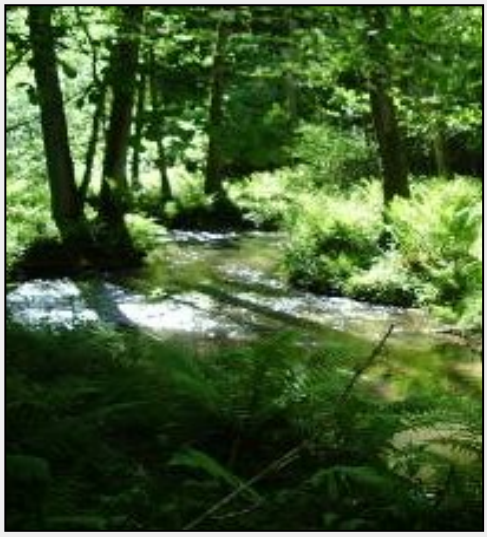
How To Create & Restore Wet Woodlands

Sussex Wildlife Trust

What is a wet woodland?

Wet woodlands are woods which are frequently or seasonally wet either through the action of flooding; from streams or rivers (floodplain woodlands); from springs; from geological features which 'pool' water (e.g. clay soils); or from surface water run off.

Floodplain woodlands are one of the most dynamic natural habitats in the UK but, along with wet woodlands, they are almost extinct in Sussex and lowland Britain. Wet woodlands are not just a dense wall of trees. They have between 30 and 70% tree cover and include open areas and other dry and wet habitats such as scrub, reedbeds and seasonal ponds.



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

What makes a wet woodland so valuable for wildlife?

Wet woodland is important for a large number of both 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 can also be influenced by river flows and the erosional force of water, springs and areas of natural bog which help to create a mosaic of open and closed habitats from open water fen to closed mature woodland.

Many wet woodlands are home to ancient trees, some of which have a long history of coppice management. The high humidity in wet woodlands also favours the growth of mosses and ferns and means they are home to many insects. Dead, standing and fallen wood is frequent and its association with water provides specialised niche wildlife habitats not found elsewhere. While few rare plant species depend on wet woodland specifically, the environment can support a high number and density of common and less common plant species. Sussex also hosts many rare Ghyll woodlands which occur in steep sided valleys of the high headstreams of river catchments.

For which species are wet woodlands important?

Wet woodland is important nationally and locally for a number of priority species including the Otter, the Black poplar tree, Marsh warblers, Spotted flycatchers, Common cranes, Lesser spotted woodpeckers, Woodcock, Nightingale, Willow tit, the Weevils *Melanapion minimum* and *Thynchaenus testaceus*, the Craneflies *Lipsothrix ecucullata*, *L.nervosa*, *L.errans* and *L.nigristigma* and the Netted carpet moth *Eustromia reticulate*. Ghyll woodlands are particularly important for mosses, ferns and liverworts, although all wet woodlands are host to a wide range of plant species.

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Why have wet woodlands declined?

Although the original clearance of all woodlands including wet woodlands began hundreds of years ago, some more modern practices have threatened the habitat further. 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 and grip drainage
- Clearance and conversion to other land-uses
- Cessation of management in formerly coppiced sites encouraging succession to drier woodland
- Lowering of water-tables through land drainage and water abstraction
- Intensive grazing and poaching by sheep, cattle and deer
- Constraints on natural spread of woodland onto agricultural, industrial, or conservation sites,
- Poor water quality from eutrophication, agricultural and industrial effluents or rubbish
- Invasion by non-native species such as Himalayan balsam (*Impatiens glandulifera*)
- Air pollution which particularly affects mosses, liverworts and lichens
- Tree diseases such as *phytophthora* disease of alder
- Climate change and associated changes in the woodland communities

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

Why restore wet woodlands?

Wet woodland restoration can have many positive benefits for people and wildlife. These include:-

- Improvements to water quality, and reduced public water treatment costs
- Increased public amenity and economic benefits from eco-tourism
- Reducing flood risk and increasing flood storage
- Improvements to fisheries and fish breeding
- Enhanced wildlife habitat
- Assisting natural river restoration
- Buffering of climate change through carbon Storage

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

Restoring wet woodlands in appropriate places can help restore many 'lost' habitats and beneficial natural processes. The endangered black poplar tree, which would originally have been found in natural floodplain woodlands, is also be given a fighting chance of reproducing naturally.

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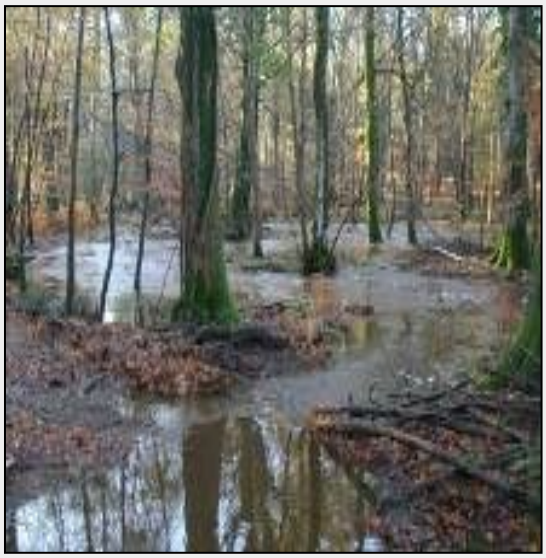
Should I plant a woodland or allow it to develop naturally ?

Most land in Sussex would naturally return to woodland if management stopped. The easiest (and cheapest) way to establish a wet woodland on your land is to look where scrub and trees are already trying to grow near streams, springs or rivers, and to allow woodland to naturally develop on them. The growth of a woodland can take centuries and you may wish to 'kick start' the process by seeding the land with local scrub and tree species. We recommend you carry out an ecological survey prior to planting, to make sure that there are no rare habitats you could destroy by planting trees. Direct drill seeding has also been shown to be a very effective way of establishing woodlands in areas of dense improved grassland.

NOTE: Planting within 8 m of a main river requires land drainage consent from your local Environment Agency Flood Risk Management Team.



Trees can help slow down flood water
© F Southgate

Where is a good site to plant wet woodland and where should I avoid?

Good sites include:-

- Sites with naturally occurring springs or where rivers flood onto the floodplain
- Sites which are obviously trying to revert to woodland and scrub naturally
- Sites with little or no existing conservation interest such as improved grassland, species poor grazing marsh or intensive arable land
- Sites which are obviously waterlogged (low lying land)
- Sites near to existing hedgerows, copses or ancient woodland
- Sites where (wet) woodland is shown on old or tithe maps
- Sites which have no value as farm land
- Old river meanders / field corners which are hard to farm and can be fenced off

Sites to avoid include:-

- Sites with existing conservation interest or designations e.g. reedbeds / heathlands
- Areas which are compromised by non native or invasive species such as rhododendron or Himalayan balsam
- Sites where river water might back up behind the woodland causing problems for upstream neighbours
- Sites with archaeological interest
- Sites within 8m of a river embankment
- Sites that are drained or very dry
- Sites 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
- Immediately downstream of roads or urban areas

What tree species should I plant?

Look at the tree and shrub species which occur naturally in your local area and particularly on wet land. These are usually the best trees to plant and many will arrive of their own accord once grazing and mowing have stopped. Be aware of local tree disease issues that could present a problem establishing certain species e.g. Alder and Ash are both susceptible to *phytophthora* and affected areas should be planted with alternative species. As a rule, go local and native. If in doubt call Wildcall (01273 494777) or contact the Forestry Commission or Woodland Trust for advice. Suitable species for Sussex include:

Canopy	
Alder (*Alnus glutinosa)*	
Crack Willow (*Salix fragilis*)	
Oak (*Quercus robur)*	
Black Poplar *(Populus nigra ssp.betulifolia)*	Rare (<10%)
Ash (*Fraxinus excelsior)*	
White Willow *Salix alba*	
Understorey	
Grey willow (*Salix cinerea)*	
Elder (*Sambucus nigra)*	
Osier (*Salix viminalis*)	
Hawthorn (*Crataegus monogyna)*	
Goat Willow (*Salix caprea)*	
Holly (*Ilex aquifolium*)	Rare (<5%)
Hazel (*Corylus avellana)*	
Blackthorn (*Prunus spinosa)*	
Guelder Rose (*Viburnum opulus)*	Rare (<5%)

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 and distributes them free to people restoring wet woodland. If you would like native Black poplar trees to add to your woodland planting then contact Sussex Wildlife Trust for more details.

Wet woodlands are not 100% tree cover but are often an intricate network of open and closed wetland habitats © F Southgate

When and how should I plant?

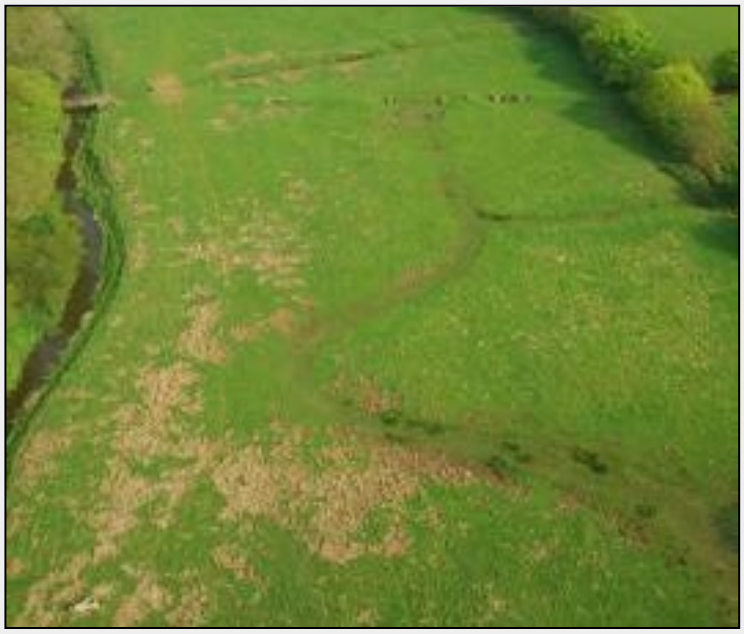
Wet woodlands can develop over years as part of the natural process of succession. Reedbeds will often progress from open reed, to scrub and eventually woodland. It can often be desirable to 'halt' succession by managing scrub and trees and maintaining open reedbed. Always survey your site to assess what habitats and species you have prior to starting any project.

If you decide to plant trees this is usually best carried out from late October to late February 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. Try not to plant in straight lines, and preferably plant at over 5m spacings, 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 some which prefer to get their feet wet (such as alder and willow). Try to use open mesh tree tubes (or no tubes) and robust stakes, otherwise waterlogging and rotting of trees is common. You may need to check trees regularly following flooding. For naturalistic planting, use money you would otherwise spend on tubes and stakes to pay for additional trees, to compensate for losses from animal browsing.

How should I manage my wet woodland?

Wet woodlands by their nature thrive on non intervention. Hopefully yours will manage itself but if you wish to manage it, consider the following:-

- Coppicing to create more diverse woodland structure with clearings
- Coppicing to provide wood fuel
- Allowing woodland edges to grade from grass, through scrub, to woodland
- Managing areas of willow and scrub to maintain open grassland, fen etc.
- Keeping an eye out for invasive and alien species and clearing them if they arrive. Plants to look out for are Rhododendron, Himalayan balsam, Skunk cabbage, Giant hogweed etc.
- Creating a pond or open water area
  (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 can compact soils and alter natural water drainage
- Finding old land drains and blocking them, or allowing old drainage ditches to become blocked
- Consulting with your local Environment Agency / Wetlands officer to see if it is possible to restore stream or river channels to their old form and floodplain
- Allowing stock (cattle, hardy ponies and deer) to seasonally browse woodland to create structure.
- Allowing bits of mature trees to fall and re-root themselves
- Keeping the root plates of fallen trees and allowing water to pool beneath them



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 the dynamic river conditions for floodplain woodland © Knepp Estate

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Contacts

Sussex Wildlife Trust (Wetlands Project)
www.sussexwildlifetrust.org.uk
01273 497555

Environment Agency
Ask for Fisheries & Biodiversity
or Land Drainage consent teams
03708 506506
www.environment-agency.gov.uk

Natural England
0845 600 3078
enquiries.southeast@naturalengland.org.uk

River Restoration Centre
01234 752979
www.therrc.co.uk

Woodland Grant Schemes
(Forestry Commission)
www.forestry.gov.uk/forestry/INFD-6DCCEN

Sussex Biodiversity Record Centre
www.sxbrc.org.uk
01273 497521

Woodland Trust
www.woodlandtrust.org.uk
0845 293 5689

References & Further Reading

- **David Blakesley and Peter Buckley:** ' Woodland creation for wildlife and people in a changing climate' NHBS 2010
- **Brocklebank, Cook, Greenaway & Southgate(2005):** Sussex Floodplain Forest Concept Study.
- **Forestry Commission (1994):** The management of semi-natural woodlands: 8. Wet woodland www.forestry.gov.uk/PDF/fcpg008.pdf/$FILE/fcpg008.pdf
- **Wet Woodland Habitat Action Plan** - http://jncc.defra.gov.uk/Docs/UKBAP_BAPHabitats-64-WetWoodland.doc
- Wet Woodland Advisory Sheet RSPB (call 01234 263616 to order)

Sussex wetlands project promotes the sustainable management of rivers and the restoration of wetland habitats for people and wildlife