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Survey of the Lichens at Hook Wood, April 2026



Jon Hudson MCIEEM. May 2026

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1. Summary

Jon Hudson (Jon Hudson Ecological Consultancy) was contracted by the landowner, Mrs K. Miller to undertake a lichen survey of the Hook Wood. The survey focused on the Base Rich Bark (*Lobarion pulmonariae*) communities and the Southern Oceanic Woodland and Upland Rainforest Assemblages. The lichen species of these communities and assemblages, as well as any other notable lichens, were located, and their abundance and distribution were recorded. The following records of notable lichens and lichenicolous fungi were made.

Lobarion Community species	6
Notable species	1
IR International Responsibility#	4
NS Nationally Scarce	1
NT Near Threatened	0
SOWI: Southern Oceanic Woodland Index	8
URI: Upland Rainforest Index	0

In the survey area, crustose elements of the Base Rich Bark (*Lobarion pulmonariae* Community) were reasonably frequent. However, the classic, large leafy species were absent. It is not easy to see any strong influence that accounts for the generally rather limited frequency of leafy *Lobarion* species here – it seems to be most likely due to historic air pollution and woodland management practices.

Hook Wood has a reasonably diverse lichen flora, but the populations of many of the key species are small and scattered, with several species restricted to a single or just a few locations. The site supports a good-quality oceanic woodland lichen assemblage (see Tables 2 & 3) characterised by a Southern Oceanic Woodland Index (SOWI) score of 8 and the presence of six Lobarion community species, indicating reasonable ecological continuity and suitable humid conditions. **The occurrence of four species for which the UK holds International Responsibility is notable and adds clear conservation value. However, the rarity profile is relatively modest, with only one Nationally Scarce species, one additional notable species, and no Near Threatened taxa recorded. Taken together, these attributes suggest the site is of county or regional importance, but it does not meet national (SSSI-level) significance. The presence of a large population of the International Responsibility species *Thelopsis corticola* at Hook Wood is particularly noteworthy. This strong population is therefore of clear conservation significance and elevates the importance of the site beyond what species count alone indicate.**

2. Introduction

2.1. Survey Aims

Prior to the present survey, little was known about the importance of Hook Wood for lichens. Records by Pat Wolsely in 1986 included just a few “Old Forest” lichen species and none of these records had more than a centroid Grid Reference, and they contain no information on the abundance of any of the species recorded. The current survey aims to locate as many species as possible and provide more detailed information on their location and frequency/abundance. The survey also identifies the woodland types, Lichen Assemblages (used to evaluate the conservation interest of sites) and the lichen communities present (used to gain a broad understanding of the more common and widespread species that are likely to be present, their distribution and the factors affecting the site.

The survey covered the area shown in Map 1, focusing on notable (SOWI, URI and TNTN) species, recording the notable lichen flora on as many separate trees as possible, and producing a map of the distribution of important species.



Map 1 Area covered by the survey.

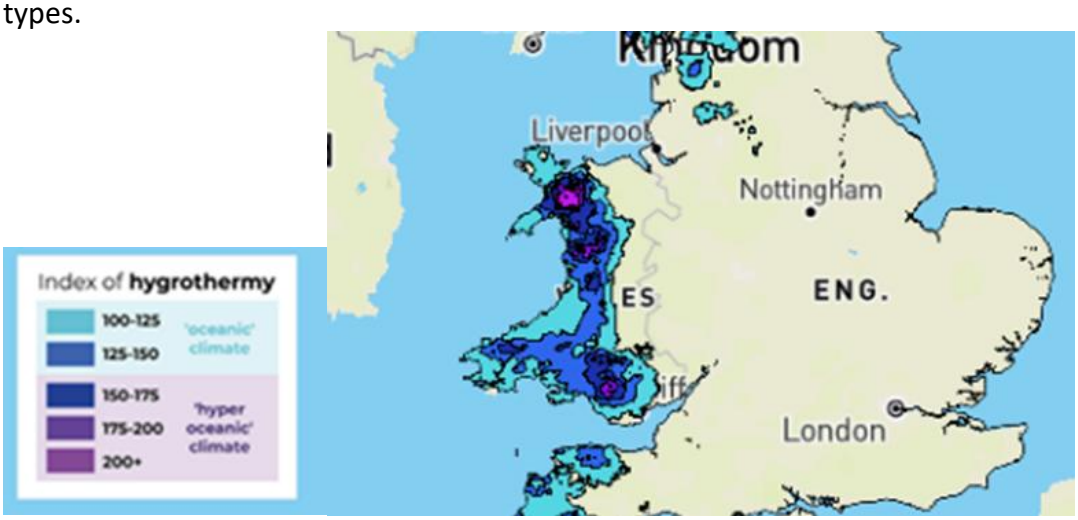
2.2. Atlantic Woodland Types

The western seaboard of Britain and Ireland supports a network of internationally important woodlands, recognised as "Atlantic woodlands." These are typically old-growth woodlands, in clean-air situations, which are strongly influenced by oceanic (wet & mild, with equable annual temperatures) to pluvial hyper-oceanic (very wet & mild, with equable annual temperatures) climates. As a result, these woodlands support suites of biodiversity, where the most distinctive features are their lichens and bryophytes (mosses and liverworts).

There is no commonly accepted definition of temperate rainforest in the UK. Plantlife (the UK wild plant conservation charity) define rainforest in terms of a 'rainforest landscape.' This includes both true temperate rainforest (which occurs in hyperoceanic areas) and oceanic woodland (which occurs in oceanic climate areas outside of the hyperoceanic zone). Many sites and regions can and do exhibit characteristics of both. The term 'rainforest landscape' acknowledges the interconnected nature of hyperoceanic and oceanic climates and avoids debate about whether a particular site is or isn't a rainforest. It is not linked to any particular woodland type; any tree cover, from individual trees to dense forest, in the rainforest zone can be important for species and connectivity and contributes to the whole rainforest resource.

From a lichenological point of view, Atlantic woodlands are categorised into two internationally important woodland types, which include true "Temperate Rainforests" and the "Southern Oceanic Woodlands." These habitats are of European and international importance (See "Atlantic Woodlands in Britain & Ireland. Temperate Rainforests and Southern Oceanic Woodlands," British Lichen Society Information Note).

The woodlands covered in the present survey lie within Amann's Index of Hygrothermy with values of the 100-150 hygrothermic units (see Map 2 below), which defines the broadest rainforest landscape climatic zone. They have a mixture of the Southern Oceanic Woodland and Upland Rainforest lichen assemblages. Recognition of the importance of all of these woodland types and the lichen and bryophyte assemblages they support is important, and it is desirable to secure appropriate management for all oceanic and hyper-oceanic woodland types.



Map 2 The "rainforest landscape" as defined by Plantlife covers all areas in blue through to purple.

2.3. Lichen Assemblages

Lichen indicator species lists (assemblages) are used to assess the conservation value of woodland epiphytic lichen assemblages in different climatic areas. The indices were reviewed in preparation for the updated SSSI selection criteria for lichens (Sanderson et al, 2018). These indices may include species from several lichen communities (see Section 2.4 below) and are primarily used to evaluate woodlands in which the assemblages occur when considering sites for selection as SSSIs. The number of species in each assemblage found at any given site provides an assemblage score for the site.

The key lichen assemblages in the survey area are:

- Southern Oceanic Woodland Index (**SOWI**)
- Upland Rainforest Index (**URI**).

The **SOWI** is designed to be applied across a wide swathe of southern Oceanic Britain in areas which are wet in winter but have negative summer water deficits. It consists of 85 species and, in this part of Wales, all sites scoring 20 should be considered for SSSI notification.

The **URI** is designed to be applied across much of the West of North and mid-Wales in both hyperoceanic and euoceanic acidic upland temperate woodland in high rainfall areas. It consists of 36 species. In the core rainforest areas, all sites scoring 15 or more should be considered for SSSI notification; elsewhere, the threshold is 10 species. Hook Wood lies within the mapped core URI area (Sanderson et al, 2018).

The two indices often overlap, with the URI being more relevant in the more exposed areas on acid-barked trees and the SOWI applied in the more sheltered areas, on trees with a more neutral to base-rich bark. This overlapping is very evident at Pen y Bont.

2.4. Lichen Communities

Lichen species often occur together in a consistent way, forming recognisable "communities". The Lichen Communities in the British Isles: A Preliminary Conspectus (James et al, 1977) describes these communities and sub-communities (respectively referred to as “alliances” and “associations”). The work has not been updated since that time, but it remains relevant. Lichen communities provide a useful shorthand for describing the species likely to be present in a given area, their relationships and distributions. Individual trees will often support several, quite different, communities. The main epiphytic lichen habitats and their lichen communities present in the survey area are described in Section 4.2 below.

3. Methods

The survey was carried out over one and a half days in November 2025. The weather was dry and sunny, but there had been recent, very heavy and prolonged rainfall, meaning that conditions were perhaps less than ideal for a lichen survey, as many lichens were swollen and very wet, making field identification and chemical tests more difficult. An initial walkover was made to assess the general nature of the wood and its potential to support notable lichen species, assemblages and communities. It was possible to cover most of the area. The survey method was to investigate the site, looking for the most promising-looking trees/habitats/microhabitats. The number of potential habitat niches present determined the intensity of the survey in any given area. In addition, a good deal of time was spent surveying the site boundary as the existing fence is to be replaced and some new fences erected, which might necessitate the pruning or felling of some small trees.

Most areas of Hook Wood were covered in the survey, using the paths and sheep tracks as well as by walking through the accessible parts of the wood. Due to the dense nature of the wood and the amount of fallen trees, it was difficult to get off the paths and into some parts of the woodland. However, sufficient coverage was achieved.

The Lichen survey was focused on epiphytic species, but some SOWI species were also found on the wet rock faces. Records of notable species and other species of interest were made while moving around the site. Grid references were recorded to approximately +/- 3 m. Most lichens were identified macroscopically in the field, although some species were collected for subsequent identification or confirmation by microscopy, as required. The survey equipment used is listed below:

- Lichen candelaris x10 & x20 magnification lens.
- Knife for removal of specimens.
- Packaging for storage of specimens.
- para-phenylenediamine (Pd).
- Sodium hypochlorite (C).
- Potassium hydroxide solution (K).
- PEL 365nm UV Torch.
- Samsung TabActive Tablet running Qfield software for lichen data capture.
- Olympus TG5 camera.
- Digital 1:25,000 Ordnance Survey map.

Taxonomic nomenclature follows the British Lichen Society (BLS) online Taxon Dictionary (https://britishlichensociety.org.uk/resources/lichen-taxon-database). The BLS data entry spreadsheet used is the BLS Spreadsheet (v7.22.0, 2025)

4. Results

The results of the survey are set out in the sections below, which provides information on the woodland types and the lichen communities, assemblages and species present. Table 1 lists any notable lichens, along with their conservation status, habitat niches, and frequency. Information on the importance of the sites and its management requirements is provided in Section 5. Section 6 identifies the threats to the lichens here.

4.1. Woodland Description

Hook Wood is a small ancient semi-natural woodland and Site of Special Scientific Interest (SSSI) situated on a steep slope above the Western Cleddau River. Hook Wood SSSI is designated for its ancient sessile oak woodland. The site does not have a notified Lichen feature as it does not meet the SSSI criteria.

The wood is dominated by Oak (*Quercus petraea, Q. robur* and hybrids) and occupies, steep-slopes descending directly to the saltmarsh along the estuary, creating a sheltered and humid microclimate characteristic of coastal oakwoods in western Britain. Much of the woodland has been managed historically as coppice. Once coppicing ceased, the coppice stools were "singled" to create a fairly even-aged woodland. There is some variation in the woodland structure, ranging from relatively mature stands on the upper slopes to lower, more scrubby growth above the exposed cliff edges and ancient, gnarled Oaks overhanging the river cliffs which are in places joined by Aspens. The wood dominated by Oak with a little Ash, Sycamore, Downy Birch and a few planted Beech and Larches. The understorey is mostly Hazel, Hawthorn, Holly, Rowan with some Grey willow.

Despite this management history, there is strong evidence for long continuity of woodland cover. The wood is shown on early maps with a similar extent to today and was described in 1603 by George Owen as one of the "best standing woods" in Pembrokeshire, indicating that it was already recognised as a substantial and well-developed woodland over 400 years ago.

The ground flora varies across the site, reflecting differences in soil and exposure. In places, the woodland supports an acid, woodrush dominated ground layer consistent with NVC W11 (*Quercus petraea–Betula pubescens–Oxalis acetosella* woodland), typical of oceanic and nutrient-poor conditions. Elsewhere, particularly on more sheltered or fertile soils in the upper parts of the wood, the ground flora becomes dominated by bramble, corresponding to NVC W10 (*Quercus robur–Pteridium aquilinum–Rubus fruticosus* woodland). This variation contributes to the structural and ecological diversity of the site. Overall, the combination of steep topography, estuarine influence, varied woodland structure, and long-term continuity supports a diverse assemblage of woodland species, including lichens.

4.2. Lichen Communities

The common and widespread lichens found in the following communities were not mapped but an indication of their frequency and distribution is given below. The following communities are well represented in Hook Wood:

Base Rich Bark (*Lobarion)* Communities. The *Lobarion pulmonariae* typically occurs on well-lit older trees with a high bark pH. When well-developed, this is a spectacular community that can include some of the largest foliose lichens. Unfortunately, most of its constituent species are highly sensitive to sulphur dioxide, acid rain, excessive ammonia levels and woodland management such as coppicing. Many examples of the *Lobarion* in Wales are now species poor. The "*Lobarion"* is listed on Section 7 of the Environment (Wales) Act 2016. Typical species of well-developed communities present include large, "leafy" (foliose) species such as *Lobaria pulmonaria, Scytinium (Leptogium) lichenoides, Nephroma leavigatum, Pannaria conoplea.* This leafy aspect of the community is apparently absent with just some of the smaller/crustose Lobarion species such as *Arthonia vinosa, Coenogonium luteum, Normandina pulchella, Scytinium teretiusculum* and *Thelotrema lepadinum* extant. The lack of the larger, leafy species is likely due to disturbance from past woodland management, a lack of trees with a base-rich (alkaline) bark and, possibly, from historic pollution.



Figure 1 A typical "Leafy" Lobarion community (not present at Hook Wood)

Mature Mesic Bark Communities. The *Parmelietum revolutae* association is dominated by leafy species and typically occurs on well-lit, mature trees in areas of very low pollution in lowland Britain. Typical species within the survey area include: *Flavoparmelia caperata, Parmotrema perlatum, P. sulcata, P. saxatilis, Ramalina farinacea, Hypogymnia physodes, Evernia prunastri*. Supports few species of conservation interest.



Figure 2 Mature Mesic Bark Community (Parmotrema perlatum & Hypogymnia physodes)

Smooth Bark (*Graphidion*) Communities. *The Graphidion scriptae* community typically occurs on young, smooth-barked trees or patches of smooth bark on older trees. The community is well developed in the survey area, but is dominated by common species, including *Graphis scripta sens. Lat., G. elegans, Arthonia cinnabarina, Arthonia atra, Arthonia didyma, Arthopyrenia punctiformis.* The *Pertusarietum amarae* association is a more shade-tolerant smooth bark community of older trees that is characterised by crust-forming species such as P*ertusaria albescens, Lepra amara (Pertusaria amara ƒ amara), Pertusaria hymenea* and *Pertusaria pertusa,* along with *Phlyctis argena* and *Ochrolechia androgyna*. Within the survey area, the community is reasonably well developed and supports populations of *Lepra multipuncta* (SOWI).



Figure 3 Smooth Bark Community dominated by "script" lichens

Well-Lit Twig (*Usneion*) Communities. The *Usneetum subfloridanae* association typically it occurs on well-lit, smaller canopy branches and twigs in areas of very clean air. It is reasonably well developed in some parts of the woods, especially along the more humid floodplain area. Typical species within the survey area include: *Usnea cornuta, U. subfloridana, Ramalina ssp., and Evernia* prunastri. *Usnea florida* (recorded in 1986) was not re found.



Figure 4 Well-Lit Twig Community dominated by Usnea spp. - "beard lichens"

<u>Nutrient Rich Bark (*Xanthorion*) Communities</u>. The *Physcietum ascendentis* association of this community is widespread throughout the British Isles. Where it occurs on acid-barked trees, away from the coast it is an indication of Ammonia pollution. The community is more or less absent within the survey area, even on the somewhat nutrient-enriched river side trees, indicating low levels of ammonia pollution.



Figure 5 Nutrient Rich Bark Community dominated by Xanthoria parietin, the "Sunburst Lichen" – Photo not taken at Hook Wood.

4.3. Lichen Assemblages

The **SOWI** is designed to be applied across a wide swathe of southern oceanic Britain in areas which are wet in winter but have negative summer water deficits. It consists of 85 species and, in this part of Wales, all sites scoring 20 should be considered for SSSI notification.

Eight species of the Southern Oceanic Woodland Assemblage were present. **Hook Wood therefore does not meet the SSSI selection criteria for the SOWI, but the site is considered to be of county or regional lichen importance.**

No species of the Upland Rainforest Assemblage were seen. The two URI species recorded in 1986 were not re found but they are likely to still be present.

The **URI** is designed to be applied across much of the West of North and mid-Wales in both hyperoceanic and euoceanic acidic upland temperate woodland in high rainfall areas. It consists of 36 species. In the core rainforest areas, all sites scoring 15 or more should be considered for SSSI notification; elsewhere, the threshold is 10 species. Hook Wood lies outside of the mapped core URI areas (Sanderson et al, 2018) and **does not meet the SSSI selection criteria for the URI.** Due to their lowland location, no Pembrokeshire woodlands away from the North Pembrokeshire Woodlands Special Area of Conservation meet the SSSI threshold for woodlands.

4.4. Rare & Notable Lichen Species

The Lichen survey was focused on lichens on trees (epiphytic species). No attempt was made to map the more common and widespread species typical of each of the main communities. Rather, the survey focused on the species of the Southern Oceanic Woodland and Upland Rainforest Assemblages and other notable species. See Table 1 and Table 4 in Section 7. Locally common and widespread lichens were not mapped but an indication of their frequency and distribution is given in Section 4.2 above. The rarer and more ecologically significant species were mapped to ten figure grid references and are described below.

The survey showed that Hook Wood is of county to regional importance due to the presence of a small oceanic lichen assemblage, including six Lobarion community species and a SOWI score of 8. This is supported by the occurrence of four species for which the UK holds International Responsibility. In addition, the site supports an unusually large population of *Thelopsis corticola*, a species typically found only as small, localised populations, which adds particular conservation significance.

Table 1 SOWI, URI & Notable Lichens at Hook Wood in 2026

Taxon name	SOWI/URI	Status	Substrate	Small scale habitats	Abundance
Arthonia vinosa	SOWI	LC L	Cort	*Quercus*	A/R
Coenogonium luteum		LC L	Cort	*Quercus*	A/R
Lepra multipuncta	SOWI	LC	Cort	*Quercus*	A/R
Loxospora chloropohlia	SOWI	NE	Cort	*Quercus*	A/R
Normandina pulchella		LC L	Cort	*Quercus*	A/F
Phaeographis dendritica	SOWI	LC Sc	Cort	*Quercus*	A/O
Phaeographis inusta	SOWI	LC NS IR	Cort	*Quercus*	A/R
Punctelia reddenda		LC L	Cort	*Quercus*	A/R
Scytinium teretiusculum	SOWI	LC L	Cort	*Quercus*	A/R
*Stenocybe septata***	SOWI	LC Sc IR	Cort	*Quercus*	A/R
Thelopsis corticola	SOWI	LC IR	Cort	*Quercus*	A/O
Thelotrema lepadinum	SOWI	LC L	Cort	*Quercus*	A/O
Usnea esperantiana		NT NR Sc IR	Cort	*Quercus/Prunus spinosa*	A/R

** = **Notable (Nb)** species - taxa that have one of the following statuses: International Responsibility (IR) or Nationally Rare (NR) or Nationally Scarce (NS) but are neither Threatened nor Near Threatened. **Rarity** NR Nationally Rare, NS Nationally Scarce. **Threat** EX Extinct, CR Critically Endangered, EN Endangered, VU Vulnerable, NT, Near Threatened, LC Least Concern, DD Data Deficient, NE Not Evaluated. **Priority Lists** P Priority Taxon on the UK BAP (Biodiversity Action Plan), Wa Priority Taxon for Biodiversity in Wales, L and L* *Lobarion* species. IR International Responsibility, S8 on Schedule 8 of the Wildlife and Countryside Act, 1981 as being specially protected under UK law. SOWI: Southern Oceanic Woodland Index; URI: Upland Rainforest Index.

Key Lichen species:

***Thelopsis corticola* (SOWI IR)** was recorded on the stems of numerous old oak stools that had been singled from coppice in the past, many of which appear not to have been cut for around a century and have now developed into relatively mature trees. It is unusual for this species to be so widespread and frequent within an area of former coppice woodland, where it is more typically confined to a small number of suitable trees. *T. corticola* is a scarce epiphytic lichen associated with humid, well-buffered bark and stable woodland microclimates, and is generally regarded as an indicator of ecological continuity. It is also a species of International Responsibility in the UK, meaning that a significant proportion of its global population occurs here. Its abundance at this site is therefore unexpected and notable, suggesting that, despite the woodland's management history, suitable conditions for its establishment and persistence have developed, and contributing appreciably to the site's overall conservation interest.



Figure 6 Thelopsis corticola (orange granules on a grey crust)

Arthonia vinosa (SOWI LC L) was found on a single older Oak stem.

Lepra multipuncta (SOWI LC) was found to be occasionally scattered on smooth younger Oak and Hazel branches.



Figure 7 Lepra multipuncta

Loxospora chloropohlia (SOWI NE) was found a large pale coating on a riverside Oak. This species has recently been recognised as a distinct species following its separation from *Loxospora elatina*. As a result, care is now required when interpreting older records and when identifying material in the field, as the two species can be similar in appearance but differ in subtle diagnostic features and, in some cases, ecological preferences. Microscopic study of a sample proved it to be *L. chloropohlia.*

Phaeographis dendritica (SOWI LC Sc) was frequent on mid aged Oak coppice poles. This is a characteristic oceanic woodland lichen that is widespread in Wales and western England but becomes scarce to rare beyond these core areas. Its presence is therefore indicative of humid, oceanic conditions and contributes to the overall Atlantic woodland character of a site. A search was made of many *P. dendritica* thalli for the rare lichenicolous fungus *Stictographa lentiginosa* that is known from Lawrenny Wood and Sams Wood. Sadly, it was not found.



Figure 8 Phaeographis dendritica

Phaeographis inusta (SOWI LC NS IR) was found on a single Hazel tree. This is a characteristic oceanic woodland lichen associated with humid, well-shaded conditions on smooth-barked

trees, particularly in western Britain. Although assessed as Least Concern, it is classed as Nationally Scarce and is a species for which the UK holds International Responsibility.

Punctelia reddenda (LC L) was found only once, on an Oak branch. This is a foliose epiphytic lichen typically found on bark, often in moderately nutrient-enriched and well-lit situations. It is assessed as Least Concern, but its inclusion within the Lobarion community (L) indicates an association with oceanic woodland assemblages. While not among the most sensitive or continuity-dependent indicators of this community, its presence contributes to the overall character and diversity of oceanic epiphytic lichen floras.

Scytinium teretiusculum (SOWI LC L) is a small "jelly" lichen associated with humid, sheltered conditions and is characteristic of oceanic-influenced habitats. Although assessed as Least Concern, its inclusion within the Lobarion community (L) and its SOWI association indicate a preference for mild, moisture-retentive environments. At this site it was recorded in a range of situations, including on a large tulip tree adjacent to the house, on apple trees within the garden, and on mossy riverside rocks. This range of substrates suggests locally favourable microclimatic conditions, particularly consistent humidity.

***Stenocybe septata (SOWI LC Sc IR*)** is a distinctive calicioid ("pin head") lichen associated with humid, oceanic woodland conditions, typically occurring on smooth bark, most often on Holly. Although assessed as Least Concern, it is a species of International Responsibility). At this site it was scarce, being recorded only on a single holly tree, which is odd given its tolerance of shade and the abundance of Holly here. Its presence nevertheless contributes to the oceanic character and conservation interest of the lichen assemblage.



Figure 9 The tiny pinheads of Stenocybe septata on Holly

Thelotrema lepadinum (SOWI LC L) was found to be widespread but usually present in small patches on Oak and, rarely, old Holly. It is a characteristic oceanic woodland lichen typically found on smooth bark, but also occurring on smoother patches of rough-barked trees such as Oak. It is commonly known as the "barnacle lichen" due to the appearance of its rounded fruiting bodies, which closely resemble small barnacles embedded in the thallus. Although assessed as Least Concern, its association with the Lobarion community (L) and oceanic conditions (SOWI) makes it a useful indicator of humid, well-developed woodland habitats.



Figure 10 Thelotrema lepadinum, the barnacle lichen

Usnea esperantiana (NT NR Sc IR) No longer considered Nationally Rare due to a very considerable population increase in recent years, will probably be Least Concern (LC).

5. Discussion

5.1. Importance for Lichens

Hook Wood has a reasonably diverse lichen flora, but the populations of many of the key species are small and scattered, with several species restricted to a single or just a few locations. The site supports a good-quality oceanic woodland lichen assemblage (see Tables 2 & 3) characterised by a Southern Oceanic Woodland Index (SOWI) score of 8 and the presence of six Lobarion community species, indicating reasonable ecological continuity and suitable humid conditions. The occurrence of four species for which the UK holds International Responsibility is notable and adds clear conservation value. However, the rarity profile is relatively modest, with only one Nationally Scarce species, one additional notable species, and no Near Threatened taxa recorded. Taken together, these attributes suggest the site is of county or regional importance, but it does not meet national (SSSI-level) significance.

The presence of a large population of *Thelopsis corticola* at Hook Wood is particularly noteworthy in a national context. This species is typically recorded as scattered individuals or small, localised populations, often confined to a small number of suitable trees even within otherwise favourable woodland. Because it relies on stable, humid conditions and long ecological continuity, it is rarely abundant. **The occurrence of a well-established and extensive population at Hook Wood is unexpected as the wood has clearly been disturbed in the past and doesn't have a long history of ecological stability. As a species for which the UK holds International Responsibility, such a strong population is of clear conservation significance, elevating the importance of the site beyond what might be inferred from species counts alone.**

The *Lobarion* community has a strong northwest-southeast gradient in Britain, with the large leafy species usually dominant in the north and west and the crustose species dominant in the south and east. The more or less complete absence of leafy *Lobarion* species here is most likely due to breaks in ecological continuity caused by the effects of repeated episodes of coppicing for the coal mining industry in the past.

Table 2 Summary of the Conservation Importance of Hook Wood

Site Name	Conservation Importance for Lichens
Hook Wood	County or regional importance but the populations of many species are small and scattered

Table 3 Lichens of interest/importance from Hook Wood recorded in 2025.

Status	Number of Species (2025)	Number of Species (all records)
Lobarion Community species	6	8

Notable species**	1	1
IR International Responsibility#	4	4
NS Nationally Scarce	1	1
NT Near Threatened	0	1
SOWI: Southern Oceanic Woodland Index	8	10
URI: Upland Rainforest Index	0	2

** Notable species are taxon that have one of the following statuses: International Responsibility (IR) but neither Threatened nor NT; or Nationally Rare (NR) but neither Threatened nor NT; or Nationally Scarce (NS) but neither Threatened nor NT;
# The Woodlands along the Atlantic fringe of Britain are the European headquarters for lichens with oceanic and, most importantly, hyperoceanic distributions. While these species are rare or restricted in Europe as a whole, some are relatively common in parts of Britain and Ireland. Britain has an International Responsibility (IR) for those species with more than 10% of their European and/or world population.

5.2. Changes in the Lichen Flora since 1986

Table 4 Changes in the lichen flora at Pen y Bont 1988- 2025

Notable/Rare species recorded at Hook Wood, 1986	SOWI/URI Status	Species refound in 2025	Evidence of Change?
Catinaria atropurpurea	SOWI L	No	Not possible to assess, very small species that could easily be overlooked if rare
Coenogonium luteum	L	Yes	Not possible to assess but apparently rare
Lepraria membranacea	URI	No	Not possible to assess. Likely to still be present
Megalaria pulverea	URI	No	Not possible to assess
Phaeographis dendritica	SOWI	Yes	Not possible to assess but now fairly frequent
Usnea florida	SOWI NT Welsh Priority Species	No	Not possible to assess – canopy species that is easily overlooked if rare

The present survey found 13 SOWI/URI or other rare and notable lichen species. Only 6 were noted in 1986. It is unlikely that this increase in species represents new colonisation events – rather that the earlier survey was simply less complete. The overall impression is that, whilst retaining a reasonably diverse lichen flora, there may have been some declines in the populations of some key species at Hook Wood. The failure of a single re-survey to re find species such as *Catinaria atropurpurea, Lepraria membranacea, Megalaria pulverea* and *Usnea florida* is not surprising given the cryptic nature of some of these species and the fact that most notable lichen species are rare within the wood, occurring in just a few locations. It is possible that they are still present on site, especially Usnea florida which is frequent in the adjacent Little Milford Wood.

5.3. Ecological Continuity

Long-standing ecological continuity is very important for many notable lichens, with many of the key SOWI/URI species being light-demanding species of well-lit ancient woodland. The species of the *Lobarion* community require trees with alkaline to mildly acidic bark, typically found on old Oak and Ash and Sycamore, Willow, Rowan and Hazel of any age. When young, Oak bark is usually rather too acidic, but it becomes less acidic at about 300-400 years old.

Woodland management, disturbance during the construction of the dam, coniferization of parts of the wood and air pollution since the 19th century will have all played a part in disrupting the lichen habitats here, and Ash dieback now threatens the ecological continuity of the woodland further.

Much of the lichen interest in the survey area is restricted to a few locations, such as on older trees in better-lit situations, in areas of more open woodland, along woodland edges, tracks and paths. As many species have small populations, they are at risk of local extinction through the loss or damage to the old trees and the loss of Ash. It is important that these communities are protected, and their conservation status is enhanced.

5.4. Woodland Management

The lichen flora in Hook Wood is indicative of ancient woodland with some degree of ecological continuity, as shown by its SOWI score. In terms of its lichen communities, the woodland must, however, be considered impoverished.

Many of the old-forest and other notable species are present in small quantities, and their distribution is limited. Their future is uncertain due to a combination of a scarcity of suitable mature and over-mature trees with well-lit trunks and the low likelihood that the small number of propagules produced by these reduced populations will be able to become established in the increasingly unsuitable habitats.

The reasons for this impoverishment are likely to include things such as centuries of woodland exploitation (particularly periods of intensive felling of coppices which is likely to have removed most of the important lichen trees) followed by the almost complete cessation of woodland management which, along increased Nitrogen deposition has led to changes in the woodland structure and in the light and humidity as the tree canopy has become more closed.

The site is now dominated by extensive areas of even-aged, closed-canopy, ungrazed woodland with just a few better-lit, large older trees along the boundaries. Some Ancient & Veteran Trees (AVTs) also remain, mostly as large “Medusa trees”, ancient Oak coppice stools and low pollards with many twisted stems.

Bramble and Bracken growth often affects many populations of lichens, and these species will, unless managed, will only become more problematic in the future. Woodland thinning is likely to increase their dominance.

For the long-term security of the epiphytic lichens here, there must be a continuous supply of

well-lit mature trees with the correct bark characteristics, combined with glades and/or a fairly open canopy.

Further details on managing woodlands for their lichen interests are available from the British Lichen Society at
https://britishlichensociety.org.uk/conservation/management/advice/woodland-management and at the Plantlife Website Rainforest lichens and bryophytes - a toolkit for woodland managers.

6. Management for Lichen Conservation

Whilst it is crucial to ensure that any existing ancient and veteran trees (AVTs) are managed appropriately, it is equally important that any potential "future veteran" trees are identified and retained into old age to become the veterans of the future. As well as managing the veterans and future veterans, any trees that have good potential to be important for any of the key lichen species and communities should be retained and managed appropriately. As these trees require similar management to ensure their longevity and suitability for lichens, the term "Future Lichen/Veteran Tree" (FL/VT) was developed. See below for a more detailed definition of AVTs and FL/VTs, and their management requirements.
AVTs are defined as:

- **Ancient trees:**
  - Trees that are in the ancient life phase
  - Trees that are old, relative to their species
- **Veteran trees:**
  - Trees of any age with significant decay/damage/hollowing

FL/VTs are defined as:

- Any tree with good potential to form part of the next generation of AVTs, no matter its age, size, growth form or species.
- Any mature or post-mature trees with potential to be important for lichens that are currently unsuitable due to being ivy-covered or in dense shade, usually with heavily moss-dominated stems (often close to areas with dense broadleaved regeneration).
- Trees of any size with alkaline bark, such as Elm, Ash, Grey/Goat Willow, Hazel, Sycamore, particularly if they are large, damaged, gnarled, burred, leaning or horizontal, or otherwise unsuitable as timber trees.
- Any trees selected for veteranisation work.
- Trees with wound tracks (sap runs).

The main threats to the lichen interest on the Ancient & Veteran Trees (AVTs) & "Future Lichen/Veteran Trees" (FL/VTs) are:

- Loss of AVTs due to age, disease or storms and shade from over-topping, or surrounding younger, competing trees.
- A lack of Future Lichen/Veteran Trees" (FL/VTs) in a suitable condition for colonisation

by lichens.
- Dense shading of the trunks of AVTs and FL/VTs trees from the surrounding (usually) young trees, Ivy, Bramble and other tall vegetation, due to a lack of suitable grazing regimes.
- The fencing off of trees from grazing.

The main management requirements of the lichens associated with Ancient & Veteran Trees (AVTs) & "Future Lichen/Veteran Trees" (FL/VTs) are:

- Haloing/reducing shade around important trees.
- Ivy control on important trees
- Glade creation or thinning around stands of important trees (where they occur in dense woodland).
- Introduction of grazing across as much of an area as possible.

6.1. Mechanical Interventions

It seems unlikely that grazing could be establishes in Hook Wood and therefore, mechanical interventions will be required. Management for lichen conservation should focus on old Oaks and any surviving Ash that appears to have some resistance to Ash Dieback. Where AVTs and FL/VTs are present alongside boundaries, roads, tracks and footpaths, or in areas where glades are being created or maintained, it would be sensible to ensure their management is tied into the management of these features. It will be easier and cheaper to ensure that, whilst managing these features, the adjacent AVTs and FL/VTs are managed at the same time – for example, if a glade is to be managed, can it be expanded to ensure it encompasses several AVTs and FL/VTs? Similarly, where path maintenance or clearance is required, can this work include some thinning or vegetation management around AVTs and FL/VTs?

Halo Thinning ("Haloing"):

Haloing is a woodland management practice that involves removing competing vegetation, such as shrubs, saplings, small trees and dense Bracken and Brambles, from around an ancient or veteran tree to create a "halo" or clear space to allow more light onto the trunk. **Some of the AVTs and FL/VTs in and around the KLAs need to be freed from shade by halo thinning, using veteranisation techniques (see Box 1 below and Section 8.4.2). Many also need to have Ivy removed from their trunks (see Section 8.4.3). Such work needs to be carefully planned and undertaken, and often only a small amount of work is required to have a big effect.**

Haloing around AVTs and FL/VTs is usually undertaken by felling vigorous young or semi-mature trees that cause excessive shading. **However, when simply felled to ground level, they usually produce substantial "coppice" regrowth within two to three years. In the absence of sufficiently high grazing and browsing levels, this regrowth can rapidly create greater shading of the veteran tree trunk than the original stems, thereby exacerbating the issue that haloing sought to address. It is crucial that haloing attempts to reduce any regrowth.** An experimental method of haloing using veteranisation techniques (see Section

8.4.2) that aims to restrict regrowth is set out in BOX 1 below. This should be trialled to see if it reduces the amount and/or vigour of regeneration around haloed trees. The effectiveness of this form of management should be monitored and compared to traditional haloing methods (simply cutting competing trees) to see if it is more effective.

Box 1: An alternative method of halo thinning for lichen management

Even where grazing animals are present, when haloing around AVTs or FL/VTs, it will be important to minimise the amount of regrowth that occurs after cutting. An alternative to simply cutting the competing trees around the veterans is suggested here. This method aims to cause damage to the young trees and shrubs competing with the AVTs, to reduce and slow their regrowth and potentially kill them off. It will also provide deadwood habitats and veteran tree features. This method should be trialled.

A mixture of the various techniques set out below may be required and should be used around each tree to be halo thinned.

Remember – small stems and younger, smooth-barked species can also host some of the key lichen species; these should be checked before management takes place

1. **For small, multi-stemmed coppice regrowth** (up to c. 4 m high) that is shading the AVT trunk. **Targeted damage that suppresses regrowth rather than felling should be the primary method.**

    - **Cut the stems using techniques that deliberately damage the coppice stools and/or stumps.**
        - Cut the stems from the stool using inwardly sloping flush cuts, and rough, ragged or splintered cuts.
        - Partially cut some stems and pull them away from the coppice stool to strip bark from the stool/stump**.**
        - Additional damage should be caused to the stool/stump to create open wounds using coronet cuts, rough, ragged or splintered cuts deep into the stool.

2. **For small, single-stemmed slender saplings** with limited branching, and bark that is still smooth and thin that are shading the AVT trunk but are not shading the canopy. **Targeted damage and "veteranisation" rather than felling should be the primary methods.**
    - **Some stems** should be **retained and fully ring barked.**
    - **Some stems** should be **retained and damaged** as follows:
        - **Remove side branches** using poor pruning cuts (flush, rough, ragged or splintered cuts), with some branches partially cut and pulled away to strip bark from the stem.
        - **Further damage the stem** by a combination of ring-barking, partial ring-barking, bark stripping and poor pruning cuts, with stems partially cut, pulled or snapped to strip bark from the stem.

- **Some stems** may be cut to ground level, **with their stumps damaged** as for coppice stools (see 1 above).

3. For young and semi-mature trees that are beginning to shade the AVT canopy as well as the trunk. **Targeted damage and veteranisation rather than felling should be the primary methods.**

- **Most stems** should be **retained but fully ring-barked** to prevent regrowth and allow standing deadwood development.
- **Some retained stems** should be **damaged** as follows:
  - **Damage the stem** by extensive use of a **variety of veteranisation techniques**.
  - **Remove low side branches** using poor pruning cuts (flush, rough, ragged or splintered cuts), with some **branches partially cut and pulled away** to strip bark from the stem.
- **Some stems** may be cut to ground level, **with their stumps damaged** as for coppice stools (see 1 above).

Key points when undertaking this work.

- Best practice for tree pruning and coppicing should not be adhered to.
- The aim is to maximise the damage caused to retained stems, stumps and stools.
- The aim is to create as many veteranisation features as possible in larger retained stems.
- This work would be best undertaken during periods of very low temperatures or severe drought to cause maximum stress, i.e. in late summer (outside of bird nesting season) and/or winter (December/January).
- Cutting in September, when the trees are in leaf, will also cause stress and reduce the amount and height of regrowth in the first few years following cutting.
- Brash and logs must be removed from under the canopy of the haloed tree, although further away from the AVT, small amounts could be used to cover any cut stumps to try to shade out regrowth.
- Dense Bracken, Brambles or other vegetation will also need to be removed.
- All areas in which haloing occurs will need to be grazed as soon as possible after haloing.

The aim of this method is to:

- Minimise the dense and rapid regrowth that usually occurs from felling or "coppicing" the competing growth of shrubs and young trees around AVTs.
- Reduce the overall vigour and ability to recover of the haloed shrubs and young trees.
- Leave behind only spindly, straggling trees with poor canopies that lack vigour and cast little shade.
- Encourage the formation of veteran tree features and deadwood habitats close to the AVT's.

The anticipated benefits of this method are:

- It minimises the shade from coppice regrowth, which would be detrimental to the lichen communities on the AVT trunks.

- It maximises the amount of deadwood habitats and veteran tree features in close proximity to existing AVT's.
- Cattle drawn to any regrowth are likely to rub against AVTs, potentially damaging lichen populations. The retention of some living, damaged stems and ring-barked trees around AVTs will help reduce rubbing by restricting access and providing alternative "rubbing posts".
- It will reduce the vigour and slow the development of the competing trees (reducing their capacity to compete with the AVTs' canopy for light)
- It creates deadwood habitat.
- It reduces the shock from a rapid change in light levels (which full removal could cause)
- It may be more efficient and cost-effective – fewer arisings need to be moved away from the base of the AVT.



Figure 11 Examples of veteranisation techniques used to halo thin around an AVT

Veteranisation

Veteranisation is the process of causing damage to trees in a variety of ways to mimic the kind of injuries a tree might sustain during its lifetime. The aim of most veteranisation techniques is similar – deliberate damage forms or encourages the formation of a feature typically found on an ancient tree. The habitats thus created can be home to some rare, tree-dependent species that are often isolated in the landscape due to the sparsity of these ancient and veteran tree features. Veteranisation helps bridge the generational gap in veteran tree populations by more rapidly creating the necessary habitats for specialist species that depend on these trees and their features to survive.

The features formed by damage caused to a tree and the tree's natural processes of compartmentalisation provide valuable habitats. These features are mostly found in ancient or veteran trees, but with modern techniques, can be mimicked in younger trees. These features include things like hollow stems, rot holes, cavities, snapped branches, canopy deadwood, water-filled cavities and flaking bark.

Creation of cavities: Using chainsaws, it is possible to create cavities suitable for nesting birds and bat roosts. Removal of parts of the bark and the cambium allows for the ingress of water and fungal spores. This rather harsh treatment of a tree is only to be done to suitable candidates, where the tree has been carefully chosen and is a suitable “sacrifice” for such work. The idea is to continue the survival of the tree so that the features created continue, evolve, and change over time, becoming as close to a natural feature as possible.

Ring barking: where part, or all of the bark around a branch or the main stem is carved off using a chainsaw. This severs the route for transportation of water to the desired branch and results in either partial or, usually, complete dieback of the branch or tree.

Coronet cuts: This is where branches are removed, and the stub that is left is sculpted into a shape resembling the remains of a snapped limb using a chainsaw. This creates some aerial deadwood features but also encourages the response production of epicormic growth, which is essential to the survival of ancient veteran trees.

Natural fracture pruning: Where the desired result is to mimic storm damage. It involves cutting the holding wood on the back of the branch and then, using a winch, the limb is snapped off.

Ivy Control

Ivy is a problem with regard to many lichens, particularly those associated with the trunks of well-lit, open-grown trees in important Lichen Areas. Its management, however, needs careful consideration and should take place only as part of a Lichen Habitat Management Plan and needs to be carried out carefully. Lichens generally thrive in open, well-lit areas and are particularly sensitive to shade, and the dense shade of Ivy can negatively impact their growth and lead to their loss. However, Ivy is of considerable value to other taxa, and the benefits of Ivy must not be overlooked.

Removing Ivy from trees in areas with little existing lichen interest that are already densely covered is generally unlikely to be beneficial and could be detrimental to other taxa. However,

where populations of rare lichens are present nearby and are restricted to just a small number of suitable trees (e.g. in the Key Lichen Areas), Ivy control will be necessary in order to conserve lichen populations and maximise the amount of habitat available for colonisation.

Where trees support (or are close to populations of rare lichens), it is worth controlling Ivy at an early stage. Grazing is the best and least damaging way to manage Ivy. If the Ivy is young and small, this may be all that is needed to control it. Browsing will remove the Ivy leaves and some small shoots on the trunk (usually the key lichen habitat) and keep it Ivy-free. At the same time, some Ivy is likely to escape browsing, and a crown Ivy habitat can continue to be maintained.

The following approach to Ivy management should be adopted:

- Within key lichen areas, all or most small-diameter Ivy on trunks on AVTs and FL/VTs should be cut to kill off most of the Ivy in the stand.
- Small-diameter Ivy that is shading trunks (see figure 8) should be cut near the base of the tree, with the stems above not pulled off - it will die off slowly and cause less disturbance and damage to pre-existing biodiversity.
- Long-established and larger-diameter Ivy climbing up trunks and forming canopy Ivy can often be left untouched – it often causes minimal shading to the trunk (See Figure 8).
- In and adjacent to Key Lichen Areas, the aim should be to retain a scatter of trees with crown Ivy within the stand, preferably leaving less than 15% of the older trees with crown Ivy or the potential for crown Ivy to develop in the near future. In the best areas, an even lower threshold may be justified.
- In other areas the aim should be to control Ivy (using the above approaches) only on a selection of trees that have good potential to host lichens (e.g. existing reasonably well-lit AVTs and trees selected as FL/VTs that are in suitable locations, e.g. along woodland edges, paths, glades or other more open areas.
- Ivy in areas of heavily shaded, closed canopy woodland should be left alone.
- If any larger Ivy stems are cut, the stumps may need herbicide treatment.

Where grazing is not possible, a more hands-on, regular approach to Ivy control will be required, with widespread repeat cutting likely to be needed every few years. This is unlikely to be a practical option across the whole site, but such works could be focused on a few Key Lichen Areas.



Figure 12 (Left) Old stems of canopy Ivy having no effect on trunk lichens, (Right) young trunk Ivy obliterating lichen trunk habitats

Ivy removal may also be required where unhealthy/retrenching trees (particularly open, light-canopied species like Ash) have a very dense covering of Ivy in the canopy that may be affecting their ability to put on new growth. If this is required, it is better if the stems above are not pulled off, as pulling them off can dislodge larger leafy lichens and bryophyte mats.

7. Issues and Threats

7.1. Air Quality & Pollution

Historic (mostly sulphur dioxide, SO2) and present-day (mostly nitrogen deposition and ammonia, NH3 from intensive agriculture) aerial pollution is known to adversely affect lichen populations. Elevated levels of acidity, nitrogen and ammonia (a stable compound of hydrogen and nitrogen) are known to cause decreases in fungal mycorrhizae, loss of epiphytic lichens and changes in ground vegetation.

Historically, sulphur dioxide pollution was the primary pollutant affecting lichen distribution in the UK. Since the Clean Air Act was implemented, sulphur dioxide levels have been decreasing for several decades. Across Wales, ammonia from intensive farming is now the primary cause of changes in lichen communities. One way or another, aerial pollution is likely to have had an effect on the lichen populations within the survey area.

Ammonia: Whilst surveying, observations were made of lichen species/communities present on the twigs of acid-barked tree species (Oak, Alder and Birch) for evidence of pollution at several stops within the woods, but no formal air quality assessment was made.

Site	Abundance of N-tolerant lichen species
Hook Wood	Not seen on Acid-barked trees – Oak and Birch twigs.

The lichen communities within the survey area are, therefore, generally indicative of relatively clean air with little ammonia pollution.

7.2. Ash dieback (Hymenoscyphus fraxineus)

In many sites in Wales, the *Lobarion* Community/SOWI lichens are rare and often restricted to just a few (often ancient) trees. Ash is usually a key species for many *Lobarion* lichens, and populations are often reliant upon the continued existence of large Ash trees - the chance of these species spreading and colonising new areas in the future probably depends heavily on the presence of Ash or other basic-barked trees. However, Ash is very rare in Hook Wood and the majority of the *Lobarion* Community/SOWI/URI lichens were found on mature Oaks.

Ash Dieback often rapidly kills Ash saplings and young trees, but older trees can survive for longer periods. Many old Ash trees are likely to succumb eventually, and others will require felling or lopping to make them safe. The best-case scenario is that old Ashes will have a much-increased death rate, and there will be fewer opportunities for regeneration. **Assuming at least some trees are resistant/resilient to the disease, it will take at least 150 years for the old Ash tree habitat to start developing again and over 250 years for the full range of habitats currently present on old Ash trees to be restored. Management must therefore aim to retain all Ash trees wherever possible.** Felling must be avoided where practicable, and other means of making trees safe, such as pruning and pollarding, must be the preferred management method. Of course, only trees where there is a safety issue need to be managed, and where possible, preference should be given to retaining the tree and considering other mitigation measures such as re-routing paths, etc. Any healthy, resilient trees should not be felled and must be looked after, as they may provide important seed sources for natural regeneration or replanting. Further plantings of seed collected from “resilient” Ash trees in the area could be considered. Due to low visitor numbers and its inaccessibility, most of the wood is likely to be low risk for tree safety management for public safety. As a result, no pre-emptive safety felling of reasonably healthy Ash trees should be carried out, apart from along footpath routes.

7.3. Invasive Species

Invasive Non-Native Species (INNS) are threatening their lichen interest and need to be controlled and preferably eradicated. Rhododendron and cherry laurel are no uncommon in the wood. And the houses along the upper edge of the wood are a source of contamination with garden “through outs” such as Cotoneaster spp., *Crocosmia × crocosmiiflora*

(Montbretia), *Hyacinthoides hispanica* (Spanish Bluebell) and *Buddleja davidii*.

These species will be a constant threat to the lichen interests as they will readily seed into new areas, particularly areas of disturbed ground such as areas where forestry operations occur and landslips. Control of existing stands is required, and regular surveys to check for regeneration will be required. Removal of any 'source' rhododendron populations in and close to the site should be prioritised.

8. Table and Map of Notable Lichens

Table 5 Notable lichen records from Hook Wood

Grid ref	*Taxon name*	*Status*	Substrate	Small scale habitats	Abundance
SM9774711673	*Arthonia vinosa*	LC L*	Cort	Quercus	A/R
SM9775411679	*Coenogonium luteum*	LC L*	Cort	Quercus	A/R
SM9774811681	*Coenogonium luteum*	LC L*	Cort	Quercus	A/R
SM9774811681	*Collema flaccidum*	LC	Sax		A/R
SM9782211716	*Dendrographa decolorans*	LC	Cort	Quercus	A/R
SM9782611702	*Dendrographa decolorans*	LC	Cort	Quercus	A/O
SM9783011714	*Hypogymnia tubulosa*	LC	Cort	Quercus	A/F
SM9790211760	*Lecanactis abietina*	LC	Cort	Quercus	A/O
SM9790911757	*Lecanactis abietina*	LC	Cort	Quercus	A/O
SM9797211795	*Lepra multipuncta*	LC	Cort	Quercus	A/R
SM9793911770	*Lepra multipuncta*	LC	Cort	Quercus	A/R
SM9791711747	*Lepra multipuncta*	LC	Cort	Quercus	A/R
SM9791711748	*Loxospora chloropohlia*	NE	Cort	Quercus	A/R
SM9791611747	*Micarea prasina s. lat.*		Cort	Quercus	A/O
SM9784711711	*Normandina pulchella*	LC L*	Cort	Quercus	A/F
SM9788511744	*Peltigera membranacea*	LC	Cort	Quercus	A/O
SM9752611537	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9752311538	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9720911494	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9720711494	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9720811494	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9716111491	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9717511494	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9716911492	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9719211481	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9721911471	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9724111436	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9736911432	*Phaeographis dendritica*	LC Sc	Cort	Quercus	A/O
SM9737811437	*Phaeographis inusta*	LC NS IR	Cort	Quercus	A/R

SM9764611587	*Punctelia reddenda*	LC L	Cort	Quercus	A/R
SM9797511744	*Scytinium teretiusculum*	LC L*	Cort	Quercus	A/R
SM9805911826	*Scytinium teretiusculum*	LC L*	Cort	Quercus	A/R
SM9809011842	*Scytinium teretiusculum*	LC L*	Cort	Quercus	A/R
SM9838711988	*Scytinium teretiusculum*	LC L*	Cort	Quercus	A/R
SM9814111872	*Stenocybe septata*	LC Sc IR	Cort	Quercus	A/R
SM9793411698	*Thelopsis corticola*	LC IR	Cort	Quercus	A/O
SM9752711544	*Thelopsis corticola*	LC IR	Cort	Quercus	A/O
SM9752611544	*Thelopsis corticola*	LC IR	Cort	Quercus	A/O
SM9729411465	*Thelotrema lepadinum*	LC L*	Cort	Quercus	A/O
SM9706111568	*Thelotrema lepadinum*	LC L*	Cort	Quercus	A/O
SM9706911547	*Thelotrema lepadinum*	LC L*	Cort	Quercus	A/O
SM9711411514	*Usnea cornuta s. lat.*	LC	Cort	Quercus	A/F
SM9817911876	*Usnea esperantiana*	NT NR Sc IR	Cort	Quercus	A/R
SM9816611884	*Usnea subfloridana*	LC	Cort	Quercus	A/R
SM9780411685	*Usnea subfloridana*	LC	Cort	Quercus	A/R

Status: **Rarity** NR Nationally Rare, NS Nationally Scarce. **Threat** EX Extinct, CR Critically Endangered, EN Endangered, VU Vulnerable, NT, Near Threatened, LC Least Concern, DD Data Deficient, NE Not Evaluated. **Priority Lists** P Priority Taxon on the UK BAP (Biodiversity Action Plan), Wa Priority Taxon for Biodiversity in Wales, L and L* *Lobarion* species. **Other** IR International Responsibility, Nb Notable, S8 on Schedule 8 of the Wildlife and Countryside Act, 1981 as being specially protected under UK law.



Map 3 Records of notable lichens (and Lobarion community species) at Hook Wood

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