on 23 July 1993, announced the Government's intention to lay Regulations in the Autumn to implement the Directive under the town and country planning system and similar provisions.

The draft Town and Country Planning (Habitats) Regulations, under Section 2(2) of the European Communities Act 1972, will provide that the Directive be given statutory force, and for the designation of SPAs, and in due course for SACs, through the planning system. These Regulations will amend the Town and Country Planning Acts and will also affect the operation of other enactments which have the effect of giving planning permission. The Planning Policy Guidance on Nature Conservation which was issued in draft for consultation in England and Wales in February 1992 will be published after Parliament has considered the draft Regulations and before they come into effect. It will include guidance on the operation of the Regulations.

Planning permissions affecting SACs and SPAs will be controlled by the proposed Town and Country Planning (Habitats) Regulations. In the Parliamentary answer by David Curry, the Government announced that it intended to include in the draft planning Regulations a requirement to take appropriate steps to help meet the obligations under the Directive to avoid

significant deterioration of habitats in designated SPAs and SACs. At present Section 28(8) of the Wildlife & Countryside Act 1981 provides that a valid planning permission under the Planning Acts is a reasonable excuse for proceeding with a damaging operation (although this does not apply to a permission granted under permitted development rights conferred by the General Development Order). It is likely that in addition to steps under the planning Regulations to avoid deterioration, Section 28(8) will be amended so that the existence of a valid planning permission would no longer be a reasonable excuse for a damaging operation. This would require owners and occupiers to give notice to the Nature Conservation Agencies before proceeding to implement such planning permissions.

The Government also issued a consultation paper in March 1993 on the withdrawal, in England and Wales, of permitted development rights under the Town and Country Planning General Development Order 1988 for developments which are likely to have a significant effect on an SPA or SAC.

These changes will also have effect on the CCW. Under Section 28 of the Wildlife and Countryside Act, the Nature Conservation Agencies' powers allow them to issue notifications listing potentially damaging operations (PDOs), give consent to certain activities and enter into management agreements with owners and occupiers. The proposed duty on the Nature Conservation Agencies to use existing and new powers provided to secure the protection of SACs and SPAs will mean that the PDO list and any consents and management agreements issued by them in SACs and SPAs must comply with that duty. It is proposed that the Agencies should have the power to re-issue notifications and to review management agreements if necessary to meet the terms of the Directive. This of course has obvious implications for Mr. Woolacott and his recent activities.

Implications for Dinefwr

In practical terms, even though these changes in policy are not finalised, the Local Planning Authority should consider them when making their determination of this application. In terms of the draft of the PPG on Nature Conservation, and on the information in the October consultation paper on the Habitats Directive, this permission should not be granted.

We must also consider the position of Dinefwr if they do grant permission. Recently, in a case before the European Court, the Spanish government was held to have acted improperly by allowing development upon a *proposed* SPA. Given the fact that Coedydd Carmel & Pant-y-Llyn SSSI is likely to be given SAC status, there is an argument that the local Gwenlais Protection group could

petition the European Commission, and force Dinefwr, or the Welsh Office, to review their decision to grant permission. This would be on the grounds that the Directive does not allow any development on SACs for economic or recreation purposes, unless it is necessary for the wider protection of the community.

All in all, considering the weight of existing and proposed guidance, and the 'direct effect' of European Union legislation upon Dinefwr Borough Council, the application should not be allowed.

Conclusions and recommendations

I make two broad recommendation to the Planning Committee of Dinefwr Borough Council:

1. Permission for this development should be refused

This would be primarily on the grounds that the development does not accord to the policies of the Dyfed Structure Plan, and the policies currently being evolved through the Dinefwr Draft Local Plan. In terms of its 'necessity' for the development of the landowners agricultural activities, the evidence submitted by the landowner does not prove that there is any overriding agricultural need. The refusal should also reference the potential for damage to the SSSI, which must be considered as 'material' given the importance of this site nationally.

2. Further action should be taken to secure the nature conservation value of this site

As has been set out in this report, the activities of the landowner/Mr Woolacott has compromised the proper management of this important nature conservation site. I would therefore urge the elected members and the officers of the authority to use their development control powers as fully as possible and ensure that no further 'unconsented' development takes place. Also, the authority should use their influence to encourage the CCW to use their powers to protect the site, implement a management agreement, and confer National Nature Reserve Status for the whole site.

It appears to me that the regulation of activities at the site to date has been very poor. If we are to ensure the survival of this very important conservation site it is imperative that the responsible authorities commit resources to carry out regular monitoring, and where that monitoring shows that 'potentially damaging' activities are taking place, steps should be taken to cease it. It should not be up to local citizens groups to flag up problems as they occur.

All this of course still leaves the matter of the 'damaging operations' which have been conducted to date unsolved. I believe that some form of enforcement action should be taken by Dinefwr Borough Council and the CCW. How this goes forward is a matter for the officers of these Agencies, but I would hope that some form of remedial work can be agreed with the landowner to repair the damage done.

Paul Mobbs.
June 1994.

References

1. Town and Country Planning General Development Order 1988 (as amended) SI No. 1813/1988 - Condition A.2(2), Part 6, Schedule 2.
2. Coedydd Carmel & Pant-y-Llyn SSSI, 'Operations likely to damage the special interest', CCW August 1990.
3. Application on behalf of Mrs. I. Wilkins, 17th May, 1991. Application ref. P6/19b/18506/91. 'Rebuild old house at Pt Enc 1596 Pant Y Garn, Carmel, Llanelli'.
4. Dinefwr Borough Council 'Notice of Refusal' 17th October 1991.
5. Application on behalf of Ms. F. Dowling, 8th April 1994. Application ref. P6/19b/241/94. 'Reconstruction of dwelling'.
6. 'Farm Appraisal', Rees Richard & Partners, Chartered Surveyors, 29th March 1994.
7. EC Habitats Directive - 'Directive on the conservation of natural habitats and of wild flora and fauna', 92/43/EEC.
8. Consultation Paper - 'Implementation in Great Britain of the Council Directive on the conservation of natural habitats and of wild flora and fauna (92/43/EEC), "The Habitats Directive". DoE/Welsh Office 4th October, 1993.

APPENDICES

App 1. CCW Notification of the Coedydd Carmel & Pant-y-Llyn SSSI

Coedydd Carmel & Pant-y-Llyn SSSI:
Countryside Council for Wales site notification

Local authorities: Dyfed County, Dinefwr Borough.

Dates notified: December 1986
August 1990
July 1992

Nation grid reference: SN598164
OS sheets: 1:50,000 - sheet 159
1:25,000 - sheet 1082 (SN 41/51)
- sheet 1083 (SN 61/71)

BGS survey: 1:50,000 - sheet 230 (solid and drift editions)

Site area: 54.1 hectares (133.7 acres)

Description:

BIOLOGICAL

Situated on the narrow outcrop of Carboniferous Limestone north of the South Wales Coalfield, this site is of national importance for its woodland plant communities, which include species that are regionally or nationally rare. The ash-dominated woods are regarded as transitional between ancient woodlands on calcareous soils in southern England and those further north. There are no other comparable areas of such size known in Wales which exhibit such a richness of flora and intrinsic diversity. Additionally, woodlands dominated by ash on limestone appear to be largely confined to the British Isles, making the Carmel woods of considerable interest to woodland ecologists and biogeographers.

The site comprises a series of some forty linear blocks of woodland growing on hard, upstanding beds of limestone, with the softer sediments in between these strata giving rise to deep, less rocky soils which, consequently, have been mostly cleared for use as pasture. There are great ecological variations between the individual woodland blocks resulting in differing plant assemblages, but collectively they hold about twenty species of native trees and shrubs and at least a hundred species of indigenous woodland plants, including the nationally rare mezereon *Daphne mezereum* and very uncommon species such as herb-Paris *Paris quadrifolia*, lily-of-the-valley *Convallaria majalis* (as a native, wild plant) and toothwort *Lathraea squamaria*. At least one hundred species of bryophytes have been recorded, including the local old woodland moss species *Hylocomium brevirostre*. The site has a well-documented history dating back to the eighteenth century, and the varied structure and composition of the woodland blocks has been the subject of recent detailed research.

Ash *Fraxinus excelsior* is the dominant tree throughout much of the woodland, with sessile oak *Quercus petraea* only common on certain more leached slopes. Under the canopy of ash there exists a very diverse shrub layer with hazel *Corylus avellana* predominant, but also including species that are regarded as more typical of calcareous woodlands in the south of England - shrubs such as dogwood *Cornus sanguinea*, buckthorn *Rhamnus catharticus*, spindle *Euonymus europaeus* and the climbing wild clematis *Clematis vitalba*. Yew *Taxus baccata*, rare as a truly native tree in Wales, is a very sparse component of the tree cover; it too is more typical of woodlands in southern Britain. Conversely, the presence of rowan *Sorbus aucuparia* shows the woodlands have some affinity with the ash woods of northern Britain. On the south-facing dip slopes the limestone beds exhibit a pavement-like morphology, with lily-of-the-valley, other woodland flowering plants and various bryophytes occupying the vertical fissures or 'grykes' in these slopes. Such slopes are mostly tree-clad, but a few are open to sunlight and thus provide suitable niches for warmth and lime-loving plants such as squinancywort *Asperula cynanchia*, wild thyme *Thymus praecox* and marjoram *Origanum vulgare*. In the deeply-shaded damper conditions, where a thicker humus has accumulated, there grows the uncommon saprophytic orchid, yellow bird's-nest *Monotropa hypopitys* and the parasitic toothwort, both plants devoid of chlorophyll.

Here too, in deep, damp moss the recently discovered harvest-spider *Sabacon viscayanum* sub sp. *ramblaianum* has been recorded; at present it is believed to be a rare species otherwise known only from the Pyrenees and a handful of sites in South Wales. The 'ancient woodland indicator' molluscs, *Acicula fusca* and *Limax cinereoniger* also occur, whilst another rare invertebrate found in these woods is the pseudo-scorpion *Neobisium carpenteri*. Occurring in some open floriferous areas between the woodland blocks is the pearl-bordered fritillary *Boloria euphrosyne* (a scarce butterfly whose larvae feed on woodland violets *Viola* spp.), and the local marbled white butterfly *Melanargia galathea*. The very localised predatory robberfly, *Asilus crabroniformis*, has also been recorded.

Most of the grassland areas between the woodland blocks have been subject to agricultural improvement, but small areas of species-rich pasture remain, often dominated by pignut *Conopodium majus* or, where bedrock is close to the surface, I calcicole species such as burnet-saxifrage *Pimpinella saxifraga*. There is a more extensive area of unimproved flower-rich grassland in the east of the site, including calcareous pasture with quaking-grass *Briza media*, common restharrow *Ononis repens*, greater knapweed *Centaurea scabiosa* and field scabious *Knautia arvensis*. These herb-rich areas within and around the woodland provide valuable nectar sources for adult butterflies and other invertebrates, contributing to the ecological diversity of the site.

Caves at both ends of the site are known to hold both Natterer's bat *Myotis nattereri* and the rare greater horseshoe bat *Rhinolophus ferrumequinum*. The latter declining species is, in Britain, confined to the south-west where it is at the northern edge of its European range.

PHYSICAL

At the eastern end of the site (Pant-y-llyn) there is a small turlough. Turloughs are seasonal lakes which occupy depressions in areas underlain by limestone. They are a widespread and characteristic geomorphological feature in some parts of Eire, where they have been studied in detail and, until recently, were virtually unknown in the United Kingdom. Pant-y-llyn is the only known example of a turlough in Wales and provides the closest analogy in Great Britain to the classic Irish examples. Situated in a closed depression on Carboniferous limestone the turlough measures some 160 metres long (north to south) by up to 60 metres wide when full of water in winter. The depth of water (up to 3 metres) reflects seasonal variations in the height of the local groundwater table (piezometric surface). The filling and draining of the lake are achieved mainly through a system of springs and sinks around the margins and in the base of the turlough. Dye tracing studies show that the turlough has complex relationships with the local hydrology.

Pant-y-llyn therefore provides a unique example of a turlough in Wales. It demonstrates a complex interaction of hydrological, geological and geomorphological controls, and is therefore a site of critical interest and much research potential to karst geomorphologists.

Remarks:

The Pant-y-llyn turlough has been selected as a result of the former Nature Conservancy Council's Geological Conservation Review (in press), a national survey and evaluation of sites of geological and physiographical interest.

App 2. CCW's list of damaging operations

Coedydd Carmel & Pant-y-Llyn SSSI: Operations likely to damage the special interest

Notification date: August 1990.

Those marked in italics have been breached by the 'agricultural' improvements conducted by Mr. Woolacott.

- 1. Cultivation, including ploughing, rotovating, harrowing and re-seeding.*
- 2. Any alteration in the present pattern or frequency of grazing by farm stock.*
- 3. Changes in stock feeding practice.*

4. Any alteration in the present pattern or frequency of mowing or cutting vegetation.
5. Application of manure, fertiliser or lime.
6. Application of pesticides, including herbicides (weedkillers).
7. *Dumping, spreading or discharge of any materials.*
8. *Burning of vegetation.*
9. *The deliberate introduction of any wild or domestic animal*, plant or seed.*
10. The killing or removal of any wild animal*, excluding pests.
11. *The destruction, removal or pruning of any plant or plant remains, including tree, shrub, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould or turf.*
- 12a. Tree planting, including afforestation.
- 12b. *Changes in woodland management, including clear and selective felling, thinning, coppicing, modification of the stand or underwood and changes in species composition.*
- 13a. *Modification of field drainage, including the use of mole, tile, tunnel or other artificial drains.*
- 13b. Modification to streams, ditches or drains, including their banks and beds, by re-alignment, re-grading, dredging or cleaning.
- 13c. Management of aquatic and bank vegetation.
14. changes in present utilisation of water, including storage, the raising of water levels, irrigation and abstraction from existing water bodies and through boreholes.
15. Infilling of ditches, drains or pits.
16. Introduction of freshwater fishery management, including use of fish cages.
20. Extraction of minerals, including topsoil, sub-soil and limestone pavement.
21. *construction, removal or destruction of roads, tracks, walls, fences, hard-stands, banks, ditches or other earthworks.*
22. storage of materials on, in, or against rock faces or cave entrances.
23. *erection of permanent or temporary structures, or the undertaking of engineering works, including the laying, maintenance or removal of pipelines and cables.*
24. Modification of cave entrances, quarries and pits; clearance of boulders, large stones, loose rock or scree; and battering, buttressing or grading rock faces and cuttings.

26. Use of vehicles likely to damage pool edges and herb-rich grassland.

27. Recreational activities within the control of the owner or occupier likely to damage the woodland flora and fauna or the pool.

28a. Introduction of game and waterfowl management.

28b. Change in hunting practice.

* - 'animal' includes any mammal, reptile, amphibian, bird, fish or invertebrate.

END OF REPORT TEXT