

# How to Create and Restore Wet Woodlands

## What is a wet woodland?

Wet woodlands are as they sound! They are woodlands which are frequently or seasonally wet either through the action of flooding from streams or rivers (floodplain woodlands), or from springs and geological features which 'hold' water in the woodland (e.g. clay soils).

Floodplain woodlands are one of the most dynamic (constantly changing) types of habitat that we have today and both these and wet woodlands are almost extinct in Sussex and lowland Britain. A wet woodland is not however just a dense wall of trees. They generally have between 30 - 70% tree cover and include open floodplain areas and other dry and wet habitats such as scrub, reedbeds and ponds.



A woodland in a floodplain with streams winding through the trees and wetland flora on the floodplain

## Why are wet woodlands important?

Wet woodlands are one of the rarest woodland habitats in Britain. The precise extent of wet woodland in the UK is not known, but estimates range from between 25,000 and 35,000 ha. In Sussex, the area of wet woodland is unknown but it is extremely low and it is very much in danger of extinction. Fragments of ancient wet woodland are particularly rare.

## What makes a wet woodland so valuable for wildlife?

Wet woodland is important for a large number of generalist and specialist species because it combines elements of a number of different habitats into one functioning system.

Wet woodlands occur on a range of soil types and their boundaries with dryland habitats create additional niches for wildlife. Wet woodlands are also influenced by river flows and the erosional force of water which help create a mosaic of open and closed habitats from open water and fen to closed mature woodland.

Many alder woods are ancient and have a long history of coppice management which has increased their structure and diversity. The high humidity in wet woodlands favours the growth of mosses and ferns. The number of insects associated with wet woodlands is also very large. Dead standing and fallen wood within wet woods is frequent and its association with water provides specialised habitats not found in dry woodlands. While few rare plant species depend on wet woodland per se, they can support a high number of common and uncommon plant species.



Wet woodlands. Not 100% tree cover but an intricate network of open and closed wetland habitats  
© www.davidplummerimages.co.uk

### What species are wet woodlands important for?

Wet woodland is important both nationally and locally for a number of priority species including the Otter, the Black poplar tree, Marsh warblers, Spotted flycatchers, Cranes, Lesser spotted woodpeckers, Woodcock, Nightingale, Willow tit, the Weevils *Melanapion minimum* and *Rhynchaenus testaceus*, the Craneflies *Lipsothrix ecucullata*, *L. nervosa*, *L. errans* and *L. nigristigma* and the Netted carpet moth *Eustromia reticulata*.



A fallen tree in a wet woodland supports a range of life  
© www.davidplummerimages.co.uk



Wet woodlands provide important habitat for otters © F Southgate

### Why have wet woodlands declined?

Although the original clearance of all woodlands including wet woodlands began hundreds of years ago, some more modern practices are a particular threat to the habitat. These include:-

- Urban development in floodplains,
- River control and management leading to loss of dynamic flooding-disturbance-succession systems
- Unsympathetic forestry practices such as plantation forestry,
- Clearance and conversion to other land-uses,
- Cessation of management in formerly coppiced sites encouraging succession to drier woodland.
- Lowering of water-tables through drainage and water abstraction,
- Intensive grazing levels and poaching of the soil by sheep, cattle and deer,
- Constraints on natural spread of woodland onto adjacent agricultural, industrial, or conservation sites,
- Poor water quality arising from eutrophication, agricultural and industrial effluents or rubbish,
- Invasion by non-native species such as Indian or Himalayan balsam (*Impatiens glandulifera*),
- Air pollution which may influence particularly mosses, liverworts and lichen communities,
- Tree diseases such as Phytophthora root disease of alder,
- Climate change and associated changes in the woodland communities and where these can survive.



Trees can help slow down flood water in winter

### Why restore wet woodlands?

Wet woodland restoration can help enhance rivers and wetlands for people and wildlife if put in the right places. The potential benefits of restoring (wet) woodlands in Sussex include:-

- Improvements to water quality, and reduced water treatment costs
- Increased public amenity and economic benefits from eco-tourism
- Potential reduced flood risk and increased flood storage
- Benefits to wildlife
- Buffering of climate change through carbon storage

Over centuries, our rivers and their floodplains have undergone huge changes brought about by man. In particular large areas of wetland and natural floodplain were lost since the industrial and agricultural revolutions. Restoring wet woodland in appropriate places can help restore 'lost' habitats and natural processes. Also, the endangered black poplar tree which would originally have been found in natural floodplain woodland, may also be given a fighting chance of reproducing naturally rather than from tree cuttings as is the case now.

### **How can I restore wet woodlands?**

Wet woodlands can be planted, or allowed to regenerate naturally, and as far as possible, should be wild, natural and dynamic wetland systems which are self regulating through natural processes and natural grazing. Ideally they should require minimum human management or intervention.

### **Should I plant a woodland or allow the woodland to develop naturally over time?**

Most land in Sussex would naturally return to woodland if land management stopped. The easiest (and cheapest) way to establish a wet woodland is therefore to look at places on your land where scrub and trees are already trying to grow near streams, springs or rivers, and to continue to allow scrub and woodland to develop on them.

The growth of a woodland can however takes centuries and you may wish to 'kick start' your wet woodland by seeding it with local scrub and tree species. If you can, we recommend that you have an ecological survey carried out prior to planting to make sure that there are no rare habitats you could destroy by planting trees.

**NOTE: That any tree planting within 8m of a main river requires land drainage consent from your local Environment Agency Development Control Team.**



A seasonally flooded field previously used as a horse paddock, planted with wet woodland tree species.

### **What is a good site to plant wet woodland and what should I avoid?**

There are a number of things you should consider on your site before you plant a wet woodland:-

#### **Good sites include:-**

- Sites with naturally occurring springs or where streams and rivers flood onto the floodplain
- Sites which are obviously trying to revert to woodland and scrub
- Sites with little or no existing conservation interest such as improved grassland, species poor grazing marsh or intensive arable land
- Sites which flood regularly, particularly in winter (low lying land)
- Sites near to existing hedgerows, copses or ancient woodland
- Sites where (wet) woodland is shown on old maps
- Sites which are not valuable as farm land
- Old river meanders and field corners which are hard to farm and can be fenced from livestock

### Sites and areas to avoid include:-

- Sites with existing conservation interest or wildlife designations e.g. reedbeds
- Areas which are compromised by invasive plants such as rhododendron
- Sites where river water might back up behind the woodland causing problems for neighbours or increasing flooding of roads
- Sites with archaeological interest
- Sites within 8m of a river embankment
- Sites that are drained or very dry
- Sites with problems with intensive deer browsing
- Sites with regular exposure to herbicides, pesticides, fertilisers or other chemicals
- Sites near to underground services (e.g. gas mains), buildings on shrinkable soils or immediately downstream of a road



Black poplar, traditionally a tree of floodplain woodlands  
© www.davidplummerimages.co.uk

### What tree species should I plant?

Take a look at the tree and shrub species which occur naturally in your local area and particularly in existing wet areas. These are usually the best types of trees to plant and many will arrive of their own accord once grazing and mowing are stopped. Some recommended species include:-

#### Canopy (Sussex)

Alder *Alnus glutinosa*

Crack Willow *Salix fragilis*

Oak *Quercus robur*

**Black Poplar *Populus nigra ssp. betulifolia***

Downy Birch *Betula pubescens*

Ash *Fraxinus excelsior*

White Willow *Salix alba*

Frequent/co-dominant (20%)

Frequent/co-dominant (20%)

Frequent/co-dominant (20%)

**Occasional (10% +)**

Occasional in drier situations (5-10%)

Occasional (5-10%)

Occasional (5-10%)

### Understorey

Grey willow <i>Salix cinerea</i>	Frequent (20%)
Osier <i>Salix viminalis</i>	Occasional (5-10%)
Hawthorn <i>Crataegus monogyna</i>	Occasional (5-10%)
Wych Elm <i>Ulmus glabra</i>	Occasional (5-10%)
Elder <i>Sambucus nigra</i>	Occasional in drier situations (5-10%)
Goat Willow <i>Salix caprea</i>	Rare (<5%)
Holly <i>Ilex aquifolium</i>	Rare (<5%)
Hazel <i>Corylus avellana</i>	Rare (<5%)
Guelder Rose <i>Viburnum opulus</i>	Rare (<5%)
Blackthorn <i>Prunus spinosa</i>	Rare (<5%)
Blackcurrant <i>Ribes nigrum</i>	Rare (<2%)
Red Currant <i>Ribes sylvestre</i>	Rare (<2%)

### When should I plant?

Tree planting is usually best carried out from October onwards to allow young trees to establish roots before summer droughts. However, if you are planting in an area which regularly floods then try and avoid periods of heavy flooding, as planted trees can be damaged and uprooted by high water flows.

If you decide to plant trees, try not to plant in straight lines, and preferably plant at over 5m spacing with varied spacing including some clumps, (unless required to plant differently under a woodland grant). Plant a mixture of local trees including those which prefer the drier edges of a floodplain (such as oak and ash) and some which prefer to get their feet wet regularly (such as alder and willow).



Willow trees thrive in wetter areas and can survive frequent inundation

### Where can I find genuine Sussex black poplar trees?

The Sussex Black Poplar Working Group, housed at Sussex Wildlife Trust in partnership with Wakehurst Place (Kew Gardens) grows young black poplar trees once a year to distribute to people restoring wet woodland. Contact Sussex Wildlife Trust for more details.

### How should I manage my wet woodland?

Wet woodlands by their nature thrive on non intervention and no management. Hopefully your wet woodland will manage itself. If you wish to manage your wet woodland however you may want to consider the following:-

- Coppicing some areas to create a more diverse woodland structure with some clearings
- Allowing woodland edges to grade upwards from grass, through scrub, to woodland
- Coppicing to provide wood fuel
- Managing areas of willow and scrub to maintain some open areas and wet scrub
- Keeping an eye out for invasive and alien species and clearing them if they arrive. Plants to look out for are Rhododendron, Himalayan balsam, Sycamore, Skunk cabbage etc.
- Creating a pond or open water area (although try and make these as natural as possible and try not to use structures or bunds when doing this)
- Creating a raised boardwalk to give public and disabled access to the woodland
- Avoiding using heavy plant which could compact soils and accelerate or alter natural water drainage
- Finding old land drains and blocking them, or allowing old drainage ditches to become blocked
- Consulting with SORP/your local Environment Agency officer to see if it is necessary/possible to restore any stream or river channels to their old form and floodplain
- Allowing heavy stock such as cattle and deer to seasonally browse the woodland to create structure

### **The rivers on my land are managed and embanked. Can I still restore wet woodland?**

Many rivers in Sussex have been regulated and managed and floodplains have been drained. These types of managed floodplains will affect how natural your floodplain woodland can be, and the development of woodland near embankments is also highly regulated by the Environment Agency.

Many government and conservation organisations are now considering trying to renaturalise and rehabilitate rivers and floodplains. If you are feeling ambitious you could consider restoring some of the natural river processes on your land in close consultation with your local Environment Agency and Wildlife Trust.



**Aerial photo showing an old river channel running through the middle of a floodplain, with a modern ditch or 'cut' draining water on the left. Restoring old river channels can help re-create conditions needed for floodplain woodland.**

## Are there any grants to help plant wet woodlands?

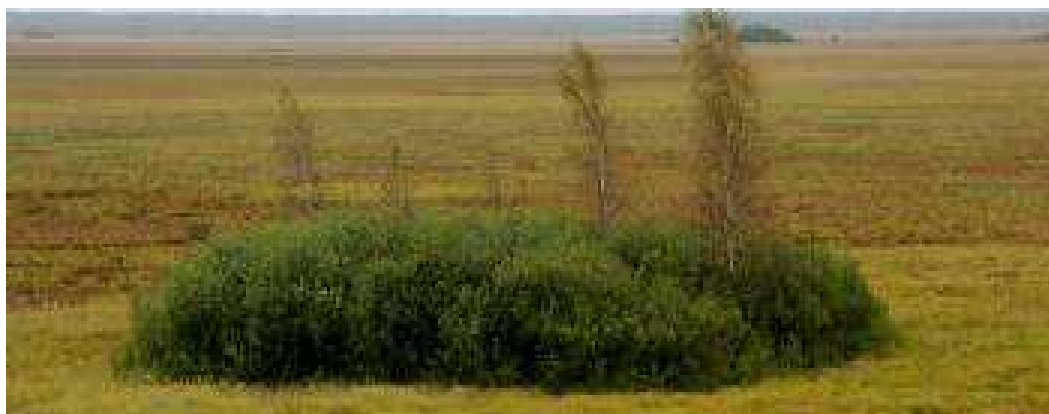
There are a number of ways you may be able to fund your wet woodland restoration.

- Grants for, and advice on, management, including regeneration, planting and some other operations, are available from the Forestry Commission Grant Schemes (currently WIGS).
- Landowners in Higher Level Stewardship (HLS) also have an option of planting 3 areas of up to 1ha of woodland under the terms of the grant.
- Other government agencies, local authorities and local conservation groups may offer local woodland restoration grants or wildlife enhancement grants.

However, if you leave your wet woodland to naturally regenerate you may need no funding at all!

## Can wet woodland come into conflict with other rare habitats?

Wet woodlands can develop over a number of years as part of the natural process of succession. Reedbeds will often progress from open reed, to scrub and eventually woodland. It can often be desirable to 'halt' succession by managing scrub and trees and maintaining open reedbed.



Reedbed with wet woodland patch – In some cases it may be desirable to halt the spread of the woodland within a reedbed.

## For further information contact:

**Sussex Otters and Rivers Project**  
(also Sussex Black poplar Group)

(01273) 497555.

[www.sussexotters.org](http://www.sussexotters.org)

### Environment Agency

Ask for your local Fisheries, Recreation & Biodiversity or Land Drainage consent team  
08708 506506

[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

### Natural England

0845 600 3078

[enquiries.southeast@naturalengland.org.uk](mailto:enquiries.southeast@naturalengland.org.uk)

[www.naturalengland.org.uk/regions/southeast/contacts.htm](http://www.naturalengland.org.uk/regions/southeast/contacts.htm)

### River Restoration Centre

01234 752979

[www.therrc.co.uk](http://www.therrc.co.uk)

### Woodland Improvement Grant Scheme (Forestry Commission)

[www.forestry.gov.uk/forestry/INFD-6DCCEN](http://www.forestry.gov.uk/forestry/INFD-6DCCEN)

### Sussex Biodiversity Record Centre

[www.sxbrc.org.uk](http://www.sxbrc.org.uk)

01273 497521





Restored stream channel in wet woodland meandering around a natural island

## References and recommended reading

Brocklebank, Cook, Greenaway & Southgate. (2005). Sussex Floodplain Forest Concept Study.

Forestry Authority. (1995) National Inventory of Woodland and Trees (NIWT).

Forestry Authority. (1994) Management of wet woodlands.

Forestry Commission (1994). The management of semi-natural woodlands: 8. Wet woodland

RSPB. 2005. Wet woodlands. Land management for wildlife series.

RSPB 2005. Managing wet scrub. Land management for wildlife series.

Wet Woodland Habitat Action Plan - [www.ukbap.org.uk/UKPlans.aspx?ID=4](http://www.ukbap.org.uk/UKPlans.aspx?ID=4)

*The Sussex Otter and Rivers Project (SORP) is a partnership between Sussex Wildlife Trust, South East Water, Environment Agency and Southern Water Services. SORP promotes the sustainable management of Sussex rivers and the restoration of wetland habitats for people and wildlife, and in particular the Otter, Water vole and Black Poplar tree.*

