

ARBOR VITAE ECOLOGY • FORESTRY • LAND USE



WOODLAND REPORT

UPPER BRYN

Arbor Vitae Environment Ltd, Lower Betton Farm, Cross Houses, Shrewsbury, Shropshire, SY5 6JD

Project name:	UPPER BRYN, ABERMULE, POWYS	
Grid Reference:	SO17099394	
Date:	23/05/2025	
Prepared by:	William Prestwood BSc Ecologist and Director	
Reviewed by:	Phillipa Stirling MSc ACIEEM	
Requested by:	Roger Parry and Partners	

C	Contents				
1	I	INTRODUCTION2			
	1.1	BACKGROUND TO DEVELOPMENT2			
	1.2	SCOPE OF REPORT2			
2	SITE DESCRIPTION2				
	2.1	LOCATION, LANDSCAPE, AND BACKGROUND2			
3	WOODLAND DESCRIPTION				
	3.1	LOCATION			
	3.2	HABITAT ASSESSMENT			
	3.3	BRYOPHYTE AND LICHEN SURVEYS4			
	3.4	BRYOPHYTE SURVEY4			
	3.5	LICHEN SURVEY4			
4	I	ECOLOGICAL ASSESSMENT			
5	١	WOODLAND MANAGEMENT			
	5.1	ASH DIEBACK			
	5.2	SHRUB LAYER MANAGEMENT7			
	5.3	NESTBOX SCHEME			
6	SUMMARY				
	FIGURE 1 LOCATION. 1:50,0009				
	FIGURE 2 WOODLAND SURVEY AREA10				
	FIGURE 3 MAXIMUM ANNUAL AMMONIA CONCENTRATION11				
	FIGURE 4 MAXIMUM ANNUAL NITROGEN CONCENTRATION12				
	APPENDIX 1 BRYOPHYTE SPECIES RECORDED13				
	APPENDIX 2 LICHEN SPECIES RECORDED1				
	APPENDIX 3 PHOTOGRAPHS1				

1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of a new poultry unit at Upper Bryn. The new building will extend the facility constructed on adjacent land two years ago.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species. This was completed in June 2021.

NRW and the Local Authority have subsequently requested more information on a small area of woodland which was shown by the ammonia report (in the Pessimistic scenario) of having an exceedance of the Critical Level of 1.0 μ g/m². In the Realistic scenario, no such exceedance is expected.

1.2 SCOPE OF REPORT

The survey was primarily designed to provide:

- Description of woodland
- Summary of the results of a bryophyte survey
- Summary of the results of a lichen survey
- Assessment of ecological significance of woodland in relation to potential ammonia impact
- Recommendation for future management practices to improve habitat quality of woodland

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

The proposed site for the second phase of buildings for the poultry unit lies within remote agricultural fields approximately 500 m south east of the main farm buildings at Upper Bryn. The farmstead at Upper Bryn is around 1 km to the south-east of the village of Abermule in Powys. The site is at an elevation of around 175 m, with the River Severn Valley to the north-west and the land rising towards hills and mountains to the south-east. The surrounding land use is predominantly pasture.

The second poultry house will be constructed on a green-field site approximately 50 m to the west of the existing poultry house. The new poultry house would provide accommodation for up to 32,000 egg-laying chickens. The chickens would have daytime access to outdoor ranging areas.

The current survey looked at a small area of woodland which lies 110 metres to the south of the proposed building. The survey area is shown on Figure 2.

3 WOODLAND DESCRIPTION

3.1 LOCATION

The woodland under consideration, known as Rock Wood, lies 110 metres to the south of the proposed poultry unit and extends to approximately 0.6 hectares. It forms part of a much larger extent of woodland covering approximately 35 hectares as shown in Figure 2. The site is an ancient woodland site, as indeed is much of the larger woodland area of which it is a part.

3.2 HABITAT ASSESSMENT

A site visit was made on 15/02/2022.

The woodland occupies a steep south-facing slope of a narrow valley. A minor road forms its southern boundary with improved grass fields to the north. A stream flows along the foot of the slope in a steeply sided, eroding channel and a second small tributary flows down the slope in the centre of the woodland creating a small ravine.

The woodland is on slightly moist, neutral soils and is dominated by a canopy of ash. The woodland type is a W8 community of ash - field maple - dogs mercury. The canopy is very open and the woodland as a whole sparsely stocked. It appears that the woodland has been felled in the past and allowed to naturally regenerate, largely from coppiced stools.

In addition to the dominant ash, occasional oaks occur along the northern (top) edge. Other species include wych elm, field maple. The shrub layer is very sparse but includes coppiced hazel, with some holly and elder.

The ground flora is typical of ancient woodland of this community type and includes dog's mercury, bluebell, yellow archangel and woodruff. Bramble is abundant in places and ferns are frequent, notably hard shield fern and hart's tongue fern.

Dead wood habitats are scarce. There are occasional small exposures of rock, particularly along the stream course where banks have eroded. Larger rock faces occur immediately outside the site on neighbouring land.

3.3 BRYOPHYTE AND LICHEN SURVEYS

These surveys were commissioned in order to evaluate the site for their bryophyte and lichen assemblages, particularly with a view to establishing whether the site supports species known to be sensitive to increased nitrification from ammonia.

The reports produced by the specialists involved are reproduced below.

3.4 BRYOPHYTE SURVEY

Report by Mark Lawley

I recorded 42 species of bryophyte (37 mosses and 5 liverworts) at Rock Wood, near Abermule, Montgomeryshire on February 15th, 2022, the result of spending half a day on site and half a day checking the identities of specimens microscopically, preparing a list of species and writing this report.

All 42 species listed are widely distributed in Britain and frequently encountered. Several of the listed species require some base-enrichment in order to thrive. However, the main purpose of the survey was to discover whether any bryophytes present in the wood are likely to be adversely affected by any increased quantities of ammonia emitted from the proposed development and use of an intensive poultry unit nearby.

All the species recorded as present in Rock Wood score 3 or higher regarding their tolerance of nitrogen concentrations (Hill *et al.*, 2007) and are not restricted to environments with low concentrations of nitrogen. I therefore conclude that they are unlikely to be adversely affected by increased concentrations of ammonia.

Latin names follow Blockeel et al. (2021).

3.5 LICHEN SURVEY

Report by Bob Kemp

The woodland is situated on a steep, shaded, south facing slope which descends down to a narrow road at the bottom of a valley. Trees here include Ash and the occasional Oak standard, Hazel, Elderberry and a number of small Elms. It is recognised as an area of ancient woodland.

The woodland is not particularly lichen rich. With only 15 species of macro lichen recorded on the day.

Trees bordering the road in the valley are pretty much devoid of lichen, at both low and high level. Thalli are few and far between.

Some poor quality *Graphis scripta* were recorded on a couple of Hazels by the road. This species is considered an indicator of ancient woodland in England but this becomes less relevant farther west. The unhealthy nature of the *Graphis* thalli probably reflect the deep shade cast by the surrounding vegetation and topography. Also, in view of the thin green algal coating across an otherwise white thallus, eutrophication may also be a factor.

Of the species recorded, *Evernia prunestri*, and *Parmelia sulcata* are the only ones considered nitrogen sensitive (FSC Guide to using a lichen-based index to nitrogen quality. Field Studies Council.) The others are considered Nitrogen tolerant.

On the northern fringe of the woodland, adjacent to a grass field, the Hawthorn here are liberally covered in the nitrophile lichen species *Xanthoria parietina* and *Physcia tenella*. The occasional *Ramalina* fastigiata and *R. farinacea* grow here too.

My conclusion from the visit is that the woodland is not of significance from a lichenological point of view. If it ever was, it is now in a chronic state of decline due to shade and background nitrogen levels.

4 ECOLOGICAL ASSESSMENT

All ancient deciduous woodland is a priority habitat for conservation and this report seeks to establish whether the proposed development poses any threat to the long-term conservation status of this habitat.

The Ammonia Report concluded:

Detailed modelling

The detailed modelling predicts that:

- For The Unsound and The Pessimistic Scenarios, at the closest AW to the south there would be a small exceedance of 100% of the precautionary Critical Level of 1.0 μg/m³. This exceedance is predicted to impact upon a small area of the AW, approximately 0.6 ha in the Unsound Scenario and approximately 0.2 ha in the Pessimistic Scenario.
- For The Realistic Scenario, there is no exceedance of the Natural Resources Wales lower threshold percentage of the precautionary Critical Level of 1.0 μg/m³ by process contributions to ground level ammonia concentrations.

The woodland community represented at Rock Wood is unlikely to be impacted by an increase in ammonia levels. The ground flora is characteristic of W8 ash woodland,

which is a woodland type often associated with fertile soils. The species of forbs and ferns recorded here are not noted for intolerance to slightly enhanced ammonia levels and therefore the floristic composition of the woodland is unlikely to change.

Lichens and bryophytes are considered to be species more likely to be affected by enhanced ammonia levels and the surveys carried out of these species were designed to establish whether sensitive species are present.

The bryophyte survey recorded 42 species, none of which are regarded as nitrogen sensitive (see Appendix 1).

The lichen survey only identified 15 species (see Appendix 2), which is a relatively low number for this habitat type in mid Wales. Two of the species recorded appear on the Field Studies List of species which are more sensitive to enhanced nitrogen. However, *Parmelia sulcata* is usually regarded as highly tolerant of pollution generally and is one of the most common lichens in the UK. *Evernia prunestri,* although sensitive to nitrogen pollution, is a common and widespread species.

In summary, whilst the woodland is recognised as a priority habitat, the long-term diversity of the habitat is unlikely to be impacted by any small exceedance of the Critical Level. In the Realistic Scenario (see above), there would be no exceedance of the Critical Level of which is the accepted level for ancient woodland. Only one species of 'sensitive' lichen was recorded and this is a widespread and common species.

It is likely that use of nitrogenous fertilisers in the past have given rise to the abundance of nitrophilous lichen species on the boundary of the wood near to improved grass fields. The cessation of fertiliser use in these fields will prevent further nitrogenous pollution of the woodland in the future, thus compensating for any increase in airborne nitrogenous compounds.

The adoption of a woodland management plan will help to improve the habitat structure and diversity in the woodland.

5 WOODLAND MANAGEMENT

5.1 ASH DIEBACK

There is currently no evidence of ash dieback affecting trees in the woodland, however future impact is inevitable. Removal of ash trees will be necessary given the proximity of the road. Replanting of much of the site will be necessary and should be achieved using native species, notably oak, small-leaved lime and wild cherry.

A proportion of timber should be left on the ground to increase the availability of dead wood habitats for invertebrates.

5.2 SHRUB LAYER MANAGEMENT

The shrub layer of the woodland is currently sparse and would benefit from management to enhance it. Old coppiced hazels shrubs should be coppiced to reinvigorate them. Underplanting with further hazel and holly will help to improve the structural diversity of the wood.

5.3 NESTBOX SCHEME

The removal of many of the mature trees will reduce nesting opportunities for holenesting species. This can be compensated for by the installation of bird nest boxes. At least 12 boxes (such as Schwegler 1B nest boxes) should be installed.

6 SUMMARY

An assessment was carried out of an area of Rock Wood which, according to a recent Ammonia Report, identified that 0.6ha could, in a Pessimistic scenario, be subject to a Critical Level of more than $1.0 \ \mu g/m^2$ but less than $3.0 \ \mu g/m^2$. NRW and the LPA have requested that an assessment was made of the woodland to determine whether any increase in ammonia deposition would have an impact on the woodland habitat in general and on lichens and bryophytes in particular.

A detailed survey of bryophytes and lichens has now been completed. No bryophyte species were recorded which are regarded as nitrogen-sensitive. One species of lichen was recorded which, although listed as being sensitive to nitrogen levels, is in fact common and widespread in the UK.

This particular woodland community as a whole is regarded as resilient to low levels of nitrification. The report concludes that no impact on the deciduous woodland habitat, or its component species, is likely to result from the possible Critical Level of $1.0 \,\mu\text{g/m}^2$.

Certain lichen species which were found to be abundant on the edge of the woodland abutting agricultural land indicate some existing nitrification, probably as a result of fertilisers. This source of nitrification will cease once the poultry units are operative.

Improvements to the woodland habitat are recommended in the report through adoption of certain management practices.

FIGURE 1 LOCATION. 1:50,000





FIGURE 2 WOODLAND SURVEY AREA



FIGURE 3 MAXIMUM ANNUAL AMMONIA CONCENTRATION



Figure 6a. Maximum annual ammonia concentration – The Realistic Scenario

© Crown copyright and database rights. 2021.





FIGURE 4 MAXIMUM ANNUAL NITROGEN CONCENTRATION

Figure 6b. Maximum annual nitrogen deposition rates – The Realistic Scenario

© Crown copyright and database rights. 2021.



APPENDIX 1 BRYOPHYTE SPECIES RECORDED

SITE: Rock Wood, near Abermule GRID REFERENCE: SO 1693 DATE: February 15th, 2022 RECORDER: Mark Lawley

LIVERWORTS

Frullania dilatata	Dilated Scalewort
Metzgeria furcata	Forked Veilwort
Pellia epiphylla	Overleaf Pellia
Plagiochila asplenioides	Greater Featherwort
Radula complanata	Even Scalewort
MOSSES	
Amblystegium serpens	Creeping Feather-moss
Atrichum undulatum	Common Smoothcap
Brachythecium rivulare	River Feather-moss
Brachythecium rutabulum	Rough-stalked Feather-moss
Bryoerythrophyllum recurvirostrum	Red Beard-moss
Calliergonella cuspidata	Pointed Spear-moss
Cryphaea heteromalla	Lateral Cryphaea
Didymodon insulanus	Cylindric Beard-moss
Didymodon nicholsonii	Nicholson's Beard-moss
Eurhynchium striatum	Common Striated Feather-moss
Fissidens bryoides	Lesser Pocket-moss
Fissidens taxifolius	Common Pocket-moss
Fissidens viridulus	Green Pocket-moss
Grimmia pulvinata	Grey-cushioned Grimmia
Homalia trichomanoides	Blunt Feather-moss
Homalothecium sericeum	Silky Wall Feather-moss
Hypnum cupressiforme	Cypress-leaved Plait-moss
Isothecium alopecuroides	Larger Mouse-tail Moss
Isothecium myosuroides	Slender Mouse-tail Moss
Kindbergia praelonga	Common Feather-moss
Lewinskya affiis	Wood Bristle-moss
Microeurhynchium pumilum	Dwarf Feather-moss



ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE

Neckera complanata	Flat Neckera
Orthodontium lineare	Cape Thread-moss
Orthotrichum diaphanum	White-tipped Bristle-moss
Orthotrichum pulchellum	Elegant Bristle-moss
Orthotrichum stramineum	Straw Bristle-moss
Orthotrichum tenellum	Slender Bristle-moss
Oxrrhynchium hians	Swartz's Feather-moss
Plagiomnium undulatum	Hart's-tongue Thyme-moss
Plagiothecium nemorale	Woodsy Silk-moss
Plagiothecium succulentum	Juicy Silk-moss
Rhynchostegium confertum	Clustered Feather-moss
Rhynchostegium riparioides	Long-beaked Water Feather-moss
Thamnobryum alopecurum	Fox-tail Feather-moss
Zygodon viridissimus	Green Yoke-moss



APPENDIX 2 LICHEN SPECIES RECORDED

- Arthonia radiata
- Candelariella reflexa
- Evernia prunestri
- Graphis scripta
- Lecanora chlarotera
- Melanelixia subaurifera
- Opegrapha herbarum
- Parmelia sulcata
- Pertusaria leioplaca
- Phlyctis argena
- Physcia tenella
- Ramalina farinacea
- Ramalina fastigiata
- Xanthoria parietina
- Lepraria sp..



APPENDIX 3 PHOTOGRAPHS





16



