Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A

2019-2024

Conservation status assessment for the habitat:

H91A0 - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Wales

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Important note - Please read

- The information in this document represents Wales Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural Resources Wales, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the habitat are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this habitat (section 11 National Site Network coverage for Annex I habitats).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.

Assessment Summary: Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Distribution Map

Range Map

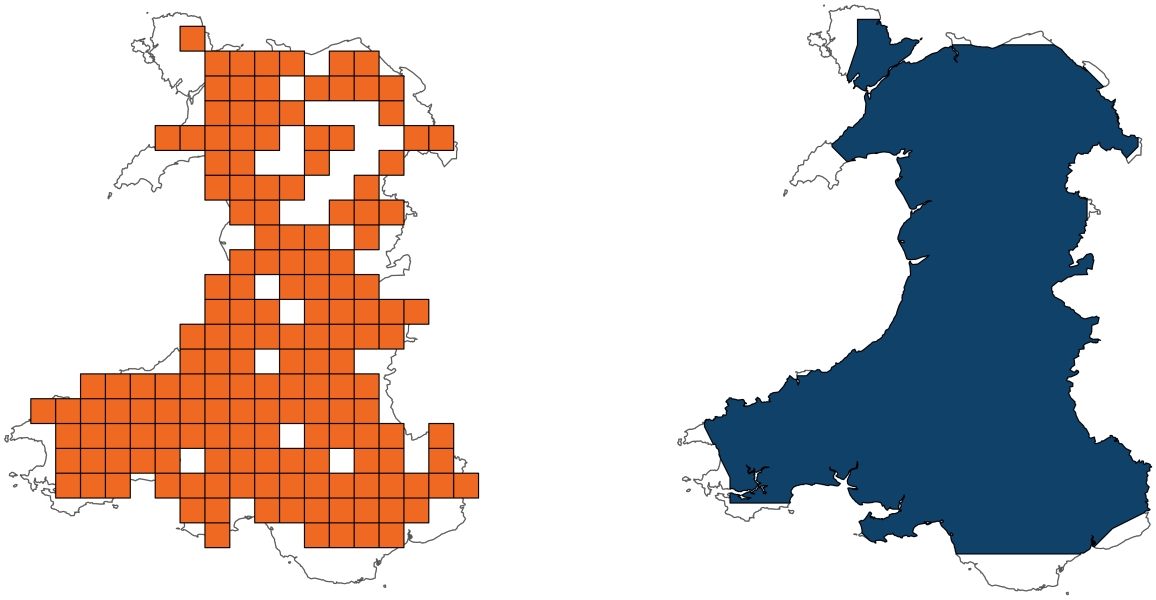

Figure 1: Wales distribution and range map for H91A0 - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available habitat records within the current reporting period.

Table 1: Table summarising the conservation status for H91A0 - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. Overall conservation status for habitat is based on assessments of range, area covered by habitat, structure and functions, and future prospects.

Overall Conservation Status (see section 10)

Unfavourable-bad (U2)

Breakdown of Overall Conservation Status

Range (see section 4)	**Favourable (FV)**
Area covered by habitat (see section 5)	**Unfavourable-inadequate (U1)**
Structure and functions (see section 6)	**Unknown (XX)**
Future prospects (see section 9)	**Unfavourable-bad (U2)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Habitat code	H91A0 - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

2. Maps

2.1 Year or period	1985-2012
2.2 Distribution map	Yes
2.3 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

2.4 Additional information

No additional information

Biogeographical Level

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs ATL

3.2 Sources of information

See section 13 References

4. Range

4.1 Surface area (km²)	19,302.78
4.2 Short-term trend; Period	2013-2024
4.3 Short-term trend; Direction	Stable
4.4 Short-term trend; Magnitude	

a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
4.5 Short-term trend; Method used	Based mainly on extrapolation from a limited amount of data
4.6 Long-term trend; Period	
4.7 Long-term trend; Direction	
4.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
4.9 Long-term trend; Method used	

4.10 Favourable Reference Range (FRR)

a) Area (km²)	
b) Pre-defined increment	Current range is less than 2% smaller than the FRR
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

4.11 Change and reason for change in surface area of range

a) Change	No
b) Genuine change	

c) Improved knowledge or more accurate data	
d) Different method	
e) No information	
f) Other reason	
g) Main reason	

4.12 Additional information

No additional information

5. Area covered by habitat

5.1 Year or period	1985-2012
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	480
5.3 Type of estimate	Best estimate
5.4 Surface area; Method used	Based mainly on extrapolation from a limited amount of data
5.5 Short-term trend; Period	
5.6 Short-term trend; Direction	Unknown
5.7 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.8 Short-term trend; Method used	Insufficient or no data available

5.9 Long-term trend; Period	
5.10 Long-term trend; Direction	
5.11 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
5.12 Long-term trend; Method used	
5.13 Favourable Reference Area (FRA)	
a) Area (km²)	
b) Pre-defined increment	Current area is between 2% and 10% smaller than the FRA
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

5.14 Change and reason for change in surface area of range

a) Change	No
b) Genuine change	
c) Improved knowledge or more accurate data	
d) Different method	
e) No information	
f) Other reason	
g) Main reason	

5.15 Additional information

No additional information

6. Structure and functions

6.1 Condition of habitat (km²)	
Area in good condition	
ai) Minimum	0.32
aii) Maximum	0.32
Area not in good condition	
bi) Minimum	43.64
bii) Maximum	43.64
Area where condition is unknown	
ci) Minimum	436.4
cii) Maximum	436.4
6.2 Condition of habitat; Method used	Based mainly on extrapolation from a limited amount of data
6.3 Short-term trend of habitat area in good condition; Period	
6.4 Short-term trend of habitat area in good condition; Direction	Unknown
6.5 Short-term trend of habitat area in good condition; Method used	Insufficient or no data available
6.6 Typical species	
Has the list of typical species changed in comparison to the previous reporting period?	No
6.7 Typical species; Method used	
6.8 Additional information	

Typical species were not used directly in the assessment of conservation status for habitat structure and function as a comprehensive list of typical species for each habitat

was not available. However, the status of typical species was considered when the condition of individual sites was assessed using Common Standards Monitoring Guidance. Common Standards Monitoring (CSM) data was used to assess the area of habitat in ‘good’ and ‘not good’ condition (field 6.1). Species were a component of the attributes assessed under CSM. Therefore, an assessment of species is considered to have formed part of the reporting under field 6.1 which supported the Habitats Structure and Function assessment (field 10.3).

7. Main pressures

7.1 Characterisation of pressures

Table 2: Pressures affecting the habitat, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA08: Extensive grazing or undergrazing by livestock	Ongoing and likely to be in the future	High (H)
PA07: Intensive grazing or overgrazing by livestock	Ongoing and likely to be in the future	High (H)
PK03: Mixed source air pollution, air-borne pollutants	Ongoing and likely to be in the future	High (H)
PK04: Atmospheric N-deposition	Ongoing and likely to be in the future	High (H)
PI02: Other invasive alien species (other than species of Union concern)	Ongoing and likely to be in the future	High (H)
PD02: Hydropower (dams, weirs, run-off-the-river and respective infrastructure)	Ongoing and likely to be in the future	Medium (M)
PB06: Logging or thinning (excluding clear cutting)	Ongoing and likely to be in the future	Medium (M)
PB04: Abandonment of traditional forest management	Ongoing	Medium (M)
PJ14: Other climate related changes in abiotic conditions	Ongoing and likely to be in the future	Medium (M)
PA18: Agricultural activities generating air pollution	Ongoing and likely to be in the future	Medium (M)

PI04: Plant and animal diseases, pathogens and pests	Only in future	High (H)
PI03: Problematic native species	Only in future	Medium (M)

7.2 Sources of information

See section 13 References

7.3 Additional information

No additional information

8. Conservation measures

8.1: Status of measures

a) Are measures needed?	Yes
b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken	Maintain the current range, surface area or structure and functions of the habitat type
8.3 Location of the measures taken	Both inside and outside National Site Network
8.4 Response to measures	Medium-term results (within the next two reporting periods, 2025–2036)

8.5 List of main conservation measures

Table 3: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	High (H)
MA06: Stop mowing, grazing and other equivalent agricultural activities e.g. burning (incl. restore or improve habitats)	High (H)

MK01: Reduce impact of mixed source pollution	Medium (M)
MA11: Reduce/eliminate air pollution from agricultural activities	Medium (M)
MC09: Manage/reduce/eliminate air pollution from resource exploitation and energy production	Medium (M)
MI03: Management, control or eradication of other invasive alien species	High (H)
MC04: Reduce impact of hydropower operation and infrastructure (incl. the restoration of freshwater habitats)	Medium (M)
MB05: Adapt/change forest management and exploitation practices	Medium (M)
MB06: Stop forest management and exploitation practices	Medium (M)
MB02: Maintain existing traditional forest management and exploitation practices	Medium (M)
MB03: Reinstate forest management and exploitation practices	Medium (M)
MJ02: Implement climate change adaptation measures	Medium (M)

8.6 Additional information

No additional information

9. Future prospects

9.1a Future trends of parameters

ai) Range	Overall stable
bi) Area	Positive - increasing <=1% (one percent or less) per year on average
ci) Structure and functions	Very negative - important deterioration

9.1b Future prospects of parameters

aii) Range	Good

bii) Area	Poor
cii) Structure and functions	Bad

9.2 Additional information

No additional information

10. Conclusions

10.1 Range	Favourable (FV)
10.2 Area	Unfavourable-inadequate (U1)
10.3 Specific structure and functions (incl. typical species)	Unknown (XX)
10.4 Future prospects	Unfavourable-bad (U2)
10.5 Overall assessment of Conservation Status	Unfavourable-bad (U2)
10.6 Overall trend in Conservation Status	Unknown

10.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

10.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

10.8 Additional information

No additional information

11. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (km²)

a) Minimum	
b) Maximum	
c) Best single value	43.64
11.2 Type of estimate	Best estimate
11.3 Habitat area inside the network; Method used	Complete survey or a statistically robust estimate
11.4 Short-term trend of habitat area within the network; Direction	Stable
11.5 Short-term trend of habitat area within the network; Method used	Complete survey or a statistically robust estimate
11.6 Short-term trend of habitat area in good condition within the network; Direction	Uncertain
11.7 Short-term trend of habitat area in good condition within the network; Method used	Based mainly on extrapolation from a limited amount of data

11.8 Additional information

No additional information

12. Complementary information

12.1 Justification of percentage thresholds for trends

No justification information

12.2 Other relevant information

No other relevant information

13. References

Biogeographical and marine regions

3.2 Sources of information

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Main pressures

7.2 Sources of information

No sources of information

14. Explanatory Notes

Field label	Note
2.1: Year or period	An extensive analysis of the range and extent of H91A0 Old sessile oakwood in Wales was carried out in 2012 using GIS, relevant vegetation surveys, geological and climatic data (Latham and Rothwell, 2012). No new information has become available to significantly or confidently update this analysis, and there is also no reason to expect that the range and extent of the habitat has changed significantly since 2012; any changes are likely to be trivial in comparison to the confidence in the analysis. For these reasons the figures and analysis for 2012 are reproduced here.
2.3: Distribution map; Method used	(Analysis as for 2012; see section 2.1). H91A0 Old sessile oakwood with Ilex and Blechnum in the British Isles is widespread in Wales, corresponding to a range of NVC communities (W10e, W11, W16b, W17) (JNCC, 2017) that are well known and have been extensively mapped on both protected sites and in the wider countryside (Latham, 2001). These surveys are considered comprehensive enough to confidently map the distribution and hence range of the habitat in Wales at the scale required for national reporting. Previous analyses (e.g. Latham, 2003) have used a 'proportional representation' approach to estimate total habitat area, applying the proportional abundance of the habitat recorded in Phase 2 surveys to the figure for total woodland cover to estimate a total habitat area. Whilst there are few new survey data, new inventories of total woodland cover have become available (Forestry Commission, 2011), GIS analysis capabilities have improved, and there is an appreciation that the 'proportional representation' method could be refined by stratification of the woodland resource to account for regional variations in woodland cover. An analysis was carried out to do this

which is summarised below and described in detail in Latham and Rothwell (2012).

Despite the habitat having been well recorded, it is impossible to produce precise figures for total extent of habitat. This is because the habitat grades, as part of a continuum, into lowland oak woodland types. This variation relates to a suite of intercorrelated variables – including rainfall, soil acidity, and altitude – expressed as an axis from 'lowland' to 'upland' conditions from southeast to northwest Britain (Latham, 2010). Wales lies within a transition zone for much of this variation, meaning that conditions change from 'upland' to 'lowland' over small distances, or may be truly indeterminate. Within an individual wood, it can be an arbitrary decision whether a community is mapped as, for example, W10e (upland) or W10a (lowland), and the difference between the two may in any case be controlled as much by management as by environmental situation.

There have been attempts to define cut-off points in terms of environmental variables to help estimate the area of H91A0 (unpublished discussions: CCW, FCW, former woodland LCN). But, although there are clear correlations of H91A0 occurrence with some environmental variables, notably rainfall (e.g. Sanderson, 2006), there is no clear cut-off above which the habitat predominantly occurs to allow simple estimations. Rather, there is an increasing probability of a woodland being H91A0 as rainfall increases, as was expressed in mapping in Latham (2003). A possible approach therefore, is to refine the 'proportion representation' approach by stratifying Wales by rainfall, and estimating the area of H91A0 sequentially in each defined zone.

An analysis of the proportion of H91A0 recorded in surveys with respect to rainfall was carried out, using NVC survey data (Latham, 2001) and Met Office data on 1 km2 held on legacy GIS systems. This included 623 survey sites

covering a range 650mm – 2050mm annual rainfall. A strong linear relationship was found between rainfall and proportion of H91A0 across this range with no obvious steps or 'thresholds'. Applying this result pragmatically, a breakdown into categories of 0-20% oak woodland (<= 868 mm), 20-40% (869-1190 mm), 40-60% (1191-1513mm), 60-80% (1514-1835mm) and 80-100% (>=1836mm) was used. The total area of 'Broadleaved" and 'Mixed predominantly Broadleaved" woodland from the National Forest Inventory (NFI) (Forestry Commission, 2011) were calculated for each of these rainfall bands. From these, the area of H91A0 was estimated using the midpoints of the 5 categories (i.e. 10, 30, 50, 70 and 85%). 85% was adopted rather than 90% to address to a degree the flattening of the curve as it approaches 100% apparent from a handful of samples above 2000mm. The majority of woodland area lies towards the middle of the range, so this approximation is unlikely to have much effect on the results.

The analysis was restricted to areas of Wales outside of those within the 'beech zone' and overlying core rock types for 'Tilio-Acerion' woodland (see Latham & Rothwell, 2012. H91A0 will still occur at a reduced frequency within these areas, but is likely to be a minor component, and best treated separately: the area of H91A0 was calculated using simple 'proportional representation' (as in Latham, 2003) but with total woodland cover figures from NFI.

Combining the results from all zones, the total area of H91A0 in Wales is estimated at c. 48,000 ha. It has been out of scope of this study to formally estimate confidence limits around this figure, but a pragmatic error estimate of ± 10% would give a range of c. 43,000 – 53,000 ha.

This compares with a previous estimate of 39,000 ha (Latham, 2003). The increase stems from the larger total area of woodland recorded in NFI compared to Phase 1 (Blackstock et al. 2003) and, in fact, conceals a rather lower overall proportion of H91A0 than previously thought:

	39.6% of the total resource compared with 48.1%. This change is due to the stratified analysis that has taken into account the relatively large areas of woodland in low-medium rainfall areas that have a higher lowland oakwood:H91A0 ratio than the Welsh average.
4.11: Change and reason for change in surface area of range	The distribution of Old sessile oakwoods in Wales has not been re-assessed for the current report and 10 km squares from which it has been reported are unchanged.
5.1: Year or period	Total evidence range1985-2012. Base area figures from NFI are from 2006 (aerial photography derived, published under NFI 2011), some assumptions on proportions used in calculations derive from surveys accumulated from 1985 – 2000.
5.2: Surface area	The area figures have been derived from analysis of the proportional representation of H91A0 within relevant vegetation surveys, stratified by environmental zones across Wales. The scope of this analysis did not allow for a formal statistical treatment of errors, and some expert judgement has been used to derive pragmatic range values. Also see comments in section 2.3
5.4: Surface area; Method used	The area figures have been derived from analysis of NFI woodland data (Forestry Commission, 2011) relevant vegetation surveys (Latham, 2001), geological and climatic data (NRW and legacy licensed GIS datasets). The scope of this analysis did not allow for a formal statistical treatment of errors, and some expert judgement has been used to derive pragmatic range values. See section 2.3 and Latham and Rothwell (2012) for a fuller description
5.8: Short-term trend; Method used	There is no evidence available to judge short-term trends in the total area of this habitat. The total extent figures are derived from data with a wide time base, and their confidence errors are likely to be very much larger than any figures for ad hoc changes that may be reported.
6.2: Condition of habitat; Method used	Assessment of structure and function is based on the results of Common Standards Monitoring visits where the habitat occurs as a feature on 15 SACs. This is the only information confidently available across a sample of the

	resource. Eleven SACs (73%) were assessed between 2013 and 2024. These results show that the large majority of the habitat on SACs in Wales (representing c. 9% of the total resource by area) is in unfavourable condition; as these have been selected as the best examples of the habitat and are more likely than most to be in good management, it seems likely that a majority of the resource is also in unfavourable condition. Unfavourable condition was due to a variety of factors. The difficulty of achieving a balance of light grazing or implementing a landscape scale approach to grazing management means that individual sites are often unfavourable for either tree regeneration or suitable conditions for lower plants. This tendency for mutual exclusivity may bias the assessments towards unfavourable, and it is possible that if condition is assessed at a larger scale across a series of sites the outcome would be more favourable. Sites may often be unfavourable for structural reasons – even-aged canopies, lack of mature trees and deadwood – that are a result of unmanaged regrowth following fellings for timber during the 20th century wars with subsequent abandonment. Presence of invasive species, typically Rhododendron are common, but also Beech, Sycamore and invasive non-native conifers. This may be a bigger problem outside of SACs where there is less vigilance and management activity.
6.3: Short-term trend of habitat area in good condition; Period	For eleven sites where there has been reassessment between 2013 and 2024, 2 have changed condition (representing 366.7 ha, 8% of total SAC area). However, it is unclear whether this is due to real change, or refinement of conservation objectives and methodology.
6.4: Short-term trend of habitat area in good condition; Direction	One site has been assessed as having changed condition from Favourable to Unfavourable (330.0 ha) and one site from Unfavourable to Favourable (31.4 ha) during this period. However, it is unclear whether this is due to real

	change, or refinement of conservation objectives and methodology.
7.1: Characterisation of pressures	Pressures: Five pressures were considered to have a high impact. Two of these relate to livestock grazing regime: PA08 & PA07 involve insufficient grazing and over-grazing. This apparently contradictory situation comes about because an intermediate level of grazing is required to provide suitable conditions for both rare species (bryophytes and lichens) and for tree regeneration, and this is hard to achieve practically. Ideally management should be considered (and coordinated) across a series of sites which collectively provide all required conditions, but not necessarily at the same time in the same place. PK03 Air pollution and PK04 Atmospheric N-deposition appears to be a universal pressures, with all stands in areas where the Critical Load for nitrogen is exceeded coupled with more local impacts from agricultural activities. The impacts of nitrogen deposition and other forms of air pollution are poorly recorded in site monitoring and poorly reflected in NRW's Actions Database, but it is rated as high because of its comprehensive impact and because important bryophyte and lichen species of this habitat are likely to be especially sensitive to it. PI02 Invasive non-native species are a widespread problem, especially Rhododendron ponticum which can colonise and dominate this habitat, and frequently, conifer species such as sitka spruce Picea sitchensis and western hemlock Tsuga heterophylla have seeded in from adjacent commercial forestry plantations. Several pressures have been identified as Medium. PD02 relates to the impacts of hydropower schemes which are increasingly being installed or proposed within steep

water courses that are often associated with the habitat. The characteristic and rare biodiversity of the habitat (e.g. mosses and liverworts) are dependent on high humidity and this can be locally but significantly reduced by the diversion of water flows by these schemes; there are also impacts from habitat loss and fragmentation from built infrastructure (turbine houses, access tracks etc.).

The habitat is affected by woodland management in a variety of ways (both positive and negative), and two specific codes have been selected as best representing management as a pressure. PB04 relates to the ongoing loss of structural and ecological diversity that can arise from cessation of the diversity of long established traditional management practices, a process known as taxonomic homogenization (e.g. Keith et al., 2009); PB06 relates to management interventions in inappropriate locations that are damaging because they break up examples of well-developed natural structure.

PJ14 'Other climate related changes in biotic conditions' has been included as a catch-all for the complex of interactions relating to long-term habitat loss, fragmentation, reduction of permeability of the matrix leading to reduced ecological connectivity, combined with the additional pressures of climate change that may require habitat range adaptation. They also interact with many of the specific climate change pressures that have been listed. These impacts are hard to quantify but likely to be ongoing and suggested here to be Medium (i.e. rather than high as entered for other woodland habitats such as Tilio Acerion) because the habitat's relatively high proportional area and good connectivity in Wales. There is also the future potential for the spread of beech through climate change and the replacement of this annex 1 woodland type with H9120 Atlantic acidophilous beech woods.

Of the low pressures requiring further explanation, PF05 'sports, tourism and leisure activities' refers notably to

gorge walking, which although highly localised can be focussed on sites which are of particular importance for lower plants, and PI03 which refers to impacts of deer which are currently very localised. Native (roe deer Capreolus capreolus) or long naturalised species (fallow deer Dama dama) are usually involved.

Method used – pressures

The assessment was based on the submission for 2012, reconsidered using expert knowledge updated accordingly for 2018. The data held in the 'Actions Database' were used to provide a basis for quantifying pressures/threats relating to Old sessile oakwood habitat, coupled with expert judgement on the severity of these pressures/threats (at a generic level) to give an overall evaluation of the pressure/ threat level (for more details see Guest, 2012). For woodland, the Actions Database does not list Annex 1 habitats on SSSIs, so this analysis is based primarily on issues recorded on SACs, informed where possible by knowledge of the habitat on SSSIs elsewhere.

Threats:

The pressures identified above can be expected to remain.

The polarisation of grazing impacts PA08 may potentially get worse as there is no national grant scheme or mechanism to promote grazing at intermediate levels.

PI02 invasive species may well increase in abundance and additional species become a problem, possibly encouraged by climate change, although awareness of the problem is good and management is widespread.

PI04 remains a serious concern with the increase of tree pathogens in recent years, notably Phyophthora ramorum (Forestry Commission, 2018) and related species which

	potentially could have devastating effects on oak trees and Vaccinium (in the ground flora). PI03 deer browsing is currently only a localised issue in Wales but experience from Scotland and England suggests that it could present a significant threat to the habitat as deer populations are likely to expand and increase in density, and may increasingly involve non-native species, particularly muntjac Muntiacus reevesi. Method used – threats: Expert opinion The pressures identified in pressures were used as a basis for threats, but additional information and expert opinion used to extrapolate to possible future impacts, and also to identify large scale issues such as those of climate change that are not evident on a site reporting basis.
8.1: Status of measures	While the majority of most important measures have been identified and taken, in reality some identified measures have not yet been taken while other interventions are needed but the mechanisms have not been resolved.
8.2: Main purpose of the measures taken	The majority of the most important measures currently being undertaken are focused on maintaining the structure and functions of existing stands of old sessile oakwood habitat. However several are also aimed at restoring the structure and functions both on individual sites and to the resource as a whole.
8.5: List of main conservation measures	MA05 Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning). MA06 Stop mowing, grazing and other equivalent agricultural activities These two measures relate to developing appropriate grazing regimes that deliver spatial and temporal variation in grazing intensity across the resource to accommodate the ecological requirements of both tree regeneration and

the characteristic and rare species of the habitat.

MK01 Reduce impact of mixed source pollution.

MA11: Reduce/eliminate air pollution from agricultural activities

MC09: Manage/reduce/eliminate air pollution from resource exploitation and energy production

The impacts are probably high and significant on this habitat, but not clear what actions may be done locally to reduce in addition to national current regulation of air pollution, hence the Medium ranking assigned here.

There are various air quality strategies and initiatives in place to protect and enhance biodiversity. Air quality limit values set out in the Air Quality Strategy (AQS) are transposed into national legislation by the Air Quality Standards Regulations 2010. Nitrogen deposition continues to impact semi-natural habitats in Wales. These regulations are not habitat-specific, however with introduction of The Environment (Air Quality and Soundscapes) (Wales) Act 2024 in Wales, brings in new national targets for air quality pollutants, with the potential of directly influencing habitat protection.

This key legislative advancement requires mandatory targets for fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) to be established by February 2027, including new powers for Welsh Ministers to set pollutant-specific targets in future years (e.g., ammonia, nitrogen dioxide) linked to biodiversity outcomes, potentially enabling future habitat-sensitive thresholds.

Welsh Government have also introduced The Agriculture (Wales) Act in 2023. It aims to establish a framework of Sustainable Land Management (SLM) objectives to underpin agricultural support, including the Sustainable

Farming Scheme (SFS). The Act provides Welsh Ministers with the power to provide support (financial or otherwise) for or in connection with 15 purposes, including 'Improving air quality'. Welsh Government published a consultation on the SFS which closed in March 2024. Welsh Ministers will not be making final scheme design decisions until further stakeholder work is undertaken.

MI03 Management, control or eradication of other invasive alien species.

INNS are widespread problem in Old sessile oakwood habitat, for example Rhododendron ponticum which can dominate extensive areas, and increasingly, non-native conifer species such as western hemlock Tsuga heterophylla and sitka spruce Picea sitchensis.

MC04 Reduce impact of hydropower operation and infrastructure.

Activities generally relate to discouraging schemes in the most sensitive areas (for example through statutory powers) and developing mitigation through appropriate design elsewhere.

MB05 Adapt/change forest management and exploitation practices

MB06 Stop forest management and exploitation practices

MB02 Maintain existing traditional forest management and exploitation practices

MB03 Reinstate forest management and exploitation practices

These measures relate to different aspects of the need to have appropriate management across the Old sessile oakwood resource to benefit the full-range of its dependent

	biodiversity, putting the right management in the right place. This means both active interventions where they promote structural diversity and other benefits, as well as minimum intervention where natural processes are operating well. MJ02 Implement climate change adaptation measures. This relates to the broad need to develop the resilience of the Old sessile oakwood resource beyond the individual site level, planning large scale ecological networks that provide functional connectivity for relevant species between protected sites that allows both mitigation for long-term habitat loss and fragmentation and the capacity for climate change adaptation (e.g. Watts et al., 2005; Latham et al. 2013). Low ranking measures: MI06 Controlling and eradicating plant and animal diseases, pathogens and pests. This primarily relates to vigilance and the development of management and contingency plans to address the impacts of tree pathogens such as Phyophthora species. MF03 Reduce impact of outdoor sports, leisure and recreational activities. This is likely to be achieved through careful site and visitor management, through both regulation and awareness raising.
9.1:Future trends and prospects of parameters	Range: The habitat already has a very wide range in Wales, reflecting its environmental requirements. There may be potential for minor range increases, although these may be off-set by minor losses in suboptimal areas as climate change proceeds. Area: A general increase in woodland cover looks likely in Wales

	as it is supported by WG policy. In terms of native woodland types, Old sessile oakwood is especially likely to benefit as large areas of Wales may be environmentally appropriate for its establishment and there is a cultural predisposition towards oak and oak woodland (notwithstanding the potentially very long-time scales required to (re)create semi-natural woodland habitats). Significant gains in area of much higher ecological quality woodland is likely to come from restoring ancient woodland (PAWS) sites, again supported by WG policy. The Sustainable Farm Scheme also has potential to increase the area of this woodland type. Structure and function: There are both positive and negative factors in operation with many uncertainties for the future, so it is not possible to form a confident opinion over whether either will prevail or whether they will cancel each other out overall leading to a stable future trend The Future prospects for Structure and functions takes into account that at least 25% of the habitat area is expected to be in unfavourable (not good) condition in c.2035 due to nutrient N critical load exceedance, unless additional measures are taken to reduce N deposition impacts.
10.1: Range	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.
10.2: Area	Conclusion on Area reached because:(i) the short-term trend direction in Area is unknown; (ii) the current Area is not more than 10% below the Favourable Reference Area and iii) there has been no significant change in distribution pattern within range
10.3: Specific structure and functions	Conclusion on Structure and function reached because the condition of the habitat is unknown as over 75% of the habitat has 'unknown' condition.

10.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Area covered by habitat are poor; and (iii) the Future prospects for Structure and function are bad.
10.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-bad because one or more of the conclusions are Unfavourable-bad.
11.3: Surface area of the habitat type inside the network; Method used	NVC maps exist for the majority of woodland SACs in Wales; surveys are described in Latham (2001) and digitised by GIS analysis (held on NRW GIS system). Areas of old sessile oakwood have previously been calculated for inclusion on JNCC's data forms: values for each of these for which the habitat is listed as a feature (grades A-D) were compiled, but then compared with habitat maps to re-assess the total area of old sessile oakwoods included on SACs rather than that originally mapped as a feature.
11.4: Short-term trend of habitat area within the network; Direction	For 11 sites where there has been reassessment between 2013 and 2024, 2 have changed condition (representing 366.7 ha, 8% of total SAC area). However, it is unclear whether this is due to real change, or refinement of conservation objectives and methodology.
5.13: Favourable Reference Area (FRA)	The UK-level FRV for surface area was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current habitat extent and trends.
4.10: Favourable Reference Range (FRR)	The UK-level FRV for range was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh

experts and considered appropriate for use in Wales based on current distribution and trends.