Local Wildlife Site Selection Criteria for the Cheshire region.

Covering the districts of Cheshire West and Chester, Cheshire East, Wirral, Halton and Warrington

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1.1 Introduction

Local Wildlife Sites are sites with 'substantive nature conservation value'. They are defined areas identified and selected locally for their nature conservation value, based on important, distinctive and threatened habitats and species with a national, regional and (**importantly**) a local context. The purpose of selection is to provide recognition of the substantive nature conservation value and to help conserve those features for which the site was selected. Together with the statutory sites (such as National Nature Reserves and Sites of Special Scientific Importance), they form the essential building blocks of an ecological network.

Found on both public and private land, Local Wildlife Sites vary in size and shape from small ponds and copses and linear features such as hedgerows, road verges and water courses to much larger areas of habitat such as ancient woodlands, heaths, wetlands and grassland.

Collectively they play a critical role in the conservation of the UK's natural heritage by providing essential wildlife refuges in their own right[21] and by acting as stepping stones, corridors and buffer zones to link and protect other site networks and the open spaces of our towns and countryside.

The Cheshire Region LWS system ensures a consistent approach for identifying, selecting, assessing, monitoring and protecting Local Wildlife Sites. Administration of the system requires enabling access to the most up to date information for approximately one thousand sites across the region. It operates as a partnership organisation across five local authorities, Halton, Warrington, Wirral, Cheshire East and Cheshire West and Chester. In addition to the local authorities the key partners include the Cheshire Wildlife Trust, Record, Natural England and the Environment Agency. Private landowners and other stakeholders are encouraged to participate in the partnership by attending annual site selection meetings. Typically stakeholders include organisations such as the Forestry Commission, the Woodland Trust and 'Friends of' groups.

This document outlines the role and purpose of the Cheshire Region LWS system and provides details of the management of the system including the site selection criteria and procedures. It is based upon the 2006 Defra publication 'Local Sites – Guidance on their identification, selection and management'.

1.2 Background and context

1. Non-statutory Local Sites include both Local Geological Sites (previously known as RIGGS) and Local Wildlife Sites (previously known as SBIs, SINCs or SNCVs). Statutory designations such as Sites of Special Scientific Interest provide a representative rather than a comprehensive suite of sites. Not all sites which meet the criteria for statutory designation can be designated and instead are selected under the Local Sites system. Consequently such Local Sites may be amongst the best sites in the region for the habitats, species or geology they support. It is essential, therefore, that the different status assigned to Local Sites compared to SSSIs should not lessen the perception of their importance and the vital role they play in conserving our natural heritage.

2. Local Wildlife Sites should be distinguished from the Local Green Space designation which was introduced in the 2011 Localism Act. Local Green Spaces may be selected for wildlife value, but unlike Local Wildlife Sites selection they could also be selected solely on their local community significance for beauty, historic importance, recreational value and tranquillity.

3. In the Cheshire region prior to 2012 each local authority had its own guidance and site selection criteria for Local Sites. In Halton and Warrington such sites were known as Sites of Importance for Nature Conservation (SINCs) and in Wirral, Cheshire East[1] and Cheshire West and Chester the sites were known as Sites of Biological Importance[4] (SBIs). A smaller number of sites in Cheshire West and Chester were previously known as Sites of Nature Conservation Value (SNCVs).

4. In 2006 Defra issued comprehensive guidance on Local Sites[11]. The Cheshire Region Local Wildlife Site system for site identification, selection and management is based upon this guidance and is set out in this document.

According to this guidance:

- Local Sites networks provide a comprehensive rather than representative suite of sites.
- Local Sites provide wildlife refuges for most of the UK's fauna and flora and through their connecting and buffering qualities, they complement other site networks.
- Local Sites have a significant role to play in meeting overall national biodiversity targets.
- Local Sites represent local character and distinctiveness.
- Local Sites contribute to the quality of life and the well-being of the community, with many sites providing opportunities for research and education.

[1]Cheshire East LA refer to sites which have not been reviewed under the new criteria as SBIs. The CCC 2000 criteria remain valid for these sites until they are re-assessed under the new criteria.

1.3 Legislation and policy

Local sites are afforded a level of protection via the following policies and guidance:

- **NPPF – Sustainable development**. Local wildlife sites may provide building blocks and linkages of networks of biodiversity and as such the NPPF guidance advises that sustainable development requires such networks should be protected, enhanced and managed.

- **NERC act 2006. Biodiversity duty.** This places a duty on local authorities to conserve biodiversity in exercising its functions. This duty includes restoring or enhancing populations or habitats of principal importance which appear on the S41 list (UK BAP).

- **The conservation of habitats and species regulations 2010.** Part 2, section 39. This regulation provides guidance on nature conservation policy in planning contexts. Paragraph (3) encourages the management of features of the landscape which are linear/continuous or act as stepping stones essential for the migration, dispersal and genetic exchange of wild species. The regulations in part 3 refer to EU protected species and Local Wildlife Sites which support these species may be protected from disturbance and/or activities which destroy breeding sites or resting places.

- In addition to the legislation for European protected species referred to above other UK specific legislation may apply including: **Protection of Badgers act 1992, Wildlife and Countryside Act 1981 (schedules 1, 5 and 8), Countryside and Rights of Way Act 2000 (section 74) and the Hedgerows Regulations 1997**.

- **Good agricultural and environmental conditions for habitats and wildlife (GAECs).** Semi-natural habitat in the farmed environment is afforded some protection through the GAECs. These standards provide a baseline of environmental protection for habitats and wildlife in order to maintain biodiversity and sustainable farming and are linked to Cross Compliance requirements and the Single Payment Scheme.

By identifying sites which host priority and protected species and habitats the LWS system provides a robust evidence base. This enables the development of well-informed special planning policies and facilitates objective planning decisions so that local authorities can fulfil their biodiversity duty. Furthermore reporting on the management of Local Sites contributes to the Single Data List, specifically *Local nature conservation/biodiversity* (reference 160-00)

1.4 The LWS system – Key interests and the role of the partnership

1. With their statutory roles and responsibilities relating to nature conservation and biodiversity the lead partners for the Cheshire Region LWS system are the local authorities, with the Cheshire Wildlife Trust and Record taking responsibility for overseeing site surveys, administration and data storage.

2. Other stakeholders include statutory agencies and bodies (such as Natural England and the Environment Agency), landowners and the voluntary and community sector. Due to the large number of sites included within the system the success of the partnership is dependent on the input from volunteers with nature conservation expertise.

3. The role[11] of the LWS partnership is to
    - Agree the basis for site selection.
    - Co-ordinate site selection procedures including survey and identification of candidate sites.
    - Actively promote and support site management.
    - Co-ordinate funding provision and/or identify and promote the taking up of funding opportunities.
    - Promote educational use where appropriate.
    - Establish a process for monitoring the condition of the selected sites.
    - Review the operation of the Local Sites system at suitable intervals.
    - Promote the role and importance of Local Sites at a strategic level (for example in delivering BAP targets, targeting of agri-environment schemes).
    - Promote the enhancement of sites through buffering and increasing connectivity.

4. All sites which are selected or de-selected by the partnership are submitted to the relevant local authority for inclusion in, or deletion from, their Local Development Plan.

1.5 Evaluation and selection of LWS

1.5.1 Key functions of partnership in site selection and de-selection

1. The evaluation and selection of Local Wildlife Sites is a central responsibility of the LWS partnership. The partnership is the final arbiter for the evaluation and selection process.

2. The partnership is responsible for developing and periodically reviewing the site selection criteria in line with published guidance.

3. The partnership is responsible for ensuring all site surveys are undertaken by suitably trained staff or volunteers. The selection process must also be undertaken by suitably qualified personnel representing the LWS partnership.

4. The partnership is responsible for maintaining a list of candidate/alert LWSs and periodically assessing these sites against the LWS criteria. Candidate/alert sites may hold habitat or species of local/national importance but have not been assessed against the LWS criteria. Such sites may be proposed by members of the partnership or other stakeholders including the general public. The list should act as an alert for the planning process and may indicate that an ecological survey is required before determination of any application affecting the site.

5. Existing/candidate/alert sites should be assessed against the criteria by the LWS partnership. The objective of site selection is to select *all*[11] sites that meet the criteria and to review all sites against these criteria at least once every 10 years.

6. The partnership should decide whether sites are in positive management by completing the questionnaire in appendix 5.2. Reporting this figure contributes to the single data list, specifically *Local nature conservation/biodiversity (reference 160-00).* The questionnaire has been compiled following the guidance set out in *Defra guidance on the improved Local Biodiversity indicator (NI197). Revised guidance note December 2008.*

7. Site owners should, whenever possible, be contacted by the partnership and asked for access permission to survey and monitor sites. Where access is denied those wishes should be respected and no change should be made to the site's status. However where there is a threat to a LWS (existing or proposed) section 324 of the 1990 Town and Country Planning Act indicates that any person duly authorised in writing by the Secretary of State or by a local planning authority may at any reasonable time enter land for the purpose of surveying it in connection with preparation of development plans or submission of a planning application. Although in the case of land which is 'occupied' 24 hours' notice of the intended entry has to be given to the occupier.

8. Prior to formal endorsement of sites by the LWS partnership, site owners should be given the opportunity to make observations, for example, on whether or not the site continues to host the listed features, provides the functions as stated and accords with the assessment

made against the selection criteria. This liaison with the landowner relates to the partnership's precise function of identifying appropriate sites and should, therefore be confined to factors relating directly to the application of the site selection criteria.

9. In the information sent to owners of a proposed site, the partnership should set out the process it will follow in considering any observations received from site owners and how the partnership will respond.

10. The criteria have been devised so that sites with restoration potential should not be de-selected, however careful consideration must be given to such sites. If a site no longer meets the criteria and has low restoration potential then it should be de-selected. Site owners and other interested parties should be notified and given the opportunity to make observations. Formal de-selection, once agreed by the partnership, should be notified to owners and other interested parties where appropriate.

1.5.2 Key principles and priorities in site selection

1. Sites with a substantive nature conservation interest will be selected. What constitutes substantive nature conservation interest is set out in the site selection criteria (sections 2 and 3) and reflects the local context as well as national priorities. Sites where the social/aesthetic/educational interest of the site derives from the wildlife features present may also be selected. Only one criterion needs to be met in order for a site to qualify as a LWS.

2. The criteria have been developed in wide consultation with various naturalist organisations and their representatives. Criteria H1 – H26 are generally habitat based, whereas criteria S1-S13 are species specific. The criteria represent a set of clear guidelines with measurable thresholds and provide a structured and systematic approach to site selection. The set of criteria has been devised to reflect local and national priorities as set out above and takes into consideration the following attributes[2]:

    - Size or extent
    - Diversity
    - Naturalness
    - Rare or exceptional value
    - Fragility
    - Typicalness
    - Recorded history and cultural associations
    - Connectivity with the landscape
    - Value for appreciation of nature
    - Value for learning

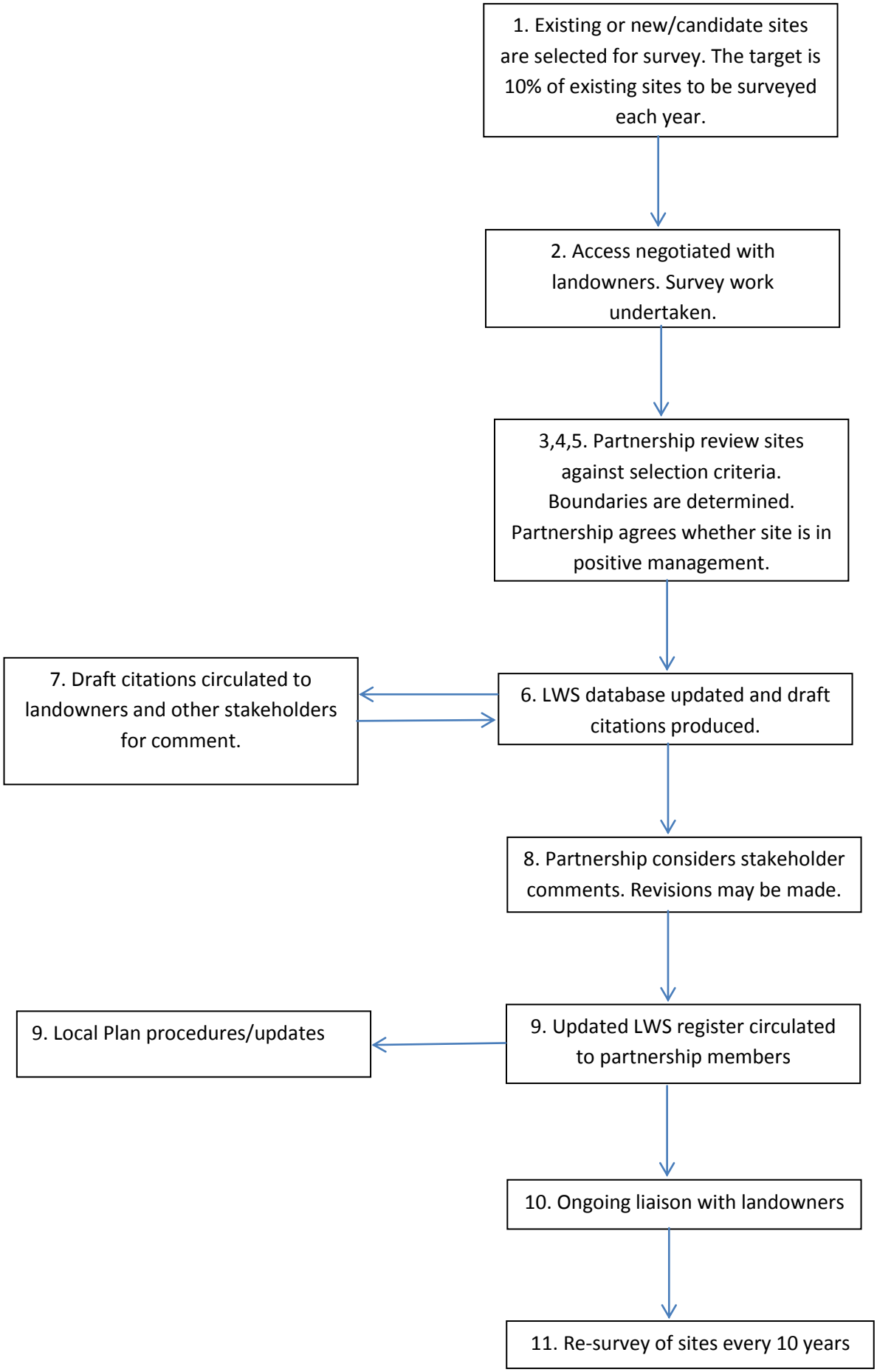
[2] Based upon the Ratcliffe approach set out in the Nature Conservation Review 1977

3. Criteria are weighted relative to each other and geographically so that the suite of LWSs (together with other networks such as SSSIs) can maintain the nature conservation interest of the Cheshire region by supporting viable populations and functioning ecological communities.

4. The habitat criteria in section 2 closely follow the definitions of UK BAP habitats[8]. Several of these UK BAP habitats are also listed as European Annex 1 habitats as they are important in a European context as well as nationally. For a small number of sites the habitat may be excluded from the UK BAP but will appear on the Local BAP (lime-beds and some waxcap grasslands for example). Under the site selection criteria provision is also made for sites that provide important wildlife corridors or perform a buffering function for other important sites.

5. Sites may be selected for the species they support where these are of local or national conservation status, or if the site supports important species assemblages or a significantly large population. Detailed guidance is provided in section 3.

1.5.3 Procedures



1. Each year a number of existing or new sites are put forward for assessment. The target number for each local authority area is 10% existing sites to be surveyed each year. Where this rate is achieved sites are reviewed on a ten year rolling basis in line with Defra guidance. New candidate/alert sites can be put forward for survey by the partnership or other stakeholders including private individuals. Both new and existing sites are surveyed using the same methodology. Further guidance is given in 1.5.1.4.

2. Site surveys should be undertaken once site access has been negotiated. The survey process is similar to extended phase 1 methodology and requires the production of a phase 1 habitat map, and a completed LWS survey form (appendix 1). The form must include a concise description of the site and a list of indicator species (ideally with DAFOR score). In most cases the survey form will include brief management recommendations and a condition assessment of the site (based upon Higher Level Stewardship condition assessment methodology[5]).

3. The review process decides whether a site meets any of LWS criteria. Only one criterion needs to be met in order for a site to qualify. All criteria that are met should be recorded. If a site no longer meets the criteria it should be deleted.

4. The boundary of the site should be determined. This may include deletions or additions to existing sites. Further guidance is provided in the site selection criteria (sections 2 and 3).

5. The partnership will determine if sites are in positive management according to the methodology set out in appendix 2. Site owners/managers must be sent management recommendations, or possess a similar document if a site is to be assessed as being in positive management. Sites that are in schemes such as Higher Level Stewardship would be deemed to be in positive management unless evidence suggests otherwise. Entry Level Stewardship participation does not qualify a site as being in positive management.

6. The database is updated and draft citations are produced.

7. Draft citations are circulated to landowners and other interested parties for comment on how the criteria were applied. Additionally the standard survey form should be given to landowners/managers. The form would normally include brief management recommendations which if implemented would maintain the features for which a site was selected.

8. Partnership considers stakeholder comments and revisions may be made. A final decision on the status of each site is made.

9. Updated LWS registers are finalised for each local authority to incorporate into their Local Plans. The register will include the data on whether newly surveyed sites are considered to be in positive management.

10. Ongoing liaison with landowners which may include further site visits

11. Re-survey of site at least once every ten years.

1.5.4 Data storage

1. Following the review and selection procedure the boundaries of Local Wildlife Sites are transferred to GIS. Responsibility for this is agreed locally with individual local authorities. In some instances (and where funding allows) the habitat data may be included in the GIS layer.

2. Electronic databases of the suite of Local Wildlife Sites are held by all partners. For sites which have been survey from 2012 onwards the database will also hold a list of each site's qualifying criteria.

3. Electronic copies of citations are held by partnership members and electronic copies of site survey reports (post 2010) and phase 1 habitat maps are held by the Cheshire Wildlife Trust. Paper copies of reports pre 2010 are held by the Cheshire Wildlife Trust.

4. A list of alert/candidate sites should be maintained alongside the database for existing sites.

1.5.5 Access to information

The partnership operates a general presumption in favour of making the information relating to LWSs available for public inspection, unless:

- The disclosure of such information could harm or pollute the environment, for example in the case of threatened or protected species.

- The person who has supplied the data has refused permission for disclosure.

- The site owner(s) specifically requested confidentiality

- Requests are unreasonable

There is a charge for supplying this information. This has been levied to cover the costs of administration and to provide support for the running of the LWS system

2. Habitat criteria

H1 –H3 Woodland - UK BAP priority habitat

H1 **Lowland mixed deciduous woodland -** UK BAP priority habitat (contains European Annex 1 habitats)

H2 **Wet woodland -** UK BAP priority habitat (contains European Annex 1 habitats)

H3 **Upland oakwood** - UK BAP priority habitat

Areas of locally native semi-natural lowland mixed deciduous woodland and/or wet woodland greater than 0.25ha should be selected as LWS. All areas of woodland listed on the Ancient Woodland Inventory should be selected. Plantation on ancient woodland sites (PAWS) should be selected where there is survival of significant elements of the original woodland ecosystem[26]. All areas of woodland on peat should be selected. Any site supporting species/species assemblages which qualify under the species selection criteria S1 - 13 should be selected.

Guidance

Sites may meet multiple woodland criteria where mosaics of different habitat types occur (such as dry and wet woodland together).

Criteria **H1-H3** cover the following locally native deciduous NVC communities and community mosaics[1], all of which are BAP priority habitat:

H1 dry woodland : W8, W9, W10, W14, W15, W16 (canopy may have oak sp., birch sp., ash, elm, wych elm, sweet chestnut, lime, hornbeam, field maple, sycamore*, beech*)

H2 wet woodland : W2, W4, W5, W6, W7 (alder, willow sp. or downy birch dominant)

H3 upland oakwood : W11 (with sessile and/or pedunculate oak and birch sp.)

Although beech woodland (W14 and W15) is non-native to Cheshire[2], long established beech plantations that have acquired a high conservation value will be selected as LWS (see below). Upland oakwood is rare in Cheshire however areas may be found on the Pennine fringe and the Peckforton Ridge.

***Excluded are:**

- Small impoverished woodlands <1ha in size[26] with low species diversity (for their likely NVC community) or frequent non-native/invasive species; unless they act as wildlife corridors/ stepping stones between areas of high wildlife value.
- Beech dominated woodland unless the canopy/ground flora has 2 or more of oak, birch, yew, bilberry, heather(s), great wood rush, bluebell, enchanter's nightshade, lords and ladies, honeysuckle, wood sorrel[3] or a Cheshire class 1 AW indicator species[4] from Table 1.

The above must be present **throughout** and not obviously planted and there must be few invasive/non native species.

- Conifer dominated woodland, including Scot's pine or other none locally native species, unless a Cheshire class 1 AW indicator[4] species from Table 1 is present **throughout** and not obviously planted. There must be few invasive/non native species.
  Deciduous woodland with small patches of conifer should be considered as restorable native woodland[26] (BAP habitat) and not excluded. Coniferous woodland may have rich ride fauna or significant bird interest and where this is the case it should be selected under the species selection criteria[26].
- Sycamore dominated woodland, unless the canopy/ground flora has:
  - Either both wood sorrel **and** creeping soft grass, **plus** at least one of ash, native bluebell or hazel (may suggest NVC community W10e). All must be at least occasional **throughout** and there must be few invasive/non native species.
  - Or has occasional sessile oak and supports a rich bryophyte community (such woodlands may be a European Annex 1 habitat).
  - Or a Cheshire class 1 AW indicator species[4] from Table 1 rare/occasional **throughout** and not obviously planted. There must be few invasive/non native species.
  - Or there is a rich (typical NVC community) woodland ground flora (which may suggest invasion of sycamore into established woodland). There must be few invasive/non native species.
- Immature plantation woodland (usually less than 30 years old). Mature plantation woodland should broadly conform to one or more of the above NVC communities and have few invasive/non-native species in order to qualify.

Woodland containing **extensive** areas of native bluebells (LBAP species) and which do not otherwise meet criteria H1-H3 may be selected using criterion S13.

A woodland is dominated by a particular tree species if that tree occurs more frequently in the canopy than any other tree species.

Justification

Britain is one of the least well wooded countries in Europe and with around 5% woodland cover Cheshire is a particularly poorly wooded county. Much of Cheshire's semi-natural woodland is thought to be ancient in origin and often survives in steep sided valleys which have afforded it a degree of protection. Many sites have been felled in the past but still retain much of the original ground flora. Larger woods are generally more valuable than similar smaller woods and the fewer exotics and the greater the range of typical flora, the more valuable the site is. This should be taken into consideration during the selection process.

Several of Cheshire's woodland habitats are also EU Annex 1 habitats and therefore important on an international scale. These include areas of long established alluvial alder woodland which are periodically inundated (though not riparian trees or secondary woodland) and areas of sessile oak woodland (typically NVC communities W10e and W16b). Cheshire also has important areas of secondary woodland which have developed on heathlands, grasslands and wetlands following

changes in traditional management practices. Peatlands are a finite resource and may have restoration potential; therefore any woodland on peat would qualify under the woodland criteria.

The semi-natural woodlands in Cheshire are highly fragmented which compromises the long term survival of specialised woodland species and communities. Therefore woodland that provides a stepping stone between other important woodlands, or links areas of wildlife value, should be selected. This may be done using criterion **H24** if the woodland criteria are not met.

H4 Wood pasture and parkland – UK BAP priority habitat

Wood pasture and parkland with occasional veteran or ancient trees and an open grassland or heathland ground flora should be selected as LWS. Where the parkland/pasture has been changed to arable there must be significant remaining nature conservation interest in the veteran or ancient trees and their associated flora and fauna. Any site supporting species or species assemblages which qualify under the species selection criteria S1-13 should be selected.

Guidance

The parkland or wood pasture may show some correspondence to the following NVC communities: W10, W14, W15, W16[2]. The ground flora may host important communities which may also qualify under grassland, heathland or waxcap grassland criteria **H7-H16**.

Veteran trees may be native or non-native and display attributes associated with late maturity; whereas the term ancient refers to a developmental stage beyond late maturity[26] (refer to criterion **H5**).

Excluded are:

- Sites originating from the 19th century or later which do not have veteran/ancient trees or were not derived from earlier parklands or forests.
- Upland sheep grazed closed-canopy woodland (refer to woodland criteria **H1/H3**).

Justification

Wood-pasture and parkland are mosaic habitats valued for their trees, especially veteran and ancient trees, and the plants and animals that they support. Grazing animals are fundamental to the existence of this habitat. The varied habitats within wood-pasture and parkland provide a home for a wide range of species (many of which occur only in these habitats) such as invertebrates, lichens, bryophytes and fungi which depend on dead and decaying wood. Individual trees, some of which may be of great size and age, are key elements of the habitat and many sites are also of national historic, cultural and landscape importance.

H5 Veteran and Ancient trees

Veteran trees are trees which are in late maturity and should be selected as LWS where they display one or more of the following:

- **The tree has a large girth relative to other mature trees of the same species (see table 2 for guidance)**
- **The tree displays characteristic age related features such as hollowing or crown die back.**
- **The tree supports important populations of invertebrates, lichens, fungi or bryophytes.**
- **Historical records of the individual tree exist.**

The land lying directly under the canopy should also be selected.

Ancient refers to a developmental stage beyond late maturity and such trees are likely to meet more than one of the above.

Guidance and Justification

Veteran and ancient trees may have a cultural and/or landscape value but they are also important for the species they support, particularly invertebrates, lichens, bryophytes and fungi. All qualifying species criteria should be recorded.

Veteran and ancient trees usually have a girth measurement which is larger than other trees of the same species[5]; however other characteristic features should also be taken into consideration. Such features may include trunk cavities, a large quantity of dead wood in the canopy or physical damage including bark loss.

H6 Traditional orchards – UK BAP priority habitat

Traditional orchards should be selected as LWS when all of the following apply:

- **The orchard consists of at least 5 fruit or nut trees planted at low density (3-20m apart).**
- **At least 50% of the trees in the orchard are traditional varieties of fruit or nut (not dwarf varieties).**
- **The ground flora consists of permanent grassland.**
- **The orchard is managed in a low intensity way without the wide use of pesticides, herbicides or inorganic fertilisers.**

Orchards listed on the national orchard inventory should be selected as Local Wildlife Sites providing they meet all the above.

Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance and Justification:

Most Cheshire farms and larger houses historically had an orchard. Although many orchards have been removed there are still areas of the county, such as Vale Royal, where numerous orchards still survive. A recent survey by PTES recorded 455 traditional orchards in the county covering an area of 90.2 hectares.

Traditional varieties of fruit trees (not modern dwarf varieties) may be unusual or highly localised cultivars[2] of species such as apple, damson, plum and pear. Traditional orchards are normally managed at low intensity, without the use of pesticides and inorganic fertilisers. Such orchards usually contain numerous micro habitats and are hotspots for biodiversity often supporting rare and declining species. The orchard may consist of several habitat features such as scrub, ponds, walls, hedgerows and hedgerow trees.

Windfall fruit is an important food source for populations of over wintering birds such as fieldfare and redwing. The presence of dead wood is particularly important as it may support rare species of saproxylic invertebrates, fungi, bryophytes and lichens[6]. The flowering trees provide an important source of pollen and nectar for numerous species of declining pollinators including bees, hoverflies and moths.

H7 – H15 Grassland and Heathland – UK BAP priority habitats

H7 Neutral grassland – Lowland meadows UK BAP (contains an EU Annex 1 habitat)

H8 Marshy grassland – Purple moor grass and rush pasture UK BAP habitat

H9 Acid grassland – Lowland dry acid grassland UK BAP habitat

H10 Calcareous grassland – Lowland calcareous grassland UK BAP habitat (contains LBAP limebed communities)

H11 Restorable grassland – good semi-improved (restorable to BAP grassland)

H12 Undetermined grassland – species rich (UK BAP habitat)

H13 Lowland heathland (dry) – Lowland heathland UK BAP habitat, EU Annex 1 habitat

H14 Lowland heathland (wet) - Lowland heathland UK BAP habitat, EU Annex 1 habitat

H15 Upland heathland – Upland heathland UK BAP habitat

Areas of semi-natural grassland which support 4 or more indicator species* (from table 3) should be selected as LWS. Areas of upland heath (above 300m) > 5ha should be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S1-13 should be selected.

*Refer to guidance. Thresholds lower for acid grassland/heathland.

Guidance

Apart from semi-improved indicator species, all indicators (in table 3) can be used interchangeably and a judgement made as to which grassland type best describes the site[5]; however where clear mosaics of different habitat types occur all relevant criteria codes should apply. If a judgement on grassland type is not possible (for example on post-industrial sites) the criterion **H12** may be used. Sites with >25% dwarf shrub should be recorded as heathland **H13/H14**, above approximately 300m this should be recorded as Upland heathland **H15**.

Minimum thresholds for BAP priority grassland habitats (and LWS criteria) are listed below together with the corresponding NVC communities and community mosaics[2,7]. **Indicator species must not be confined to the field edges.** DAFOR score is referred to (details in table 3).

H7 Neutral grassland, NVC MG4, MG5, MG8.Threshold to qualify as Lowland meadow BAP priority habitat[5] (and LWS status) requires a minimum of:

Four 'occasional' indicator species (from table 3), at least 3 of which are listed as neutral grassland indicators.

OR

Four 'rare' neutral grassland indicators (from table 3).

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved neutral grassland' and corresponds to code B2.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B2.1 in phase 1 (unimproved neutral grassland).

H8 Marshy grassland, NVC M22, M23, M23. Threshold to qualify as Purple moor grass and rush pasture BAP priority habitat[5] (and LWS status) requires a minimum of:

- *Four 'occasional' indicator species (from table 3), at least 3 of which are listed as marshy grassland indicators.*

  OR

- *Four 'rare' marshy grassland indicators (from table 3).*

There may be some overlap with NVC M27 but where dominated by meadowsweet, yellow iris or tussocky sedges the area should be selected under criterion **H18** Fens, swamps, bogs and reedbeds.

Marshy grassland corresponds to code B5 in phase 1 terminology.

H9 Acid grassland, NVC U1, U2, U4. Threshold to qualify as Lowland acid grassland BAP priority habitat[5] (and LWS status) requires a minimum of:

- *Three 'occasional' acid grassland/heathland indicator species (from table 3).*

  OR

- *Four 'rare' acid grassland/heathland indicators (from table 3).*

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved acid grassland' and corresponds to code B1.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B1.1 in phase 1 (unimproved acid grassland). Lowland acid grassland is often present in mosaics with Lowland heath. It occurs on enclosed land below approximately 300m (although particularly good examples may be considered if they lie above 300m and are enclosed). Above 300m unenclosed acid grassland is likely to be either degraded upland heath (<0.5m peat) or degraded blanket bog (>0.5m peat) and should be assessed against these criteria.

H10 Calcareous grassland, Examples of calcareous grassland in Cheshire (post industrial sites) do not generally conform to existing NVC communities. Threshold to qualify as Lowland calcareous grassland BAP priority habitat[5] (and LWS status) requires a minimum of:

- *Four 'occasional' indicator species (from table 3), at least 3 of which are listed as calcareous grassland indicators.*

OR

- *Four 'rare' calcareous grassland indicators (from table 3).*

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved calcareous grassland' and corresponds to code B3.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B3.1 in phase 1 (unimproved calcareous grassland).

H11 Restorable grassland[5] – (moderately species rich semi-improved, where there is good potential to restore to BAP quality). Threshold to qualify as restorable grassland habitat[5] (and LWS status) requires a minimum of:

- *Four 4 'occasional' indicator species present from table 3, but 2 or fewer occur from the lists given for neutral/acid/marshy/calcareous grassland.*

Restorable semi-improved grassland should have less than 30% cover of white clover and rye grass and generally host at least 3 of the following grasses: common bent, crested dog's tail, false oat grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, tufted hair grass (rarer grasses more typical of unimproved grassland may be counted).

This criterion includes degraded examples of the above NVC communities e.g. more species rich examples of MG1, MG6, MG9, MG10, MG11, MG13. The latter two are typical of coastal or floodplain grazing marsh and may be selected under criterion **H17**.

Where the above minimum threshold of indicator species are present the habitat is classified as 'good quality semi-improved grassland of moderate species richness'[5] and corresponds to either code B1.2, B2.2 or B3.2 in phase 1 terminology.

H12 Undetermined species rich grassland, Threshold to qualify as BAP priority grassland habitat[5] (and LWS status) requires a minimum of:

- *Four 'occasional' indicator species (from table 3), only one of which may be a semi-improved indicator.*

OR

- *Any four 'rare' neutral, marshy, acid or calcareous grassland indicators (from table 3).*

This type of grassland is still considered BAP priority habitat as indicator species are interchangable[5]. Species rich arable field margins may be selected using this criterion providing they are not sown.

Sown wildflower grasslands may qualify under this criterion once they have proved to be sustainable e.g. retaining a species-rich sward approximately 20 years after sowing.

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved grassland'[5] and is likely to best correspond to code B2.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B2.1 in phase 1.

H13 Lowland heathland – dry, may correspond to NVC H1, H2, H4, H7, H8, H9, H10, H11, H12, H16, H18 (usually present as a mosaic with acid grassland **H9**)

> Lowland heath generally occurs below 300m. There should be at least 25% cover of heathers and other dwarf shrubs with fine grasses, wildflowers and lichens in a complex mosaic. Areas with less than 25% dwarf shrub may qualify under criterion **H9** Acid grassland.

H14 Lowland heathland – wet, may correspond to NVC M15, M16 (wet heath may grade to wetter, sphagnum rich habitat which should be recorded as **H18**)

> Lowland heath generally occurs below 300m. There should be at least 25% cover of heathers and other dwarf shrubs with fine grasses, wildflowers and lichens in a complex mosaic. Areas with less than 25% dwarf shrub may qualify under criterion **H9** Acid grassland.

H15 Upland heathland, may correspond to NVC M3, M15, M17, M18, M19, M20 (where wet upland active bog with bog mosses and cottongrass record as **H18**)

> Upland heath generally occurs above 300m, on <0.5m of peat and above the line of enclosure. Above 600m (tree-line) it is considered to be a montane heath. On peats depths > 0.5m it is considered to be blanket bog (**H18**). There should be at least 25% cover of dwarf shrubs including heathers, bilberry, crowberry and western gorse.

Other grasslands

Roadside verges can be selected as LWS where they qualify under the grassland criteria. The calcareous grasslands on post-industrial sites e.g. those associated with the salt industry in mid-Cheshire, are recognised in the LBAP and may qualify under **H10** or **H12**.

Excluded are:

- Sites sown from a seed mix. However these sites may qualify once they have proved to be sustainable e.g. retaining a species-rich sward approximately 20 years after sowing. (Sown sites may be important habitats for terrestrial invertebrates and should be assessed against the species criteria. Such sites may also qualify under criterion **H26** Accessible natural greenspace.)
- Areas of degraded heath and mire above 300m where dwarf shrubs are less than frequent in **species poor** grassland (typically with bent and fine leaved fescues, mat

grass and purple moor grass). But consider if likely to qualify as waxcap grassland (**H16**).

Condition

The above criteria list the **minimum** thresholds required for a site to be considered as BAP priority habitat (or restorable to BAP priority habitat – **H11**) and to qualify as a LWS. A number of grassland sites exceed these quality thresholds and are therefore considered to be in 'favourable condition', which in phase 1 terminology is likely to be classified as 'unimproved'. For neutral and marshy grassland 'favourable condition' requires the presence of at least two frequent and two occasional indicator species (not including those listed as semi-improved indicators). For acid grassland there should be at least one frequent indicator and three occasional and for calcareous grassland there should be at least two frequent indicators and three occasional. The amount of scrub and undesirable species such as thistle and dock will also affect the condition assessment. Further information is given by Defra[5]

Justification

Semi-natural grassland and heathland can be hundreds or even thousands of years old and many sites have survived due to a long history of traditional management practices. Such habitats often support rich species assemblages, both above and below ground, with complex webs of beneficial associations of flowering plants, soil mycorrhizae and invertebrates. This complexity means that such habitats are difficult or impossible to replace once destroyed, yet semi-natural lowland grassland is being lost faster than any other habitat type in the UK. As a consequence of this rapid loss semi-natural grassland supports more priority species than any other habitat.

Due to the twin pressures of intensification of landuse and neglect Cheshire has lost 99% of its species rich grassland compared to a national average of 97% and there are now less than 60 hectares of lowland heath remaining in the county. For this reason all remaining areas of these important habitats should be considered for site selection.

Dry and wet lowland heaths and *Alopecurus* – *Sanguisorba* meadows (NVC MG4) are internationally important EU Annex 1 habitats.

H16 Waxcap grasslands – Local BAP habitat

Sites should be selected as LWS where[24]:

- they host one or more of the following: *Hygrocybe calptriformis, Hygrocybe punicea, Hygrocybe ovina, Hygrocybe ingrata, Hygrocybe spadicea (BAP and British Red list species)*

OR

- they host at least **8** Waxcap species identified on a single visit
- they host at least **12** Waxcap species (from table 4) identified on multiple visits

Two visits are recommended during the fruiting period, mid-Sept to mid-November

Guidance [24]

"Waxcap grassland" is so called because it is the specific habitat of a distinct assemblage of macrofungi which includes members of the genus *Hygrocybe,* otherwise known as waxcaps. The particular character of this habitat is that it is long-standing, unimproved, nutrient poor, well-drained, semi-natural grassland. It can occur in a variety of situations e.g. as pastures, reservoir embankments, churchyards or old cricket pitches. The sward is usually kept short by grazing or mowing and can be mossy. Given the low nutrient levels, waxcap grasslands often have a rich vascular plant flora. Indeed because of this they may be selected as Local Wildlife Sites even if their mycological importance is unappreciated. However, waxcap grasslands may also be botanically impoverished and thus their conservation value could be overlooked altogether.

To determine whether a grassland site should be selected as a Local Wildlife Site for its mycological importance, and to complement the criteria suggested for the selection of grassland sites as SSSIs based on mycological interest[23] these LWS selection criteria have been based primarily on the *Hygrocybe* (waxcap) species present.

There are several other fungal families whose species are also grassland specialists, and which occur alongside the *Hygrocybe* species in the distinct assemblages of macrofungi found in waxcap grasslands. These are the Clavariaceae (Fairy Clubs), Entolomataceae (Pink Gills) and Geoglossaceae (Earth Tongues). Although threshold figures are not provided for these species here, they should be identified and recorded if possible and will serve to further confirm the importance of a site (see Table 4 for several examples).

Justification

Grassland specialist fungi are vulnerable primarily through loss, fragmentation or changes to management of their grassland habitat. Research suggests that waxcap grasslands would take decades to re-establish. Evidence from surveys indicates that the UK is particularly important for grassland fungi compared with other European countries. Many species relatively common in the UK are on one or more European red lists. The UK therefore has an international responsibility for the conservation of these fungi and their special grassland habitat.

H17 Coastal and Floodplain grazing marsh -UK BAP priority habitat

Areas of coastal and floodplain grazing marsh that are subject to seasonal inundation should be selected. Areas of floodplain hosting a semi-natural, predominantly grassland flora that have the potential to be seasonally inundated should be selected. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance and Justification

Floodplains which retain a high water table for at least part of the year provide important habitat for populations of over wintering wildfowl and breeding waders. Where ditches retain water these can provide important habitat for populations of dragonflies, water voles and specialised wetland flora.

Coastal and floodplain grassland can be species poor (typically NVC communities MG9, MG10, MG11, MG13)[8] with species such as Yorkshire fog, tufted hair grass, soft rush, creeping bent, common fleabane and silverweed. However there may be areas with a richer flora which also meet the criteria for wetlands/grasslands. Where this is the case all criteria that are met should be recorded in addition to **H17**. If the site is predominantly fen it should be selected under criterion **H18** rather than as floodplain grazing marsh.

Many floodplains are no longer seasonally inundated due to changes in water management, however if the site retains a semi-natural, predominantly grassland flora and has the potential to be restored to grazing marsh, then it should be selected as a LWS.

H18 **Fens, swamps, bogs and reedbeds -** Fens UK BAP priority habitat, Lowland raised bog UK BAP priority habitat, Reedbeds UK BAP priority habitat, (contains EU Annex 1 habitat)

Areas of fens, swamps, reedbeds, lowland raised bogs and blanket bogs with sphagnum moss, cotton grasses or abundant tall vegetation such as common reed, tall sedges and grasses or wetland plants from table 5 should be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance

Wetland communities exist on soil that is waterlogged with the water table close to, or above the surface for most of the year. Fens are wetlands found on flood plains, on the fringes of open water, in valleys and basin-like depressions and around springs and flushes. Fens occur on both peat and mineral soils. Lowland raised bogs are found in similar locations but are only fed by rainwater and always occur on peat. Blanket bog is present in the uplands usually between 250 and 600m above sea level lying on >0.5m of peat (<0.5m it is considered to be upland heath).

Fens encompass a wide range of wetland communities including narrow fringes of tall herb vegetation (e.g. meadowsweet, yellow flag iris) alongside water bodies, sphagnum rich flushes and areas of tall swamp vegetation with common reed or sedges. Upland blanket bog and Lowland raised bogs are peatland communities dominated by bog mosses, cotton grasses and heathers. Schwingmoor is a very rare habitat developed from a raft of peat vegetation sitting on top of open water.

This criterion may correspond with the following NVC communities[2] which often occur in complex mosaics with marshy grasslands, wet heathland, wet woodland and open water.

M18, M17, (also M1, 2, 3, 15, 19, 20, 25) - raised bog communities.

M1-14, M18, 19, 27, S1-28, - fen and swamp communities

M17-20, M25 – upland blanket bog whether it is active or not.

Excluded are:

- Large/significant areas dominated by willowherb, butterbur, nettle or invasives such as Himalyan balsam.
- Areas of upland blanket bog which no longer contain semi-natural bog vegetation unless such areas are important for the protection and/or enhancement of the adjacent bog.
- Areas of degraded heath and mire above 300m where dwarf shrubs are less than frequent in **species poor** grassland (typically with bent and fine leaved fescues, mat grass and purple moor grass).

Justification

The wetlands of the Cheshire plain form part of a unique and internationally important landscape known as the 'Meres and Mosses Natural Area' which formed as glaciers retreated after the last ice age. Several wetlands have their origins in a post industrial landscape following extraction of sand and salt, whilst others sit on river floodplains such as the Mersey and the Dee.

These fragile landscapes with their suite of specialised wetland species, are just a fragment of their former size. Losses have occurred as land has been drained for agriculture and development, or as a result of diffuse pollution. Further losses have occurred as changes in traditional agricultural practices have led to the scrubbing over and drying out of former wetlands. In the uplands of east Cheshire the extent of blanket bog has been reduced through overgrazing, burning and pollution although restoration projects are helping to reverse the decline.

Reedbeds are amongst the most important habitats for birds in the UK. They support a distinctive breeding bird assemblage including nationally rare Red Data Birds such as the bittern, marsh harrier, Cetti`s warbler and bearded tit. They also provide roosting and feeding sites for migratory species and are used as roost sites for several raptor species in winter. Reedbeds are also important havens for invertebrates, particularly moths and beetles.

Upland blanket bog, Lowland raised bogs and closely related 'Transition mires' are all present in Cheshire and are internationally important EU Annex 1 habitats.

H19 **Meres, lakes, reservoirs, canals –** Eutrophic standing water UK BAP priority habitat, Mesotrophic lakes UK BAP priority habitat (contains European Annex 1 habitat)

- **Any mesotrophic or naturally eutrophic lake, mere, reservoir or canal greater than 2ha in size with an abundance of native floating, submerged and emergent plants should be selected. Qualifying emergent species are listed in table 5. Marshy grassland species may also be present.**
- **Any mere or lake which supports species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

Guidance

Mesotrophic lakes and meres have relatively low levels of plant nutrients whereas naturally eutrophic standing waters have plentiful nutrients. Mesotrophic water bodies are rare and are now normally confined to the margins of upland areas. In Cheshire much of the open water is highly eutrophic due to artificially increased levels of phosphorous and nitrogen leading to an increase in algae and a loss of other aquatic organisms.

Where the vegetation (or other aquatic species assemblages) suggests the level of nutrient enrichment is lower, the site should be selected as a LWS. Naturally eutrophic waters can be identified by the presence of aquatic species such as pondweeds, spiked watermilfoil, yellow water lily and stoneworts and are often fringed by common reed[8].

Reservoirs and canals may also be considered under this category, so long as they meet the selection criteria by supporting an abundance of native floating, submerged and emergent plants. Where this is not the case such sites may qualify under the species selection criteria or **H26** Accessible natural greenspace or **H24** Wildlife corridors/buffers.

There are various corresponding aquatic, swamp and fen NVC communities[2] including OV28-OV35.

Justification

The meres of the Cheshire plain form part of a unique and internationally important landscape known as the 'Meres and Mosses Natural Area' which formed as glaciers retreated after the last ice age. Many of Cheshire's lakes have their origins in a post industrial landscape following extraction of sand and salt and have since developed into important wildlife habitats.

Naturally eutrophic lakes are internationally important EU Annex 1 habitats.

H20 Ponds and ditches – contains UK BAP priority habitat

All seasonal or permanent ponds or ditches of <2ha should be selected as LWS providing one or more of the following criteria are met:

- ***High value*[5] ponds* or ditches which support species or species assemblages which qualify under the species selection criteria S 1-13 and are *dependent* on the pond.**
- **Ponds or ditches which sit within 250m of a *high value* pond or ditch, which have a strong likelihood of hosting the qualifying species or species assemblages.**
- **All ponds which sit within 250m of a *high value* pond where they form part of 'an exceptional pond density or pond network**'.**
- **Ponds/pond clusters* or ditches with at least 9 species[9] of native floating or submerged aquatic or emergent wetland species and a good physical structure***. Qualifying emergent species are listed in table 5. Marshy grassland species from table 3 may be substituted.**

*Including all ponds within the **immediate** cluster (with connectivity of water bodies at times of high water levels) unless there is a reason to exclude.
**According to Pondlife
***Excludes ponds where the majority of the flora has been introduced unless the pond has a good physical structure/water quality, with conditions suitable for supporting healthy populations of invertebrates or amphibians or breeding wetland birds. Ponds stocked with high numbers of fish are unlikely to meet this requirement.

Guidance

The most valuable ponds/pond clusters have a diverse flora and a good physical structure with areas of open water and a good marginal marsh. The selected area must contain the whole pond (or pond cluster) and sufficient habitat to enable the species or species assemblages to be maintained as a minimum viable population. Where this cannot be estimated a minimum 6 metre riparian zone around the pond should be selected. Where ponds host *good* breeding populations of great crested newts (refer to criterion **S5**), any habitat suitable for foraging which sits within 250m of the pond could be considered for selection.

Ditches can be considered as linear ponds and should be selected as LWS where they meet the above criterion. Ditches which do not meet the above criterion may meet criterion **H24** Wildlife corridors/buffers. Where a pond is part of another habitat (e.g. part of a larger wetland), or was selected using species criteria, all qualifying criteria should be listed on the site citation, including **H20.**

There are various corresponding aquatic, swamp and fen NVC communities[2] including OV28-OV35.

The criteria for selecting ponds have been set following an audit of Local Wildlife Sites in Cheshire West and Chester LA[35] and subsequent review of the quality of ponds present on these sites.

Justification

Cheshire has approximately 16,000[15] ponds which is approximately 10% of the total number for England and Wales[10]. Most are farm ponds many of which originate from flooded marl pits. Today only 40% of those existing in 1870 remain[10] and numbers are continuing to decline through natural succession, deliberate infilling and runoff from agricultural practices.

Ponds often sit within intensively managed grasslands and provide important stepping stones for the movement of wetland species through the landscape. They also provide open water for birds and mammals to drink from and feeding areas for bats. In south Cheshire ponds form an integral part of the internationally important landscape known as the 'Meres and Mosses Natural Area'.

H21 **Rivers –** contains UK BAP priority and European Annex 1 habitat

All *near natural*[2] sections of rivers and larger streams will be selected as LWS where they display one or more of the following features:

- **Display signs of active erosion and /or meandering, such as extensive areas of gravel, pebble and sand beds, eroding cliffs or the presence of ox bow lakes. Many of these features will be unvegetated reflecting their dynamic nature.**
- **Support an abundance of water crowfoots (*Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation – a European Annex 1 habitat)**
- **Support invertebrate species that are strongly indicative of river shingle.**
- **Support species or species assemblages which qualify under the species selection criteria S 1-13.**

Guidance and justification

The LWS should include all areas of the active river system such as floodplains, ox bow lakes and ponds which were formed as part of the natural river evolution process. Consideration should be given to areas of historic floodplain which may be essential to the functioning of the river system[2]. In the absence of adjacent qualifying areas a 6 metre riparian zone from the top of the riverbank should be included.

Sections of the river of >250m away from any qualifying features should be excluded unless there is potential for re-colonisation or restoration, for example when considering the restoration of areas of the river which sit between two qualifying sections.

Sections of several rivers in Cheshire support an abundance of river water crowfoot. These are internationally important Annex 1 habitats and therefore should be selected as LWS.

There are various corresponding aquatic, swamp and fen NVC communities including A2, A8-9, A11-20, S4-9, S11-14, S16-19, S22 and others[2]. Where there is a good marginal vegetation present but the above river criterion is not met, the site should be selected under **H18** Fens, swamps, bogs and reedbeds.

Excluded are:

Canals

Ditches

H22 Rock outcrop and stone structures – contains LBAP habitat and UK BAP priority habitat

Areas of rock, scree and stone structures supporting a rich assemblage of ferns, lichens and bryophytes will be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance and justification

This type of vegetation can occur in areas of low atmospheric pollution and is associated with acidic rock surfaces (both sedimentary and igneous), usually at moderate altitudes below 600m. Often these surfaces are found on man-made structures such as stone walls and gravestones, but also on glacial erratics which are pieces of rock that differ from the native rock of the area. The vegetation may correspond with the NVC U21 community.

Rock ledges and cliff faces which are inaccessible to grazing animals often develop a specialised flora and support rare species. Such habitats may host numerous terrestrial invertebrates such as beetles, diptera and spiders. Raptors such as the peregrine falcon also favour this particular habitat.

H23 Open mosaics on previously developed land- UK BAP priority habitat

Sites should be selected that fulfil the following criterion (where other habitat criteria are not met):

- **The site supports species or species assemblages which qualify under the species selection criteria S 1-13.**

Where the above is not fulfilled all of the following must apply[2]:

- **The site is an open mosaic habitat of at least 0.25ha.**
- **There is a known history of disturbance or evidence material has been added or removed.**
- **The vegetation comprises early successional communities of mainly stress tolerant species such as annuals, mosses/liverworts, lichens, ruderals, inundation species, open grassland, flower rich grassland, heathland.**
- **The site contains some loose bare substrate (very small areas will qualify).**

Guidance and justification

Open mosaics may include areas of scattered scrub or other communities such as reedbed or open water however early successional communities should comprise the majority of the habitat. Such communities often contain numerous niches within a relatively small area and can be particularly important for invertebrates, reptiles and amphibians with many sites hosting rare or declining species. Open mosaic vegetation sites may also be important for birds such as little ringed plover, skylark and grey partridge. These primary successions are generally rare in the wider landscape and may persist for decades without active management as edaphic conditions can severely limit plant growth. However with appropriate management these sites can persist indefinitely. The plant species of such areas are often declining in the wider countryside but there are also likely to be exotic species which may contribute to the value of the site for invertebrates and birds. Typical sites include disused quarries, former railway sidings and landfill sites. Such sites tend to be concentrated in urban or urban fringes or former industrial landscapes.

All selection criteria that apply should be recorded.

H24 Wildlife corridors/buffers

Areas of land including hedges and ditches may be selected for inclusion within (or extension to) LWS where they fulfil at least one of the following:

- **Provide a physical link between two or more areas of high wildlife value and has favourable conditions for the movement of species between these habitats.**
- **Provide a buffer zone protecting vulnerable sites from disturbance, pollution or development/recreational pressure.**
- **Provide additional buffering habitat for species associated with existing wildlife sites.**
- **Provide a significant physical extension to an area of high wildlife value and has favourable conditions for the movement of species out into the wider countryside.**

Guidance and Justification

The movement of species through the countryside is vital for the sustainability of ecosystems by facilitating the genetic exchange of species and enabling movement in response to climate change[21]. Important wildlife sites should be connected to other wildlife habitats and the wider countryside[11, 21], although it is recognised that some sites may consist of fragments of discontinuous habitat which cannot be linked.

Sites should be selected as LWS using criterion **H24** where they fail to meet other selection criteria but have the potential to act as wildlife corridors. This criterion can also be used to buffer wildlife sites from existing or potential factors that may adversely affect the site, or to provide additional habitat for species associated with an existing wildlife site.

Hedges and ditches of *high value* may meet criteria **H20** Ponds and ditches or **H25** Hedges.

H25 High value hedges – UK BAP priority habitat

***High value*[5] species rich hedges at least 20m in length should be selected as LWS where either of the following apply:**

- If they have a least 4 native woody species in a 30metre section within 2m of the centre of the hedge (excluding bramble and honeysuckle)[2]

Or

- A high biodiversity value within the hedge and surrounding ground flora.

Guidance and Justification

Many hedges are protected by the hedgerow regulations and should not require further protection; however *high value*[5] species rich hedges can be considered for selection. Such hedges are likely to be ancient and may date back to before the enclosures act and are usually associated with historic features such as green lanes, banks, ditches, walls or relic woodland boundaries. They often provide refuges for species such as woodland plants, butterflies, moths, farmland birds, bats, amphibians and dormice and may contain ancient or veteran trees. Adjacent verges, ditches and field margins should also be included within the LWS boundary.

Hedges of lower value may meet criterion **H24** Wildlife corridors/buffers.

H26 Accessible natural greenspace

Sites should be selected as LWS under criterion H26 when the social/aesthetic/educational interest of the site derives from the wildlife features of the site.

Guidance

Where local space provides primarily for social and community benefits *not* related to a site's nature conservation interest, it should *not* be selected as a LWS, but should be recognised for these in relation to local open space policies[11]. The Open Space Strategy should make provision elsewhere for the demand for other functions which would have an adverse effect on Local Sites' biodiversity or geological value[11].

The social/aesthetic/educational values of a site *related to nature* include:

- Recorded biological history (especially valuable as habitats change with climate change).
- Opportunities for public access for appreciation of nature.
- Educational value in relation to nature (both formal and informal and at all ages/levels).

H27 Mosaics

This criterion is only to be used to select mosaic sites which fail to reach the minimum size specified in the habitat criteria (e.g. woodlands which have a size threshold). The total area of the site must be equivalent to the minimum size specified for the component habitat. The majority of the site must meet the LWS criteria. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance

Where a habitat mosaic complements/buffers an adjacent LWS through provision of additional habitat for species associated with the LWS, it should be incorporated into the existing LWS or selected independently using criterion **H24 Wildlife corridors/buffers**.

All selection criteria that apply should be recorded.

H28 Saltmarsh and intertidal mudflats, UK BAP priority habitat, contains European Annex 1 habitat.

All zones of saltmarsh and intertidal mudflats which support characteristic flora shall be selected. All areas of anthropogenic or naturally occurring inland saltmarsh/salt meadows should be selected. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected

Guidance

There is a natural zonation of plant communities from species poor lower saltmarsh at the edge of estuarine mudflats through the mid saltmarsh to the upper tidal limit swamp or transitional communities. Salt tolerant plants of the lower salt marsh are adapted to regular immersion by the tides, whereas upper salt marsh plants may only be inundated occasionally. Mudflats and saltmarsh are particularly important habitats for wading birds and wildfowl but also provide feeding grounds for species such as skylark and meadow pipit.

Sites which support characteristic species of mud flats and saltmarsh should be selected as LWS. Accreting areas should be included as they develop the characteristic flora and fauna. Many sites would additionally qualify on the grounds of species criteria, particularly bird assemblages. Where this is the case the relevant species criteria should also be recorded. Where coastal grassland is present this should be assessed using criterion **H17**.

Justification

The majority of saltmarsh and mudflats of the Dee and Mersey estuaries are internationally important areas and protected through legally designated sites including SPAs, SSSIs and SACs. However some areas remain unprotected and should be considered for LWS selection if they support characteristic species.

Inland salt marsh and salt meadows are post-industrial habitats which have developed following salt extraction. There are a small number in mid-Cheshire. Very rarely such habitats may occur naturally due to brine springs enabling the development of saltmarsh vegetation. Inland salt marsh is a European Annex 1 habitat.

H29 Sand dunes and estuarine rocky habitats UK BAP priority habitat (contains Annex 1 habitat)

All sites that support characteristic species of sand dunes or estuarine rocky habitats shall be selected. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance

Sand dunes depend upon dune building grasses such as marram grass which traps sand above the high water mark. There is a natural zonation of plant communities from species poor lower dunes through to the more stable upper dunes which can be species rich.

The reduced salinity of an estuarine rocky habitat allows specialised communities to develop, often with rare species of algae and lichens. Estuarine rocky habitat is a European Annex 1 habitat.

Sites which support characteristic species of dunes and estuarine rocky habitats should be selected as LWS. Accreting areas should be included as they develop the characteristic flora and fauna. Many sites also would qualify on the grounds of species criteria, particularly bird assemblages. Where this is the case the relevant species criteria should also be recorded.

Justification

The majority of sand dunes and rocky habitats of the Dee and Mersey estuaries are internationally important areas and protected through legally designated sites including SPAs, SSSIs and SACs. However some areas remain unprotected and should be considered for LWS selection if they support characteristic species.

H30 Maritime cliff and slopes UK BAP priority habitat

All sites that support characteristic species of maritime cliff and slopes should be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.

Guidance

Maritime cliff and slope comprises sloping to vertical faces on the coastline. This habitat broadly fits into one of two categories:

- Soft cliffs and slopes which can be colonised relatively easily by maritime or inland species particularly grassland, ruderal and scrub vegetation.
- Hard cliffs which may be rich in lichens but have fewer higher plants apart from on ledges.

The vegetation can vary substantially depending upon substrate and prevailing conditions and can extend inland for a considerable distance to the limit of salt spray deposition. The edge of this habitat on the seaward side extends to the limit of the supralittoral zone and includes the splash zone lichens.

Sites which support characteristic species of maritime cliff and slope habitats should be selected as LWS. The boundaries should include all cliff top areas which are influenced by salt deposition. Sites may also qualify on the grounds of species criteria. Where this is the case the relevant species criteria should also be recorded.

Justification

Maritime cliffs and slopes are particularly important for the species they support. Hard cliffs may support populations of breeding seabirds and characteristic species of lichens. Soft cliffs may host populations of sandmartins as well as rare invertebrates including species of solitary bees, wasps, weevils and beetles.

The majority of maritime cliff and slope habitats of the Dee and Mersey estuaries are internationally important areas and protected through legally designated sites including SPAs, SSSIs and SACs. However some areas remain unprotected and should be considered for LWS selection if they support characteristic species.

Table 1 Class 1 Ancient Woodland indicator species for Cheshire[4].

Taxon	Vernacular	Comment
Allium ursinum	Ramsons	May also be found in non-ancient alder woodland (NVC W6d)
Campanula latifolia	Giant bellflower	Blue flowered form only
Campanula trachelium	Nettle-leaved bellflower	
Carex strigosa	Thin-spiked wood sedge	
Carex sylvatica	Wood sedge	
Chrysosplenium alternifolium	Alternate-leaved golden saxifrage	
Crataegus oxyacanthoides	Woodland hawthorn	Beware of plantings
Daphne laureola	Spurge laurel	Beware of plantings
Elymus caninus	Bearded couch	
Euonymus europaeus	Spindle	
Festuca altissima	Wood fescue	
Gagea lutea	Yellow star of Bethlehem	
Galium odoratum	Woodruff	
Hordelymus europaeus	Wood barley	
Lathraea squamaria	Toothwort	
Lathyrus sylvestris	Wild pea	
Luzula pilosa	Hairy woodrush	
Melica uniflora	Wood melick	
Paris quadrifolia	Herb Paris	
Poa nemoralis	Wood meadow grass	
Polygonatum multiflorum	Solomon's seal	Beware 'Solomon's Walrus' *Polygonatum x hybridum* – the garden form
Polystichum aculeatum	Hard shield fern	Also in relict hedges
Polystichum setiferum	Soft shield fern	
Prunus padus	Bird cherry	Also in relict hedges. Beware of plantings.
Rhamnus catharticus	Purging buckthorn	Also in relict hedges
Sanicula europaea	Sanicle	
Sorbus torminalis	Wild service tree	Also in relict hedges
Stellaria neglecta	Greater chickweed	
Stellaria nemorum	Wood stitchwort	
Tilia cordata	Small-leaved lime	Beware of plantings
Viola odorata	Sweet violet	
Viola reichenbachiana	Early dog violet	

Species such as greater stitchwort, barren strawberry, dog's mercury, yellow archangel and wood speedwell (class 2 indicators) are often found in ancient woodlands but may survive long periods after a wood has been felled and subsequently re-invade secondary woodland.

Table 2 Minimum tree girth for trees to be considered 'very large'[5].

Tree girth (minimum)	Species
80 cm	Holly
133cm	Rowan
160cm	Birch spp. hawthorn, field maple
200cm	Alder, white/crack willow
213cm	Goat willow, hornbeam, holm oak
266cm	Scots pine
320cm	Ash, small-leaved lime, beech
373cm	Elm, sycamore
400cm	Oaks, yew, sweet chestnut

These measurements represent a guide and where trees have obviously lost girth due to great age this should be taken into account

Table 3 Indicators and thresholds for grassland and heathland UK BAP priority habitat (Defra[5]).

	Habitat type (indicators are all interchangeable[5])				
Indicator species **Refer to descriptions for H1-H12 for full explanation. In summary DAFOR 'occasional' occurrence of any 4 species from list below denotes LWS status grassland. For acid grassland the threshold is 3 'occasional' acid grassland indicators. Indicators should not be confined to field edges**	**Neutral grassland** **(lowland meadows and other neutral grassland).** At least 4 DAFOR 'rare' neutral indicators (or 3 'occasional' neutral indicators plus one other 'occasional' indicator from the table).	**Marshy grassland** **(purple moor grass and rush pasture)** At least 4 DAFOR 'rare' marshy indicators (or 3 'occasional' marshy indicators plus one other 'occasional' indicator from the table).	**Acid grassland or acid grassland/ heathland mosaics** (dry and wet) At least 4 DAFOR 'rare' or 3 'occasional' acid indicators should be present.	**Lowland Calcareous grassland** At least 4 DAFOR 'rare' calcareous indicators (or 3 'occasional' calcareous indicators plus one other 'occasional' indicator from the table).	**Semi-improved grassland[a]** The presence of at least 4 DAFOR 'occasional' indicators denotes grassland which may be restored to BAP quality. Indicators should not be confined to field edges
Adder's tongue fern	✓				
Agrimony	✓				
Autumn hawkbit	✓				✓
Betony	✓		✓	✓	
Bilberry			✓		
Biting stonecrop			✓		
Bitter vetch	✓		✓		
Black knapweed	✓				
Black medick					✓
Bloody crane's-bill				✓	
Blue fleabane			✓		
Bog asphodel		✓	✓		
Bog pimpernel		✓			
Bristle club rush		✓			
Buck's-horn plantain			✓		
Bugle	✓	✓			
Bulbous buttercup					✓
Burnet saxifrage	✓				
Carline thistle				✓	
Clustered bellflower				✓	
Common bird's-foot trefoil	✓		✓	✓	
Common bistort	✓				
Common catsear					✓
Common centaury			✓	✓	
Common meadow-rue	✓				
Common rock-rose			✓	✓	
Common sorrel					✓
Common stork's-bill			✓		
Common valerian		✓			
Cotton grasses		✓	✓		
Cowberry			✓		

Cowslip	✓			✓	
Cranberry			✓		
Crowberry			✓		
Cuckoo flower					✓
Devilsbit scabious	✓	✓	✓	✓	
Dropwort (s)	✓			✓	
Dyer's greenweed	✓				
Eyebrights	✓		✓	✓	
Fairy flax				✓	
Field scabious	✓			✓	
Field woodrush					✓
Gentians				✓	
Germander speedwell					✓
Globeflower		✓			
Goatsbeard	✓				
Greater bird's-foot trefoil	✓	✓			
Greater burnet	✓	✓			
Greater knapweed				✓	
Hairy violet				✓	
Harebell			✓	✓	
Heath bedstraw			✓		
Heath speedwell			✓		
Heathers[b]		✓	✓		
Hemp-agrimony		✓			
Hoary Plantain				✓	
Hoary Rock-rose				✓	
Horseshoe vetch				✓	
Jointed rushes		✓			
Kidney vetch				✓	
Lady's bedstraw	✓		✓	✓	
Lady's mantle sp.	✓				
Lesser hawkbit			✓	✓	
Lesser spearwort		✓			
Lesser trefoil					✓
Lesser water-parsnip		✓			
Lichens			✓		
Lousewort		✓	✓		
Marjoram				✓	
Marsh cinquefoil		✓			
Marsh hawk's-beard		✓			
Marsh marigold	✓	✓			
Marsh pennywort		✓			
Marsh valerian	✓	✓			
Marsh violet		✓			
Marsh/fen bedstraw	✓	✓			
Meadow buttercup					✓
Meadow rue		✓			
Meadow saxifrage	✓			✓	
Meadow thistle		✓			
Meadow vetchling	✓				

Meadowsweet	✓	✓			
Milkwort sp.	✓		✓	✓	
Mountain pansy			✓		
Mouse-ear hawkweed			✓	✓	
Narrow leaved water dropwort	✓	✓			
Orchids	✓	✓		✓	
Ox-eye daisy	✓			✓	
Parsley-pierts			✓		
Pepper saxifrage	✓				
Pignut	✓				
Purple Milk-vetch			✓	✓	
Ragged robin	✓	✓			
Red clover					✓
Restharrow				✓	
Ribwort plantain					✓
Rough hawkbit	✓	✓	✓	✓	
Salad burnet	✓			✓	
Saw-wort	✓	✓	✓	✓	
Selfheal					✓
Sheep's bit			✓		
Sheep's-sorrel			✓		
Shepherd's cress			✓		
Small sedges[c]	✓	✓	✓	✓	
Small scabious				✓	
Sneezewort	✓	✓			
Spagnum sp.		✓	✓		
Squinancywort				✓	
Stemless/Dwarf thistle				✓	
Sundew			✓		
Thyme-leaved sandwort				✓	
Thymes			✓		
Tormentil (s)		✓	✓		
Violets			✓		
Water avens	✓	✓			
Water mint	✓	✓			
Western gorse			✓		
Whorled caraway		✓			
Wild angelica		✓			
Wild basil				✓	
Wild strawberry				✓	
Wild Thyme			✓	✓	
Wood anemone	✓		✓		
Wood sage			✓		
Yarrow					✓
Yellow rattle	✓				
Yellow-wort				✓	

[a]Restorable semi-improved grassland should generally host at least 3 of the following grasses: common bent, crested dog's tail, false oat grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, tufted hair grass (rarer grasses typical of unimproved grassland also count) and should have less than 30% cover of white clover and rye grass.

[b] *Including cross leaved heath Erica tetralix, bell heather Erica cinerea, ling Calluna vulgaris.*

[c] *Excluding hairy sedge Carex hirta .*

Indicators should not be confined to field edges. 'Occasional' on the DAFOR scale of relative abundance equates to a minimum cover of 11% or the occurrence of a species in at least 3 random samples from a total of ten assessments[5]. Cheshire grassland axiophytes[28] not listed above and species listed under S13 can be considered as indicators.

Table 4 Cheshire waxcap grassland species

Species	Vernacular
Hygrocybe colemanniana	Toasted Waxcap
Hygrocybe fornicata	Earthy Waxcap
Hygrocybe russocoriaceae	Cedarwood Waxcap
Hygrocybe flavipes	Yellow Foot Waxcap
Hygrocybe nitrata	Nitrous Waxcap
Hygrocybe reidii	Honey Waxcap
Hygrocybe pratensis[3]	Meadow Waxcap
Hygrocybe quieta	Oily waxcap
Hygrocybe vitellina	
Hygrocybe coccinea	Scarlet Waxcap
Hygrocybe irrigata	Slimy Waxcap
Hygrocybe insipida	Spangle Waxcap
Hygrocybe glutinipes	Glutinous Waxcap
Hygrocybe ceracea	Butter Waxcap
Hygrocybe acutoconica	Persistent Waxcap
Hygrocybe chlorophana	Golden Waxcap
Hygrocybe laeta	Heath Waxcap
Hygrocybe psittacina	Parrot Waxcap
Hygrocybe virginea	Snowy Waxcap
Hygrocybe conica	Blackening waxcap
+ any other *Hygrocybe* species	
Other examples of CHEG species which may be commonly encountered	
Clavulinopsis corniculatus	Meadow Coral
Clavulinopsis helvola	Yellow Club
Clavulinopsis fusiformis	Golden Spindles
Clavaria fragilis	White Spindles
Entoloma conferendum	Star Pinkgill
Entoloma serrulatum	Blue Edge Pinkgill

The table does not contain a complete list of *Hygrocybe* species but includes those which have been recorded in Cheshire. If several varieties of a species have been recorded at a site then these should not be counted separately e.g. *Hygrocybe pratensis* var. *pratensis* and *Hygrocybe pratensis* var. *pallida* should only be counted as one species. Where *Hygrocybe calyptriformis, Hygrocybe punicea, Hygrocybe ovina, Hygrocybe ingrata or Hygrocybe spadicea (BAP and British red list)* are present the site should qualify as a LWS.

Table 5

Indicator species for wetland – Cheshire list[32]

Amphibious bistort	Marsh pennywort
Arrowhead (native only)	Marsh valerian
Bittersweet	Marsh woundwort
Blinks	Marsh/fen bedstraw
Bogbean	Marsh-marigold
Bog-mosses (*Sphagnum*)	Marsh yellow cress
Brooklime	Meadowsweet
Bur marigold (nodding, trifid),	Pondweeds (native – bog, broadleaved, curled, blunt leaved, small, red)
Bur-reeds	Ragged robin
Celery-leaved buttercup	Reed canary-grass
Clubrushes (grey, common, floating)	Reed sweet-grass
Common butterwort	Reedmace (common and lesser)
Common reed	Rushes (excluding soft/hard rush)
Common skullcap	Sedges
Cottongrass	Spearwort sp.
Cowbane	Speedwells (marsh, pink water, water),
Crowfoot sp.	Spiked water milfoil
Duckweeds (common, ivy leaved, fat, greater)	Spike rushes
Figwort (water)	St John's wort sp.
Flowering rush	Water cress
Fools water cress	Water dropworts
Frogbit	Forget-me-not (water and tufted)
Greater bladderwort	Horsetails (water and marsh)
Gypsywort	Valarian (common, marsh)
Hemp-Agrimony	Water mint(s)
Hornworts (soft, rigid),	Water pepper
Iris sp. (native only)	Water plantains (common, lesser water)
Lesser marshwort	Water purslane
Lesser water parsnip	Water violet
Loosestrife (yellow, purple)	Whorl grass
Marsh arrowgrass	Wild angelica
Marsh cinqfoil	Yellow water lily

Other emergent/wetland specialist species not appearing on this list may be considered if native

3. Species criteria

The criteria for species will be based on the following considerations:

Sites should be selected that support or have supported in the past 5 years:

- **Nationally or globally critically endangered, endangered, vulnerable, or near threatened species according to IUCN guidelines. Or nationally rare or scarce according to non-IUCN designation.**
- **All species and habitats listed on the European Birds Directive and European Habitats directive.**
- **Locally rare or scarce plant species[18,20] i.e. those which occur in:**
    - **≤ 6 sites in the county (rare). Approximates to ≤ 1% of tetrads/monads in Cheshire and should be based upon distribution records less than 20 years old.**
    - **≤ 7-16 sites in the county (scarce). Approximates to ≤ 1-3 % of tetrads/monads in Cheshire and should be based upon distribution records less than 20 years old.**
- **Edge of range species[11].**
- **Native species fully protected under the Wildlife and Countryside Act 1981 Schedules 5 and 8 (but refer to relevant species class).**
- **UK BAP or Local LBAP species – (but refer to relevant species class as not all BAP species necessarily qualify).** Note the UK BAP has now been superseded by the S41 list (section 41 of the 2006 NERC act). The S41 list for England has all the species and habitats on the previous UK BAP which are present in England plus one additional species (hen harrier). As the UK BAP terminology is still widely recognised it has been used in this document and should be considered interchangeable with the S41 list.
- **Species assemblages deemed to be important.** (The number of species which constitutes a 'locally outstanding assemblage' will be set for each species criterion).
- **≥ 0.5% of the British breeding population of any species.**

All qualifying population sizes/assemblages are best approximations according to current knowledge, however in many cases the data is poor or out of date. Where there is doubt expert opinion should always be taken into account.

The area of the site must contain sufficient habitat to enable the species to be maintained as a minimum viable population[11] (MVP). For animal species this approximates to a minimum of 50 *breeding* individuals (or a key life stage thereof) for the short term avoidance of inbreeding. A population of 500 is considered the MVP for the long term survival of many groups of species[12]. These figures provide a cautionary guideline only as many other factors may influence survival.

S1 Butterflies

Sites should be selected that regularly support:

- **Probable breeding populations of white letter hairstreak, small pearl bordered fritillary, small heath, wall, grayling or dingy skipper.**

  Or

- **An assemblage of species with a minimum total score of 16 points[22] calculated from table 6.**

Guidance and justification

Sites which qualify for LWS status under criterion **S1** are also likely to qualify under the habitat selection criteria. All qualifying criteria should be recorded on the site citation.

Table 6

List of butterflies in the Cheshire region with their local, national or global significance

Species	Global status IUCN 2011	UK red list status[16] 2010	BAP status 2011	Tetrads in Cheshire (based on 2005-2009)	Points
Speckled Wood				401	1
Green-veined White				384	1
Red Admiral				382	1
Small Tortoiseshell				380	1
Peacock				365	1
Large White				359	1
Meadow Brown				355	1
Small White				332	1
Gatekeeper				332	1
Orange Tip				321	1
Comma				300	1
Holly Blue				205	1
Brimstone				203	2
Small Copper				185	2
Small Skipper				160	2
Large Skipper				156	2
Common Blue				151	2
Wall	Not evaluated	Near threatened	UK BAP	57	20
Purple Hairstreak				57	5
Small Heath	Not	Near	UK BAP	51	20

	evaluated	threatened			
White-letter Hairstreak	Not evaluated	Endangered	UK BAP	43	20
Green Hairstreak				33	5
Ringlet	Not evaluated		LBAP	28	5
Grayling	Least concern	Vulnerable	UK BAP	14	20
Dingy Skipper	Not evaluated	Vulnerable	UK BAP	10	20
Small Pearl-bordered Fritillary	Not evaluated	Near threatened	UK BAP	1	20

S2 Birds

Sites should be selected that support either:

- **Any *regular* probable breeding or over wintering* bird species listed in table 7.**
- **Any *regular* over wintering population as listed in table 8.**
- **Any established colony as listed in table 8.**
- **At least 10 probable breeding species from tables 7 and 9 (these records can be from a single visit). Where a site is exceptional on a county-wide basis it may be selected with a lower number of breeding species.**
- **≥0.5% of the British breeding population of any species.**

* Unless listed as breeding only

Guidance

For birds listed in tables 7 and 8 ***regular*** probable breeding/over wintering records should generally equate to data from any three years out of the preceding five years. However it is recognised that past records are not always available and where missing the presence of at least **five** additional probable breeding or overwintering species/populations (as described in tables 7, 8 and 9) is required for the site to qualify as a LWS.

Probable breeding evidence[33] includes:

Pair observed in suitable nesting habitat in breeding season; Permanent territory presumed through registration of territorial behaviour (song etc.) on at least two different days a week or more apart at the same place or many individuals on one day; Courtship and display (judged to be in or near potential breeding habitat - be cautious with wildfowl); Visiting probable nest site; Agitated behaviour or anxiety calls from adults suggesting probable presence of nest or young nearby; Brood patch on adult examined in the hand suggesting incubation; Nest building or excavating nest-hole.

Table 7 Rare or scarce bird species in the Cheshire region – probable breeding or* over wintering

Species	**Global status IUCN 2011**	**UK Birds of conservation concern[31]**	**Status 2011**	**Rare breeding birds 2004-2006[30]** (<20 confirmed breeding pairs in Cheshire)	**Scarce breeding birds 2004-2006[30]** (20-100 confirmed breeding pairs in Cheshire)
Avocet	Least concern	Amber	Schedule 1		✓
Bearded tit	Least concern	Amber	Schedule 1	✓	
Bittern	Least concern	Red	UK BAP, Schedule 1	✓	
Black necked grebe	Least concern	Amber	LBAP, Schedule 1	✓	
Common Redstart	Least concern	Amber			✓

Corn bunting	Least concern	Red	UK BAP	✓	
Cuckoo	Least concern	Red	UK BAP	✓	
Dunlin*	Least concern	Red		✓	
Eurasian curlew	Near threatened	Amber	UK BAP	✓	
Gadwall	Least concern	Amber		✓	
Garganey*	Least concern	Amber	Schedule 1	✓	
Golden plover	Least concern	Amber		✓	
Goshawk*	Least concern	Green	Schedule 1	✓	
Hen harrier	Least concern	Red	S41 NERC, Schedule 1	✓	
Lesser spotted woodpecker	Least concern	Red	UK BAP		✓
Little ringed plover	Least concern	Green	Schedule 1	✓	
Long-eared owl	Least concern	Green		✓	
Marsh harrier	Least concern	Amber	Schedule 1	✓	
Marsh tit	Least concern	Red	UK BAP		✓
Merlin	Least concern	Amber	Schedule 1	✓	
Nightjar	Least concern	Red	UK BAP	✓	
Peregrine	Least concern	Green	Schedule 1	✓	
Pied flycatcher	Least concern	Amber			✓
Pochard*	Least concern	Amber		✓	
Red grouse	Least concern	Amber	UK BAP		Estimate of 300 pairs in 2006 following reintroduction programme
Redshank	Least concern	Amber		✓	
Ring ouzel	Least concern	Red	UK BAP		✓
Short-eared owl	Least concern	Amber		✓	
Snipe	Least concern	Amber			✓
Tree pipit	Least concern	Red	UK BAP	✓	
Turtle dove	Least concern	Red	UK BAP	✓	
Twite	Least concern	Red	UK BAP	✓	
Warblers*				Assemblages of 6+ probable breeding species	Assemblages of 6+ probable breeding species
Water rail*	Least concern	Green			✓
Whinchat	Least concern	Amber			✓
Willow tit	Least concern	Red	UK BAP	✓	
Wood warbler	Least concern	Red	UK BAP	✓	
Woodcock*	Least concern	Amber		✓	
Woodlark	Least concern	Amber	Schedule 1	✓	
Yellow wagtail	Least concern	Red	UK BAP		✓

* Breeding only

Table 8 Rare, scarce and notable over wintering and colonial bird species in the Cheshire region

Species	Global Status IUCN 2011	UK Red list Birds of conservation concern	Local status Confirmed breeding tetrads[30]	Status 2011	Comment
Bewick's swan	Least concern	Amber	0		Regular over wintering 5+ individuals
Black tailed godwit	Near threatened	Red	0	UK BAP. Schedule 1.	Passage sites and over wintering/ summering 50+ individuals.
Cormorant spp.	Least concern	Green	6		Established colonies only
Duck species					Regular over wintering sites with 5+ species of dabbling* ducks or 3+ species of diving** ducks
Greater white fronted goose	Least concern	Green	0	UK BAP	Regular over wintering 5+ individuals
Green sandpiper	Least concern	Amber	0		Regular over wintering 3+ individuals
Grey heron	Least concern	Green	641 apparently occupied nests		Established colonies only
Gull species (any groups of any species)					Winter roost sites with 1000+ individuals
Jack snipe	Least concern	Amber	0		Regular over wintering 5+ individuals
Light bellied brent goose (race *hrota*)	Least concern	Amber	0		Regular over wintering 7+ individuals
Little egret	Least concern	Amber	2		Established colonies only
Pink footed goose	Least concern	Amber	0		Regular over wintering 100+ individuals
Pintail	Least concern	Amber	0		Regular over wintering 50+ individuals
Rook	Least concern	Green	205		Established colonies only (70+ nests)
Sand martin	Least concern	Amber	42		Established colonies only
Swift	Least concern	Amber	119		Established colonies only (20+ pairs)
Teal	Least concern	Amber	2		Regular over wintering 200+ individuals
Whooper swan	Least concern	Amber	0	Schedule 1	Regular over wintering 5+ individuals.
Wigeon	Least concern	Amber	0		Regular over wintering 200+ individuals

***Dabbling ducks* – shelduck, mandarin, Eurasian wigeon, gadwall, Eurasian teal, mallard, pintail, shoveler. ***Diving ducks* – pochard, goldeneye, red-breasted merganser, goosander, tufted duck.

Table 9 Notable birds in the Cheshire region - probable breeding

Species	Global Status IUCN 2011	UK Red list Birds of conservation concern	Local status Confirmed breeding tetrads[30]	Status 2011	Comment
Barn owl	Least concern	Amber	142	LBAP. Schedule 1	
Black headed gull	Least concern	Amber	13		
Bullfinch	Least concern	Amber	95	UK BAP	
Common sandpiper	Least concern	Amber	1		
Common tern	Least concern	Amber	0		10+ breeding pairs only
Common whitethroat	Least concern	Amber	282		
Dipper	Least concern	Green	13		
Dunnock	Least concern	Amber	428	UK BAP	Spp.occidentalis is endemic to the British Isles
Firecrest	Least concern	Amber	1	Schedule 1	
Grasshopper warbler	Least concern	Red	10	UK BAP	
Green woodpecker	Least concern	Amber	39		
Grey partridge	Least concern	Red	47	UK BAP	
Grey wagtail	Least concern	Amber	114		
House sparrow	Least concern	Red	559	UK BAP	
Kestrel	Least concern	Amber	183		
Kingfisher	Least concern	Amber	38	Schedule 1	
Lapwing	Least concern	Red	263	UK BAP	
Lesser redpoll	Not evaluated	Red	3	UK BAP	
Linnet	Least concern	Red	125	UK BAP	
Little grebe	Least concern	Amber	61		
Mallard	Least concern	Amber	499		
Meadow pipit	Least concern	Amber	70		
Mistle thrush	Least concern	Amber	380		
Oyster catcher	Least concern	Amber	45		
Reed bunting	Least concern	Amber	171	UK BAP	
Ringed plover	Least concern	Amber	10		
Shelduck	Least concern	Amber	29		
Shoveler	Least concern	Amber	3		
Skylark	Least concern	Red	141	UK BAP	
Song thrush	Least concern	Red	461	UK BAP	
Spotted flycatcher	Least concern	Red	101	UK BAP	
Starling	Least concern	Red	573	UK BAP	
Stock dove	Least concern	Amber	150		
Tree sparrow	Least concern	Red	182	UK BAP	
Tufted duck	Least concern	Amber	63		
Wheatear	Least concern	Amber	9		
Willow warbler	Least concern	Amber	163		
Yellowhammer	Least concern	Red	119	UK BAP	

S3 Mammals

Sites should be selected that regularly support:

- **Likely breeding/hibernating populations of hazel dormouse, otter, Nathusius pipistrelle, lesser horseshoe bat, serotine bat.**
- **Likely breeding/hibernating populations of at least 2 species of bat.**
- **Assemblages of mammals from table 10 which score a total of 12 points.**

In Wirral sites should be selected that support a breeding badger sett which has been occupied for any three years out of the preceding five years.
Warrington is a regionally key area for water voles, therefore any Warrington site that supports a likely breeding population should be selected.

Guidance and justification

Domestic gardens or buildings housing mammals will not be considered for LWS selection unless the site is critical to that species' survival in the borough, or supports exceptional populations[9]. Temporary bat night roosts and feeding roosts should not be considered. The boundaries of any site selected for mammals should contain key foraging areas and commuting routes to such areas.

In contrast to the majority of Cheshire, Wirral badgers have a small, stable but not expanding population which struggles with fragmented habitat, development and significant levels of illegal persecution. Therefore in Wirral sites should be selected when they support a regular breeding badger sett.

The presence of water vole latrines indicates that there is a likely breeding population.

Table 10

List of mammals in the Cheshire region with their local, national or global significance

Mammal	Score based on local status (Cheshire mammal group)	Global Status IUCN 2011	UK Red list	BAP status 2011	Other
Common pipistrelle bat	2	Least concern		LBAP	European protected species
Soprano pipistrelle bat	2	Least concern		UKBAP	European protected species
Noctule bat	3	Least concern		UKBAP	European protected species
Brown long eared bat	3	Least concern		UK BAP	European protected species
Whiskered bat	3	Least concern		LBAP	European protected species

Brandts bat	3	Least concern		LBAP	European protected species
Daubentons bat	2	Least concern		LBAP	European protected species
Leislers bat	4	Least concern		LBAP	European protected species
Natterers bat	3	Least concern		LBAP	European protected species
Serotine bat	12	Least concern		LBAP	European protected species
Lesser horseshoe bat	12				
Nathusius pipistrelle	12				
Otter	12	Near threatened		UK BAP	European protected species
Hazel dormouse (native wild populations only)	12	Least concern		UK BAP	European protected species
Harvest mouse	4	Least concern		UK BAP	
Water vole	4	Least concern		UK BAP	Wildlife and Countryside Act
Mountain hare	4				
Red deer (not captive populations)	4				
Roe deer	3				
Polecat	3	Least concern		UK BAP	
European hedgehog	3	Least concern		UK BAP	
Brown hare	3	Least concern		UK BAP	
Badger	2	Least concern			Protection of Badgers act 1992 and protected from persecution under WCA 1981
Water shrew	3				
Bank vole	2				
Pygmy shrew	2				
Stoat	2				
Weasel	2				
Badger	2				
Field vole	1				
Wood mouse	1				
House mouse	1				
Common rat	1				
Rabbit	1				
Mole	1				
Common shrew	1				
Fox	1				

S4 Dragonflies and damselflies (*Odonata*)

Sites should be selected that regularly support either:

- **Probable breeding populations of variable damselfly, common club-tail, downy emerald, golden-ringed dragonfly, white-legged damselfly, beautiful demoiselle, common hawker, black darter, black tailed skimmer, hairy dragonfly, white-faced darter.**

  OR

- **Species assemblages (probable breeding) scoring 8 points or more from table 11.**

Guidance and justification

The variable damselfly is 'near threatened' in the UK and the common club tail has a restricted distribution in Cheshire. Both species are listed on the LBAP and sites where either is probably breeding should be selected as a LWS.

All sites still supporting the endangered white faced darter should be selected as LWS, although this species is now thought to be extinct in Cheshire. Any sites supporting 'edge of range' species (white legged damselfly and golden ringed dragonfly) should be selected as LWS. Other notable species for the region include downy emerald, beautiful demoiselle, common hawker, black darter, black tailed skimmer and hairy dragonfly and where probably breeding sites should be selected as a LWS.

Table 11

List of *Odonata* in the Cheshire region which are of local, national or global significance

Vernacular	Species	Global status IUCN 2011 (where information available)	UK Status[17] 2008	BAP status 2011	Relative distribution and breeding status value for Cheshire (2006-2010)[29]	Score
Azure damselfly (Azure bluet)	*Coenagrion puella*		Least concern		1.6	1
Banded demoiselle	*Calopteryx splendens*		Least concern		3.6	4
Beautiful demoiselle	*Calopteryx virgo*		Least concern		33.3	10
Black darter	*Sympetrum danae*		Least concern		11.1	10
Black tailed skimmer	*Orthetrum cancellatum*		Least concern		7.1	10
Blue tailed	*Ischnura*		Least		1.8	1

damselfly (Common bluetail)	*elegans*		concern			
Broad bodied chaser	*Libellula depressa*		Least concern		3.3	4
Brown hawker	*Aeshna grandis*		Least concern		2.2	1
Common blue damselfly (Common bluet)	*Enallagma cyathigerum*		Least concern		2.5	1
Common club tailed	*Gomphus vulgatissimus*	Not evaluated	Near threatened	LBAP	25	10
Common darter	*Sympetrum striolatum*	Least concern	Least concern		1.7	1
Common hawker	*Aeshna juncea*		Least concern		11.1	10
Downy emerald	*Cordulia aenea*	Not evaluated	Least concern	LBAP	50	10
Emerald damselfly (Common spreadwing)	*Lestes sponsa*		Least concern		5.3	4
Emperor (Blue Emperor)	*Anax imperator*	Least concern	Least concern		2.3	1
Four spotted chaser	*Libellula quadrimaculata*		Least concern		2.4	1
Golden-ringed dragonfly (Common goldenring)	*Cordulegaster boltonii*		Least concern		50	10
Hairy dragonfly (Hairy hawker)	*Brachytron pratense*		Least concern		6.7	10
Large red damselfly (Large red damsel)	*Pyrrhosoma nymphula*		Least concern		2.0	1
Migrant hawker	*Aeshna mixta*		Least concern		3.4	4
Red-eyed damselfly (Large Red-eye)	*Erythromma najas*		Least concern		4.5	4
Ruddy darter	*Sympetrum sanguineum*	Least concern	Least concern		5.3	4
Southern hawker (Blue hawker)	*Aeshna cyanea*		Least concern		2.8	1
Variable damselfly (Variable bluet)	*Coenagrion pulchellum*	Not evaluated	Near threatened	LBAP	20	10

White faced darter	*Leuchorrinia dubia*	Least concern	Endangered	LBAP (archive)	Assumed extinct in Cheshire	10
White legged damselfly (blue featherleg)	*Platycnemis pennipes*	Least concern	Least concern		100	10

S5 Amphibians

Sites should be selected that regularly support any of the following:

- **Populations of Natterjack toad.**
- **Exceptional/good[27] populations of > 100 individuals palmate newts or toads.**
- **Good[27] populations of great crested newts (5+ day time count, 10+ night time count)**
- **Assemblages with four or more (probable breeding) species of amphibian or two or more where palmate newts are present.**

In Wirral sites should be selected that support two or more probable breeding species of amphibian.

Guidance and justification

Great crested newts are common in Cheshire and they are afforded high levels of protection under UK and European legislation. Medium or small populations do not warrant additional protection within the LWS system; however a good population (5+ individuals caught in the day time during 15 minutes netting per 50m water's edge. Or 10+ individuals caught at night)[27] should be selected as a LWS.

The common toad is a UK BAP species and sites with good populations of at least 100[27] individuals should be selected as LWS. The Palmate newt is Cheshire's second rarest[14] amphibian after the Natterjack Toad and sites hosting exceptional populations of at least 100[27] individuals should be selected as LWS. Natterjack toads were present until recently at Red Rocks marsh on the Wirral and any site found to still be supporting this species should be selected as a LWS.

In Wirral the majority of ponds have lost one or more species of amphibian so any site supporting two or more species should be selected.

The boundaries of any site selected for amphibians should contain key foraging areas and commuting routes to such areas.

Table 12 List of amphibians in the Cheshire region which are of local, national or global significance

Species	Global status IUCN 2011	UK red list	Local status	BAP status 2011	Other
Natterjack toad	Least concern			UK BAP	European protected species
Common toad	Least concern			UK BAP	
Common frog	Least concern				
Great crested newt	Least concern			UK BAP	European protected species
Palmate newt	Least concern				
Smooth newt	Least concern				

S6 Reptiles

Sites should be selected that regularly support significant populations of common lizard and provide suitable habitats for breeding, basking and hibernation. All sites supporting populations of grass snakes, adders or slow-worms should be selected as LWS.

Guidance and justification

Grass snakes, adders and slow worms are infrequent in Cheshire therefore sites which support populations should be considered as LWS. Any site which supports a significant population of common lizards should be selected.

Reptiles tend to favour the following habitats: rough grassland, heathland, moorland, hedgerows, woodland edges, coastal dunes, disused quarries and railway embankments. Grass snakes feed almost entirely on amphibians and are normally present close to areas of fresh water.

Table 13

List of reptiles in the Cheshire region which are of local, national or global significance

Species	Global Status (IUCN data 2011)	UK Red list	Local status	BAP status
Common lizard	Least concern			UK BAP
Adder	Least concern			UK BAP
Grass snake	Least concern			UK BAP
Slow-worm	Not evaluated			UK BAP

S7 Fresh water fish

Sites should be selected that regularly support any of the following:

- **The European eel, the Allis shad or the Twaite shad**
- ***Significant populations* of river lamprey or Atlantic salmon.**
- ***Significant naturally sustaining populations* of brown trout/sea trout.**

Guidance and justification

Any site that supports the European eel, Allis shad or the Twaite shad should be selected as LWS. The European eel is critically endangered worldwide making it likely to be Cheshire's most threatened species. Rivers and still waters are frequently stocked with brown trout so only sites with naturally sustaining populations should be selected.

Sites that support UK red list species (excluding 'least concern') should be selected as LWS.

Table 14 Fish species in the Cheshire region listed on the UK BAP.

Species	Global status (IUCN data 2011)	UK Red list	Local status	BAP status
Allis shad	Least concern			UK BAP
Twaite shad	Least concern			UK BAP
European eel	Critically endangered			UK BAP
River lamprey	Least concern			UK BAP
Brown trout/sea trout	Least concern			UK BAP
Atlantic salmon	Least concern			UK BAP

S8 White clawed crayfish

Sites should be selected that regularly support populations of white clawed crayfish.

Guidance and justification

The white clawed crayfish is globally endangered according to the IUCN red data book and it is also a UK BAP species. This rare species was once widespread but has declined rapidly largely due to the introduction of the American Signal crayfish. This alien species carries crayfish disease to which the native crayfish has little immunity. American signal crayfish will also out-compete the native crayfish for food and shelter.

White clawed crayfish are dependent on good quality water and are particularly susceptible to pollution events such as sewage leaks, milk spillages, sheep dip contamination. For this reason in particular sites selected for white clawed crayfish should include a 6 metre riparian zone from the top of the riverbank.

The white clawed crayfish can live in various watercourses including rivers, streams, lakes and canals and survives in small isolated populations mainly in south Cheshire.

S9 Terrestrial/freshwater invertebrates

Sites should be selected that regularly support either:

- **Significant populations of any UK BAP species, or red data book listed species, or national rare/scarce species (present in 1-100 hectads in the UK).**
  OR
- **Significant assemblages* of any terrestrial or freshwater invertebrates. (A locally significant bee assemblage is 8+ species of social bumble bee or 4+ species of cuckoo bee. A locally significant assemblage of macro-moths is 350 species which equates to 65% of the current list for VC58[36])**

*Refer to Lancashire and Cheshire Entomological Society

Guidance and justification

A large number of species have suffered severe declines nationally and these are listed as UK BAP species (table 15). The BAP list is likely to be incomplete as little research has been undertaken on invertebrate populations particularly when compared to other groups of species.

Consideration should also be given to species which are locally or nationally rare/scarce but may currently have stable populations. A list of conservation designations for UK taxa may be found on the JNCC website using the following link http://jncc.defra.gov.uk/page-3408

Expert opinion (e.g. Lancashire and Cheshire Entomological Society) should always be sought when determining what constitutes a significant assemblage of invertebrates.

Butterflies, dragonflies and damselflies have their own selection criteria **S1** and **S4**.

Table 15 Terrestrial invertebrates in the Cheshire region listed on the UK BAP

Vernacular	Species	Global status IUCN	UK Red list	Local status	Status
Belted Beauty	*Lycia zonaria britannica*				UKBAP
Cuckoo bee	*Coelioxys mandibularis*				UK BAP
Depressed river mussel	*Pseudanodonta complanata*				UK BAP
Leaf beetle	*Bromius obscurus*				UK BAP
Lesser silver water beetle	*Hydrochara caraboides*				UK BAP and WCA
Linyphilid spider	*Carolita limnaea*				UK BAP
Longhorn	*Acmaeops collaris*				UK BAP

beetle					
Mining beetle	*Colletes cunicularis*				UK BAP
Mud snail	*Omphiscola glabra*				UK BAP
Rove beetle	*Lathrobium rufipenne*				UK BAP
Sand wasp	*Podalonia affinis*				UK BAP
Sandhill rustic	*Luperina nickerlii gueneei*				UK BAP
Small egger	*Eriogaster lanestris L.*				UK BAP
Ten spot pot beetle	*Cryptochephalus decemmacultus*				UK BAP
Stag beetle	*Lucanus cervus*				UK BAP
Thick-legged flower beetle	Thick-legged flower beetle				UK BAP
Peus's Long-back spider	*Mecopisthes peusi*				UK BAP
Broad Groove-head Spider	*Monocephalus castaneipes*				UK BAP
Swamp Lookout Spider	*Notioscopus sarcinatus*				UK BAP
Argent and sable	*Rheumaptera hastata*				UK BAP
Triangle Hammock Spider	*Saaristoa firma*				UK BAP
Heath Rustic	*Xestia agathina*				UK BAP
Ashworth's Rustic	*Xestia ashworthii*				UK BAP
Neglected Rustic	*Xestia castanea*				UK BAP
Sword-Grass	*Xylena exsoleta*				UK BAP

S10 Bryophytes

Sites supporting significant populations of any notable bryophytes from table 16 should be selected as LWS.

Guidance and justification

Sites should be selected which host populations of nationally or locally rare, or conservation status bryophytes listed in table 16. The table lists all the notable bryophytes identified in VC 58 up to 2012.

Table 16

List of bryophytes in the Cheshire region which are of local or national significance[42]

Species	Vernacular	UK Red list	BAP status
Bryum calophyllum	Matted bryum	Nationally rare	UK BAP
Bryum knowltonii	Knowlton's Thread Moss	Nationally scarce	UK BAP
Bryum uliginosum	Cernuous bryum	Nationally rare	UK BAP
Bryum warneum	Sea bryum	Nationally scarce	UK BAP
Cephaloziella nicholsonii	Greater Copperwort	Nationally scarce	UK BAP
Dicranum bergeri	Waved Fork-moss	?	UK BAP
Orthodontium gracile	Slender Thread Moss	Nationally rare	UK BAP
Rhytidiadelphus subpinnatus	Scarce Turf-moss	Nationally rare	UK BAP
Riccia canaliculata	Channelled Crystalwort	Nationally rare	UK BAP
Sphagnum balticum	Baltic Bog-moss	Nationally rare	UK BAP
Tortula cemua	Flamingo moss	Nationally rare	UK BAP
Tortula freibergii	Freiberg's Screw-moss	Nationally scarce	UK BAP
Tortula wilsonii	Wilson's Pottia	Nationally scarce	UK BAP
Weissia multicapsularis	Moss	Nationally rare	UK BAP
Weissia squarrosa	Spreading-leaved beardless-moss	Nationally scarce	UK BAP
Aloina ambigua		Nationally scarce	
Aloina brevirostris		Nationally scarce	
Aloina rigida		Nationally scarce	
Amblyodon dealbatus		Nationally scarce	
Atrichum tenellum		Nationally	

		scarce	
Brachydontium trichodes		Nationally scarce	
Bryum creberrimum		Nationally scarce	
Bryum intermedium		Nationally scarce	
Buxbaumia aphylla		Nationally scarce	
Calypogeia azurea		Nationally scarce	
Calypogeia integristipula		Nationally scarce	
Campylostelium saxicola		Nationally scarce	
Cephalozia macrostachya var. macrostachya		Nationally scarce	
Cephaloziella elachista		Nationally rare	
Cladopodiella francisci		Nationally scarce	
Dicranella crispa		Nationally scarce	
Dicranum polysetum		Nationally scarce	
Dicranum undulatum		Nationally scarce	
Didymodon acutus		Nationally scarce	
Discelium nudum		Nationally scarce	
Distichium inclinatum		Nationally scarce	
Ditrichum pusillum		Nationally scarce	
Drepanocladus sendtneri		Nationally scarce	
Ephemerum sessile		Nationally scarce	
Fissidens fontanus		Nationally scarce	
Fossombronia caespitiformis		Nationally scarce	
Fossombronia foveolata		Nationally scarce	
Fossombronia incurva		Nationally scarce	
Hamatocaulis vernicosus		Nationally scarce	
Hennediella stanfordensis		Nationally scarce	
Hygroamblystegium humile		Nationally scarce	
Lophozia capitata		Nationally scarce	
Moerckia flotoviana		Nationally	

		scarce	
Nardia geoscyphus		Nationally scarce	
Philonotis arnellii		Nationally scarce	
Philonotis caespitosa		Nationally scarce	
Physcomitrium sphaericum		Nationally scarce	
Plagiothecium laetum		Nationally scarce	
Platyhypnidium lusitanicum		Nationally scarce	
Pohlia lescuriana		Nationally scarce	
Pterygoneurum ovatum		Nationally scarce	
Racomitrium affine		Nationally scarce	
Riccardia incurvata		Nationally scarce	
Riccia cavernosa		Nationally scarce	
Riccia huebeneriana		Nationally scarce	
Riccia rhenana		Nationally rare	
Ricciocarpos natans		Nationally scarce	
Sphagnum pulchrum		Nationally scarce	
Sphagnum riparium		Nationally scarce	
Tomentypnum nitens		Nationally scarce	
Weissia rostellata		Nationally scarce	

S11 Lichens

Sites supporting significant populations of any notable lichens from table 17 should be selected as LWS. Where new species are recorded in Cheshire then the more comprehensive UK list should be consulted.

Guidance and justification

There are several thousand species of lichen recorded in Cheshire however only a small number of these are designated at a national level. Many of the species listed below originate from churchyards including Handley, Acton and Pott Shrigley.

Table 17 List of lichens in the Cheshire region which are of local, national or global significance[40]

Species	**UK Red list** (contains both IUCN and non-IUCN methodology)	**BAP/S.41 status/WCA**
Acarospora nitrophila	Nationally scarce	
Acarospora umbilicata f.congredians	Nationally scarce	
Aspicilia contorta subsp. hoffmanniana	Nationally scarce	
Calicium quercinum	Extinct (tbc)	
Caloplaca crenulatella	Nationally scarce	
Caloplaca ferruginea	Nationally scarce	
Candelariella aurella f. smaragdula	Nationally scarce	
Carbonea vorticosa	Nationally scarce	
Cladonia merochlorophaea	Nationally scarce	
Cladonia uncialis ssp. uncialis	Nationally rare	
Ephebe hispidula	Nationally rare	
Fossombronia foveolata		UK BAP and England NERC S.41
Lecania aipospila	Nationally scarce	
Lecania cuprea	Nationally scarce	

Lecanora fuscescens	Extinct (tbc)	
Lecanora handelii	Near threatened	
Lecanora subaurea	Nationally scarce	
Lecanora subcarnea	Nationally scarce	
Lecidella viridans	Data deficient	
Melanelia subargentifera	Critically endangered	
Peltigera lepidophora		WCA schedule 8
Pyrenula nitida		England NERC S.41
Rhizocarpon furfurosum	Near threatened	
Usnea subscabrosa	Vulnerable	

S12 Fungi

Sites supporting populations of conservation status fungi[34] listed in table 18 should be selected as LWS. Where new species are recorded in Cheshire then the more comprehensive British lists[34] should be consulted.

OR

Sites should be selected where they support 50+ species of woodland fungi recorded on a single visit. Assemblages should contain examples from all the different fungal groups (refer to guidance).

Guidance and justification

Sites should be selected which host populations of conservation status British Fungi[34]. Conservation status fungi which have been recorded in Cheshire (VC58) are listed in table 18.

Table 18 Conservation status fungi recorded in Cheshire 1980 - 2012[41]

Species	Vernacular	British red list	BAP status 2011	Other
Boletopsis perplexa	Black Falsebolete		UK BAP	
Caloscypha fulgens	Golden Cup	Vulnerable/D2		
Cantharellus friesii	Orange/velvet Chanterelle		UK BAP	NERC 2006
Cortinarius violaceus	Violet Webcap	Near threatened		
Geastrum campestre	Field Earthstar	Endangered/B		
Gloeoporus dichrous	*Gloeoporus dichrous*	Near threatened		
Gyrodon lividus	Alder Bolete	Near threatened		
Hericium erinaceus	Bearded Tooth		UK BAP	NERC 2006
Leucoagaricus barssii	*Leucoagaricus barssii*	Near threatened		
Lycoperdon ericaeum	Heath Puffball	Extinct (tbc)		
Onygena equina	Horn Stalkball	Near threatened		
Phylloporus pelletieri	Golden-gilled Bolete	Annex	UK BAP	NERC 2006
Polyporus umbellatus	Umbrella Polypore	Near threatened		
Pycnoporus cinnabarinus	Cinnabar Polypore	Extinct (tbc)		

Good assemblages of woodland fungi[41]

An assemblage of woodland fungi regarded as having conservation value will usually have four groups of fungi represented. These groups are indicative of the execution of important beneficial ecological activities/processes and thus of the self-sustainability of the woodland:

Ectomycorrhizal fungi are associated with particular tree species. Their mycelium grows over the surface of a tree's roots enabling an exchange of minerals and carbohydrates with the tree, and providing protection from attack by pathogens. Not all mycorrhizal species produce visible fruitbodies.

Living wood decay fungi[38] establish themselves within living trees and help to create crevices and exposed wood which may then host a variety of fauna including invertebrates. They are often visible as brackets on the outside of tree trunks or branches. Affected trees may ultimately die, but this can increase structural diversity in a woodland.

Dead wood rotting fungi[38] are found on dead wood, usually lying on the woodland floor. They are able to break down the wood structure enabling other taxa to establish themselves and also facilitating the recycling of nutrients. There is some evidence that these species occur in succession as wood becomes more decayed.

Ground fungi (soil humus/leaf litter fungi) are found on the woodland floor breaking down leaf litter and soil humus and facilitating the recycling of nutrients.

The particular fungal species composition will depend to an extent on the vascular plant species composition of the woodland but generally species richness and composition will be greater where:

- there is a greater diversity of trees and shrubs
- there is abundant dead wood of varying dimensions from small twigs to large tree trunks
- there is older woodland, particularly ancient woodland
- there is greater diversity of habitat providing more niches for colonisation by fungi e.g. in larger woodland

There are a number of undesirable fungi which can have a serious and rapid deleterious effect on a woodland e.g. ash dieback *Chalara fraxinea* which, if identified, should be reported to the appropriate authority.

Table 19 Examples[37,39] of ectomycorrhizal, living wood decay, dead wood decay and ground fungi:

Vernacular	Species name	Comment
Ectomycorrhizal fungi*		
Under Oak		
Oakbug Milkcap	*Lactarius quietus*	
Scarletina Bolete	*Boletus luridiformis*	Can occur with Pine
Death Cap	*Amanita phalloides*	Can also occur with Beech
Under Birch		
Brown Birch Bolete	*Leccinum scabrum*	
Fly Agaric	*Amanita muscaria*	Can also occur with Pine
The Blusher	*Amanita rubescens*	Can also occur with other species
Birch Mikcap	*Lactarius tabidus*	Especially with Birch
Woolly Milkcap	*Lactarius torminosus*	
Tawny Grisette	*Amanita fulva*	Can also occur with other species
Brown Rollrim	*Paxillus involutus*	Can also occur with other species
Common Earthball	*Scleroderma citrinum*	Also Oak and Beech
Under Alder		
Ochre Aldercap	*Naucoria escharioides*	
Alder Milkcap	*Lactarius obscuratus*	
(Alder) Rollrim	*Paxillus rubicundulus*	
Under Beech		
Lilac Bonnet	*Mycena pura*	Especially with Beech
Beech Milkcap	*Lactarius blennius*	
Beechwood Sickener	*Russula nobilis*	
Under Pine/Larch		
Slippery Jack	*Suillus luteus*	Pine
Larch Bolete	*Suillus grevillei*	

Sickener	*Russula emetica*	
Under both Deciduous and Coniferous species		
Ochre Brittlegill	*Russula ochroleuca*	
Penny Bun or Cep	*Boletus edulis*	
Purple Brittlegill	*Russula atropurpurea*	
Poisonpie	*Hebeloma crustuliniforme*	
Butter Cap	*Collybia butyracea*	
The Deceiver	*Laccaria laccata*	
Amethyst Deceiver	*Laccaria amethystina*	
Chanterelle	*Cantharellus cibarius*	
Living wood decay fungi		
Birch Polypore	*Piptoporous betulinus*	Can be seen on dead wood too
	Peniophora quercina	On Oak
Alder bracket	*Mensularia radiata*	
Oyster Mushroom	*Pleurotus ostreatus*	Can be seen on dead wood too
Bleeding Broadleaf Crust	*Stereum rugosum*	Particularly Hazel, Beech, Birch. Can be seen on dead wood too
Hoof Fungus	*Fomes fomentarius*	Especially on Birch
Honey Fungus	*Armillaria sp*	Can also be found on or near dead wood
Root Rot	*Heterobasidion annosum*	Usually on conifers but can also occur on dead broadleaved trees
Southern Bracket	*Ganoderma australe*	Usually on Beech
Beeswax Bracket	*Ganoderma pfeifferi*	Usually on Beech but can occur on dead wood too
Shaggy Scalycap	*Pholiota squarrosa*	Can occur on dead wood too
Dead wood decay fungi		
Hairy Curtain Crust	*Stereum hirsutum*	
Sulphur Tuft	*Hypholoma fasciculare*	
Split Porecrust	*Schizopora paradoxa*	
Elder Whitewash	*Hyphodontia sambuci*	On dead Elder wood
Candlesnuff Fungus	*Xylaria hypoxylon*	
Jelly Ear	*Auricula auricularia-judae*	
King Alfred's Cakes	*Daldinia concentrica*	On dead Ash wood
Blushing Bracket	*Daedaleopsis confragosa*	
Turkeytail	*Trametes versicolor*	Can occur on living wood too
Oak Mazegill	*Daedalea quercina*	
Smoky Bracket	*Bjerkandera adusta*	
Stump Puffball	*Lycoperdon pyriforme*	
Deer Shield	*Pluteus cervinus*	
Velvet Shank	*Flammulina velutipes*	
Common Bonnet	*Mycena galericulata*	
Glistening Inkcap	*Coprinellus micaceus*	
Oysterling sp.	*Crepidotus variabilis/cesatii*	
Bleeding Oak Crust	*Stereum gausapatum*	
Scarlet Elf Cup	*Sarcoscypha austriaca*	
Coral Spot	*Nectria cinnabarina*	

Yellow Brain	*Tremella mesenterica*	
Orange spot	*Dacrymyces stillatus*	
Birch/Beech/Hazel Woodwart	*(Annulo)Hypoxylon sp.*	
Lumpy Bracket	*Trametes gibbosa*	
Waxy Crust	*Vuilleminia comedens*	
Common Rustgill	*Gymnopilus penetrans*	
Ground fungi (Soil humus/leaf litter fungi)		
Stinkhorn	*Phallus impudicus*	
Collared Earthstar	*Geastrum triplex*	
Horsehair Parachute	*Marasmius androsaceus*	
Collared Parachute	*Marasmius rotula*	
Milking Bonnet	*Mycena galopus*	
Clouded Funnel	*Clitocybe nebularis*	
Slender club	*Macrotyphula juncea*	

* Ash, Sycamore, Yew and Elm tend not to form visible mycorrhizal relationships with fungal species

S13 Vascular plants

Sites should be selected that regularly support:

- **Populations of any species listed in table 20[18].**
- **Significant or viable populations of any species listed in table 21[18].**

Guidance and justification

Many sites that host rare or scarce vascular plants will also qualify for LWS selection under the habitat criteria. This is particularly true when considering assemblages of vascular plants.

Sites should be selected which host populations of nationally or locally rare, or conservation status plants listed in table 20. Any site which hosts significant or viable populations of plants which are scarce in Cheshire (table 21) should be considered for selection as a LWS. A significant or viable population is one that could be considered self-sustaining in the medium term (this will require a subjective judgement to be made taking into consideration the population size and the likely future management of the site).

Table 20 Rare and conservation status plants in the Cheshire region[18]

Species	Global status IUCN	UK Red list[19] 2005	Kay's classification[18]	BAP status	1 km Squares
Luronium natans			Internationally rare	UK BAP	1
Asplenium trichomanes ssp *pachyrachis*		Near threatened	Nationally rare		4
Baldellia ranunculoides		Near threatened	Nationally rare		4
Calamagrostis stricta		Vulnerable	Nationally rare		1
Mentha pulegium		Endangered	Nationally rare	UK BAP	3
Rubus wolley-dodii		Threatened	Nationally rare		1
Adiantum capillus-veneris			Nationally scarce		1
Carex elongata			Nationally scarce		1
Cicuta virosa			Nationally scarce		37
Coincya monensis			Nationally scarce	LBAP	2
Elatine hexandra			Nationally scarce		1
Equisetum variegatum			Nationally scarce		2
Equisetum x meridionale			Nationally scarce	LBAP	3
Euphorbia portlandica			Nationally scarce		3
Fritillaria meleagris		Vulnerable	Nationally scarce		?
Fumaria purpurea			Nationally scarce		Rare casual
Gentiana pneumonanthe			Nationally scarce		1
Hieracium vagense			Nationally scarce		1
Hippophae rhamnoides			Nationally scarce		1 (but widely planted –

					native population probably confined to one site)
Hordelymus europaeus			Nationally scarce		2-3
Impatiens noli-tangere			Nationally scarce		2
Lepidium latifolium			Nationally scarce		2
Limonium celticum ssp *britannicum*			Nationally scarce	BAP	1
Limosella aquatica			Nationally scarce		5
Medicago sativa ssp *falcata*			Nationally scarce		1
Puccinellia rupestris			Nationally scarce		1
Ribes alpinum			Nationally scarce		1
Silene gallica		Endangered	Nationally scarce		Casual
Thelypteris palustris			Nationally scarce		5
Vaccinium x intermedium			Nationally scarce		2
Verbascum lychnitis			Nationally scarce (possibly not native in Cheshire)		1
Verbascum virgatum			Nationally scarce		Casual
Vicia lutea		Near threatened	Nationally scarce (possibly not native in Cheshire)		2
Allium oleraceum		Vulnerable	Locally rare		3
Allium scorodoprasum			Locally rare		2
Anacamptis pyramidalis			Locally rare		5
Andromeda polifolia			Locally rare		6
Arabis hirsuta			Locally rare		2
Asplenium marinum			Locally rare		2
Atriplex laciniata			Locally rare		2
Brachypodium pinnatum			Locally rare		2
Bromopsis erecta			Locally rare		2
Bromus commutatus			Locally rare		14
Bromus hordeaceus ssp thominei			Locally rare		1
Bromus racemosus			Locally rare		3
Bromus secalinus			Locally rare		16
Calystegia sepium ssp. Roseata			Locally rare		5
Carex acuta			Locally rare		4
Carex hostiana			Locally rare		¾
Carex lasiocarpa			Locally rare		1
Carex limosa			Locally rare		1
Carex muricata ssp *pairae*			Locally rare		1
Carex muricata ssp *lamprocarpa*			Locally rare		?
Carex viridula ssp *viridula*			Locally rare		1
Carlina vulgaris			Locally rare		Extinct?
Centaurium pulchellum			Locally rare		1
Cerastium arvense			Locally rare		3
Chenopodium bonus-henricus		Vulnerable	Locally rare		1

Circaea x intermedia			Locally rare		3
Cirsium dissectum			Locally rare		1
Cirsium heterophyllum			Locally rare		1
Clinopodium ascendens			Locally rare		3
Crambe maritima			Locally rare		1
Crithmum maritimum			Locally rare		2
Cynoglossum officinale			Locally rare		½
Dactylorhiza incarnata			Locally rare		?
Daphne laureola			Locally rare		3
Dipsacus pilosus			Locally rare		5
Drosera intermedia			Locally rare		1
Eleocharis multicaulis			Locally rare		2
Eleocharis quinqueflora			Locally rare		2
Eleocharis uniglumis			Locally rare		1
Eleogeton fluitans			Locally rare		6
Epipactis palustris			Locally rare		3
Equisetum hyemale			Locally rare		1
Erodium lebelii			Locally rare		2
Eryngium maritimum			Locally rare		3
Euphorbia exigua		Near threatened	Locally rare		1
Festuca altissma			Locally rare		1
Festuca rubra ssp juncea			Locally rare		2
Filago minima			Locally rare		2
Filago vulgaris		Near threatened	Locally rare		3
Gagea lutea			Locally rare		1
Glaucium flavum			Locally rare		1
Hippuris vulgaris			Locally rare		2
Huperzia selago			Locally rare		1
Hyoscyamus niger		Vulnerable	Locally rare		casual
Hypericum elodes			Locally rare		2
Hypopitys monotropa		Endangered	Locally rare		1
Juncus compressus		Near threatened	Locally rare		2?
Lathyrus nissolia			Locally rare		4
Limonium vulgare			Locally rare		1
Linum bienne			Locally rare		3
Lycopodium clavatum			Locally rare		1
Meum athamanticum		Near threatened	Locally rare		1
Myosurus minimus		Vulnerable	Locally rare		3
Myrica gale			Locally rare		5
Myriophyllum alterniflorum			Locally rare		4
Nuphar pumila/x spenneriana			Locally rare		1
Oenanthe fistulosa		Vulnerable	Locally rare	UK BAP	Many
Orobanche hederae			Locally rare		1
Paris quadrifolia			Locally rare		1
Persicaria minor		Vulnerable	Locally rare		3
Phegopteris connectilis			Locally rare		3
Pilosella x stolonifera			Locally rare		1
Platanthera chlorantha		Near threatened	Locally rare		2
Polygonum oxyspermum ssp *raii*			Locally rare		?

Polygonum rurivagum			Locally rare		3
Populus nigra ssp betulifolia			Locally rare	LBAP	?
Potamogeton alpinus			Locally rare		2
Potamogeton compressus			Locally rare	UK BAP	?
Potamogeton lucens			Locally rare		2
Potamogeton pusillus			Locally rare		4
Potamogeton trichoides			Locally rare		?
Pyrola minor			Locally rare		1
Pyrola rotundifolia ssp maritima			Locally rare		1
Ranunculus baudotii			Locally rare		1
Ranunculus circinatus			Locally rare		3
Ranunculus fluitans			Locally rare (EU Annex 1 habitat)	UK BAP	?
Ranunculus hederaceus			Locally rare	LBAP	?
Rhynchospora alba			Locally rare		2
Rosa agrestis		Near threatened	Locally rare		1
Rosa micrantha			Locally rare		4
Rosa mollis			Locally rare		3
Rosa x hibernica			Locally rare		2
Rosa x margerisonii			Locally rare		1
Rubus chamaemorus			Locally rare		1
Rumex longifolius			Locally rare		1
Rumex alpinus		Near threatened	Locally rare (possibly not native in Cheshire)		3
Ruppia maritima			Locally rare		?
Sagina nodosa			Locally rare		4
Salix triandra			Locally rare		4
Salsola kali		Vulnerable	Locally rare	UK BAP	3
Salvia verbenaca			Locally rare		1
Saxifraga tridactylites			Locally rare		3
Schoenoplectus triqueter			Locally rare	UK BAP	?
Scleranthus annuus		Endangered	Locally rare		4
Scutellaria minor			Locally rare		5
Sedum anglicum			Locally rare		1
Serratula tinctoria			Locally rare		4
Silene uniflora			Locally rare		3
Sorbus torminalis			Locally rare		4
Spergula arvensis		Vulnerable	Locally rare		Many
Spergularia rupicola			Locally rare		2
Stachys arvensis		Near threatened	Locally rare		Many
Teesdalia nudicaulis		Near threatened	Locally rare		3
Thalictrum minus			Locally rare		2
Thymus polytrichus ssp *britannicus*			Locally rare		3
Trifolium ornithopodioides			Locally rare		1
Utricularia minor			Locally rare		2
Utricularia vulgaris			Locally rare		3
Vicia lathyroides			Locally rare		4
Vicia sylvatica			Locally rare		3
Viola canina ssp *canina*		Near threatened	Locally rare		2

Vulpia fasciculata			Locally rare		3
Wahlenbergia hederacea		Near threatened	Locally rare		4
xAgropogon littoralis			Locally rare		1
xFestulpia hubbardii			Locally rare		1

Table 21 Locally scarce plant species in Cheshire (present in 4-16 x 1 km^2 sites)[18]

Alchemilla glabra	*Carex extensa*	*Erigeron acer*	*Narcissus pseudonarcissus* ssp	*Sagina maritima*
Alopecurus aequalis	*Carex laevigata*	*Erophila glabrescens*	*pseudonarcissus*	*Samolus valerandii*
Allium vineale	*Carex lasiocarpa*	*Erophila majuscula*	*Narthecium ossifragum*	*Sanicula europaea*
Ammophila arenaria	*Carex pallescens*	*Euonymus europaeus*	*Neottia ovata*	*Saxifraga granulata*
Anagallis tenella	*Carex pulicaris*	*Fumaria bastardii*	*Oenanthe lachenalii*	*Schoenoplectus lacustris*
Anthriscus caucalis	*Carex spicata*	*Fumaria capreolata*	*Ononis repens*	*Schoenoplectus tabernaemontani*
Apium graveolens	*Carex strigosa*	*Galium mollugo ssp erectum*	*Ononis spinosa*	*Scirpus sylvaticus*
Apium inundatum	*Carex vesicaria*	*Galium uliginosum*	*Ophrys apifera*	*Sison amomum*
Arctium lappa	*Catabrosa aquatica*	*Gentianella amarella*	*Orchis mascula*	*Spartina anglica*
Armeria maritima	*Catapodium marinum*	*Geranium sanguineum*	*Orobanche minor*	*Spergularia media*
Artemisia absinthium	*Catapodium rigidum*	*Geum rivale*	*Osmunda regalis*	*Spergularia rubra*
Asplenium ceterach	*Centaurea scabiosa*	*Gymnadenia conopsea*	*Parapholis strigosa*	*Spirodella polyrhiza*
Atriplex glabriuscula	*Ceratophyllum demersum*	*Helichtotrichon pubescens*	*Phleum arenarium*	*Stellaria nemorum*
Atriplex littoralis	*Ceratophyllum submersum*	*Hordeum secalinum*	*Picris echioides*	*Stellaria pallida*
Berberis vulgaris	*Chaenorhinum minus*	*Hottonia palustris*	*Poa angustifolia*	*Suaeda maritima*
Botrychium lunaria	*Chenopodium ficifolium*	*Hydrocharis morsus-ranae*	*Polygonatum multiflorum*	*Thalictrum flavum*
Beta vulgaris ssp *maritima*	*Chenopodium polyspermum*	*Hypericum hirsutum*	*Polypodium interjectum*	*Tilia cordata*
Brassica nigra	*Chrysosplenium alternifolium*	*Inula conyzae*	*Polypodium x mantoniae*	*Trifolium fragiferum*
Cakile maritima	*Cladium mariscus*	*Iris foetidissima*	*Polystichum aculeatum*	*Trifolium micranthum*
Calamagrostis canescens	*Clematis vitalba*	*Juncus ambiguus*	*Polystichum setiferum*	*Trifolium striatum*
Calamagrostis epigejos	*Clinopodium vulgare*	*Juncus gerardii*	*Potamogeton polygonifolius*	*Triglochin maritimum*
Callitriche hermaphroditica	*Cochlearia anglica*	*Juncus maritimus*	*Ranunculus lingua*	*Umbilicus rupestris*
Callitriche obtusangula	*Crepis paludosa*	*Juncus subnodulosus*	*Ranunculus peltatus*	*Vaccinium vitis-idaea*
Callitriche platycarpa	*Cystopteris fragilis*	*Lathraea squamaria*	*Raphanus raphanistrum* ssp *maritimus*	*Valeriana dioica*
Campanula trachelium	*Dactylorhiza maculata*	*Lavatera arborea*	*Rhamnus cathartica*	*Valerianella locusta*
Carduus nutans	*Dactylorhiza purpurella*	*Lepidium campestre*	*Rhinanthus minor* ssp *stenophyllus*	*Veronica polita*
Carduus tenuiflorus	*Drosera rotundifolia*	*Lepidium heterophyllum*	*Rosa caesia ssp caesia*	*Viola lutea*
Carex arenaria	*Dryopteris affinis ssp affinis*	*Leymus arenarius*	*Rosa caesia ssp vosagiaca*	*Viscum album*
Carex binervis	*Dryopteris affinis ssp cambrensis*	*Littorella uniflora*	*Rosa pimpinellifolia*	*Viola reichenbachiana*
Carex distans	*Echium vulgare*	*Lythrum portula*	*Rosa rubiginosa*	*Zannichellia palustris*
Carex disticha	*Eleocharis acicularis*	*Melampyrum pratense*	*Rubus caesius*	*Hyacinthoides non-scriptus* **Extensive areas only**
Carex divulsa ssp *divulsa*	*Elytrigia atherica*	*Myosotis ramosissima*	*Rumex crispus* ssp *littoreus*	
Carex elata	*Elytrigia juncea*	*Myosotis secunda*	*Rumex maritimus*	

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5. Appendices

5.1 LWS survey form

Local Wildlife Site Description and Management Form

Site name:	Site code:	Grid reference:
Date(s) of visit:	**Surveyor(s)**	**Data submitted to rECOrd?**

Land owner/tenant
Include name, address and contact number/email for owner and/or tenant/agent. Where there is more than one owner, indicate ownership boundaries clearly on site map.

Selection Criteria	
List all criteria that apply. Give brief justification here or in target notes.	

Site Characteristics	
Topography: undulating; irregular; slopes; aspects etc.	*Any public access to site?*
Hydrology/Geomorphology/Soils(if known): wet, flushes, streams, outcrops, mineral, peat, clay etc.	*Surrounding area information: urban, semi-rural, rural, intensively farmed etc.*

Site Summary
Give BRIEF description/summary of the site. Include information on most important habitats, important or dominant species and other important aspects of the site. May update existing citation.

Additional information
e.g. species lists, species diversity, notable or indicator species (approximate NVC communities may be suggested), suggested boundary changes (mark on map), recommendations for future surveys. List any target notes with species information (e.g. indicators, invasives, species lists). All botanical species information should be recorded with DAFOR score where possible.

Condition assessment	
Overall impression of the condition of site. Good, fair or poor? Give reasons.	
Social Issues	
Issue	**Comment where applicable**
Litter/fly tipping/pollution	
Vandalism/anti-social use	
Recreational damage	
Other	
Grassland/Heathland	
Issue	**Comment where applicable. Complex sites may need to be assessed in compartments/fields – annotate map.**
Grazing (animal sp.) - Any suggestion of over/under grazing?	
Poaching	
Scrub encroachment (% cover, include young plants)	
Mowing	
Ridge and furrow/anthills	
Re-seeding/fertiliser application? Record % of white clover/rye grass.	
Undesirables (% cover e.g. bracken, thistles, nettles, docks, ragwort, invasives/ non-natives – list sp.)	
Bilberry/heathers/western gorse (% cover)	
Other	
Woodland	
Issue	**Comment where applicable. Complex sites may need to be assessed in compartments/fields – annotate map.**
Tree cover (estimate % cover where possible)	
Invasives/non-natives (list sp. and approx. frequency)	
Coppicing/felling	
Grazing (livestock and/or deer, give details)	
Pheasant rearing	
Regeneration of locally native tree species?	
Fallen/standing dead wood	
Fencing	
Other	

Wetland	
Issue	**Comment where applicable. Complex sites may need to be assessed in compartments/fields – annotate map.**
Invasives/non-natives (list sp. and estimate % cover)	
Scrub encroachment (% cover, include young plants)	
Any good populations of wetland flora/fauna?	
Suggestion of eutrophication e.g. algal blooms?	
Other	
Management plan / stewardship agreement / any management suggestions?	
Comment where known	

5.2 Checklist for Single Data List SDL ref 160 (previously NI 197)

	Measure	Yes	No	Not known
1.	Have the conservation features for which the site has been selected been clearly documented?			
2.	Is there documented evidence of a management plan/ management scheme/advisory document which is sufficiently targeted to maintain or enhance the above features?			
3.	Are the management requirements set out in the document being met sufficiently in order to maintain the above features? This should be assessed at 5 year intervals (minimum). Record 'not known' if interval is greater than 5 years.			
4.	Has the Local Sites Partnership verified the above evidence?			

For a site to score positive for ref 160 all four measures listed above MUST be YES[43].