Wet Woodland Habitat Action Plan

1. Introduction

Wet Woodland was listed as a priority UK BAP habitat and subsequently listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

2. Current Status

2.1 Description of habitat

Wet woodland, sometimes called carr or carr woodland where the habitat has developed as a successional stage from what was originally swamp, occurs on poorly drained or seasonally wet soils, with alder *(Alnus glutinosa)*, birch (*Betula* sp.) and willow (*Salix* sp.) as the predominant tree species. It is found on floodplains as successional habitat on fens and bogs and around water bodies, along streams and hillside flushes and in localised peaty hollows. The soils on which these woods occur range from nutrient-rich mineral soils to very acid, nutrient-poor organic soils. Boundaries with dry-land woodland may be sharp or gradual and can change over time through natural succession or as a result of human influence.

The National Vegetation Classification (NVC) lists eight woodland types as being dominated by the presence of alder, birch and willow in situations where the wetness of the ground is the overriding influence on species composition. Types occurring in Worcestershire are:

- W1 *Salix cinerea-Galium palustre* woodland is occasional in Worcestershire and is a community of wet mineral soils on the margins of standing or slow-moving waters and moist hollows. This can grade into the W6 woodland communities in shallower water and waterlogged soil.

- W5 *Alnus glutinosa-Carex paniculata* woodland is extremely scare and localised in the county. It occurs on areas of fen peat and mire where there is a strong influence from base-rich ground waters.

- W6 *Alnus glutinosa-Urtica dioica* woodland is found on wet, nutrient-rich soils e.g., shallow banks along brook meanders that receive a lot of sediment-rich winter flood water.

- W7 *Alnus glutinosa-Fraxinus excelsior* woodland occurs on mineral-rich flushes, not necessarily associated with brooks or pools, but where there is not a high build-up of nutrients. The dominant species of the groundflora vary according to the soils and geology; pendulous sedge (*Carex pendula)* may dominate or the community may be more diverse with opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium)* prominent.

Wet woodlands frequently occur in a mosaic with other woodland and open ground habitats and management of individual sites often has both woodland and

wetland requirements. Many alder woodlands are ancient and have a long history of coppice management that has determined their structure. Other wet woodlands have developed through natural succession on open wetlands and have little forestry influence. Some are the result of the planting of osiers for basketwork and through long abandonment these have developed into semi-natural stands. For example, in the Severn and Avon Vales recent wet woodland occurs in old clay pits in the Severn Valley, often in juxtaposition with marshes as at Norton and Grimley Brickpits, and as a few small woodlands developed from former osier beds such as Ripple Lake and the Napps.

Wet woodland combines elements of many other ecosystems and as such is important for many taxa, including providing important cover and breeding sites for otter *(Lutra lutra)*. The high humidity in these habitats favours mosses, lichens, liverworts and dead wood fungi. The number of invertebrates associated with alder, birch and willow is very large and includes specialised beetles, craneflies, other flies and molluscs. Dead wood and saturated ground are micro-habitats commonly associated with wet woodland. While few rare plant species depend on wet woodland, there may be relict species from the former open wetlands such as marsh fern *(Thelypteris palustris)*.

2.2 Distribution and extent

There is estimated to be 25,000-30,000 ha of ancient semi-natural wet woodland in Britain, dominated by alder, willow and birch, and at least the same again of recent wet woodland.

In Worcestershire, ancient wet woodland is scarce and often undefined. The Worcestershire Habitat Inventory (WHI) records a total of 75.4 ha of wet woodland, around 0.5% of all woodland in the county. It mostly occurs as riparian woodland or associated with springs or flushes and old mineral workings. All of the major river valleys within Worcestershire have pockets of wet woodland where the habitat can occur as part of a linear hydrosere of riparian woodland, pools and associated habitat along a river or stream corridor. The greatest proportion of wet woodland occurs on the Midland Plateau (38%) and in the Severn and Avon Vales (56%).

Alder carr is mostly associated with the linear complexes of old mill pools in stream valleys around Kidderminster and Stourbridge, but there are also sites along the River Severn. There is a rich riparian habitat associated with the River Stour floodplain where tributaries such as the Blakedown Brook contain important linear woods of alder and crack-willow (*Salix fragilis)* that have developed on alluvium or peat and are fed by springs from the Triassic sandstone. These include the largest single alder wood in the county at Hurcott and Podmore Pools Site of Special Scientific Interest (SSSI). In the south of the county a number of small (<3 ha), old wet woodlands occur with the name Arles – a local name for alder.

Willow carr tends to be more widely distributed, occurring further south and along the Avon valley, though they occur also as tracts (mostly on the drier ground) within alder woods.

The scrub swamp type of wet woodland occurs as the primary stage of succession towards carr woodland at the heads of mill pools, or as

relict/abandoned osier beds. Many have a deep swamp/silt understorey and have a botanically poor flora.

The vales associated with both the River Severn and River Avon have locally significant pockets of wet woodland that have developed as secondary woodland on mainly wet soils in the river valleys and in the clay pits and marshes along the main rivers. Alder and willow carr have also developed from former osier beds or on disused brick pits. Many old osier beds are unmanaged and as they mature an abundance of deadwood and decaying stumps can provide good invertebrate and bird habitat.

Topography plays a significant role in determining the distribution of wet woodland, for example in the Malvern Hills wet woodland remains in areas where the topography impedes access. The north and north-west of the district is more undulating with brooks frequently flowing through steeply incised valleys – it is here that the majority of dingle woods in the county occur, either alone or in association with wooded plateaux between and around the dingles. These include many of the best examples of woodland Local Wildlife Sites in Worcestershire. The geology and variation in topography provides variation in soils and water regimes enabling different types of woodland communities to flourish.

Topography has played a similar role in determining the presence and distribution of wet woodland flushes around springs and along stream corridors throughout the Wyre Forest.

2.3 Protection of the habitat

- Legal protection can be granted through the designation of a Site of Special Scientific Interest (SSSI) under the Wildlife and Countryside Act 1981 (as amended).

- Wet woodland is listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

- Sites not meriting SSSI status can be listed as a Local Wildlife Site (LWS). Although not a statutory designation LWS status does confer some protection through the planning system.

- National forestry policy includes a presumption against clearance of broad leaved woodland for conversion to other land uses, and in particular seeks to maintain the special interest of Ancient Semi-Natural Woodland. Felling licences from the Forestry Commission are required for licensable timber in woods but ‘scrub woodland’ may be vulnerable to clearance outside the felling regulations.

- Relevant hydrological policy issues include water level management plans. Potential means of controlling damaging activities include impoundment licenses and consents for abstraction and land drainage issued by the Environment Agency.

2.4 Summary of important sites

Worcestershire Wildlife Trust undertook the last comprehensive botanical survey of wetland sites within the county in 1998. Thirty six sites with a significant wet woodland component were surveyed and at this time Podmore Carr was ranked as having the highest ecological value.

Podmore Carr is part of the **Hurcott and Podmore Pools SSSI**, the largest wet woodland site in the county. The site comprises a large area of alder carr, two pools and adjoining woodland situated in the valley of the Blakedown Brook near Kidderminster and was selected for notification as an important wetland complex. Both pools were constructed in medieval times to provide power for mills. They have rich riparian vegetation zones at their upstream ends consisting of extensive beds of bulrush (*Typha angustifolia* and *T. latifolia)* with branched bur-reed *(Sparganium erectum)*, water-plantain (*Alisma plantago-aquatica),* greater pond-sedge (*Carex riparia)* and lesser pond-sedge *(C. acutiformis)*. Extensive patches of yellow water-lily (*Nuphar lutea)* occur in Hurcott Pool.

The ground flora includes characteristic wetland species such as marsh-marigold *(Caltha palustris),* marsh thistle *(Cirsium palustre)*, marsh bedstraw (*Galium palustre)* and a number of sedge species including cyperus sedge *(Carex pseudocyperus)*. Plants uncommon in this part of the West Midlands also occur including greater tussock-sedge *(Carex paniculate)*, alternate-leaved golden-saxifrage (*Chrysosplenium alternifolium),* large bitter-cress (*Cardamine amara)* and the nationally rare touch-me-not balsam (*Impatiens noli-tangere)* is found here at its only county location. The open water and woodland form an important habitat for bird life. More than 30 species of bird breed here including great crested grebe *(Podiceps cristatus)*, little grebe *(Tachybaptus ruficollis)*, kingfisher (*Alcedo atthis)* and reed warbler *(Acrocephalus scirpaceus)*.

Hartlebury Common and Hillditch Coppice SSSI near Stourport-on-Severn includes several areas of wet woodland. Hillditch Coppice itself is an area of base-rich spring-line alder woodland at the eastern side of the site associated with Hillditch Pool and the Hartlebury Brook which runs into it. Ground flora includes greater pond-sedge (*Carex riparia*), opposite-leaved golden-saxifrage, meadowsweet (*Filipendula ulmaria*), water horsetail (*Equisetum fluviatile*) and greater tussock-sedge. At the opposite side of the Common is 'The Bog', a species-rich valley mire of significant ecological and archaeological interest. Adjacent to this is an area of woodland dominated by mature alder trees. Recent work to increase ground water levels by removal of a number of large white poplar trees has had some success.

3. Current factors affecting the habitat

Wet woodland in Worcestershire is or has been affected, to varying degrees, by the following factors that directly or indirectly impact upon its current condition and dynamics:

- Historical clearance and conversion to other land uses.
- Clearance of recently established stands that fall outside of felling regulations.

- Habitat fragmentation resulting in small sites that are then vulnerable to the adverse effects of adjacent intensive land use and to loss of species dependent upon larger habitat units.

- Artificially restrictive boundaries to wet woodland sites due to adjacent intensive land use, leading to limited structural diversity and lack of biologically-rich woodland edge habitat.

- Lowering of water tables through drainage or abstraction resulting in a change to drier woodland types.

- Cessation of management in formerly coppiced sites, resulting in the loss of former structure and increased shading of the herbaceous layer.

- Past and ongoing flood prevention measures, river control and canalisation leading to a loss of dynamic disturbance-succession systems and invertebrate communities as well as reductions in the extent of sites.

- The conversion of pools to fishing pools or the creation of new fishing pools along linear wet systems, interrupting hydrological flows and established biological ecosystems.

- Lack of provision for wet woodland within agri-environmental schemes.

- Damaging grazing by livestock and deer, leading to a simplification of woodland structure, ground flora impoverishment and lack of regeneration.

- Poor water quality arising from eutrophication, urban effluents or rubbish dumping leading to negative changes in the composition of the ground flora and invertebrate communities.

- Many blocks of woodland will have a fringe of poor vegetation where the edges of the site are damaged by spray drift and agricultural run-off. The nature of wet woodland means that the habitat often occurs in narrow linear strips and therefore the entire site is vulnerable to damage of this nature.

- Invasion by non-native species such as Himalayan balsam (*Impatiens glanulifera)* and American skunk-cabbage (*Lysichiton americanus)* that can then dominate the vegetation composition, cause bankside soil erosion and lower the nature conservation value of the site. These species can cause devastating losses of habitat on many wetland sites, and in some instances this has led to complete abandonment of conservation management.

- Air pollution may negatively impact on the bryophyte and lichen communities.

- Diseases such as *Phytophthora* root disease of alder.

- Climate change speeding succession to drier woodland types.

4. Current Action

4.1 Local protection

Statutory site protection plays a small part locally in the conservation of this habitat type. A number of SSSIs notified for wetland and other interests incorporate wet woodland features, including Hurcott and Podmore Pools and Wilden Marsh.

Other sites incorporating wet woodland habitat are identified as LWS. Some of these are within conservation ownership, including Worcestershire Wildlife Trust reserves at Ipsley Alders, Upton Warren and Spennells Valley.

Some sites are included in District Local Plans as 'third tier' sites of local importance, and thus are afforded some protection at a local level.

Some individual trees and woodland areas may be subject to Tree Preservation Orders.

4.2 Habitat management and programmes of action

All woodland should be managed according to the UK Forestry Standard (2017). Information on ownership categories is not readily available but the majority of wet woodlands in Worcestershire are in private ownership and their management aspirations are poorly known. Many wet woodlands are unmanaged and would benefit from a planned approach. Guidance on creating and managing wet woodlands is available from the Environment Agency, Forestry Commission and Natural England including the FC publication 'The Management of Semi-Natural Woodlands: Wet Woodlands'. Worcestershire Wildlife Trust is also able to help with more specific advice and surveys of wet woodland LWS.

Wet woodland SSSIs are a priority for action to reduce the input of phosphate levels under Water Framework Directive.

Wet woodland is an important component of Natural Flood Management, contributing to run-off reduction and floodplain storage. Features such as large woody debris dams are now routinely created to slow and spread out water flows, aiding infiltration.

The linear nature of some wet woodland complexes and their penetration into urban areas along stream and river corridors makes them ideal for enhancement and management as part of Green Infrastructure delivery.

The knowledge and expertise of woodland managers is also developed and promoted through the Small Woods Association, Timber Growers Association, Royal Forestry Society and others.

4.3 Survey, research and monitoring

Worcestershire Wildlife Trust completed a comprehensive review of the county's woodland (including wet woodland) LWS in 2009. The Worcestershire Local Sites Partnership continues to monitor all LWS and any new wet woodland sites that qualify for inclusion in the county list will be considered by the Partnership's selection panel.

Water level monitoring and invertebrate surveys are carried out at Hurcott and Podmore Pools SSSI.

Survey work at Grimley Brick Pits is programmed for 2018 by Worcestershire Wildlife Trust.

Forest Research has a Riparian Woodland and Water Protection project with five main topics of study:

- The effect of riparian woodland management on the freshwater environment.
- The impact of conifer clearance from the banks of upland streams.
- The role of riparian shade in controlling stream water temperature in a changing climate.
- Guidance on the management of riparian buffer areas within commercial forests.
- Indicators of ecological quality in rivers: RIVFUNCTION (EU sponsored research).

4.4 Action for priority species

Further research is needed into the requirements of specialist invertebrates (in particular dead wood-specialists) within wet woodlands. Bats need to feature within all site management plans in order to protect existing populations from the effects of woodland management and to insure that wherever possible opportunities are taken to provide habitat for bats within the wet woodland environment. Bat surveys involving mist netting are planned at Hurcott Pool.

5. Associated Plans

Scrub, Woodland, Reedbeds, Fen and Marsh, Ponds and Lakes, Rivers and Streams, Wet Grassland, Ancient and Veteran Trees, Bats, White-clawed Crayfish, Black Poplar.

6. Conservation Aim

Existing wet woodland sites are in better condition and opportunities have been taken to create new wet woodland.

7. Conservation Objectives

- Wet woodland to be better mapped and surveyed to more accurately determine the extent and condition of the county resource

- All SSSI and LWS wet woodland sites to have good or improving water quality

- Focus on improving habitat connectivity along linear 'wet' corridors to consist of wet woodland, swamp, marsh, fen and open water

- Include the creation of wet woodland as part of a mosaic within woodland creation schemes where this would be supported by the water table and soil type

- Eradication of invasive non-natives from high value sites, in particular Himalayan Balsam (*Impatiens glandulifera*) and American skunk-cabbage (*Lysichiton americanus*)

- Use of coppicing and other techniques to enhance the ground flora component of wet woodland sites

References and further information

Barsoum, N., Anderson, R., Broadmeadow, S., Bishop, H and T. Nisbet. T (2005). *Eco-hydrological guidelines for wet woodland – Phase I*. English Nature Research Report 619.

Fischer, G., Self, M., Nowers, M., Booth, H and White, G (2018). *Rewetting of woodland: trial management on two RSPB nature reserves*. British Wildlife Volume 29.3 Page 191-196.

Forestry Commission (2017). *The UK Forestry Standard: The governments' approach to sustainable forestry (4th edition)*. Forestry Commission.

Forestry Commission Practice Guide (2003). *The Management of Semi-Natural Woodlands: Wet Woodland*. Forestry Commission.
https://www.forestry.gov.uk/pdf/fcpg008.pdf/$FILE/fcpg008.pdf

Forest Research (2018). *Forestry Statistics 2018*. Forestry Commission.

Liley, M (1999). *Worcestershire's Wetlands. Report of 1998 Botanical Survey.* Worcestershire Wildlife Trust.

Mackenzie, S. M and McIlwraith, C. I (2013). *Constructed farm wetlands – treating agricultural water pollution and enhancing biodiversity.* Wildfowl and Wetlands Trust & Natural England.

Natural England (2015). *Hydrological functioning theme plan. Restoring the hydrology of Natura 2000 terrestrial wetlands.* Natural England.

Natural England & RSPB (2015). *Climate Change Adaptation Manual - Evidence to support nature conservation in a changing climate (NE546) – 5 Wet Woodland.*
http://publications.naturalengland.org.uk/publication/5629923804839936

Smith, S. and Gilbert, J (2002). *National Inventory of Woodland and Trees – Worcestershire.* Forest Research.