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&

L A I N G L T D

BARON HILL, BEAUMARIS

Ecological Report

for

WATKIN JONES

April 2008

2861



R I C H A R D S

M O O R E H E A D & L A I N G L T D

ENGINEERING, ENVIRONMENTAL and LANDSCAPE SPECIALISTS

BARON HILL, BEAUMARIS

Ecological Report

for

WATKIN JONES

April 2008

2861

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1 INTRODUCTION

1.1 Details of the study

- 1.1.1 Richards, Moorehead & Laing Ltd. has been commissioned by Watkin Jones to conduct an ecological assessment for submission as part of a planning application for the development of residential properties within the house and outbuildings at the Baron Hill Estate.
- 1.1.2 The study is to include a detailed, desktop search to identify protected species and sites from existing records, and a Phase 1 (extended) survey to ascertain the ecological value of the site.
- 1.1.3 A separate bat survey and report is to be carried out for submission to the Local Planning Authority in mid – June.
- 1.1.4 A confidential Protected Species Supplement has been provided separately.

1.2 Site description

- 1.2.1 Baron Hill is located near Beaumaris, on Anglesey, centred on GR SH 5984 7655. The site lies outside the Baron Hill Park SSSI. The site's location is shown in the map presented in Appendix 1. Baron Hill consists of a Georgian building, a Victorian building and some outbuildings including stables; see site map within Appendix 2.

1.3 Limitations of the survey

- 1.3.1 The habitat survey was undertaken in early April, which precluded a detailed botanical and fungi survey. However, the walkover survey does list the species of vegetation observed at that the time. The study does not include a detailed arboricultural survey.
- 1.3.2 An ecological survey of the area surrounding the estate buildings was undertaken. The surveyors did not enter the building as it was deemed unsafe to do so.

- 1.3.3 A small part of the western area of the site was waterlogged due to drainage arising from a nearby reservoir, and was severely poached by cattle. The recent ground disturbance limited the ability to identify animal tracks or runs.

2 METHOD

2.1 Desk top survey

- 2.1.1 The following organisations were contacted for any ecological information held regarding the site. A 1km buffer from the site boundary was included in the search:

- Countryside Council for Wales (CCW)
- The Gwynedd Badger group (which includes Anglesey)
- The North Wales Amphibian and Reptile Group (NWARDG)
- Cofnod Biological Records Centre
- The British Trust for Ornithology (BTO)
- The Royal Society for the Protection of Birds (RSPB)
- North Wales Wildlife Trust
- The Environment Agency Wales (EA)
- The Gwynedd Bat Group
- The Anglesey Biodiversity Officer
- Anglesey Tree Officer
- The British Dragonfly Society (BDS)
- The British Butterfly Conservation Society (BBCS)

2.2 Phase 1 extended survey

- 2.2.1 A Phase 1 (extended) survey of Baron Hill was undertaken on 9th April 2008 to ascertain the ecological value of the site. The survey recorded the general vegetation within the site, making a list of plant species present. Other features of wildlife interest were recorded, and wildlife potential was also noted. The survey included looking for evidence of protected species such as bats, badger, nesting birds, reptiles and Great Crested Newts (GCNs).

2.2.2 The method for Phase 1 follows that described in the Handbook for Phase 1 Habitat Survey (NCC 1990). The Phase 1 map with target notes (Appendix 3) has been produced in the abbreviated form. The aim was to locate any evidence of protected species or to identify suitable habitat, in order to recommend follow up surveys based upon the information gained from the initial inspection. Where required, photographs of habitats and species were taken for reference purposes. These photographs are presented in Appendix 4.

3 RESULTS

3.1 Protected sites and areas

3.1.1 The desktop search identified a variety of protected sites and areas within 1km of Baron Hill:

- **Special Area of Conservation (SAC)**

Menai Strait and Conwy Bay is situated within 1km of Baron Hill. Located at grid reference SH 629 728.

- **Site of Special Scientific Interest (SSSI)**

Traeth Lafan. The site is within 1km of Baron Hill. Located at grid reference SH 630 750.

Glannau Penmon. The site is within 1km of Baron Hill. Located at grid reference SH 609 762 to SH 642 810.

Baron Hill Park. The site is adjacent to the proposed development at Baron Hill. Baron Hill Park has been classed as a SSSI due to a variety of rare lichen species. Located at SH 57 & SH 67. See Appendix 5 for Baron Hill Lichen reports obtained from CCW.

- **Local Nature Reserve (LNR)**

Traeth Lafan. The site is within 1km of Baron Hill. Located at grid reference SH 630 750.

- **Area of Outstanding Natural Beauty (AONB)**

The whole of Anglesey is classed as an AONB.

- **Conservation Area**

Baron Hill forms part of the Beaumaris Conservation Area, within the Isle of Anglesey County Council, Supplementary Planning Guidance. Baron Hill is recognised within the Supplementary Planning Guidance as being important for its garden trees, parklands and woodlands; which together form part of the character of the conservation area.

- **Tree Preservation Order (TPO)**

The Baron Hill site has been identified as having many important trees and as a result, a large proportion of the site forms part of a tree preservation order shown in Appendix 6. The area labelled A1 has a Tree Preservation Order for selected trees. Within A1 (the area is defined by a dotted black line on the map) there are a variety of tree species which have been identified and are mentioned within the TPO schedule. The trees consist of Horse Chestnut, Lime, Sycamore, Beech, Oak, Ash, Evergreen Oak, Yew, Holly and Portugal Laurel; along with many specimen trees such as Pine, Spruce, Cypress, Cedar, Fir etc. In addition, adjacent to the Baron Hill site the Baron Hill Park (SSSI) also has a number of TPOs on its trees. The TPO map and schedule for the proposed development at the Baron Hill Estate and also for the adjacent Baron Hill Park (SSSI) was produced in 1971. Many of the trees within Baron Hill Park (SSSI) now do not exist.

3.2 Phase 1 Survey

General Site Conditions

- 3.2.1 The proposed development at the Baron Hill Estate consists of a series of buildings which have fallen into disrepair over the years and now have many trees and young saplings growing within them. The majority of the roof has been lost, with beams hanging down and most of the flooring has fallen in, making the area dangerous. The buildings were not entered during the site walkover. The habitat surrounding the buildings has been assessed for its ecological value.

Phase 1 descriptions

- 3.2.1 The Phase 1 map of the site is presented in Appendix 3. The target notes are described in relation to the map.
- 3.2.2 The majority of the site consisted of mixed plantation woodland. The site was formerly parkland and has become overgrown over many years. The percentage cover for woodland is over 30% and the area can no longer be classed as parkland. There are a variety of exotics found within the study area, which is typical of former estates. Many of the specimens are of a good age and of good ecological value. The

native bluebell was also found to be present on the site. This species is protected under Schedule 8 of the Wildlife and Countryside Act (1981), making it illegal to collect native bluebells from the wild for sale (**target note 1**).

- 3.2.3 The mixed plantation woodland consists of young trees and saplings growing within the former parkland. These trees have self-sown from the adjacent coniferous plantations and broadleaved woodlands.
- 3.2.4 Many of the former parkland trees have become shaded out by younger trees, which can reduce their value for lichens. Within the mixed plantation woodland there were also many dead and fallen trees. A number of different types of fungus were found throughout the study area but particularly within mixed plantation woodland (see selected photographs within Appendix 4). Some of these fungi are associated with dead wood: for example Jew's Ear, which is often associated with common elder, was found near chipped wood and on dead wood (**target note 2**).
- 3.2.5 The mixed plantation woodland is currently in need of management to rehabilitate the existing trees of ecological value. The area is currently undermanaged; and without a proper management plan those trees of ecological value could potentially be lost. Within the western corner of the site is an area of the mixed plantation woodland that has been waterlogged due to drainage problems. These need to be rectified (**target note 3**).
- 3.2.6 Within the mixed plantation woodland there is an avenue of limes which appear to have been managed in the past by pollarding. This practice often helped to prolong the life of the trees, and led to very distinctive shapes. The avenue of limes has the potential to be used by nesting birds (**target note 4**).
- 3.2.7 There are a number of veteran and mature trees within the Baron Hill site which could be of significant ecological value, providing roost sites for bats and nesting birds as well as habitat for a number of fungi, lichens and invertebrates which can be dependent on the trees (**target note 5**).
- 3.2.8 Within part of the lower arboretum there are remains of many brick and concrete buildings which were erected during the Second World War. The majority of this area has been shaded out and has been colonised by mosses and ivy (**target note 6**).
- 3.2.9 Areas of recolonisation have become secondary woodland. This is particularly noticeable in front of the terrace leading out from the Georgian building; where broadleaved semi-natural woodland is developing (**target note 7**).
- 3.2.10 To the north of the buildings is a coniferous plantation. There is an overgrown access route which connects the Baron Hill Estate buildings to the Baron Hill Park SSSI. Within the coniferous plantation there are areas of dead and fallen wood.

Some trees have cavities and cracks which too could be used by bats and nesting birds. There was a tree which showed signs of woodpecker activity (**target note 8**). There were some trees which had Artist's Bracket fungus present (**target note 9**), and a number of other plant and fungi species are present.

Table 1 Tree Species List

Latin Name	Common Name
<i>Fraxinus excelsior</i>	Ash
<i>Fagus sylvatica</i>	Beech
<i>Betula pubescens</i>	Birch
<i>Cedrus libani</i>	Cedar of Lebanon
<i>Pseudotsuga menziesii</i>	Douglas Fir
<i>Quercus ilex</i>	Holm Oak
<i>Aesculus hippocastanum</i>	Horse Chestnut
<i>Sequoiadendron giganteum</i>	Giant Redwood
<i>Ulmus spp.</i>	Elm
<i>Tilia x europaeus.</i>	Common Lime
<i>Acer pseudoplatanus</i>	Sycamore
<i>Tsuga heterophylla</i>	Hemlock
<i>Thuja plicata</i>	Western Red Cedar
<i>Pinus nigra</i>	Corsican Pine
<i>Pinus sylvestris</i>	Scots Pine
<i>Quercus petraea</i>	Sessile Oak
<i>Quercus rubra</i>	Red Oak

Table 2 Shrubs Species List

Latin Name	Common Name
<i>Buxus sempervirens</i>	Box
<i>Ruscus aculeatus</i>	Butchers Broom
<i>Sambucus nigra</i>	Elder
<i>Rubus fruticosus agg</i>	Bramble
<i>Ilex aquifolium</i>	Holly
<i>Leycesteria formosa</i>	Flowering Nutmeg
<i>Prunus laurocerasus</i>	Laurel
<i>Prunus lusitanica</i>	Portuguese Laurel
<i>Hypericum androsaemum</i>	Tutsan
<i>Aucuba japonica</i>	Spotted laurel
<i>Rhododendron ponticum (and hybrids)</i>	Rhododendron
<i>Salix caprea</i>	Sallow
<i>Taxus baccata</i>	Yew
<i>Lonicera nitida</i>	Evergreen Lonicera

Table 3 Ferns and Herbaceous perennial Species List

Latin Name	Common Name
<i>Asplenium scolopendrium</i>	Harts Tongue Fern
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort
<i>Polypodium vulgare</i>	Common Polypody
<i>Dryopteris filix-mas</i>	Male Fern
<i>Endymion non-scripta</i>	Bluebell
<i>Ranunculus ficaria</i>	Celandine, Lesser
<i>Galium aparine</i>	Cleavers
<i>Rumex obtusifolius</i>	Broad Leaved Dock
<i>Mercurialis perennis</i>	Dogs Mercury
<i>Smyrniolum olusatrum</i>	Alexanders
<i>Geranium robertianum</i>	Herb Robert
<i>Arum maculatum</i>	Lords and Ladies
<i>Urtica dioica</i>	Nettle, perennial
<i>Primula vulgaris</i>	Primrose
<i>Allium ursinum</i>	Ramsons
<i>Saxifraga oppositifolia</i>	Opposite leaved Golden Saxifrage
<i>Fragaria vesca</i>	Wild Strawberry
<i>Veronica spp</i>	Speedwell
<i>Geum urbanum.</i>	Wood Avens
<i>Adoxa moschatellina</i>	Moschatel
<i>Helxine soleirii</i>	Mind Your Own Business
<i>Anemone nemorosa</i>	Wood Anemone
<i>Hedera helix</i>	Ivy
<i>Carex sylvatica</i>	Wood Sedge
<i>Lonicera periclymenum</i>	Honeysuckle

Table 4 Fungi Species List

Latin Name	Common Name
<i>Laetiporus sulphureus</i>	Chicken of the woods
<i>Auricularia auricula-judae</i>	Jew's Ear
<i>Stereum hirsutum</i>	Hairy Stereum
<i>Sarcoscypha coccinea</i>	Scarlet Elf Cup / Scarlet Hood
<i>Ganoderma applanatum</i>	Artist's bracket
<i>Hypholoma fasciculare</i>	Sulphur tuft

3.3 Protected Species

- 3.3.1 A search of ‘Cofnod’ was undertaken for a 1km area of the site. A copy is presented within Appendix 7, which lists a number of protected species and sites along with other records of species. Within the Cofnod search there were no records for protected species within the Baron Hill site.
- 3.3.2 Bats and their roosts are protected by law through Schedule 5, Section 9, of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994. The latter implements European legislation and so all bats are known as ‘European protected species’. Bats are known to be present on the site, and a separate report addendum relating to bats and the buildings will be prepared for submission to the local planning authority.
- 3.3.3 There are no records for dormice on Anglesey. Although dormice are not dependent on hazel, hazel can often be one of their main food groups. The walkover showed that the site has no hazel thickets. The site has an open understory and lacks the dense blocks of scrub and tall brambles which would promote connectivity for dormice. During the visit, no signs indicating the presence of dormice were observed.
- 3.3.4 The record of badgers nearest to the Baron Hill estate is on Holy Island, on the northwestern tip of Anglesey. The walkover survey showed no signs of badger activity such as setts, runs, hair, footprints or latrines. As well as searching the inner area of the site, the surveyors also walked the boundaries and no signs were observed along boundary fences.
- 3.3.5 Within the Baron Hill Estate there are numerous trees that could be used by nesting birds. Many of the trees were well established, having cavities and cracks. The buildings at Baron Hill also provide good habitat for nesting birds in amongst the ivy, chimneys, former beam spaces etc. Two bird’s nests were found within the estate building: one the nest of a Wren, the other a Swallow. The extended Phase 1 walkover found no obvious signs, such as droppings or owl pellets, of Barn Owls nesting within the site,. However, the habitat has the potential to be used by barn owls. During the walkover a number species of birds listed in Table 5 were observed.

Table 5 Birds Species List

Latin Name	Common Name
<i>Turdus merula</i>	Blackbird
<i>Buteo buteo</i>	Buzzard
<i>Corvus corone</i>	Carrion Crow

Latin Name	Common Name
<i>Phylloscopus collybita</i>	Chiffchaff
<i>Cyanistes caeruleus</i>	Blue Tit
<i>Parus major</i>	Great Tit
<i>Dendrocopos major</i>	Greater Spotted Woodpecker
<i>Garrulus glanarius</i>	Jay
<i>Sitta europaea</i>	Nuthatch
<i>Phasianus colchicus</i>	Pheasant
<i>Corvus corax</i>	Raven
<i>Turdus philomelos</i>	Song Thrush
<i>Erithacus rubecula</i>	Robin
<i>Columba palumbus</i>	Wood Pigeon
<i>Troglodytes troglodytes</i>	Wren
<i>Corvus monedula</i>	Jackdaw
<i>Hirundo rustica</i>	Swallow

- 3.2.6 Polecats are listed within the UK Biodiversity Action Plan. Although they are not a priority species, they are considered to be a species of conservation concern. Polecats are included on Schedule 6 of the Wildlife and Countryside Act 1981 and it is illegal to kill or take the animals without a licence from CCW. During the site walkover no evidence of Polecat droppings (scats) was found. There were no obvious den sites but they will live within stone walling and rabbit holes, for example. There is the potential for Polecats to be present on the site. A brown hare was observed on the site. The species is listed as a UK Biodiversity Action Plan Species because numbers within the mainland UK have generally been in decline over recent years.
- 3.2.7 All native reptiles in Britain are protected under the Wildlife and Countryside Act, 1981 making it illegal to kill or injure them intentionally. No evidence of reptiles was found during the walkover survey. There were areas of log piles and chipped wood which can act as hibernaculae for reptiles. Generally the site was relatively shaded and lacked areas for the reptiles to bask in. There were areas of stonework, such as the terrace leading from the Georgian Building which overlooks the Menai Straits. The terrace was partially shaded by trees and so was not ideal for reptiles to bask in. Slow-worms could use the site, but the habitat was generally poor for reptiles.
- 3.2.8 There are two ponds located within 450m – 500m of Baron Hill. The first pond is located at grid reference SH 595 769 to the north-west of Baron Hill. On April 15th an RML ecologist visited the pond. The area immediately surrounding the pond consisted of grazed agricultural land with stone walling. The grazed land borders Coed Mawr, an area of broadleaved woodland. The pond is believed to dry up during the summer months. During the visit there was no evidence that fish are

present. The pond is fed by runoff from the adjacent fields. Generally the pond water was clear with patches of emergent vegetation, particularly near the dam. The pond could be frequented by GCNs. The second pond located at grid reference SH 597 759 appears to be a mill pond, and from the map it appears to be fed by running water from the adjacent stream. The pond lies south of the proposed development at Baron Hill, and is surrounded by woodland which extends northwards to the site. The woodland is intersected by a road (B5010) .

3.2.9 During the walkover survey at Baron Hill, a number of log piles and chipped wood piles were noted; these could act as hibernaculae for amphibians such as GCNs. The building itself was damp and contained some vegetation, rubble along with timber debris, which could also be used as refugia by amphibians. The record for Great Crested Newts nearest to the site is at grid references SH 585 753; SH 586 752 and SH 585 735, approximately 1 km -1.5 km away (see Cofnod records within Appendix 6).

4 SUMMARY AND RECOMMENDATIONS FOR MITIGATION

4.1 Summary of key findings

4.1.1 Baron Hill is a site of good ecological value, which could be enhanced if an effective woodland management plan was implemented. The main findings are as follows:

- Much of the site is covered by a Tree Preservation Order
- Protected mature trees are present
- Potential for protected plants and fungi
- Nesting birds within trees and buildings
- Potential for barn owl on the site
- Bats found within buildings
- Potential for bats to be within the trees
- Potential for Great Crested Newts
- Potential for Polecat
- Brown Hare present
- SAC within 10 km of the site

4.2 Recommended Mitigation

4.2.1 The study has indicated the presence of a number of species, and the potential for others. To allow the proposed development to be designed to integrate into the surroundings and maximise the wildlife value of the site, the following steps are recommended.

Table 6 Recommended Mitigation

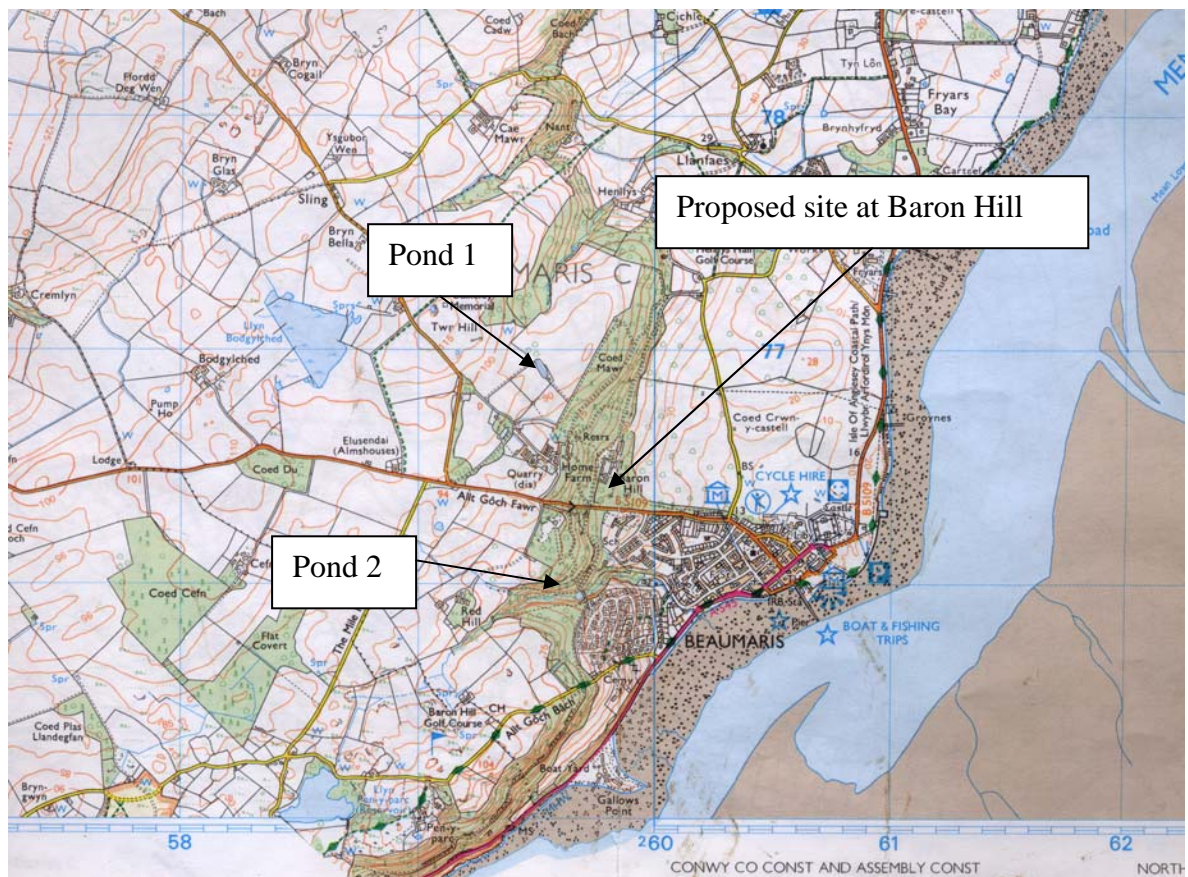
Potential Impact	Recommended Mitigation
Disturbance of nesting birds	Undertake tree felling, removal of ivy and clearance of scrub only outside bird nesting season (avoid mid-March to end of August)
Disturbance of Barn Owl	Carry out a Barn Owl / nesting bird survey before works involving disturbance.
Disturbance of bats within the buildings	Carry out a bat survey and undertake recommended mitigation measures at appropriate times of year which would be specified within the licence. Access for the survey would require safety precautions
Disturbance of Great Crested Newts	Undertake surveys of water bodies within 500m of the site, to determine whether the site is used as terrestrial habitat (survey from 1 st March until 31 st May)
Destruction of protected plants and fungi	Undertake a detailed botanical survey (Phase 2) during late May or early June. A survey for fungi should be conducted during the autumn. The timings may vary according to the weather.
Loss or damage to protected trees	Close liaison with the Tree Officer for Anglesey Council. Identification of important trees to be maintained. A full arboricultural survey of the site should be conducted, ideally when the trees are dormant or just leafing out. Woodland management plan would be advisable.
Disturbance of bats within trees	Survey any trees likely to be disturbed, to identify the potential for the trees to support bats.

Potential Impact	Recommended Mitigation
Disturbance of Brown Hare	Care must be taken during construction, particularly around the boundary of the site or where there is long grass in which they are concealed within small depressions (known as a 'form').
Disturbance of Polecats	Care must be taken during construction, particularly around the bases of tree trunks, rabbit burrows and stone walling, which could be used as den sites.
Indirect impact on SAC	Obtain CCW written confirmation that no impact will be caused. This may require the undertaking of a screening assessment.

APPENDIX 1

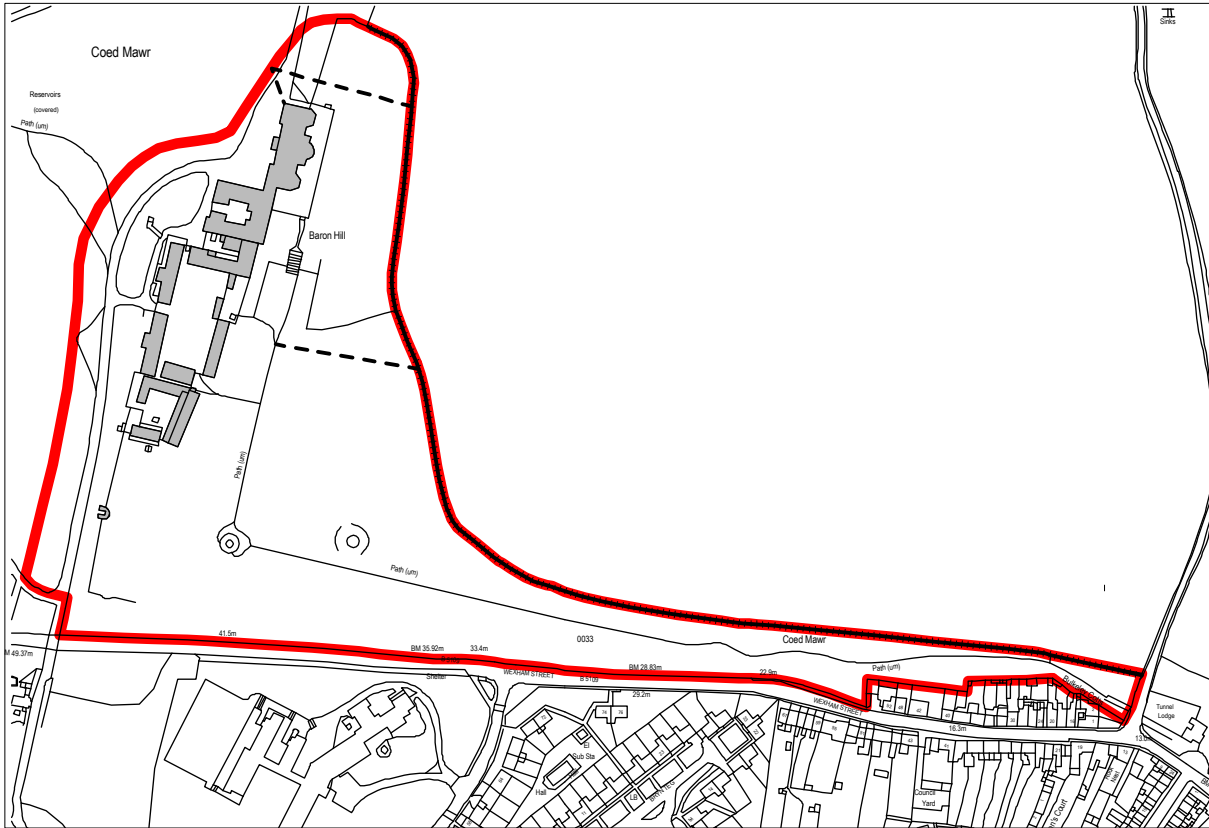
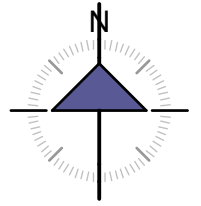
Location Map

Location Map: Proposed development at Baron Hill Estate
O.S. Licence Number AL 10,000 4963

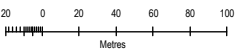



APPENDIX 2

Site Map



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Client / Client				
<h1>Watkin Jones</h1>				
Enw project / Project name				
<h2>Baron Hill Ecological Report</h2>				
Tali / Issued / Drawing title				
<h2>Appendix 2 Site map</h2>				
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Graddfa / Scale (A1)		Dyddiad / Date		Datunwyd gan / Drawn by
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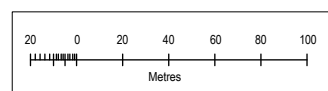
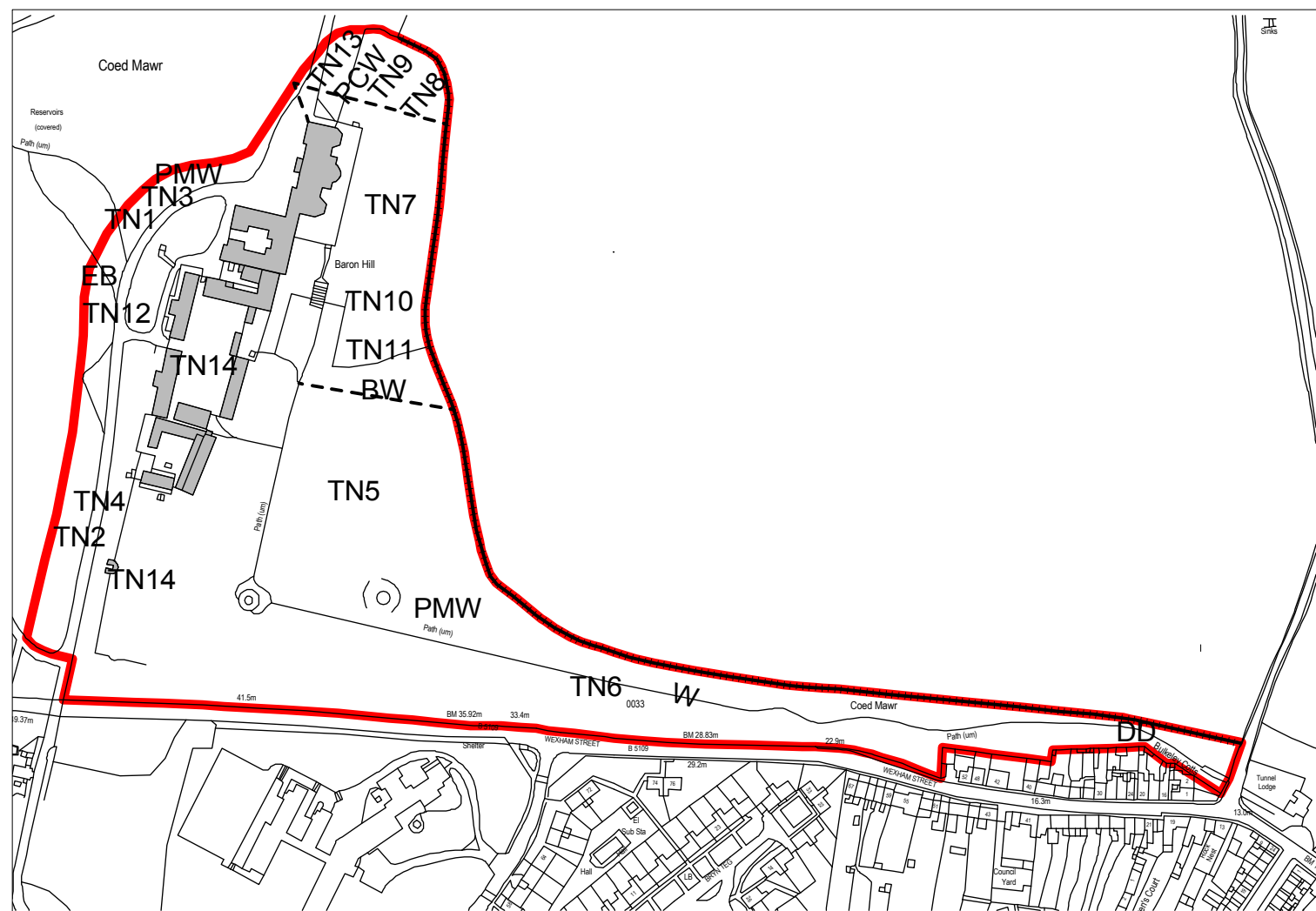
APPENDIX 3

Phase 1 map and target notes

Target Note	Target Notes
TN 1	Native bluebell
TN 2	Fungi found throughout the broadleaved woodland particularly on the dead and fallen trees or chipped wood mounds
TN3	Waterlogged area
TN4	Avenue of previously pollarded limes along former access. Potential for nesting birds.
TN 5	Throughout the site there are a number of trees which could be used by small mammals, bats and birds in hollows and cavities.
TN 6	Former military buildings shaded out
TN 7	Secondary woodland generated in front of former terrace, forming a broadleaved, semi-natural plantation
TN 8	Tree indicating woodpecker activity
TN 9	Artist's bracket fungus
TN 10	Brown hare
TN 11	Fox scat
TN 12	Bank Vole
TN 13	Former access to the Estate through plantation
TN 14	Many of the buildings have the potential to be used by bats as roosts. Ivy growth on walls also has the potential bird nesting sites.



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Broad leaved semi natural	BW
Coniferous plantation	PCW
Mixed plantation	PMW
Dividing line between habitats	-----
Fence	=====
Earth bank	EB
Dry ditch	DD
Target note	TN
Wall	W
Site boundary	=====

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Watkin Jones

Baron Hill Ecological Report

Appendix 3 Phase 1 Map

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e-bost/e-mail: rml@rmiconsult.co.uk, Gwefan/Website: www.rmiconsult.co.uk

Scale / Scale (A1)	Dyddiad / Date	Darlunwyd gan / Drawn by	DJ
1:1000@A3	April 2008	Darlunwyd gan / Checked by	SMB
Rhif Rhyd / Drawing number		Cyrrnod / Revision	01
2861 / 02			

APPENDIX 4

Photographs of habitats and species



Buildings with vegetation growing within



Unsafe buildings



Artists Bracket



Jew's Ear



Butchers Broom



Rhododendron



Pond 1:SH 595 769 to the North West of Baron Hill

APPENDIX 5

Lichen reports for Baron Hill SSSI obtained from CCW

SM 67-9.1

A SURVEY OF LICHENS IN WELSH PARKLANDS

A. ORANGE
DEPT. OF BOTANY
NATIONAL MUSEUM AND GALLERY, CARDIFF

CCW CONTRACT SCIENCE REPORT No. 138.

Countryside Council for Wales
Contract No. FC 73-01-125

Nominated Officer:
A. P. Fowles
Invertebrate Ecologist

April 1996

Summary

The lichens of 22 parkland sites throughout Wales were surveyed in 1995 and 1996. With the notable exception of Dolmelynlyn, the old-forest species of the *Lobarion* community were sparse, and often present in small quantity. In many cases this is likely to be due to historical factors or to pollution, but some areas visited may also be too dry and exposed for a rich *Lobarion*. Other important communities included the *Lecanactidetum premneae* of dry bark, the *Parmelion perlatae* of well-lit trunks, and the *Xanthorion* community of nutrient-enriched bark, some of whose members may be sensitive to agricultural pollution. One site (Dolmelynlyn Park) is a Grade 2 (National importance) epiphytic lichen site, and two others (Baron Hill and Plasnewydd) are Grade 4 (Regional importance). Of the remaining sites, it is suggested that 6 may be of county importance, and 13 may be of local importance. Recommendations for management of the lichen flora include preservation of ancient trees, replacement planting, maintenance of grazing or mowing, and minimal use of fertiliser.

BARON HILL (Site 21)

Baron Hill, Beaumaris, Anglesey (V.C. 52). Grid ref. 23(SH)/6077.
Ordnance Survey maps: 1: 50000 sheet no. 119; 1: 10000 sheets SH67NW, 59NE.

Contact:

Sir Richard Williams-Bulkeley Bt, Estate Office, Baron Hill, Beaumaris, Anglesey, Gwynedd LL58 8YT. Tel. (01248) 810322 (owner).
Mr Eifion Parry (tenant).

Ownership:

Sir Richard Williams-Bulkeley (address above). Land to the north of the area surveyed, which also has parkland trees, is under other ownership.

Access:

On foot from adjacent roads; there is limited parking by the minor road running south from East Lodge.

Previous surveys:

1. F. Rose, 1971 (full species list not seen, only notes).
2. A. Pentecost & A. Fletcher (9 September 1972; c. 76 species recorded on bark and wood; list may include some woodland areas).
3. P. Benoit, February 1980 (report without full species list).

Site visits:

4 March 1996, 10.30-17.30 hours, in dry overcast weather.

The lichen survey:

Baron Hill comprises pasture with numerous trees, mainly native oak, with some sycamore, locally frequent lime, beech, turkey oak and others. Most trees are well spaced, in open pasture, so that humidity is probably low. Oak trunks typically carried communities comprising combinations of the following species: *Parmelia caperata*, *P. perlata*, *P. subaurifera*, *P. sulcata*, *Pertusaria albescens*, *P. coccodes*, *Physconia enteroxantha* and *Rinodina roboris*. *Parmelia reticulata* and *P. soledians* were occasional on well-lit trunks, and *P. soledians* also occurred on beech. Dry sides of trunks were typically dominated by *Arthonia impolita*, *Diploicia canescens* and *Schismatomma decolorans*; *Lepraria* spp. were sparse. Lime carried a rather poor flora; many lime had dense witches broom growths near the main stem, producing a very dry trunk almost bare of lichens. *Xanthorion* species were local, apart from frequent *Physcia enteroxantha*, and included *Physcia adscendens*, *P. aipolia* and *Physconia distorta*; *Xanthoria parietina* was rather uncommon and rarely conspicuous. *Parmelia elegantula* and *P. laciniatula* were recorded on a few trees. Wood was sparsely present as a few stumps with *Cladonia* spp., *Micarea prasina*, and *Trapeliopsis flexuosa*.

A number of species were reported in earlier surveys that were not re-recorded during the present survey. These include *Caloplaca cerina*, *C. luteoalba* and *Gyalecta truncigena* recorded by Rose, and *Cladonia parasitica*, *Collema subflaccidum* and *Sticta limbata* recorded by Pentecost and Fletcher. It is probable that *C. luteoalba* occurred on elm trees which are no longer present. Some of Pentecost and Fletcher's records may be from woodland

2

adjacent to the parkland. Concern was expressed by Benoit that areas of the park adjacent to a factory and housing estate were suffering from local pollution. Although some trees at the north end of area 3 were lichen poor in the present survey, there was no strong evidence that pollution was having a marked effect here. The site appeared to be relatively uniform as regards the general health of the lichen communities. Although no detailed records are available from past surveys, there is no evidence of a general deterioration in the quality of the lichen flora of this site, and the notable species which led to SSSI notification are still present (apart from *Caloplaca luteoalba*). Areas 1, 2 and 3 comprise the best areas of the site; trees are sparse in areas 4 and 5. Fields to the north were not surveyed, but apparently also contain parkland trees.

NIEC species are rare at the site, which is perhaps too dry and open for many *Lobarion* species. The site is particularly significant for the presence of *Parmelia reticulata* and *P. soledians*. These species are locally common in the extreme south of England, but are rare and almost confined to sunny coastal sites in Wales. Because the lichen flora is unusual for Wales, Baron Hill was considered as Grade 4 (Regional importance) by Fletcher (1982, 1993), in a review of epiphytic lichen sites in Great Britain.

Notes on areas:

1. With over 11 oak (some not examined), at least 6 sycamore, a few beech and ash, and at least 20 lime.
2. With c. 3 sycamore, 5 native oak, 1 turkey oak, and 2 ash.
3. With at least 47 oak, with c. 2 ash.
4. With apparently sparse oak, but eastern parts of this field not visited.
5. A large field with very few mature trees, including a few beech and ash. *Parmelia soledians* recorded on one ash, otherwise of low value.

Lichens recorded:

Number of species: 75

Score on NIEC: 3.

Score on RIEC: 20.

British Red Data Book species: none.

Other notable species: *Anisomeridium* sp., *Parmelia reticulata*, *P. soledians*.

<i>Anisomeridium bifforme</i>	rare; on sycamore (1/22).
<i>Anisomeridium nyssaegenum</i>	rare; on one oak.
<i>Anisomeridium</i> sp.	rare; on 2 sycamore (1/16, 1/23). An apparently undescibed species with large pycnidia, recorded from a few sites in Wales.
<i>Arthonia impolita</i>	frequent on dry bark (recorded on 2 oak and 7 sycamore).
<i>Buellia punctata</i>	occasional; only rarely in any quantity.
<i>Caloplaca obscurella</i>	rare; on sycamore (1/16).
<i>Candelaria concolor</i>	rare; on one sycamore (1/16).
<i>Candelariella vitellina</i>	occasional on nutrient-enriched trunk bases, including oak, sycamore, lime and beech, in areas 1, 2, 3 and 5.
<i>Cladonia chlorophaea</i>	on elm stump in area 3.
<i>Cladonia coniocraea</i>	on oak stump in area 2.

- Cladonia digitata* on oak stump in area 1.
- Cladonia macilenta* on oak stumps in areas 1 and 2.
- Cladonia pyxidata* on elm stump in area 2.
- Cladonia squamosa* var. *squamosa* on oak stump in area 3.
- Cliostomum griffithii* on sycamore in area 1.
- Dimerella pineti* rare; on one oak in area 1.
- Diploicia canescens* frequent on dry bark; recorded on oak, sycamore, beech and lime, areas 1, 2 and 3.
- Enterographa crassa* occasional; on oak (1/21, 3/17), sycamore (1/22, 1/23, 2/2, 2/13) and lime (1/34). RIEC species.
- Evernia prunastri* on oaks in areas 1 and 2.
- Fuscidea lightfootii* rare; on beech in area 5.
- Hyperphyscia adglutinata* occasional; recorded on 7 sycamore, 3 oak, one ash, one lime and one beech.
- Hypocenomyce scalaris* on oak stump in area 2.
- Hypogymnia physodes* rare; on oaks in areas 1 and 2.
- Lecanora argentata* occasional; on oak, sycamore and ash in areas 1, 2 and 3.
- Lecanora chlarotera* occasional; on oak, sycamore and lime in areas 1, 2 and 3.
- Lecanora expallens* probably frequent; recorded on oak, sycamore and lime in area 1.
- Lecidella elaeochroma* occasional; on oak, sycamore and beech, areas 1, 2 and 3.
- Lecidella scabra* on root buttresses of 2 beech in area 1, sterile.
- Lepraria incana* on oak in area 1.
- Lepraria lobificans* rare; on sycamore in area 1.
- Leptogium teretiusculum* rare; on ash (3/34). NIEC species.
- Micarea melaena* on oak stump in area 2.
- Micarea prasina* on dry wood on oak stumps in areas 1 and 3. The 2 specimens that were analysed contained micareic acid by TLC.
- Normandina pulchella* occasional; recorded on sycamore and oak.
- Ochrolechia subviridis* occasional; recorded on oak and beech.
- Opegrapha atra* recorded on sycamore in area 1.
- Opegrapha vulgata* recorded on sycamore in area 1.
- Opegrapha varia* occasional; on oak and sycamore in area 1. A sterile morph with abundant pycnidia occurred on an oak (1/21) and on a sycamore (area 1).
- Pachyphiale carneola* rare; on one sycamore (1/16). NIEC species. RIEC species.
- Parmelia laciniatula* recorded on 3 sycamore, 1 oak and 1 beech in area 1.
- Parmelia caperata* on oak, sycamore and beech, areas 1, 2 and 3.
- Parmelia pastillifera* rare; on trunks of 2 beech at north end of area 5.
- Parmelia perlata* frequent, often rather small; on oak, ash and beech, areas 1, 2 and 3.
- Parmelia reticulata* occasional, often in small quantity; recorded on 8 native oak (1/25, 3/9, 3/10, 3/14, 3/16, 3/29, 3/35, 3/40) and one turkey oak (1/12).
- Parmelia revoluta* occasional, usually in small quantity; recorded on oak, ash and beech.
- Parmelia glabratula* subsp. *glabratula* occasional; recorded on oak, sycamore and beech.
- Parmelia elegantula* rare (at least on trunks); recorded on one sycamore (1/27) and one oak (1/31).

- Parmelia soreidians* locally frequent, recorded on 18 trees, including oak (1/29, 3/1, 3/5, 3/6, 3/30, 3/31, 3/33, 3/40), sycamore (1/16, 1/17, 1/35), beech (1/2, 1/3, 1/4, 1/5), lime (1/26, 1/30) and ash (5/3).
- Parmelia subrudecta* occasional to frequent; on oak, ash, sycamore and beech.
- Parmelia subaurifera* frequent; on oak and beech.
- Parmelia sulcata* frequent; on oak, sycamore and beech.
- Pertusaria albescens* frequent; on oak, sycamore and beech.
- Pertusaria amara* on beech in area 1.
- Pertusaria coccodes* frequent; on at least 17 oak, 2 ash, 1 sycamore and 1 lime.
- Pertusaria hymenea* on beech, ash and sycamore.
- Pertusaria pertusa* on beech in area 1 and sycamore in area 2.
- Phaeophyscia orbicularis* occasional; on oak, ash and sycamore.
- Phlyctis argena* recorded on oak in area 1.
- Physcia adscendens* on oak, ash, sycamore and beech, areas 1, 2 and 3.
- Physcia aipolia* occasional on oak trunks.
- Physcia tenella* on oak, sycamore and beech, usually on branches.
- Physconia distorta* rare; on oak (3/3) and ash (2/11).
- Physconia enteroxantha* frequent, often in good quantity without other *Xanthorion* species; oak, ash, sycamore, beech and lime, areas 1, 2 and 3.
- Physconia grisea* rare; on ash (2/11).
- Porina borrieri* rare; on sycamore (1/22).
- Pyremula macrospora* occasional; recorded on 4 sycamore (1/16, 1/22, 1/23, 1/35) and 1 ash (2/11). RIEC species.
- Pyrrhospora querneia* occasional.
- Ramalina canariensis* rather frequent on dry oak trunks, but never very abundant; recorded on 12 trees (2/3, 2/6, 3/3, 3/15, 3/23, 3/28, 3/29, 3/35, 3/36, 3/37, 3/38, 4/3).
- Ramalina farinacea* occasional; on oak, ash and sycamore, areas 1, 2 and 3.
- Rinodina griseosoralifera* rare; on one beech (1/4). New to the vice-county.
- Rinodina roboris* frequent; recorded on 20 oaks, 3 ash, 3 sycamore and 2 lime.
- Schismatomma decolorans* frequent and often dominating dry sides of trunks, recorded on oak, sycamore and beech.
- Thelopsis rubella* rare; on trunk of an old oak in a rather sheltered corner of the park (1/21) and on sycamore nearby (1/22). NIEC species. RIEC species.
- Trapeliopsis flexuosa* on oak stumps in area 2.
- Usnea subfloridana* rare; seen only on beech trunk in area 5.
- Xanthoria parietina* occasional, but often in very small quantity; on trunks or branches of oak, ash, sycamore and beech.

Lichenicolous fungi recorded:

- Dactylospora parasitica* recorded twice on *Pertusaria hymenea* and once on *P. pertusa*.
- Sphinctrina turbinata* recorded twice on thallus of *Pertusaria pertusa*.
- Stigmidium schaeereri* on apothecia of *Lecanora chlarotera* (on oak 3/28).



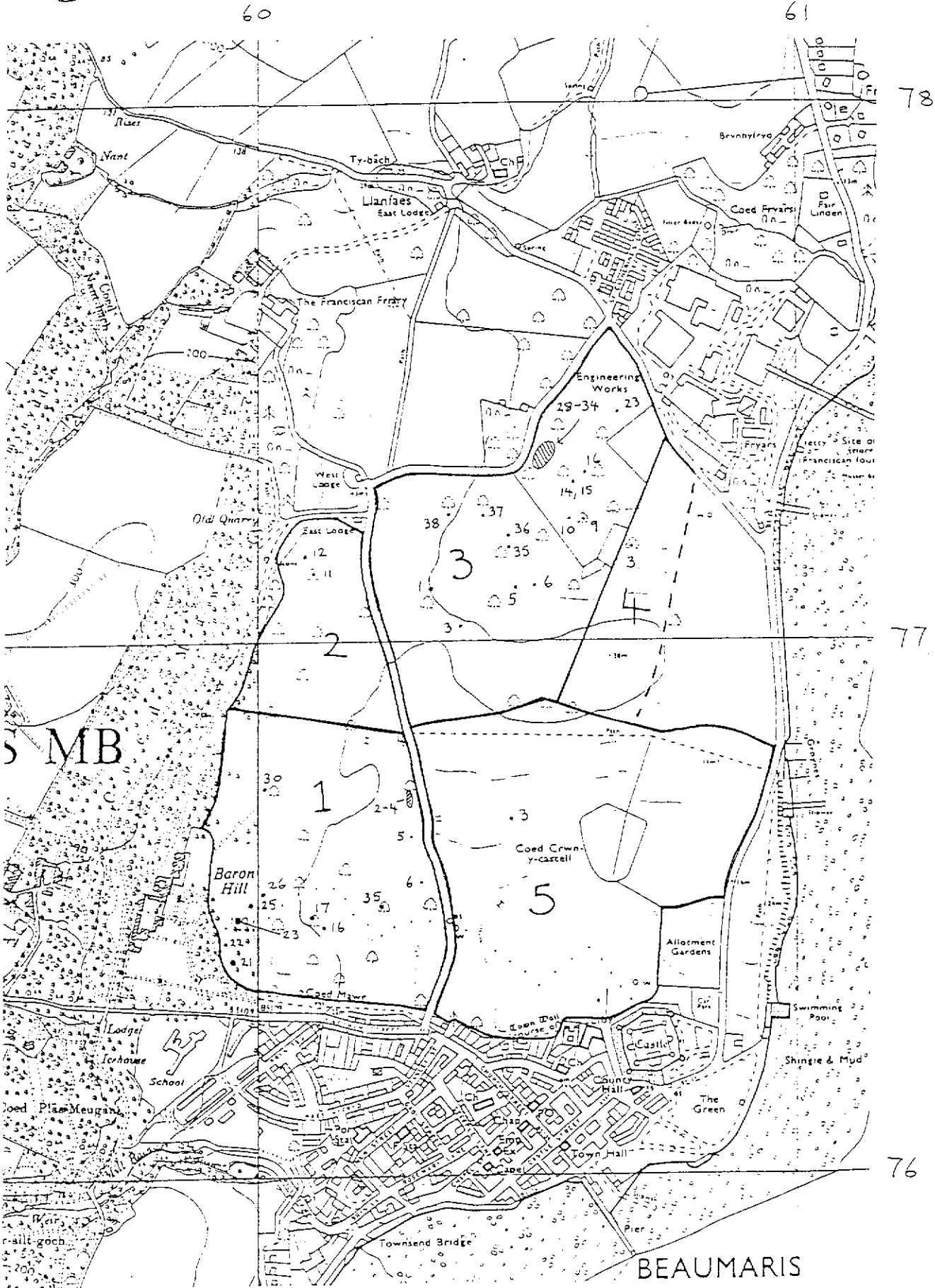


FIG. 21. Baron Hill (Site 21), showing areas surveyed, and position of trees mentioned in text.

SH 67-4-1

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Lichens recorded:

Number of species: 75

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British Red Data Book species: none.

Other notable species: *Anisomeridium* sp., *Parmelia reticulata*, *P. sooredians*.

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<i>Anisomeridium nyssaegenum</i>	rare; on one oak.
<i>Anisomeridium</i> sp.	rare; on 2 sycamore (1/16, 1/23). An apparently undescrbed species with large pycnidia, recorded from a few sites in Wales.
<i>Arthonia impolita</i>	frequent on dry bark (recorded on 2 oak and 7 sycamore).
<i>Buellia punctata</i>	occasional; only rarely in any quantity.
<i>Caloplaca obscurella</i>	rare; on sycamore (1/16).
<i>Candelaria concolor</i>	rare; on one sycamore (1/16).
<i>Candelariella vitellina</i>	occasional on nutrient-enriched trunk bases, including oak, sycamore, lime and beech, in areas 1, 2, 3 and 5.
<i>Cladonia chlorophaea</i>	on elm stump in area 3.
<i>Cladonia coniocraea</i>	on oak stump in area 2.

<i>Cladonia digitata</i>	on oak stump in area 1.
<i>Cladonia macilentata</i>	on oak stumps in areas 1 and 2.
<i>Cladonia pyxidata</i>	on elm stump in area 2.
<i>Cladonia squamosa</i> var. <i>squamosa</i>	on oak stump in area 3.
<i>Cliostomum griffithii</i>	on sycamore in area 1.
<i>Dimerella pineti</i>	rare; on one oak in area 1.
<i>Diploicia canescens</i>	frequent on dry bark; recorded on oak, sycamore, beech and lime, areas 1, 2 and 3.
<i>Enterographa crassa</i>	occasional; on oak (1/21, 3/17), sycamore (1/22, 1/23, 2/2, 2/13) and lime (1/34). RIEC species.
<i>Evernia prunastri</i>	on oaks in areas 1 and 2.
<i>Fuscidea lightfootii</i>	rare; on beech in area 5.
<i>Hyperphyscia adglutinata</i>	occasional; recorded on 7 sycamore, 3 oak, one ash, one lime and one beech.
<i>Hypocenomyce scalaris</i>	on oak stump in area 2.
<i>Hypogymnia physodes</i>	rare; on oaks in areas 1 and 2.
<i>Lecanora argentata</i>	occasional; on oak, sycamore and ash in areas 1, 2 and 3.
<i>Lecanora chlarotera</i>	occasional; on oak, sycamore and lime in areas 1, 2 and 3.
<i>Lecanora expallens</i>	probably frequent; recorded on oak, sycamore and lime in area 1.
<i>Lecidella elaeochroma</i>	occasional; on oak, sycamore and beech, areas 1, 2 and 3.
<i>Lecidella scabra</i>	on root buttresses of 2 beech in area 1, sterile.
<i>Lepraria incana</i>	on oak in area 1.
<i>Lepraria lobificans</i>	rare; on sycamore in area 1.
<i>Leptogium teretiusculum</i>	rare; on ash (3/34). NIEC species.
<i>Micarea melaena</i>	on oak stump in area 2.
<i>Micarea prasina</i>	on dry wood on oak stumps in areas 1 and 3. The 2 specimens that were analysed contained micareic acid by TLC.
<i>Normandina pulchella</i>	occasional; recorded on sycamore and oak.
<i>Ochrolechia subviridis</i>	occasional; recorded on oak and beech.
<i>Opegrapha atra</i>	recorded on sycamore in area 1.
<i>Opegrapha vulgata</i>	recorded on sycamore in area 1.
<i>Opegrapha varia</i>	occasional; on oak and sycamore in area 1. A sterile morph with abundant pycnidia occurred on an oak (1/21) and on a sycamore (area 1).
<i>Pachyphiale carneola</i>	rare; on one sycamore (1/16). NIEC species. RIEC species.
<i>Parmelia laciniatula</i>	recorded on 3 sycamore, 1 oak and 1 beech in area 1.
<i>Parmelia caperata</i>	on oak, sycamore and beech, areas 1, 2 and 3.
<i>Parmelia pastillifera</i>	rare; on trunks of 2 beech at north end of area 5.
<i>Parmelia perlata</i>	frequent, often rather small; on oak, ash and beech, areas 1, 2 and 3.
<i>Parmelia reticulata</i>	occasional, often in small quantity; recorded on 8 native oak (1/25, 3/9, 3/10, 3/14, 3/16, 3/29, 3/35, 3/40) and one turkey oak (1/12).
<i>Parmelia revoluta</i>	occasional, usually in small quantity; recorded on oak, ash and beech..
<i>Parmelia glabratula</i> subsp. <i>glabratula</i>	occasional; recorded on oak, sycamore and beech..
<i>Parmelia elegantula</i>	rare (at least on trunks); recorded on one sycamore (1/27) and one oak (1/31).

- Parmelia soledians* locally frequent, recorded on 18 trees, including oak (1/29, 3/1, 3/5, 3/6, 3/30, 3/31, 3/33, 3/40), sycamore (1/16, 1/17, 1/35), beech (1/2, 1/3, 1/4, 1/5), lime (1/26, 1/30) and ash (5/3).
- Parmelia subrudecta* occasional to frequent; on oak, ash, sycamore and beech.
- Parmelia subaurifera* frequent; on oak and beech.
- Parmelia sulcata* frequent; on oak, sycamore and beech.
- Pertusaria albescens* frequent; on oak, sycamore and beech.
- Pertusaria amara* on beech in area 1.
- Pertusaria coccodes* frequent; on at least 17 oak, 2 ash, 1 sycamore and 1 lime.
- Pertusaria hymenea* on beech, ash and sycamore.
- Pertusaria pertusa* on beech in area 1 and sycamore in area 2.
- Phaeophyscia orbicularis* occasional; on oak, ash and sycamore.
- Phlyctis argena* recorded on oak in area 1.
- Physcia adscendens* on oak, ash, sycamore and beech, areas 1, 2 and 3.
- Physcia aipolia* occasional on oak trunks.
- Physcia tenella* on oak, sycamore and beech, usually on branches.
- Physconia distorta* rare; on oak (3/3) and ash (2/11).
- Physconia enteroxantha* frequent, often in good quantity without other *Xanthorion* species; oak, ash, sycamore, beech and lime, areas 1, 2 and 3.
- Physconia grisea* rare; on ash (2/11).
- Porina borrieri* rare; on sycamore (1/22).
- Pyremula macrospora* occasional; recorded on 4 sycamore (1/16, 1/22, 1/23, 1/35) and 1 ash (2/11). RIEC species.
- Pyrrhospora querneae* occasional.
- Ramalina canariensis* rather frequent on dry oak trunks, but never very abundant; recorded on 12 trees (2/3, 2/6, 3/3, 3/15, 3/23, 3/28, 3/29, 3/35, 3/36, 3/37, 3/38, 4/3).
- Ramalina farinacea* occasional; on oak, ash and sycamore, areas 1, 2 and 3.
- Rinodina griseosoralifera* rare; on one beech (1/4). New to the vice-county.
- Rinodina roboris* frequent; recorded on 20 oaks, 3 ash, 3 sycamore and 2 lime.
- Schismatomma decolorans* frequent and often dominating dry sides of trunks, recorded on oak, sycamore and beech.
- Thelopsis rubella* rare; on trunk of an old oak in a rather sheltered corner of the park (1/21) and on sycamore nearby (1/22). NIEC species. RIEC species.
- Trapeliopsis flexuosa* on oak stumps in area 2.
- Usnea subfloridana* rare; seen only on beech trunk in area 5.
- Xanthoria parietina* occasional, but often in very small quantity; on trunks or branches of oak, ash, sycamore and beech.
- Lichenicolous fungi recorded:*
- Dactylospora parasitica* recorded twice on *Pertusaria hymenea* and once on *P. pertusa*.
- Sphinctrina turbinata* recorded twice on thallus of *Pertusaria pertusa*.
- Stigmatidium schaeereri* on apothecia of *Lecanora chlarotera* (on oak 3/28).

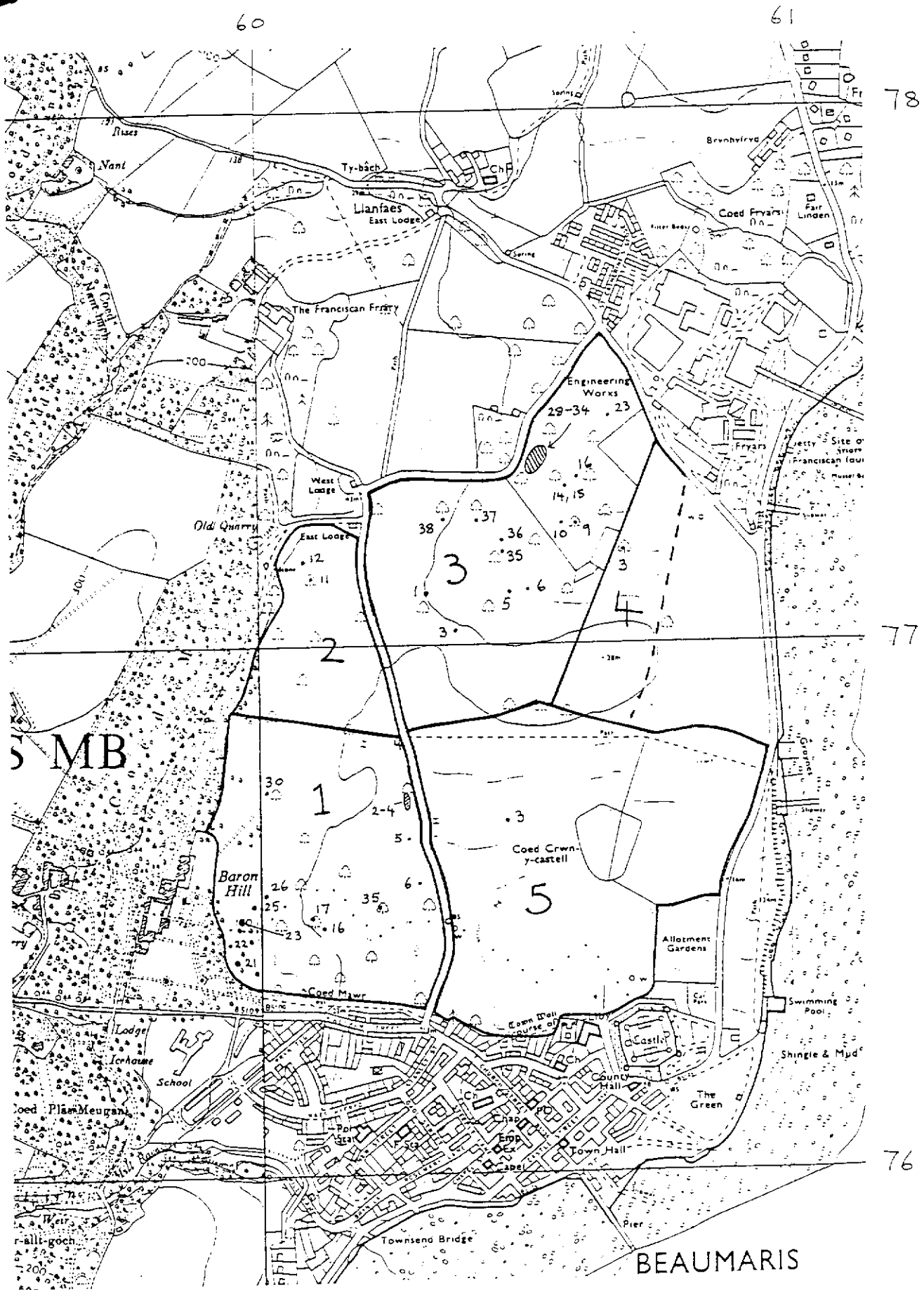


FIG. 21. Baron Hill (Site 21), showing areas surveyed, and position of trees mentioned in text.



Date of notification: 1980, 1985

National Grid Reference: SH605770

O.S. 1:50,000 Sheet Number: 114
1:25,000 Sheet Number: SH57 and SH67Site area: 112.55 hectares (278.12 acres)Description

A parkland containing ancient trees which support a diverse and interesting epiphytic lichen flora. A total of 118 lichen species have been recorded from all substrata in the Park. The epiphytic lichen flora includes a continental element with the species typical of low rainfall and high sunshine areas more commonly found in southern England. It contrasts markedly with the lichen floras of North Wales woods. Lichen species of particular note include Parmelia soledians, Arthonia impolita, Caloplaca luteoalba, Parmelia reticulata, Rinodina riboris and Schismatomma decolorans. Anaptychia fusca, which normally grown on maritime rocks, is found here on the bark of an oak tree.

Disgrifiad

Dyma dir parc an ynddo goed hynafol sy'n cynnal amrywiaeth diddorol o fflora cen epiffytig. Cofnodwyd cyfanswm o 118 o rywogaethau o gen o'r holl swbstratau'n y Park. Mae'r fflora cen epiffytig yn cynnwys elfen gyfandirol a'r rhywogaethau'n fwy nodweddiadol o fannau lle ceir glawiad isel a llawer o haul tebyg i'r hyn sy'n fwy cyffredin yn ne Lloegr. Mae cyferbyniad amlwg iawn â fflora cen welir yng nghoed-wigoedd Gogledd Cymru. Rhywogaethau o bwys arbennig ydynt Parmelia soledians, Arthonia impolita, Caloplaca luteoalba, Parmelia reticulata, Rinodina riboris a Schismatomma decolorans. Ceir Anaptychia fusca ar risgl coeden dderw, cen a dyf fel rheol ar greigiau ger y môr.

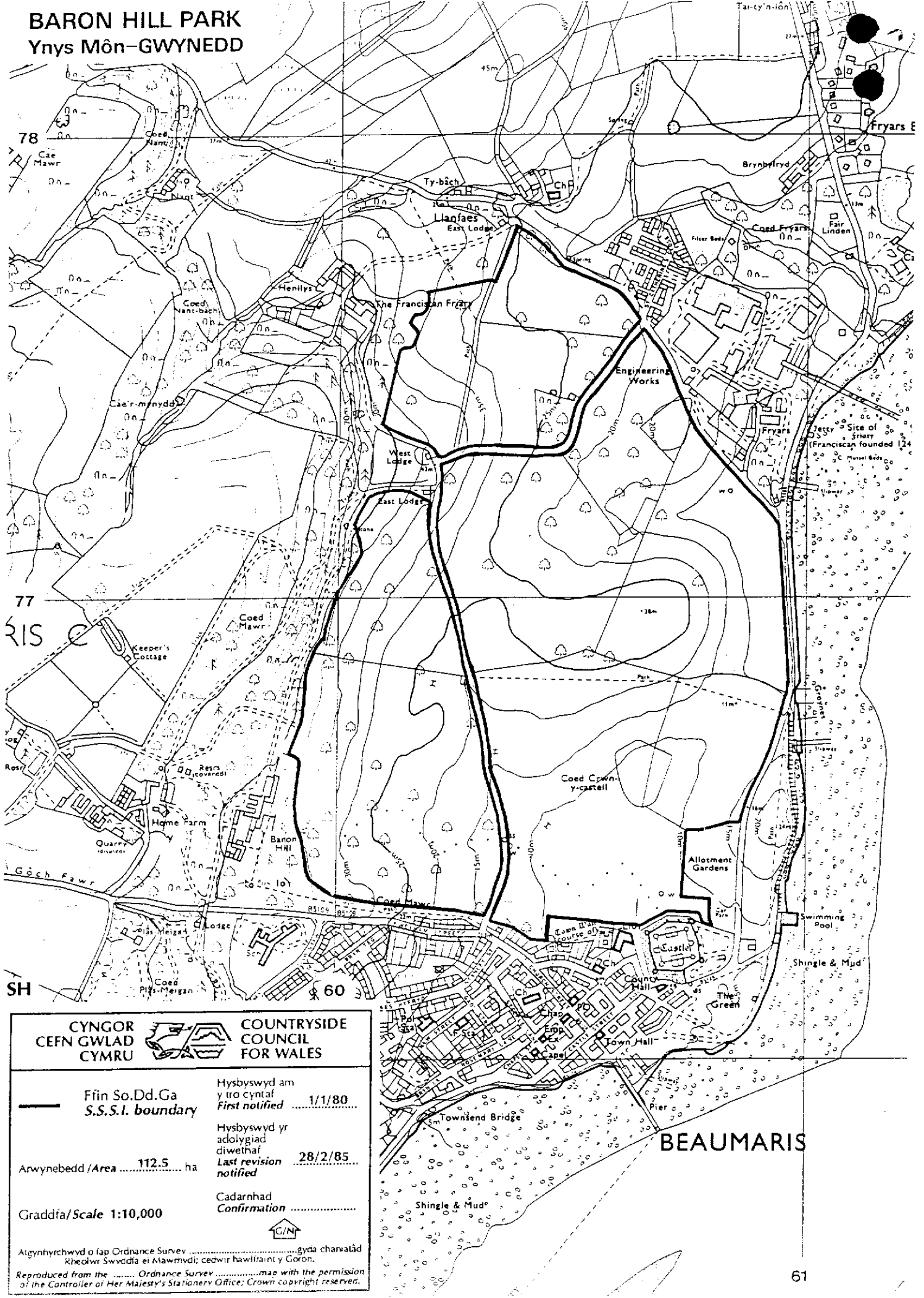
Remarks



The boundary of the site has been reduced in 1985.

Sylwadau

Lleihawyd ffin y safle yn 1985.

BARON HILL PARK Ynys Môn - GWYNEDD



CYNGOR CEFN GWLAD CYMRU		 COUNTRYSIDE COUNCIL FOR WALES	
Ffin So.Dd.Ga S.S.S.I. boundary		Hysbyswyd am y tro cyntaf First notified 1/1/80	
Arwynebedd / Area 112.5 ha		Hysbyswyd yr adolygiad diwethaf Last revision 28/2/85 notified	
Graddfa / Scale 1:10,000		Cadarnhad Confirmation	
			
Atgynhychwyd o gap Ordnance Survey gyda charnialad Rheolwr Swyddfa ei Mawrmydi; cedwir hawltirni y Goron. Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office; Crown copyright reserved.			

BEAUMARIS



THE
NATURAL
HISTORY
MUSEUM

DRAFT.

LICHEN SURVEY OF BARON HILL PARK

William Purvis & Peter James

Report for the Countryside Council for Wales

January 2004

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Acknowledgments

We are grateful to Sir Richard Williams Bulkely for granting access to his estate.

1. SUMMARY

The lichen diversity of Baron Hill Park is low considering its continuity, age and the varied habitat and diverse tree species present at the site. A Relative Index of Ecological Continuity (RIEC) of 5 and New Index of Ecological Continuity (NIEC) of 1 indicate low conservation priority for lichens. The absence of ancient woodland parkland lichens is particularly notable, especially species belonging to the *Lobarion* community and lichens containing cyanobacteria. Loss of the priority BAP species *Caloplaca luteoalba* is almost certainly due to the loss of elms which may also partly account for the general decline in overall lichen interest of the site compared with earlier surveys and the complete absence of any species listed on the UK Red Data Book of lichens. Additional factors include pollution from a metal fabrication plant, the impact of modern farming practices (high cattle stocking density) and the low rainfall. An absence of nitrophytic lichens on twigs may indicate critical exceedences of ammonia as these are known to be particularly sensitive to air pollution, including NH_3 . However, further monitoring together with an assessment of NH_3 concentrations is required to establish if this is responsible for the poor colonisation.

An increase in certain lichens, particularly the formerly, essentially southern macrolichen *Parmelia soledians*, may be due to global warming as it has greatly spread both at the site and many other areas in UK in recent years. In view of the diminished lichen interest of the site, we suggest its status as an SSSI requires assessment.

2. SCOPE OF THE REPORT

The Natural History Museum as instructed by the Countryside Council of Wales to undertake a re-survey of lichens on trees in Baron's Hill Park. CCW are keen to see the parkland landscape restored to the original design (in *letter* to Sir Richard Williams Bulkeley, 11 Nov 2002).

The report should detail methodology and include the following results.

- Lists of nationally scarce, nationally rare and rdb species for each area of parkland and where trees are widely scattered, for each tree. Total number of mature trees in 2000 was approximately 210.
- Map identifying trees/areas for which lists are provided
- For those trees which are most species rich/lichenologically interesting, species lists should include indications of lichen abundance, aspect of the trunk on which they are growing, tree species and any other information noted such as the importance of dead wood or low limbs.
- 35 mm colour slides of red data book, nationally rare and nationally scarce species annotated to indicate which tree they are on.

3. OBJECTIVES

- A detailed survey of parkland trees within Baron Hill Park SSSI and adjacent areas of golf course with mature trees to facilitate decisions regarding casework and to give a baseline for future monitoring.
- Carry out detailed survey of all trees on site to determine lichen species present and to map which trees support which species
- Photograph all notable species

4. INTRODUCTION

Parklands, particularly those of medieval origin, or relics are vitally important habitats for epiphytic lichens, unless they are situated in areas that have been subject to severe air pollution in the past (Rose 2001). They may contain internationally important lichen communities because such habitats are at the present day almost unknown in western continental Europe. Baron's Hill, with 118 spp occurring on all substrata (ca 70 on trees) (Appendix 1) was identified as of regional importance in the British Lichen Survey and Assessment of Epiphytic Lichen Habitats (Fletcher 1982). Former surveys included a survey by Pentecost and Fletcher on 9.9.1972 which also included saxicolous species (Appendix 4). The survey is likely to have included other parts of the Estate, not examined during the current survey. F. Rose appears to have been the first person to record the rare and endangered *Calopogon luteoalba* (Appendices 4 and 5). P.M. Benoit visited the parkland on 9th and 15th February 1980 when he recorded *Xanthoria* and *Physcia* spp. as 'frequent to abundant on tree trunks'. Benoit also drew attention to a 'sulphurous smell' and the poor health of lichens on large trees adjacent to Laird's factory (Appendix 6). SO₂ emissions are well established as being harmful to lichens especially during the cooler and moister periods of the year when lichens are metabolically active.

Trees at Baron's Hill Park date back to the Capability Brown era of mid 18th C. The parkland consists of mostly isolated trees, principally *Quercus* (oak) with scattered *Acer pseudoplatanus* (sycamore), *Fraxinus excelsior* (ash), *Tilia* (lime), *Fagus sylvatica* (beech) and *Juglans* (walnut).

5. METHODS

The lichen floras on 70 trees were examined, principally on *Quercus*, *Acer* and *Fraxinus*. We were unable to study all trees in the Parkland in view of the limited time available. Five *Fagus* and one *Juglans* were additionally examined. *Tilia* is well represented in the Park but the abundant dense growth from ca 1.3 m upwards cast

shade and are deleterious to lichen growth. Therefore only a single tree was examined.

Species lists were made on trees up to 2 m (Table 1) following Purvis *et al.* (1992), nomenclature according to the recent checklist (Coppins 2002). Special effort was made to look for (a) species previously recorded and (b) easily overlooked species or else absent from original lists. All trees were georeferenced using a Garmin GPS.

Low-lying limbs and twigs were also examined where accessible (mainly in southern regions) to locate interesting species.

6. Results

85 species were recorded (Table 1), none of which were RDB species. A single ancient woodland indicator species, *Lecanora jamesii* was recorded according to the New Index of Ecological Continuity (NIEC) (Coppins & Coppins 2002); *Pyrenula chlorospila* and *P. macrospora* are included on the Revised Index of Ecological Continuity which indicates 'ancient woodland qualities' rather than the NIEC which has broader application to assess the overall conservation importance of a site.

Table 1. Lichens Recorded on 70 trees at Baron's Hill Park, 17-18 March 2003

<i>Arandinea punctata</i>	<i>Parmelinia pastillifera</i>
<i>Anapychia runciata</i>	<i>Parmotrema chinense</i>
<i>Anisomeridium bifforme</i>	<i>Parmotrema reticulata</i>
<i>Arthonia puinosa</i>	<i>Pertusaria coccodes</i>
<i>Arthonia radiata</i>	<i>Pertusaria flavida</i>
<i>Bacidia delicata</i>	<i>Pertusaria albescens</i>
<i>Buellia griseovirens</i>	<i>Pertusaria albescens</i> var. <i>corallina</i>
<i>Calidium viride</i>	<i>Pertusaria amara</i>
<i>Candelaria vitellina</i>	<i>Pertusaria hyemenea</i>
<i>Candelariella concolor</i>	<i>Pertusaria leioplaca</i>
<i>Candelariella reflexa</i>	<i>Pertusaria pertusa</i>
<i>Cladonia coniocraea</i>	<i>Phaeographis dendritica</i>
<i>Cladonia humilis</i>	<i>Phaeophyscia nigricans</i>
<i>Cladonia pyxidata</i>	<i>Phaeophyscia orbicularis</i>
<i>Cliostomum griffithii</i>	<i>Phlyctis argenta</i>
<i>Diplocia canescens</i>	<i>Physcia adscendens</i>
<i>Enterographa crassa</i>	<i>Physcia apollia</i>
<i>Evernia prunastri</i>	<i>Physcia tenella</i>
<i>Flavoparmelia caperata</i>	<i>Physconia disbrta</i>
<i>Flavoparmelia soredans</i>	<i>Physconia enteroxantha</i>
<i>Fuscidea lightfootii</i>	<i>Physconia grisea</i>
<i>Graphis scripta</i>	<i>Physconia pulverulacea</i>
<i>Hyperphyscia adglutinata</i>	<i>Punctelia boreeri</i>
<i>Hypogymnia physodes</i>	<i>Punctelia subrudecta</i>
<i>Hypogymnia tubulosa</i>	<i>Punctelia ulophylla</i>
<i>Hypotrachyna revoluta</i>	<i>Pyrenula chlorospila</i>
<i>Lecanora chlarotera</i>	<i>Pyrenula macrospora</i>
<i>Lecanora expalens</i>	<i>Pyrrhospora quernea</i>
<i>Lecanora jamesii</i>	<i>Ramalina canariensis</i>
<i>Lecidella elaeochroma</i>	<i>Ramalina fastigiata</i>
<i>Lepraria bifficans</i>	<i>Ramalina lacera</i>
<i>Lepraria sp</i>	<i>Ramalina subfarinacea</i>
<i>Melanelia exasperata</i>	<i>Rinodina roboris</i>
<i>Melanelia fuliginosa</i> ssp <i>fuliginosa</i>	<i>Schismatomma decolorans</i>
<i>Melanelia fuliginosa</i> ssp <i>glabrata</i>	<i>Sphinctrina turbinata</i>
<i>Melanelia laciniatula</i>	<i>Usnea subfloridana</i> agg
<i>Melanelia subaurifera</i>	<i>Xanthoria candelaria</i>
<i>Micarea prasina</i>	<i>Xanthoria parietina</i>
<i>Normandina pulchella</i>	<i>Xanthoria polycarpa</i>
<i>Ochrolechia subviridis</i>	
<i>Ochrolechia turneri</i>	
<i>Opegrapha varia</i>	
<i>Opegrapha atra</i>	
<i>Opegrapha herbarum</i>	
<i>Opegrapha vulgata</i>	
<i>Parmelia saxatilis</i>	
<i>Parmelia sulcata</i>	
<i>Parmelina tillicaea</i>	

7. DISCUSSION

No RDB species were found and the flora was disappointing in terms of old woodland and parkland species suggesting it is perhaps limited by pollution / management activities. Loss of elms would account for the absence of the RDB species *Caloplaca luteoalba* recorded by Francis Rose in 1978. Most lichen species are restricted to within 1.5 m of tree base on trunks. Crustose lichens were most frequently recorded including *Diploicia canescens*, *Rinodina roboris*, *Arthonia pruinosa* and *Schismatomma decolorans*. *Diploicia canescens* occurred principally on sunny exposed sides and *Arthonia* and *Schismatomma* on northern and eastern sides (dependent on humidity rather than on direct wetting). The absence of other dry bark ancient woodland indicator lichens is notable including *Oresponea premnea* and *Schismatomma* spp. which occur in an ancient parkland at Menai Bridge. Plas Newdd (Anglesey) with 142 spp. (106) and a 'Relative Index of Ecological Continuity' (RIEC) of 35 was considered similar to Baron's Hill but with a well developed *Lobarion* and important limestone species (Fletcher 1982).

Whilst there was relatively little variation in the composition of species assemblages, certain species dominated the communities on different trees including *Parmelia soledians*, *Ochrolechia tumeri*, *Phlyctis argena* and *Lecanora jamesii*. Many trees were affected by pathogenic fungi including *Fomes* spp. and *Ganoderma lucidum*. Dead wood was of no lichenological significance. *Melanelia asperaw* was restricted to low branches.

The poorest lichen floras were found on oak in pasture adjacent to golf course. Surprisingly, nitrophytes (as defined by Van Herck) were conspicuously absent, even on twigs, notably *Physcia* spp., *Xarthonia parietina*, *Phaeophyscia orbicularis*, *Hyperphyscia adglutinata* and *Physconia* spp. Here tree bases supported very few lichens and the *Xarthonion* community was restricted to nutrient-rich areas near old knot-holes. High stocking density (cattle and sheep) leading to soil impaction, sheltering and abrasion of wood as well as high fertilizer application may also adversely influence lichen assemblages. Air pollution figures near the site (grid ref 9SH599770) indicate 31.4Kg/ha/yr N, 2.22µg/m³ NH₃, 8.8µg/m³ NO_x (NO₂) (APIS

2003). High applications of N fertilisation have resulted in dramatic changes in soil fauna including earthworms and nematodes (Sheppard *et al.* 2004) and these data suggest exceedances of a critical load of 20 Kg N ha yr⁻¹ which may result in changes in the yield of mushroom fruiting bodies. Recorded NO₂ concentrations fall below the limit of 30 µg/m³ as an annual mean set to protect vegetation and ecosystems (DETR 2000) although the sensitivity of cryptogams has yet to be quantified. In contrast to research carried out in the Netherlands by VanHerck, Recent research in the UK suggest that even low concentrations < 2µg/m³ NH₃ may result in the loss of acidophye lichen species (Wolsley *et al.* 2004), but the absence of nitrophytes is harder to explain. Much more work is required to understand the impact of different N sources (inorganic fertilizers, dung, car exhausts) on lichen assemblages and their synergistic effects with other pollutants, including dusts.

In addition to management and pollution, as pointed out by Francis Rose (Appendix 5) climate undoubtedly plays a major role in determining the composition of lichen assemblages. Rainfall is the most notable feature of the climate of North West Wales (BBC 2003). Most rain falls over the hills and mountains of Snow donia, the eastern flank of Snow don is among the wettest places in the UK, with a yearly average of at least 180 inches (4,572mm). However, along the coast it is much drier. At Valley on Anglesey the annual rainfall is around 843mm (33in) because the north coast lies in a rain shadow, sheltered from the prevailing southwesterly winds by the hills and mountains to the south west. For this reason, the North coast has also seen some notable out-of-season heatwaves, due to the föhn effect whereby warm moist air blowing across Snow donia dries out and warms further as it descends the lee slope. Thus Aber, near Llandudno, has recorded 18.3°C in January and 21.3°C in November. There is relatively little seasonal variation in rainfall, except that the late spring and early summer, from March to June, tends to be the driest part of the year. Roughly half the annual rainfall falls between October and February.

Perhaps the most dramatic changes occurring in the lichen floras are due to reinvading Parmelion assemblages, noted in other areas attributed largely to declines in sulphur dioxide air pollution (Fox 1999, Purvis *et al.* 2001, Purvis *et al.* 2003). Rose (Appendix 5) noted the occurrence of *Parmelia soredians* in 1978 which Benoit

recorded on 3 trees in 1980 noting that it may be on at least a few others as it is easily overlooked as small *P. caperata* (Appendix 6). Typical of sunny sites and areas of low rainfall, it was formerly largely restricted to a narrow belt along the South and SW coasts of England, and is now rapidly spreading inland across the UK. Changes in the distribution of lichen populations have also been attributed to global warming (Van Herck *et al.* 2002). *Punctelia ulophylla* and *Melanelia laciniatula* were also recorded during our study, particularly abundant on branches which are also spreading widely over the British Is. Lichens growing on twigs are far more sensitive to air pollution than those on trunks which are more subject to the influence of stem-flow chemistry. They may also retain relict communities for much longer time periods (Wolseley *et al.* 2004).

8. FUTURE RECOMMENDATIONS

As the site is of limited lichenological conservation significance, it does not merit detailed monitoring on conservation grounds alone.

Nevertheless the parkland is very interesting in terms of recolonisation and changing lichen communities which differ in the golf course compared with agricultural area. It would be interesting to carry out more detailed monitoring to quantify lichen assemblages on trees and to examine their relationship with different management regimes including NH_3 concentration data, stocking regimes etc. Future surveys should also consider the lichen flora on twigs. Data should be analysed using multivariate statistical techniques.

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APPENDIX 1

GWYNEDD/ANGLESEY

BARON HILL PARK
SSSI

Date of notification: 1980, 1985

National Grid Reference: SH605770

O.S. 1:50,000 Sheet Number: 114
1:25,000 Sheet Number: SH57 and SH67

Site area: 112.55 hectares (278.12 acres)

Description

A parkland containing ancient trees which support a diverse and interesting epiphytic lichen flora. A total of 118 lichen species have been recorded from all substrata in the Park. The epiphytic lichen flora includes a continental element with the species typical of low rainfall and high sunshine areas more commonly found in southern England. It contrasts markedly with the lichen floras of North Wales woods. Lichen species of particular note include Parmelia sorediana, Arthonia impolita, Caloplaca luteoalba, Parmelia reticulata, Rinodina riboris and Schismatomma decolorans. Anaptychia fusca, which normally grown on maritime rocks, is found here on the bark of an oak tree.

Disgrifiad

Dyma dir parc an ynddo goed bynafol sy'n cynnal amrywiath diddorol o fflora cen epiffytig. Cofnodwyd cyfanswm o 118 o rywogaethau o gen o'r holl substratau'n y Park. Mae'r fflora cen epiffytig yn cynnwys elfen gyfandirol a'r rhywogaethau'n fwy nodweddiadol o fannau lle ceir glawiad isel a llawer o haul tebyg i'r hyn sy'n fwy cyffredin yn ne Lloegr. Mae cyferbyniad amwg iawn â fflora cen welir yng nghoed-wigoedd Gogledd Cymru. Rhywogaethau o bwys arbennig ydynt Parmelia sorediana, Arthonia impolita, Caloplaca luteoalba, Parmelia reticulata, Rinodina riboris a Schismatomma decolorans. Ceir Anaptychia fusca ar risgl coeden dderw, cen a dyf fel rheol ar greigiau ger y môr.

Remarks

The boundary of the site has been reduced in 1985.

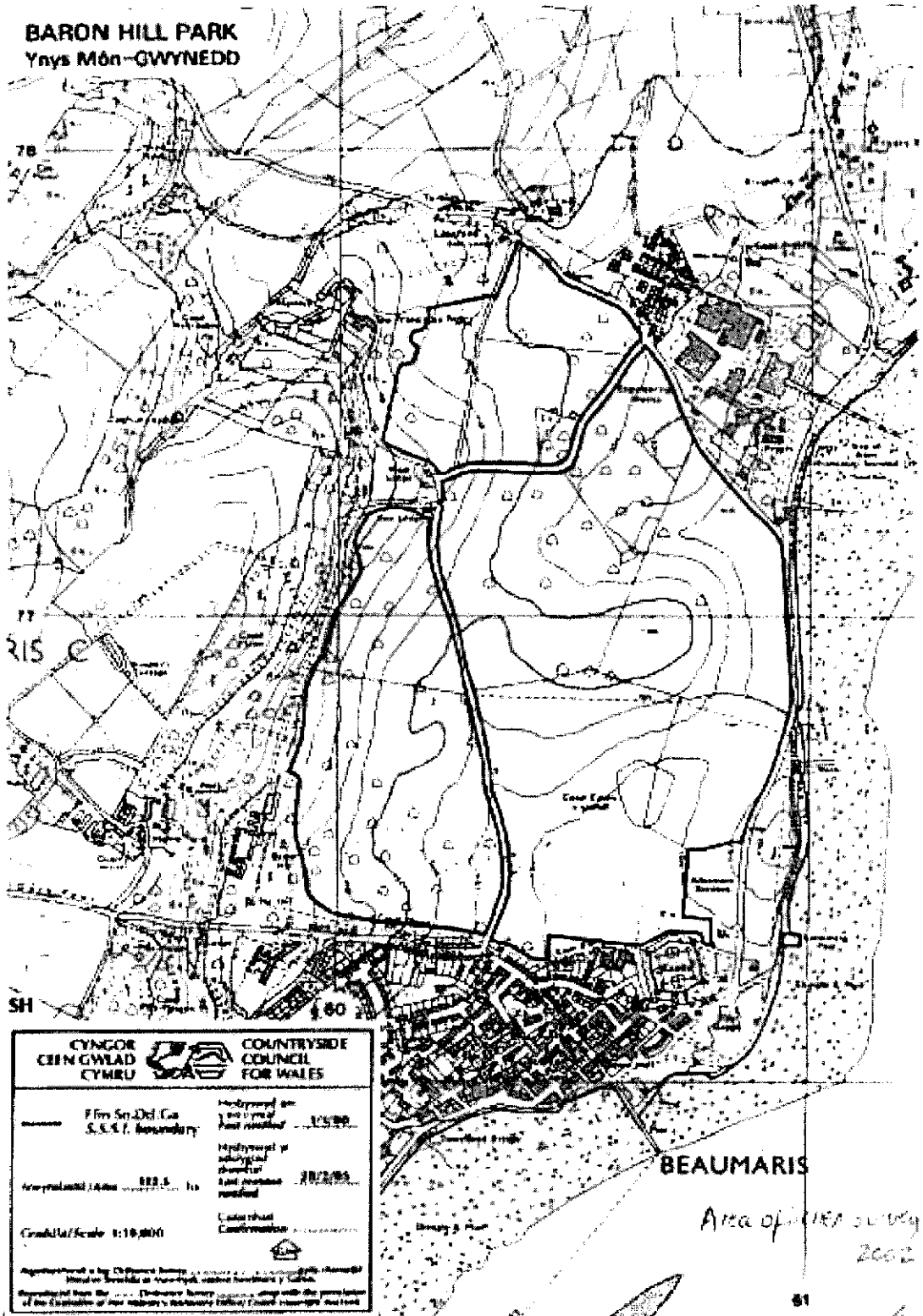
Sylwadau

Lleihawyd ffin y safle yn 1985.

2/85

APPENDIX 2

BARON HILL PARK
Ynys Môn - GWYNEDD



CYNGOR CEFN GWLAD CYMRU			COUNTRYSIDE COUNCIL FOR WALES	
	Firm boundary S.S.S.I. boundary		Hydrographical symbol	1:5000
	Hydrographical symbol		Hydrographical symbol	1:5000
Grid/Scale	1:10,000		Countryside Council	

Reproduced from the **Ordnance Survey** map with the permission of the Controller of Her Majesty's Stationery Office.

BEAUMARIS
*Area of 1875/1876
 2002*

APPENDIX 3

BARON HILL PARK SSSI NOTIFIABLE OPERATIONS

This list identifies all foreseeable operations under the control of owners and occupiers which could damage features of special interest occurring within the entire site. It is important to bear in mind that all features are not necessarily represented on every individual property. NCC will not necessarily wish to object to every operation. Proposals will be considered in relation to the conservation requirement; in certain situations some of the operations listed below may not be damaging whilst some could be beneficial.

The purpose of the list is to inform owners and occupiers of operations about which the NCC requires prior consultation. When NCC receives such a proposal, its local officer will contact (and, if necessary, visit) the owner or occupier concerned to offer advice and suggest ways of resolving any difficulties which might arise. Under the terms of the Wildlife and Countryside Act 1981 NCC is empowered to enter into agreements with owners or occupiers to safeguard or enhance the features of special interest associated with the site.

- 6 Application of pesticides, including herbicides (weedkillers).
 - 7 Dumping, spreading or discharge of any waste materials.
 - 8a Burning of vegetation.
 - 9 The deliberate introduction of any wild or domestic animal*, plant or seed.
 - 11 The destruction, removal or pruning of any plant or plant remains, including tree, shrub, hedge, dead or decaying wood and lichen.
 - 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.
 - 20 Extraction of minerals, including shingle, sand and gravel, topsoil and sub-soil.
 - 21 Construction, removal or destruction of roads, tracks, walls, fences, hard-stands, banks, ditches or other earthworks.
 - 25 Erection of permanent or temporary structures, or the undertaking of engineering works, including the laying, maintenance or removal of pipelines and cables.
- * "animal" includes any mammal (other than traditional livestock), reptile, amphibian, bird, fish or invertebrate.

2/85

GWEITHREDIADAU Y RHAI D HYSEYSU'R CYNGOR GWARCHOD NATŵR AMDANYNT

Ceir yn y rhestr dilynol pob gweithred o dan reolaeth gan berchenogion a deiliaid, sydd yn debyg i niweidio nodweddion o ddi-ddordeb arbennig tu mewn i safle hwn yn gyfan gwbl. Mae'n bwysig cofio nad yw pob nodwedd i'w chael o angenrheidiol ar bob rhan o'r tir dan sylw, ac hofyd na bydd gwrthwystiad gan y CGN i bob gweithred. Fe wddir ystyriaeth i fwrriad o safbwynt anghenion gwarchodaeth; mae'n bosibl o dan rhai amgylcheddau na fydd rhai o'r gweithrediadau dilynol yn niweidiol a fydd eraill hydod yn fuddiol.

Pwrpas y rhestr yw dweud wrth berchenogion a deiliaid am weithrediadau lle disgwyllid'r CGN cael ymgynghoriad ymlaenllaw. Pen fydd y CGN yn derbyn y fath fwrriad, fe fydd yn gwybod lleol yn cysylltu, (ac, os oes angenrhaidd, yn ymweld) a'r perchenog neu'r deiliaid ymgynghori ac i awgrymu atebion i unrhyw anghawster a allai godi. O dan dermau y "Deddf Ewropeaidd Eiddoedd a Chefn Gwlad, 1981" mae gan y CGN bwerau i ddod i gytundeb gyda perchenogion a deiliaid i warchod neu i wella nodweddion o ddi-ddordeb arbennig s'yn perthyn i'r safle.

- 6 Defnyddio cemegau i ladd pla, yn cynnwys gwenwyn chwyn.
- 7 Gwasgar, lledaenu neu ollwng unrhyw ddefnydd gwastraff.
- 8a Llosgi'r borfa.
- 9 Dod ag unrhyw anifail* (gwyllt neu ddo), planhigyn neu had i'r safle.
- 11 Dinistrio, symud neu docio unrhyw blanhigyn neu weddillion o blanhigyn, yn cynnwys coeden, perth, pren wedi marw neu yn pydru neu gen.
- 12a Plannu coed, yn cynnwys coedwigo.
- 12b Newidiadau mewn goruchwyliaeth y coetir, yn cynnwys torri'r coed yntau'r tir neu ran o'r tir, teneuo, creu prysglwyn, newid math y coed neu'r newidiadau yng nghyfansoddiad y rhywogaeth.
- 13a Newidiadau mewn maes-draenio, yn cynnwys twrch-ddraenio, traenio â thell neu unrhyw ddraenio artiffisial arall.
- 20 Tynnu neu godi mwynau, yn cynnwys graean, tywod a cherrig mân, pridd neu adeiladu, symud neu ddinistrio ffyrdd, llwybrau, muriau, ffensys, sylfaen cloddiau, ffosydd neu unrhyw nodweddion cyffelyb eraill.
- 23 Codi adeiladau parhaus neu dros dro, neu ymgymryd â gwaith peirianyddo, yn cynnwys gosod, gofalu am neu symud pibellau a cheblau.

* mae "anifail" yn golygu unrhyw famal (arwahan i stoc traddodiadol), ymlusgiad, aderyn, pysgodyn neu greadur di-asgwrn-cefn.

APPENDIX 4

WALSIN

05 FEB 1961

Lichens collected on Baron Hill estate

A. Pentecost & A. Fletcher

September 9th 1972

These woods were previously known for Lebaria pulmonaria and Anaptychia ciliaris. Both now appear to be extinct.

Those marked with a * have conservation value.

Arthonia impolita	Catillaria griffithii	Lecidea limitata
A. radista	C. lightfootii	L. lucida
A. spadicea	Cetraria glauca	L. crosthea
Arthopyrenia alba	Cladonia chlorophaea	Lepraria candelaris
A. conoidea	C. digitata	L. incana
A. fallax	C. parasitica	Normandina pulchella
A. punctiformis	Collema auriculatum	Ochrolechia androgyna
Aspicilia calcarea	C. subfurvum *	O. parella
Bacidia phacodes	Enterographa crassa	Opegrapha atra
Buellia alboatra	Evernia prunastri	*O. dubia
B. canescens	Graphis elegans	O. herbarum
B. griseovirens	G. scripta	Ø. soreidiifera
B. punctata	Lecania erysibe	O. vulgata
Caloplaca cerina	Lecanora chlorotera	*Pachyphiale cornea
C. citrina	L. confusa	Parmelia aspera
C. holocarpa	L. conizaecides	P. caperata
C. ochracea	L. crenulata	P. Glabratula
* C. luteoalba (F. Rose)	L. exfallens	P. glab. var. fulig.
Candelariella reflexa	L. dispersa	P. punctillifera
C. vitellina	Lecidea granulosa	P. perlata

<i>Parmelia physodes</i>	<i>Porina carpinea</i>
<i>P. reticulata</i> (F. Rose) *	<i>Protoblastenia rupestris</i>
<i>P. saxatilis</i>	<i>Pyrenula nitida</i>
<i>P. soreliana</i> (F.R.) *	<i>Remalina farinacea</i>
<i>P. subrudecta</i>	<i>Rinodina roboris</i>
<i>P. sulcata</i>	<i>Schismatomma decolorans</i>
<i>P. subaurifera</i>	<i>Sticta limbata</i> *
<i>P. tubulosa</i>	<i>Thelidium immersum</i>
<i>Peltigera polydactyla</i>	<i>Toninia caeruleonigricans</i>
<i>Pertusaria coccodes</i> *	<i>Usnea subfloridana</i>
<i>P. albescens</i>	<i>Verrucaria coerulea</i>
<i>P. amara</i>	<i>V. hochsteateri</i>
<i>P. hymenea</i>	<i>V. viridula</i>
<i>P. leioplaca</i>	<i>Xanthoria parietina.</i>
<i>P. pertusa</i>	
<i>Phyllyctis argena</i>	
<i>Physcia adscendens</i>	
<i>P. adglutinata</i>	
<i>P. alipolia</i>	
<i>P. farrea</i>	
<i>P. orbicularis</i>	
<i>P. pulverulenta</i>	
<i>P. tenella</i>	

APPENDIX 5

SH 67
05 FEB 1991

ROTHERHURST
36 ST MARY'S ROAD
LISS, HAMPSHIRE
GU33 7AH

WALSIN

Acknowledged

14.2.78

Mrs.

9.2.1978.

On Record
V. A. 1980 1196

Telephone
Liss (073 082) 3478

Dear Stephen,

Thanks for your letter.

Baron Hill Park is certainly of considerable interest regionally - it is a lowland park with a southern - continental type of lichen flora, unique in North Wales as far as I know. Parmelia sonchiana is the most interesting species - this lichen is largely confined to the dry, high-sunshine belt along the S. Coast of England, especially in the S.E. (Sussex, Isle of Wight, Kent), & is Mediterranean in Europe. It does occur rarely in Penelope, in other sites in Anglsey (according to Peter James) &, strangely, in one site in SE Scotland near Dunbar (Brian Coffin).

Other interesting species ~~there~~ at Baron Hill are Arthonia unpolita, Caloplaca luteovella, Parmelia reticulata, Rinodina roboris, & Sclerobotrya dactyloides.

All these are very ^{southern} species of low-rainfall, high-sunshine areas. Axaptichia filosa also occurs unusually on Quercus - this is normally on maritime rocks. The ~~only~~ most interesting area is about half a mile north of Beaumaris castle in the open parkland. I have not studied the woodland, but perhaps Allan Peacock has, or could do so.

To the point

Callanbeart Woods.

The woodland in the valley was rich in old forest species in 1971, including Lobaria laetevirens, Arthonia stellans, Pannaria pitagora, ^{= conopsea} Catillaria sphaeroides, Sticta limbatula, Sticta sylvatica, Peltigera horizontalis, Thelotrema, Lecanactis prunosa, etc., & on a tree in Parkland W. of the drive I noted Lobaria palustris. Some of the woodland was felled before my visit. The best part ^(was?) is in the ravine about 400-500 yards below the house with some good old trees. Allan Pentecost could certainly check up on it very quickly. I believe you have a copy of my lichen card for this site in the files at Bangor; if not let me know & I will loan it to you.

The site is in my view the best (only?) remaining fragment of ancient woodland in W. of the peninsula. I could not find any other old woods with ancient trees & good lichens, except at Glyn Llyn Park Agricultural College which is hardly in W. of the peninsula & less rich, I think. The ground flora was interesting but I was too late in the year (September) to study it properly. It is clearly a ravine of which parts have escaped clearance for a long time - several hundred years at least - perhaps never wholly cleared because a difficult site.

I hope this helps you. I only recorded 67 epiphytic lichens in 1971 - I am sure there are far more, & Allan will find them, I think!

Yours
Francis

APPENDIX 6

WALSIN

05 FEB 1991

BARON HILL PARK, Beaumaris, Anglesey. SH 605 780.

NOTE by P. M. BENOIT after visits on the 9th and 15th February, 1980.

Access most conveniently from the road at Beaumaris at SH 603 773.

Maps 1/25,000 sheet SH67; 1/50,000 sheet 115.

The site consists of about 110 ha/272 acres of parkland - a cattle - grazed meadow on gentle slopes between 40 and 50m/33 and 164ft alt. on neutral boulder clay, with numerous (about 327 according to the NCC map) trees - mostly widely spaced, large, old sessile oaks, ashes, sycamores and common limes but with some elms (species?), horse chestnuts, beeches, Scots pines, Turkey oaks and a walnut. Being widely spaced and without undergrowth, the trees do not form a wood and there is no regeneration.

The botanical interest of the site is in its lichens - both in the community they form and in the occurrence of uncommon species. I have not seen the lichen community that there is here elsewhere in NW Wales, and F. Rose (in his note on the file at NCC Bangor) compares it to what one finds in old parklands in SE England.

Most of the lichens that one expects on mature trees in NW Wales are here - Parmelia caperata, P. subrudecta, P. sulcata, P. glabratula, P. perlata, P. saxatilis, Evernia prunastri, Pertusaria hymenea, P. pertusa, P. albescens, P. amara, Ochrolechia androgyna, and Lecanora chlorotera, are conspicuous species that are all abundant. But Parmelia/Hypogymnia physodes seems scarce, and I did not see any Parmelia laevigata, Usnea subfloridana or Cetraria/Platismatia glauca at all though these three are normally such common species in the local woodlands. Nor did I find any of the large species of Sticta, Lobaria, Peltigera or Nephroma which occur on large old trees in the more humid parts of NW Wales. On the other hand, Buellia canescens, Xanthoria parietina, Physcia pulverulenta, P. farrea, P. aiopolia, P. tenella and P. adscendens are frequent to abundant on tree trunks. These are all rare or absent on large trees in NW Wales and are normally found there only on the mortar of old farm buildings or on old elders nearby.

Rose and Pentecost & Fletcher (note on file at NCC Bangor) reported a number of uncommon lichen species from the park. I failed to find Parmelia reticulata which was discovered by Rose, but I was not surprised at that because I had not time to make an intensive search and Pentecost & Fletcher did not find it either. P. reticulata is known from only one other site in Gwynedd. But I did see Parmelia seredians on three trees and it may be on at least a few others, for it is undistinctive, so easily passed over as small P. caperata. This was another of Rose's finds and it is known elsewhere in Gwynedd only from a few sites in N. Anglesey. Physcia farrea, another rare species in NW Wales, is abundant, and Rinodina roboris is frequent.

Bryophytes are poor - there are few species and they are in small quantity. The tree trunks here are often as clean of bryophyte growth as in lowland England. I saw small amounts of Orthotrichum affine, Camptothecium sericeum, Tortula laevipila, Isothecium myurum, and Pterogonium gracile. But no sign of Isothecium myosuroides, Hymenium cupressiforme var mamillatum, Dicranum scoparium, Ulotia crispa or Frullania tamarisci - species that are so abundant in the woodlands of NW Wales. Polypodium vulgare agg. occurs as an epiphyte on one tree. Flowering plants are limited to the commonest meadow species so far as I could make out in February.

If it is proposed to plant young trees on the site it will be useful to consider the factors that probably influence the lichen vegetation. I agree with Rose on the importance of the low rainfall, open nature of the habitat and lack of closed woodland canopy. I would list the important factors as follows:-

- (1) Low rainfall for NW Wales.
- (2) High sunshine record for NW Wales.
- (3) Lack of undergrowth.
- (4) Wide spacing of the trees.

(1), (2), (3) and (4) together lead to an unusually dry local habitat. I noted that the best trees for lichens were perhaps 40m apart, right out in the open parkland. Trees in hedges or less than 25m apart or on shadier, more humid or sheltered slopes had a poor lichen flora.

- (5) Probably unchanging land-use over a long period which has allowed time for trees to age and for the slow colonisation of their trunks by lichens to take place.
- (6) The corrugated trunks of mature oaks and ashes had the richest lichen flora. Younger trees, ancient decaying trees, pines, and the smooth-barked limes, sycamores and beeches were much poorer. Sycamore also has a relatively fast-peeling bark which is unhelpful.
- (7) Clean air. Immediately to the NE of the site there are Laird's factory and a housing estate associated with it. At the boundary of the park nearest to the factory there was a noticeable sulphurous smell at the time of my visit, and although this was a calm day I could still detect the smell 250m into the park. Large trees that were apparently suitable for lichens along the boundary of the park nearest the factory, and to a lesser degree up to 200m away, in fact had a poor selection of lichen species in a clearly unhealthy, declining state, with much algal growth.

To sum up, the best trees for lichens are large widely-spaced oaks and ashes out in the open in the park away from hedges, shelter and sources of air pollution. The richest areas for such trees are A, B and C on the attached map. C corresponds with the area "about half a mile north of Beaumaris Castle in the open parkland" specifically mentioned by Rose in his note. Even allowing for the wide spacing of young trees that would be desirable, there is plenty of room for planting in A, B, C and D. The adjacent large treeless areas E, F and G are obviously good places for planting from the lichenological point of view. H is on a rather steeper, E-facing slope near conifers and rhododendrons, and seemed more shady and humid in February. The lichens were poorer here so perhaps planting up this area would not be so worth while.

The large treeless area I might well be worth planting up but because of its treelessness one cannot tell whether lichens would flourish here. J and to a lesser degree K, are the areas affected by air pollution from the factory. It would probably be pointless to plant trees here to encourage lichens, though of course planting for other reasons might be justifiable.

The minute spores of lichens are undoubtedly blown far and wide by wind so it seems to me that trees planted anywhere in the park could be colonised by this distinctive lichen flora. But obviously the nearer the plantings were to the currently rich areas the better the chance of the young trees being colonised. Although beeches, horse chestnuts, limes, sycamores and walnuts would maintain the diversity of the tree flora and would have aesthetic value, oaks and ashes would probably be the most helpful species to lichen conservation.

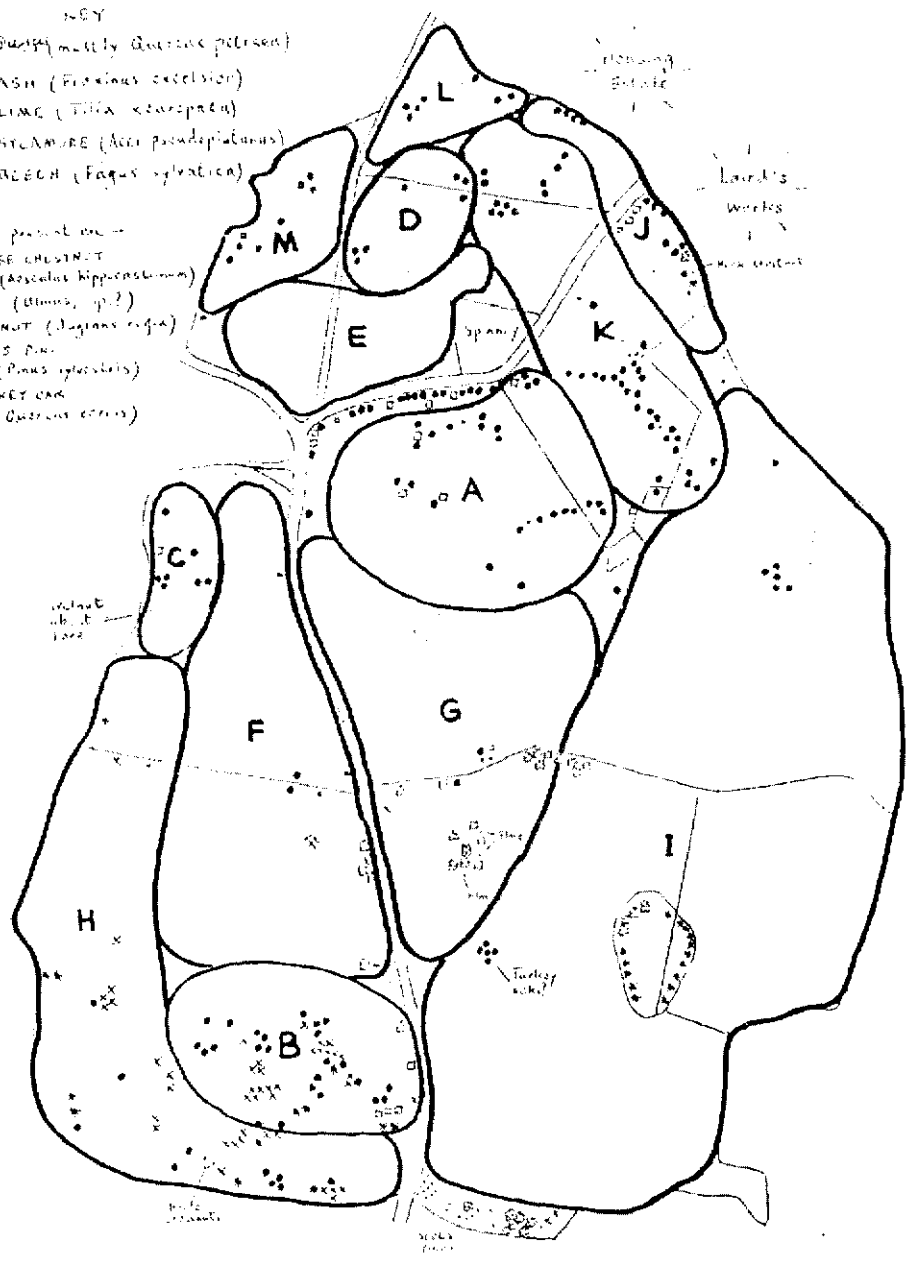
It is interesting that at Baron Hill Park there are uncommon lichen species and a distinctive lichen community owing their existence to the artificial factor of human management. If the site had not been long managed as open parkland but had been allowed to remain, or revert to, scrubby woodland these unusual lichenological features would almost certainly not exist. However, the management that has allowed the lichens to colonise and flourish also prevents natural regeneration of the tree species on which, in the long term, the lichens future depends. So planting, and protecting, of young trees here is essential if the lichen flora is not eventually to be lost.

P. M. Benoit
Pencarreg
Barmouth

7th March, 1980

- KEY
- (mostly *Quercus petraea*)
 - ASH (*Fraxinus excelsior*)
 - x LIME (*Tilia xanopaea*)
 - * STEAM-BEE (*Alnus pseudopidana*)
 - BEECH (*Fagus sylvatica*)

Also present are -
 HORSE CHESTNUT
 (*Aesculus hippocastanum*)
 ELM (*Ulmus*, sp?)
 WALNUT (*Juglans regia*)
 SLOSS PINE
 (*Pinus sylvestris*)
 TURKEY OAK
 (*Quercus cerris*)



BARON HILL PARK
 Anglesey
 CH 605 780 (SH 605 780)

Beaumaris town

0 100m
 10 ins = 1 mile

EXPLANATION OF ZONES ON ATTACHED SKETCH MAP

- A. The richest area for epiphytic lichens with large old well-spaced oaks and ashes out in open parkland away from sources of air pollution. Doubtless the area "about half a mile north of Beaumaris Castle" mentioned by F. Rose.
- B, C, D. Other rich areas.
- E, F, G. Large open areas with few trees, adjacent to the rich areas A, B, C, D. Probably the most worth while for planting with young trees after the rich areas themselves.
- H. In February seemed more humid and shady and had a high proportion of lime and sycamore. Poorer for lichens.
- I. Large area with very few trees. Similar to F, G but further away from the existing rich areas. Next worth planting after E, F, G.
- J. The area most affected by air pollution from the neighbouring factory.
- K. Has fine trees but is somewhat affected by air pollution though less so than the adjacent area J.
- L, M. Not yet visited.

FIGURE 1. MAP SHOWING TREES SAMPLED

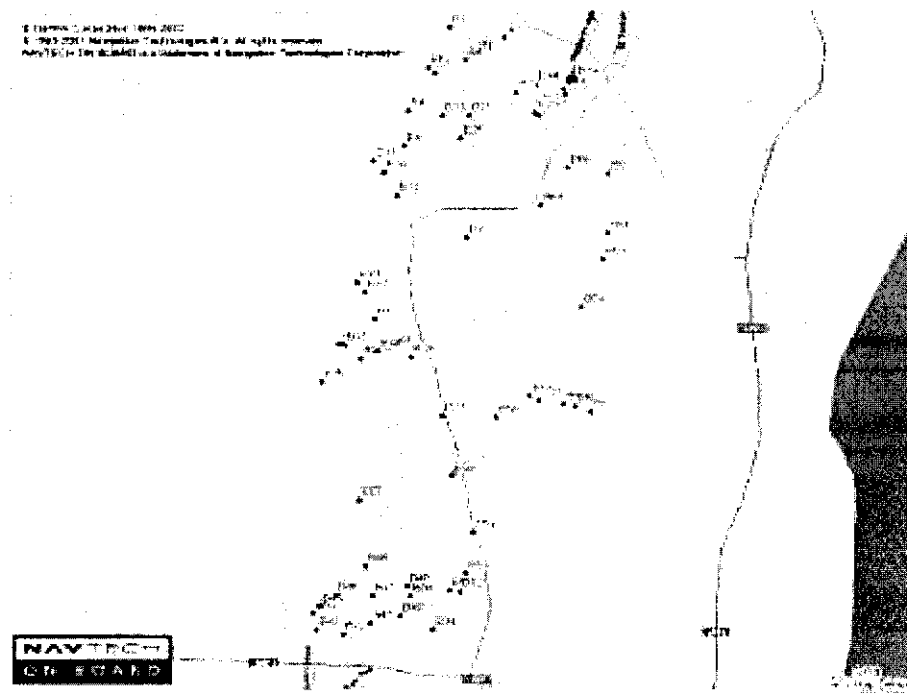


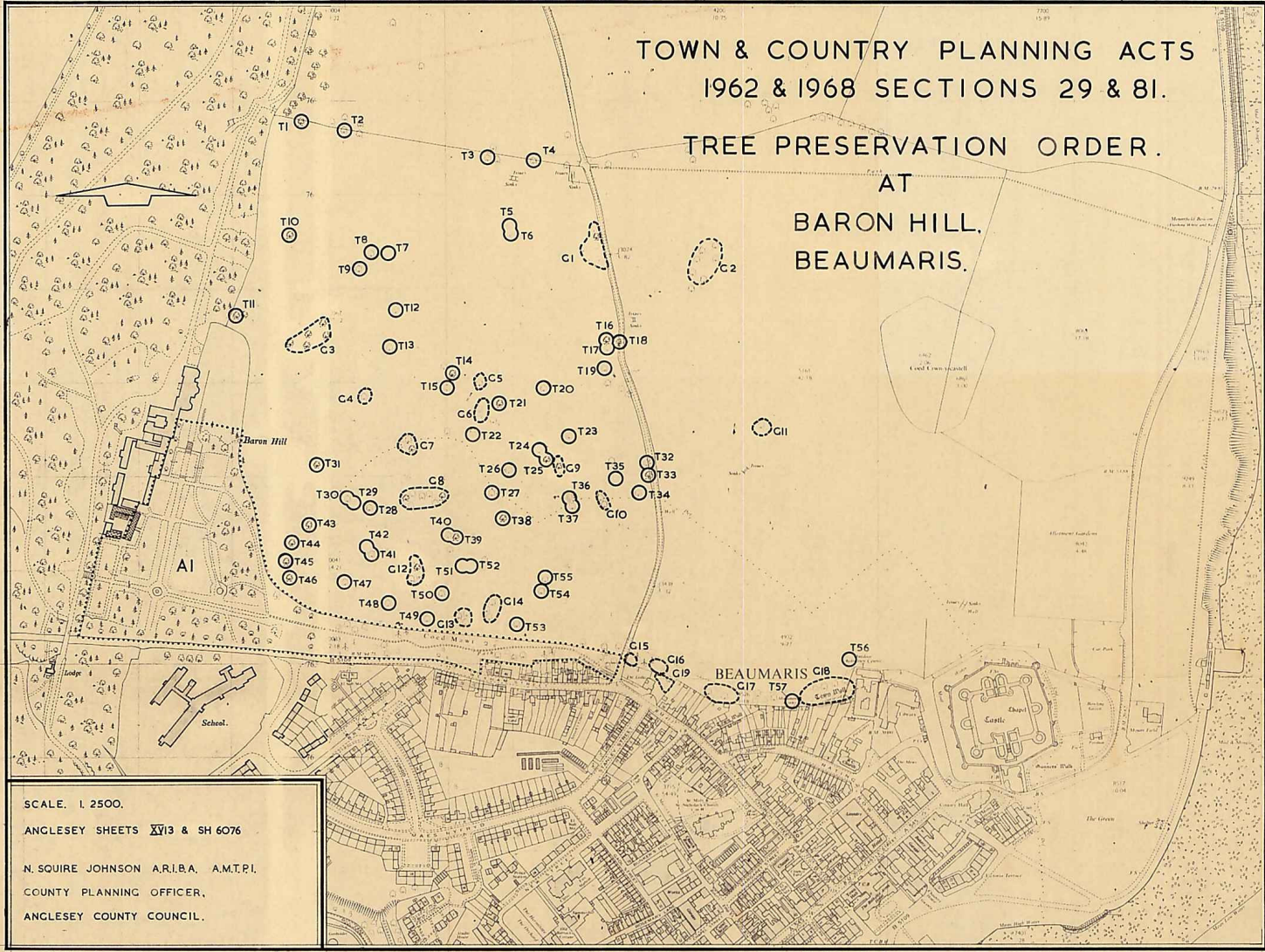
FIGURE 2. GRID REFERENCES FOR TREES SAMPLED

Tree No.	Grid Reference	Tree No.	Grid Reference
B1	SH 60426 77699	B36	SH 59999 76944
B2	SH 60369 77672	B37	SH 60088 76991
B3	SH 60362 77664	B38	SH 60126 77007
B4	SH 60337 77652	B39	SH 60231 76384
B5	SH 60269 77624	B40	SH 60159 76416
B6	SH 60255 77636	B41	SH 60092 76403
B7	SH 60304 77725	B42	SH 60033 76379
B8	SH 60207 77543	B43	SH 59973 76391
B9	SH 60196 77464	B44	SH 59968 76429
B10	SH 60150 77407	B45	SH 59982 76442
B11	SH 60127 77434	B46	SH 60018 76467
B12	SH 60176 77356	B47	SH 60100 76464
B13	SH 60284 77529	B48	SH 60087 76530
B14	SH 60491 77591	B49	SH 60177 76482
B15	SH 60557 77568	B50	SH 60183 76461
B16	SH 60552 77580	B51	SH 60270 76471
B17	SH 60564 77597	B52	SH 60293 76466
B18	SH 60569 77605	B53	SH 60307 76508
B19	SH 60578 77601	B54	SH 60324 76596
B20	SH 60503 77545	B55	SH 60287 76733
B21	SH 60510 77529	B56	SH 60282 76727
B22	SH 60497 77521	B57	SH 60076 76677
B23	SH 60489 77527	B58	SH 60383 76853
B24	SH 60448 77574	B59	SH 60533 76878
B25	SH 60341 77528	B60	SH 60558 76872
B26	SH 60322 77478	B61	SH 60593 76858
B27	SH 60266 76859	B62	SH 60479 76887
B28	SH 60198 76991	B63	SH 60459 76897
B29	SH 60148 77015	B64	SH 60579 77093
B30	SH 60124 77008	B65	SH 60628 77199
B31	SH 60120 77079	B66	SH 60642 77256
B32	SH 60100 77141	B67	SH 60647 77389
B33	SH 60085 77163	B68	SH 60555 77404
B34	SH 60040 77025	B69	SH 60494 77323
B35	SH 60053 77024	B70	SH 60329 77255

APPENDIX 6

Tree Preservation Order Information

TOWN & COUNTRY PLANNING ACTS
1962 & 1968 SECTIONS 29 & 81.
TREE PRESERVATION ORDER.
AT
BARON HILL,
BEAUMARIS.



SCALE. 1. 2500.
ANGLESEY SHEETS XVI3 & SH 6076
N. SQUIRE JOHNSON A.R.I.B.A. A.M.T.P.I.
COUNTY PLANNING OFFICER,
ANGLESEY COUNTY COUNCIL.

78

FIRST SCHEDULE
TREES SPECIFIED INDIVIDUALLY
(encircled in black on the map)

to —

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on map

Description

Situation

Oak	5997 7688
Beech	6002 7687
Oak	6017 7684
Oak	6022 7684
Lime	6020 7677
Lime	6020 7676
Oak	6007 7675
Sycamore	6005 7675
Lime	6003 7673
Sycamore	5996 7675
Sycamore	5990 7667
Sycamore	6008 7668
Oak	6007 7664
Oak	6013 7661
Lime	6012 7659
Lime	6030 7665
Lime	6030 7663
Elm	6031 7664
Lime	6030 7662
Oak	6024 7659
Oak	6019 7657
Oak	6017 7655
Oak	6027 7654
Lime	6022 7653
Lime	6024 7652
Oak	6020 7650
Sycamore	6018 7648

CONTINUED OVERLEAF

FIRST SCHEDULE CONTINUED.

TREES SPECIFIED INDIVIDUALLY

(encircled in black on the map)

No. on Map.	Description.	Situation.
T28	Lime	6005 7646
T29	Lime	6003 7647
T30	Lime	6002 7648
T31	Lime	5999 7652
T32	Elm	6034 7652
T33	Ash	6035 7650
T34	Lime	6033 7648
T35	Oak	6031 7649
T36	Oak	6027 7648
T37	Oak	6027 7647
T38	Oak	6019 7646
T39	Lime	6014 7643
T40	Lime	6013 7643
T41	Lime	6005 7642
T42	Lime	6005 7643
T43	Oak	5998 7645
T44	Sycamore	5996 7643
T45	Sycamore	5995 7641
T46	Oak	5996 7639
T47	Oak	6002 7639
T48	Sycamore	6007 7636
T49	Sycamore	6011 7635
T50	Oak	6012 7635
T51	Sycamore	6014 7640
T52	Sycamore	6015 7640
T53	Horse Chesnut	6020 7634
T54	Sycamore	6022 7637
T55	Sycamore	6023 7639
T56	Sycamore	6056 7630
T57	Horse Chesnut	6050 7627

TREES SPECIFIED BY REFERENCE TO AN AREA

(within a dotted black line on the map)

No. on Map.	Description.	Situation.
A1	The several trees consisting of Horse Chesnut, Lime, Sycamore, Beech, Oak, Ash, Evergreen Oak, Yew, Holly, Portugal Laurel with many specimen trees in the old formal garden including various species of Pine, Spruce, Cypress, Cedar, Fir &c. standing within the area numbered A1 on the map.	6000 7640

78

GROUP OF TREES

(within a broken black line on the map)

No. on Map.	Description.	Situation.
G1	Group consisting of 5 Beech and 2 Oak.	6028 7675
G2	Group consisting of 4 Beech 5 Elm, 3 Ash and 1 Sycamore.	6040 7673
G3	Group consisting of 4 Lime and 1 Oak.	5998 7665
G4	Group consisting of 3 Oak.	6004 7658
G5	Group consisting of 5 Oak.	6017 7660
G6	Group consisting of 6 Lime and 1 Sycamore.	6017 7657
G7	Group consisting of 3 Lime	6009 7653
G8	Group consisting 7 Lime	6010 7647
G9	Group consisting of 2 Lime and 1 Oak.	6025 7651
G10	Group consisting of 2 Ash.	6030 7647
G11	Group consisting of 5 Oak.	6047 7655
G12	Group consisting of 2 Horse Chesnut, 1 Sycamore and 1 Lime.	6010 7640
G13	Group consisting of 3 Oak.	6014 7635
G14	Group consisting of 2 Oak, 2 Lime and 2 Sycamore.	6018 7636
G15	Group consisting of 10 Pine	6032 7630
G16	Group consisting of 10 pine	6036 7629
G17	1 Beech and 1 Sweet Chesnut. Group consisting of 5 Beech, 3 Elm, 1 Horse Chesnut and 1 Oak.	6042 7627
G18	Group consisting of 16 Grey Poplar, 2 Beech, 1 Elm, and 1 Horse Chesnut.	6054 7627
G19	Group consisting of 3 Pine, 3 Yew and 1 Elm.	6037 7628

WOODLANDS

(within a continuous black line on the map)

No. on Map.	Description.	Situation.
	NONE	

APPENDIX 7

Cofnod Records

Biodiversity Information Search (Species, Habitats & Sites)

PUBLIC VERSION



Please read **Important Issues** and **Notes** before interpreting the following information.

Our Ref.	Client Name	Date Run	Your Ref.
E00481	Richards, Moorehead and Laing Ltd	08/04/2008	2861/06

Site Name/Reference
Baron Hill

Category 1 Species (Species with International or UK Legal Protection, Section 42 [NERC] Species & UK BAP Priority Species) within 1000m buffer - 49 records

In	Grid Reference	Taxon Name	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	Lists	V
SB	SH6076 (Site Centroid)	Chiroptera (Chiroptera)	25/07/1983	Anon	1 Adult	By owner	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, WCA5	
SB	SH6076 (Site Centroid)	Chiroptera (Chiroptera)	01/08/1983	Anon	0 Adult		Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, WCA5	
SB	SH5975 (Site Centroid)	Myotis daubentonii (Daubenton's Bat/Ystlum y Dwr)	16/10/1996	Mike Howe	1 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, Bern, HDir, WCA5	
SB	SH6076 (Site Centroid)	Plecotus auritus (Brown Long-eared Bat/Ystlum Hirglust)	21/10/1996	Jean Matthews	1 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, Bern, HDir, S42, UKBAP, WCA5	
SB	SH6077* (Site Centroid)	Rhinolophus hipposideros (Lesser Horseshoe Bat/Ystlum Pedol Lleiaf)	01/05/1993	Jean Matthews		By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, Bern, Global, HDir, S42, UKBAP, WCA5	
B	SH601759	Anguilla anguilla (European Eel/Llysywen)	Sep 1976	Anon			Beaumaris		D1089/001/01	S42, UKBAP	
B	SH608762	Anguilla anguilla (European Eel/Llysywen)	Aug 1977	Anon			Beaumaris		D1089/001/01	S42, UKBAP	
B	SH605759 (Est. (Additional Site Name GR))	Branta bernicla (Brent Goose/Gwydd Ddu)	Dec 2000	Anon			Other: Beaumaris		D0285/139/01	ABirds, Bonn	6
B	SH597758	Lepus europaeus (Brown Hare/Ysgyfarnog)	2 records, on 01/03/1997 and 14/09/2004	G. Greenwood; June B. Matthews	1, 1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH598768	Lepus europaeus (Brown Hare/Ysgyfarnog)	10/01/2005	Cyril Haynes	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH601775	Lepus europaeus (Brown Hare/Ysgyfarnog)	27/01/1997	Jean Matthews	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH597757	Lepus europaeus (Brown Hare/Ysgyfarnog)	19/03/1997	David Stephenson	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH598758	Lepus europaeus (Brown Hare/Ysgyfarnog)	Summer 2004	Gerry Greenwood	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH605765	Lepus europaeus (Brown Hare/Ysgyfarnog)	Winter 1996 - Winter 1997	M. & G. Greenwood	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH595755	Lepus europaeus (Brown Hare/Ysgyfarnog)	08/03/1997	John Tripp	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH600760	Lepus europaeus (Brown Hare/Ysgyfarnog)	01/01/1997	Mr P. Baldwin	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH600775	Lepus europaeus (Brown Hare/Ysgyfarnog)	19/05/2004	Anon	1	Alive	Beaumaris		D0108/001/01	S42, UKBAP	
B	SH5977* (Site Centroid)	Pipistrellus (Pipistrellus)	03/06/1986	Anon - Gwynedd Bat Group	191 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, WCA5	
B	SH6177* (Site Centroid)	Pipistrellus (Pipistrellus)	23/06/1986	Liz Howe	360 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, WCA5	
B	SH6177* (Site Centroid)	Pipistrellus (Pipistrellus)	01/06/1982	Jean Matthews	60 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, WCA5	
B	SH6077* (Site Centroid)	Plecotus auritus (Brown Long-eared Bat/Ystlum Hirglust)	10/10/1983	Roz Hattey	1 Adult	Body by expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, Bern, HDir, S42, UKBAP, WCA5	
B	SH6077* (Site Centroid)	Plecotus auritus (Brown Long-eared Bat/Ystlum Hirglust)	11/08/1994	Anon	1 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, Bern, HDir, S42, UKBAP, WCA5	
B	SH6077* (Site Centroid)	Plecotus auritus (Brown Long-eared Bat/Ystlum Hirglust)	01/05/1993	Jean Matthews	30 Adult	By expert	Site Name Withheld	Comments Withheld	D1055/001/02	Bonn, Bern, HDir, S42, UKBAP, WCA5	
B	SH598760	Salmo trutta subsp. fario (Brown Trout)	Sep 1976	Anon			Beaumaris		D1089/001/01	S42, UKBAP, TRA	
B	SH601759	Salmo trutta subsp. fario (Brown Trout)	Sep 1976	Anon			Beaumaris		D1089/001/01	S42, UKBAP, TRA	
B	SH585753* (Recorder Supplied (Unchecked))	Triturus cristatus (Great Crested Newt/Madfall Ddwr Gribog)	2 records, both in 1986	Anon			10km: SH57; Other: Llyn Pen-y-parc		D0866/001/01, D0873/002/01	Bern, Global, HDir, S42, UKBAP, WCA5	6
B	SH586752*	Triturus cristatus (Great Crested Newt/Madfall Ddwr Gribog)	2 records, both on 04/04/1985	Anon			PEN Y PARC; Pen y Parc Reservoir, Beaumaris		D1076/001/01	Bern, Global, HDir, S42, UKBAP, WCA5	
B	SH585753*	Triturus cristatus (Great Crested Newt/Madfall Ddwr Gribog)	6 records, between 02/04/1985 and 26/03/1986	Pulford, E.A.; Anon			Peny-parc, 2km NE Llandegfan; Llyn Pen y parc; PEN Y PARC LAKE; Llandegfan, 2km NE		D1076/001/01	Bern, Global, HDir, S42, UKBAP, WCA5	
SB	SH5976# (Estimated from Map)	Caloplaca luteoalba (Orange-fruited Elm-lichen)	7 records, all on 1972	Brian Coppins; Tony Fletcher; Anon			Beaumaris - Baron Hill Estate - Anglesey	Vulnerable Sch. 8; BAP RDB L4335; Vulnerable Sch. 8; BAP RDB ; Vulnerable Sch. 8; BAP BRITISH LICHEN SOCIETY RECORDS	D0822/001/01	RDB01, RS, S42, UKBAP, WCA8	
SB	SH5976#	Erinaceus europaeus (West European Hedgehog/Draenog)	1970	Anon			Anglesey, Beaumaris, W of		D1072/001/01	S42, UKBAP	
B	SH5875#	Lepus europaeus (Brown Hare/Ysgyfarnog)	2 records, in 1960 and 1965	Anon			Anglesey, Baron hill Estate		D0108/001/01, D1072/001/01	S42, UKBAP	
B	SH5875#	Riccia canaliculata (Channelled Crystalwort)	2 records, in 1971 and 29/11/1972	Duckett, J.G.			Beaumaris, Pen-y-Parc		D1075/001/01	RDB01, RS, S42, UKBAP	
B	SH5977#	Sciurus vulgaris (Eurasian Red Squirrel/Gwiwer Goch)	1965	Anon			Anglesey, Nant		D1072/001/01	S42, UKBAP, WCA5	

Category 2 Species (Global Red List, British Red Data Book, Rare & Scarce, and Welsh Red and Amber Birds, where these are not identified in Category 1) within 1000m buffer - 10 records

In	Grid Reference	Taxon Name	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	Lists	V
B	SH603761	Larus argentatus (Herring Gull/Gwylan y Penwaig)	02/06/2002	Dr Ian Mitchell			Beau		D1073/001/01	ABirds	

In	Grid Reference	Taxon Name	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	Lists	V
SB	SH5976#	<i>Helleborus foetidus</i> (Stinking Hellebore/Crafanc-yr-Arth Ddrewllyd)	1976	Anglesey Rare Plant Register			Baron Hill, nr.		D0034/001/02	RS	
SB	SH6076#	<i>Trifolium suffocatum</i> (Suffocated Clover/Meillionen Fygedig)	1926	Anglesey Rare Plant Register			The Green, Beaumaris	undated record by NBG from shore near Friars	D0034/001/02	RS	
B	SH5875#	<i>Bryum tenuisetum</i> (Yellow-tuber Thread-moss)	1973	Duckett, J.G., Thomas			Beaumaris, Pen-y-Parc		D1075/001/01	RS	
B	SH5975#	<i>Bryum tenuisetum</i> (Yellow-tuber Thread-moss)	Oct 1972	Duckett, J.G., Thomas			nr Beaumaris		D1075/001/01	RS	
B	SH5975#	<i>Epipactis helleborine</i> (Broad-leaved Helleborine/Y Galdrist Lydanddail)	1970 - 1986	Anglesey Rare Plant Register			Cae Mair Estate, Beaumaris		D0034/001/02	RDB01, RS	
B	SH5975#	<i>Helleborus foetidus</i> (Stinking Hellebore/Crafanc-yr-Arth Ddrewllyd)	18/03/1997	Anglesey Rare Plant Register	7 plants		Beaumaris, nr.		D0034/001/02	RS	
B	SH5975#	<i>Orthotrichum striatum</i> (Shaw's Bristle-moss)	1826	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	RDB01	
B	SH6077#	<i>Spergula arvensis</i> (Corn Spurrey/Troellig yr Yd)	25/07/2007	Anglesey Rare Plant Register			Llanfaes		D0034/001/02	RDB01	
B	SH5975#	<i>Tortula atrovirens</i> (Rib-leaf Moss)	1867	Wilson, W.			Beaumaris, nr		D1075/001/01	RS	

Category 3 Species (LBAP Species not identified under Categories 1 & 2) within 1000m buffer - 10 records

In	Grid Reference	Taxon Name	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	LBAPs	V
B	SH599757	<i>Erodium maritimum</i> (Sea Stork's-bill/Pig-y-Crëyr Arfor)	Jun 1999	Anglesey Rare Plant Register	i. frequent		Cemetery chapel, Beaumaris		D0034/001/02	ANG	
B	SH597752	<i>Trifolium ornithopodioides</i> (Bird's-foot Clover/Corfeillionen Wen)	21/05/1995	Anglesey Rare Plant Register			Gallows Point boat yard		D0034/001/02	ANG	
SB	SH6076#	<i>Puccinellia distans</i> (Reflexed Saltmarsh-Grass/Gwellt-y-Morfa Atblygedig)	1985	Anglesey Rare Plant Register			Beaumaris Green		D0034/001/02	DEN	
SB	SH5976#	<i>Tortula lanceola</i> (Lance-leaved Pottia)	Before 31/12/1800	Davies, Rev. H.			Beaumaris, Baron Hill		D1075/001/01	FLI	
SB	SH6076#	<i>Tortula lanceola</i> (Lance-leaved Pottia)	1866	Palgrave, T., Wilson, W.			Beaumaris		D1075/001/01	FLI	
SB	SH6076#	<i>Trifolium ornithopodioides</i> (Bird's-foot Clover/Corfeillionen Wen)	1989	Anglesey Rare Plant Register			The Green, Beaumaris		D0034/001/02	ANG	
B	SH5975#	<i>Rhodobryum roseum</i> (Rose-moss)	Before 31/12/1800	Davies, Rev. H.			Beaumaris, Mill Dingle		D1075/001/01	FLI	
B	SH5975#	<i>Scleropodium tourettii</i> (Glass-wort Feather-moss)	1800 - 1900	Griffith			Beaumaris, Mill Dingle		D1075/001/01	FLI	
B	SH5975#	<i>Tortula lanceola</i> (Lance-leaved Pottia)	1871	Hunt, G.E.			Beaumaris		D1075/001/01	FLI	
B	SH5975#	<i>Zygodon conoideus</i> (Lesser Yoke-moss)	1830	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	FLI	

Category 4 Species (Any species not included on the above lists) within 1000m buffer - 97 records

In	Grid Reference	Taxon Name	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	V
B	SH607762	<i>Androniscus dentiger</i> (<i>Androniscus dentiger</i>)	30/07/1983	Hopkin, S.P.			Beaumaris Castle		D1102/001/01	
B	SH607762	<i>Armadillidium vulgare</i> (<i>Common Pill Woodlouse</i>)	30/07/1983	Hopkin, S.P.			Beaumaris Castle		D1102/001/01	
B	SH591766	<i>Daphne laureola</i> (<i>Spurge-laurel/Clust yr Ewig</i>)	11/03/2000	Anglesey Rare Plant Register			Home Farm, Baron Hill		D0034/001/02	
B	SH607762	<i>Didymodon sinuosus</i> (<i>Wavy Beard-moss</i>)	1982	Hill, M.O.			Beaumaris Castle		D1075/001/01	
B	SH607762	<i>Didymodon vinealis</i> (<i>Soft-tufted Beard-moss</i>)	1982	Hill, M.O.			Beaumaris Castle		D1075/001/01	
B	SH603766	<i>Forficula auricularia</i> (<i>Common Earwig</i>)	05/10/1992	Anon			Beaumaris, lane to Henllys Hall		D1080/001/01	
B	SH601759	<i>Gasterosteus aculeatus</i> (<i>Three-spined Stickleback/Crothell Dri Phigyn</i>)	Sep 1976	Anon			Beaumaris		D1089/001/01	
B	SH609764	<i>Haplophthalmus mengii</i> (<i>Haplophthalmus mengii</i>)	21/04/1985	Chater, A.O.			Beaumaris, shore of Menai Straits		D1102/001/01	
B	SH603760	<i>Hydrometra stagnorum</i> (<i>Hydrometra stagnorum</i>)	May 1973	Anon			Beaumaris		D1079/001/01	
B	SH603765	<i>Leiopus nebulosus</i> (<i>Leiopus nebulosus</i>)	12/06/1996	Fowles, A.P.			Baron Hill Park		D1094/001/01	
B	SH610763	<i>Ligia oceanica</i> (<i>Sea Slater</i>)	Apr 1981	Willows, R.I.					D1102/001/01	
B	SH608764	<i>Mercurialis annua</i> (<i>Annual Mercury/Bresychen-y-Cwn Flynyddol</i>)	23/09/1999	Anglesey Rare Plant Register			Beaumaris, allotments		D0034/001/02	
B	SH603760	<i>Mycelis muralis</i> (<i>Wall Lettuce/Gwylaeth y Fagwyr</i>)	1987 - 1999	Anglesey Rare Plant Register			Beaumaris		D0034/001/02	
B	SH607762	<i>Oniscus asellus</i> (<i>Oniscus asellus</i>)	30/07/1983	Hopkin, S.P.			Beaumaris Castle		D1102/001/01	
B	SH607762	<i>Philoscia muscorum</i> (<i>Philoscia muscorum</i>)	30/07/1983	Hopkin, S.P.			Beaumaris Castle		D1102/001/01	
B	SH601759	<i>Platichthys flesus</i> (<i>Flounder/Lleden Fwd</i>)	Sep 1976	Anon			Beaumaris		D1089/001/01	
B	SH607762	<i>Porcellio scaber</i> (<i>Porcellio scaber</i>)	30/07/1983	Hopkin, S.P.			Beaumaris Castle		D1102/001/01	
B	SH597752	<i>Rhagonycha fulva</i> (<i>Common Red Soldier Beetle</i>)	02/08/1996	Anon			Gallows Point, Beaumaris		D1084/001/01	
B	SH610763	<i>Trichoniscus pusillus</i> (<i>Trichoniscus pusillus</i>)	Apr 1981	Willows, R.I.					D1102/001/01	
B	SH607762	<i>Trichoniscus pusillus</i> (<i>Trichoniscus pusillus</i>)	30/07/1983	Hopkin, S.P.			Beaumaris Castle		D1102/001/01	
B	SH603760	<i>Velia caprai</i> (<i>Velia caprai</i>)	May 1973	Anon			Beaumaris		D1079/001/01	
SB	SH5976#	<i>Barbula unguiculata</i> (<i>Bird's-claw Beard-moss</i>)	1805	Davies, Rev. H.			Baron Hill		D1075/001/01	
SB	SH5976# (Estimated from Map)	<i>Degelia plumbea</i> (<i>Degelia plumbea</i>)	2 records, both in 1798	Anon			Anglesey: Baron Hill	Least Concern International Responsibility	D0822/001/01	
SB	SH6076#	<i>Dicranota pavidata</i> (<i>Dicranota pavidata</i>)	06/06/1887	Verrall, G.H.			Beaumaris		D1078/001/01	
SB	SH6076#	<i>Hemerobius humulinus</i> (<i>Hemerobius humulinus</i>)	15/08/1978	Morgan, Mrs M.J., University College North Wales Student Group			Beaumaris		D1104/001/01	
SB	SH6076#	<i>Hemerobius micans</i> (<i>Hemerobius micans</i>)	15/08/1978	Morgan, Mrs M.J., University College North Wales Student Group			Beaumaris		D1104/001/01	
SB	SH6076#	<i>Lamium confertum</i> (<i>Northern Dead-nettle/Marddanhadlen y Gogledd</i>)	Jul 1985	Anglesey Rare Plant Register	1 plant		The Green, Beaumaris	could not be found 1 week later	D0034/001/02	
SB	SH6076#	<i>Nothochrysa capitata</i> (<i>Nothochrysa capitata</i>)	07/08/1978	Morgan, Mrs M.J., University College North Wales Student Group			Beaumaris		D1104/001/01	
SB	SH5976# (Estimated from Map)	<i>Pannaria rubiginosa</i> (<i>Pannaria rubiginosa</i>)	1798	Anon			Anglesey: Beaumaris, near - Anglesey SH5976	Least Concern	D0822/001/01	
SB	SH6076#	<i>Pseudocrossidium hornschi</i> (<i>Hornschi's Beard-moss</i>)	1830	Wilson, W.			Beaumaris		D1075/001/01	
SB	SH5976#	<i>Sciurus carolinensis</i> (<i>Eastern Grey Squirrel/Gwiwer Lwyd</i>)	1980	Anon			Anglesey, Baron Hill, Beaumaris		D1072/001/01	
SB	SH6076#	<i>Syntrichia intermedia</i> (<i>Intermediate Screw-moss</i>)	1868	Wilson, W.			Beaumaris		D1075/001/01	
SB	SH6076#	<i>Tortula subulata</i> var. <i>subulata</i> (<i>Tortula subulata</i> var. <i>subulata</i>)	1826	Wilson, W.			Beaumaris		D1075/001/01	
SB	SH6076#	<i>Vulpes vulpes</i> (<i>Red Fox/Cadno; Llwynog</i>)	1976	Anon			Beaumaris		D1072/001/01	
B	SH5975#	<i>Amblystegium tenax</i> (<i>Fountain Feather-moss</i>)	1983	Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Antitrichia curtipendula</i> (<i>Pendulous Wing-moss</i>)	Before 31/12/1830	Davies, Rev. H.			Beaumaris, Red Hill		D1075/001/01	
B	SH6077#	<i>Ballota nigra</i> (<i>Black Horehound/Marddanhadlen Ddu</i>)	25/07/2007	Anglesey Rare Plant Register			Llanfaes		D0034/001/02	

In	Grid Reference	Taxon Name	Date	Recorder(s)	Abundance	Record Type	Site Name	Comments	Dataset ID	V
B	SH6177#	<i>Ballota nigra</i> (Black Horehound/Marddanhadlen Ddu)	29/06/2006	Anglesey Rare Plant Register			Fryars Bay		D0034/001/02	
B	SH5975#	<i>Barbula unguiculata</i> (Bird's-claw Beard-moss)	Before 31/12/1885	Griffith			Beaumaris		D1075/001/01	
B	SH5975#	<i>Bryum radiculosum</i> (Wall Thread-moss)	1828	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5875#	<i>Bryum subapiculatum</i> (Lesser Potato Bryum)	1972	Duckett, J.G., Thomas			Beaumaris, Pen-y-Parc		D1075/001/01	
B	SH5975#	<i>Cephalozia bicuspidata</i> (Two-horned Pincerwort)	1983	Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5875#	<i>Chiloscyphus pallescens</i> (St Winifrid's Other Moss)	1949	Watson, E.V.			Beaumaris, Pen-y-Parc		D1075/001/01	
B	SH5875#	<i>Climacium dendroides</i> (Tree-moss)	Before 31/12/1800	Davies, Rev. H.			Beaumaris, Pen-y-Parc		D1075/001/01	
B	SH6077#	<i>Cunctochrysa albolineata</i> (<i>Cunctochrysa albolineata</i>)	Jun 1978	Morgan, Mrs M.J., University College North Wales Student Group			Beaumaris		D1104/001/01	
B	SH5975#	<i>Dicranella varia</i> (Variable Forklet-moss)	1802	Davies, Rev. H.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Didymodon sinuosus</i> (Wavy Beard-moss)	1983	Hill, M.O., Yeo, M.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Didymodon spadiceus</i> (Brown Beard-moss)	1828	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Didymodon tophaceus</i> (Olive Beard-moss)	1887	Griffith			Beaumaris		D1075/001/01	
B	SH5975#	<i>Eurhynchium crassinervium</i> (Beech Feather-moss)	2 records, in 1800 and 1830	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH6077#	<i>Forficula auricularia</i> (Common Earwig)	May 1978	Anon			Henllys Hall Beaumaris		D1080/001/01	
B	SH5975#	<i>Heterocladium heteropterum</i> var. <i>flaccidum</i> (<i>Heterocladium heteropterum</i> var. <i>flaccidum</i>)	1983	Yeo, M.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Hookeria lucens</i> (Shining Hookeria)	2 records, both on 29/10/1983	Davies, Rev. H.; Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Hygrohypnum luridum</i> var. <i>luridum</i> (<i>Hygrohypnum luridum</i> var. <i>luridum</i>)	1828	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Jungermannia atrovirens</i> (Dark-green Flapwort)	1983	Blackstock, T.H.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5875#	<i>Leptodictyum riparium</i> (Kneiff's Feather-moss)	1949	Watson, E.V.			Beaumaris, Pen-y-Parc		D1075/001/01	
B	SH5975#	<i>Leskea polycarpa</i> (Many-fruited Leskea)	1857	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Lophocolea heterophylla</i> (Variable-leaved Crestwort)	1983	Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Microbryum rectum</i> (Upright Pottia)	2 records, in 1800 and 1864	Hunt; Rogers, J.			Beaumaris		D1075/001/01	
B	SH5875#	<i>Microlejeunea ulicina</i> (Fairy Beads)	1950	Berrie, G.K.			Beaumaris, Pen-y-Parc		D1075/001/01	
B	SH5975#	<i>Mnium stellare</i> (Starry Thyme-moss)	1857	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH6175# (Est. (Additional Site Name GR))	<i>Mola mola</i> (Sun-fish/Pysgodyn Haul)	Jul 1999	Anon	1		SSSI: Traeth Lafan		D0285/139/01	6
B	SH5975#	<i>Neckera pumila</i> (Dwarf Neckera)	2 records, in 1828 and 1951	Wilson, W.; Parker, R.E.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Nowellia curvifolia</i> (Wood-rust)	1983	Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH6077#	<i>Orthodontium lineare</i> (Cape Thread-moss)	1980	Benoit, P.M.			Beaumaris, Fryars		D1075/001/01	
B	SH5975#	<i>Orthotrichum diaphanum</i> (White-tipped Bristle-moss)	1826	Wilson, W.			Beaumaris		D1075/001/01	
B	SH5875#	<i>Orthotrichum rupestre</i> (Rock Bristle-moss)	1855	Wilson, W.			Beaumaris, Pen-y-Parc		D1075/001/01	
B	SH5975#	<i>Orthotrichum tenellum</i> (Slender Bristle-moss)	1826	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH6077#	<i>Phymatodes testaceus</i> (Tanbark Borer)	16/07/1994	Hammond, P.M.			Baron Hill Park		D1094/001/01	
B	SH5975#	<i>Plagiochila britannica</i> (British Featherwort)	1983	Blackstock, T.H., Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Plagiochila porelloides</i> (Lesser Featherwort)	1983	Blackstock, T.H., Hill, M.O.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Plagiomnium cuspidatum</i> (Woodsy Thyme-moss)	2 records, in 1856 and 04/04/1861	Wilson, W.			Beaumaris; Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Plagiomnium rostratum</i> (Long-beaked Thyme-moss)	1828	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Pterogonium gracile</i> (Bird's-foot Wing-moss)	1950 - 1988	Davies, Rev. H.			Beaumaris, nr		D1075/001/01	
B	SH6177#	<i>Ranunculus auricomus</i> (Goldilocks Buttercup/Blodyn-Ymenyn Peneuraid)	1998	Anglesey Rare Plant Register			Fryars		D0034/001/02	
B	SH5877#	<i>Ranunculus ficaria</i> subsp. <i>bulbilifer</i> (Lesser Celandine)	1970 - 1986	Anglesey Rare Plant Register			above Baron Hill	also in SH5977	D0034/001/02	
B	SH6077#	<i>Ranunculus ficaria</i> subsp. <i>bulbilifer</i> (Lesser Celandine)	1970 - 1986	Anglesey Rare Plant Register			nr. Llanfaes		D0034/001/02	
B	SH5875#	<i>Ranunculus peltatus</i> (Pond Water-crowfoot/Crafanc-y-Frân y Llyn)	03/07/1996	Anglesey Rare Plant Register			Llyn Pen y Parc		D0034/001/02	
B	SH5975#	<i>Rhynchostegiella teneriffae</i> (Teesdale Feather-moss)	4 records, between 1830 and 30/10/1983	Hill, M.O.; Davies, Rev. H.; Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Rhynchostegium murale</i> (Wall Feather-moss)	1826	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Rhytidiadelphus loreus</i> (Little Shaggy-moss)	Before 31/12/1800	Davies, Rev. H.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5875#	<i>Sparganium emersum</i> (Unbranched Bur-reed/Cleddylys Di-Gainc)	19/06/1996	Anglesey Rare Plant Register			Pen-y-Parc		D0034/001/02	
B	SH5975#	<i>Syntrichia laevipila</i> (Small Hairy Screw-moss)	1861	Wilson, W.			Beaumaris, nr		D1075/001/01	
B	SH5875#	<i>Talpa europaea</i> (European Mole/Gwahadden; Twrch Daeear)	1966	Anon			Anglesey		D1072/001/01	
B	SH5975#	<i>Taxiphyllum wissgrillii</i> (Depressed Feather-moss)	1828	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	
B	SH5975#	<i>Tortula viridifolia</i> (Bristly Pottia)	1867	Wilson, W.			Beaumaris, nr		D1075/001/01	
B	SH5876#	<i>Vulpes vulpes</i> (Red Fox/Cadno; Llwynog)	1976	Anon			Anglesey, Beaumaris, Cefni		D1072/001/01	
B	SH5975#	<i>Zygodon viridissimus</i> var. <i>viridissimus</i> (<i>Zygodon viridissimus</i> var. <i>viridissimus</i>)	1830	Wilson, W.			Beaumaris, Mill Dingle		D1075/001/01	

Designated Sites intersecting 1000m buffer	SAC: Y Fenai a Bae Conwy / Menai Strait and Conwy Bay, SSSI: TRAETH LAFAN, SSSI: GLANNAU PENMON - BIWMARES, SSSI: BARON HILL PARK, LNR: TRAETH LAFAN, AONB: YNYS MÔN / ANGLESEY
Wildlife Sites intersecting 1000m buffer	A candidate Wildlife Site was identified - for further detail (C)
Habitat type(s) intersecting site boundary	Amenity Grassland, Arable, Bracken, Buildings, Dense Scrub, Improved Grassland, Intertidal Mud/Sand, Intertidal Shingle/Cobbles, Not Accessed Land, Semi-improved Neutral Grassland, Shingle/Gravel above MHW, Soft Cliff, Standing Water
Ancient Woodland intersecting 1000m buffer	Ancient and Semi Natural Woodland, Plantation on Ancient Woodland Site
NWWT Reserves intersecting 1000m buffer	None

Important Issues

1. Usage of the above information is governed by Cofnod's **Terms and Conditions of Data Release** (available from Cofnod on request).
2. Records shown in bold typeface are sensitive species records. In this public version of the original report, the resolution of sensitive species grid references have been reduced and site names and comments have been removed.
3. Past records of presence of a habitat or species do not guarantee continued occurrence; absence of records does not imply absence of a species, merely that no records are held at Cofnod; Cofnod cannot guarantee the accuracy of supplied data; copyright of records remains with the original recorder.

Notes

This report should be used in conjunction with any relevant maps, where these are supplied.

Cofnod uses a search system which reports all priority or protected species within a specified search radius or buffer. Where required a search will also include high priority 'Mobile Species', such as bats, otters, amphibians and certain invertebrates, which lie outside the specified search radius. These species are highlighted on the report with an **asterisk**. They have been selected as 'Mobile Species' as their territory (possibly due to foraging activity or life cycle) could intersect with the search radius.

Records with 4 figure grid references are displayed as 1km squares on any relevant maps. They are listed separately in reports and highlighted in grey *italic* script.

Sites - Designated Sites and Wildlife Sites which fall within 50m of the grid reference are highlighted in red.

'V' column - Record Verification Level, for records from Category 5 and 6 datasets only. The following abbreviations apply: **4**: Probably correct, **5**: Known correct, **6**: Unconfirmed. Dataset Categories and Record Verification Levels are explained in more detail within Cofnod's policy on Data Quality, and Dataset Categories are listed within the Metadata report which accompanies this report.

Lists

ABirds - The Population Status of Birds in the UK: Birds of Conservation Concern 2002-07 (Welsh Amber listed), **BA** - Protection of Badgers Act, **BDir** - EC Birds Directive, **Bern** - Bern Convention, **Bonn** - The Bonn Convention on the Conservation of Migratory Species of Wild Animals, **Global** - Global IUCN Red List of Threatened Species, **HDir** - EU Habitats and Species Directive, **RBirds** - The Population Status of Birds in the UK: Birds of Conservation Concern 2002-07 (Welsh Red listed), **RDB01** - Red listing based on 2001 IUCN guidelines, **RDB94** - Red Listing based on 1994 IUCN guidelines, **RDBpre** - Red Data book listing based on pre 1994 IUCN guidelines, **RS** - Rare and scarce species (not based on IUCN criteria), **S42** - Natural Environment and Rural Communities Act 2006 (Section 42), **UKBAP** - UK Biodiversity Action Plan Priority Species, **WCA1.1** - Wildlife and Countryside Act Schedule 1 Part 1, **WCA1.2** - Wildlife and Countryside Act Schedule 1 Part 2, **WCA5** - Wildlife and Countryside Act Schedule 5, **WCA8** - Wildlife and Countryside Act Schedule 8

Abbreviations

LBAP: ANG - Isle of Anglesey, **CON** - Conwy, **DEN** - Denbighshire, **FLI** - Flintshire, **GWY** - Gwynedd, **SNO** - Snowdonia National Park, **WRE** - Wrexham

OTHER: IoACC - Isle of Anglesey County Council, **NWWT** - North Wales Wildlife Trust

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