



# **Habitat Management Guide for community groups around the Mersey Corridor**

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



# 1. Top Ten Tips

- 1) Take care around open water.
- 2) Get land owner permission.
- 3) Do a baseline and annual environmental terrestrial and water surveys.
- 4) Avoid closed canopy woodland.
- 5) Create dead hedges.
- 6) Prevent large trees in ditch and waterways.
- 7) Remove invasive species - It is imagined that Himalayan balsam can be removed as a volunteer activity but that giant hogweed and Japanese knotweed would require specialist contractors. Care must also be taken with the control of bracken.
- 8) Support wildflowers, sow seeds and remove grass cuttings annually.
- 9) Manage fen cuts in three stages.
- 10) Litter pick regularly.

## Disclaimer

Before any of the suggested conservation activities can undertake the Land Manager and Land Owner must be contacted and an agreement for work must be in place. This document has been written for the sole purpose of advising individuals or small groups on how to manage the habitats they encounter in their local green spaces. All activities identified are to be considered maintenance tasks and are not sufficient for the comprehensive management of an area. Each of the habitats identified around the Westy area have been colour coded using the standard JNCC Phase one habitat survey codes and coloured appropriately on the maps in section 2.

# 1. Map of Westy Point, Warrington



Phase 1 code	Textual descriptor
A1.1.2	Planted broad-leaved woodlands
A2	Scrub regrowth
B2	Semi- improved Neutral Grassland
C1.1	Bracken
C3.1	Tall herb and fern
F1	Swamp
G1	Open water
J1.2	Amenity grassland
J2.6	Dry Ditch

## 2. Habitat Guidance Notes

### A1.1.2 - Planted broad-leaved woodlands



*Planted Broad-Leaved Woodland  
Source Barrie Williams*

The considerations when managing a planted woodland are:

- Species control
- Growing density
- Habitat Structure
- Safety
- Target Flora/Fauna species

#### Species Control

Planted woodlands are often planted with a variety of tree species but, this is not always the case. In either instance the competition and preferential growing conditions may result in the woodland becoming species-poor, lacking in diversity. Species selection should be used to thin out dominant species in broadleaved woodlands unless this species is preferential in flora/fauna conservation efforts.

#### Growing density

Planted woodlands are often characterised by tall trees with few lower bow and a narrow crown contributing to a dense main canopy. There is often little light in the under-canopy so secondary canopies and floral ground cover can be sparse. Where possible once trees have reached a density where the main canopy is touching the woodland should undergo thinning to allow secondary growth to occur. This will promote more floral ground cover and improve species diversity in the woodland. This is skilled work and should be undertaken by trained professionals.

#### Habitat structure

The conservation goals for each woodland will vary depending on the species present, and any species of conservation concern. A good practice is to diversify the habitat as much as possible throughout the woodland. Management of the understory and ground habitats can be performed by small groups or individuals.

The objective should be looking at improving the variety of habitats available:

- Dead hedges and brush piles create valuable habitats for a range of UK species, preventing trampling of vulnerable areas in the sub story. However, be careful not to remove all standing and fallen deadwood from an area, Deadwood is a valuable habitat for beetles and fungus and should be left undisturbed unless it presents a safety concern.
- Allowing areas of thick scrub, thorny thicket and tall herb enables niche species..
- Clearings and Glades should be managed to stop scrub encroachment and prevent monocultures from invasive species, on a yearly basis. Willow and Birch are prone to regenerate from stumps so where possible the rootstock should be removed too. If glades open into grasslands then these glades may be managed as part of the grassland or may be managed as transitional habitats which are also valuable to many species so may need individual consideration.

#### Safety and access

When managing the woodland, it is vital to keep the public and volunteers safe. Where access is provided trees must be kept clear from the paths and the potential from harm minimised by the removal of deadwood and hanging hazards around the path. If access is to be limited considerations should be made towards the fauna occupying the woodland and precautions made not to isolate species with wire fencing or barriers, clear guidance should be provided to prevent trespass. Low dead hedges and other simple barriers are often sufficient as a deterrent.

## **A2 - Scrub regrowth**

Before conservation effort is undertaken to manage scrub regrowth it is important to understand scrubland is a valuable habitat for fauna species which use it for breeding, shelter, hunting and seclusion. Alternatively, the land may be better as reclaimed grassland.

In each case, the conservation actions will reflect that of the target habitat type. These are outlined in A1 .1.2 and B2. If managing for scrub little maintenance is needed, however access and encroachment must be monitored and areas of larger scrub may benefit from coppicing. Dense scrub can accumulate litter and be a target area for fly tipping. To prevent litter accumulation litter picks should be scheduled and proper disposal of waste be arranged.

## **B2 Semi- Improved Neutral Grassland**



*Semi-improved Grassland*  
*Source Emma Bradshaw*

Semi-improved grassland is identified as an area of grassland that has species which grow in both enriched soil and poor soil. This is a transitional habitat but has significant species diversity and high ecological value.

The main considerations when managing a semi-improved grassland are:

- Competition
- Enrichment
- Succession

### Competition

Competition is a major factor in species diversity across the grassland. Due to the single-story structure of this habitat light becomes a limiting resource. Grasses and other fast-growing plants can be controlled by a yearly hay cut. By allowing a year to pass between cuts plants from each season will grow and go to seed but rank vegetation will not compete for light, and other resources, in the succeeding year. Cuttings should be removed from the grassland to wooded or enriched soils to prevent succession/ enrichment of the grassland.

### Enrichment

Enrichment of soils is a major influence in succession, as plant matter decays (or if other nutrients are added such as fertiliser) the soil is able to support larger less stress-tolerant plants. These plants will rapidly outcompete the species adapted to growing in nutrient-poor soils and the variety in species present will diminish. To prevent this hay cuts, where the cuttings are removed are essential. This can be done by a strimmer or scythe. Additionally in areas that are showing signs of nutrient

enrichment, the turf layer of the soil profile can be removed. However, turf removal is liable to remove the seed bank and may result in pioneer/ invasive species establishing, so turf removal should incorporate a seed sowing regime, or species control plan. Seeds can be gathered from previous year's hay or a conservation approved seed mix similar to the one found here

<https://www.cotswoldseeds.com/mix-finder.asp?nid=46>

#### Succession or invasive species.

Scrub encroachment will occur if the grassland goes for an extended period of time without receiving a hay cut. This is easily managed by targeted cutting or pulling. Scrub over 3cm in diameter will have to be managed with a bow saw, and have the rootstock removed or the stump treated with glyphosates; to facilitate future hay cuts all stumps should be cut to ground level after treatment has been completed. Again all cuttings should be removed from the grassland.

Invasive species is addressed in section 5. Invasive species will produce a monoculture where all other species are quickly outcompeted. Some invasive species will also contaminate the soil, such as rhododendron, and make it so that the habitat takes a long time to recover. Monocultures are discouraged in conservation as they limit the number of niches available to the ecology of an area and present a vulnerability to a local event eradicating entire habitat.



## C1.1 Bracken



*Bracken*  
Source Paul Hobson

Stands of bracken are common across the UK and are a valuable habitat, they provide shelter for fauna and are home to a variety of invertebrates and amphibians. The following considerations should be made when managing bracken:

- Monoculture
- Migration
- Toxic effect

### Monoculture

As previously stated, monocultures present a risk in ecology and are to be avoided. The density at which bracken grows and its resilience means that bracken will outcompete most species in its habitat. Secondly, as a stand of bracken dies back for the winter the leaf litter creates a dense mulch that light struggles to penetrate, this often shades out other plants. The rhizomes of bracken are able to grow past this barrier through stores of energy in their tubers. Therefore, even if you wish to keep stands of bracken across your landscape it is beneficial to remove the previous year's vegetation during the winter, as this will allow a substory of other plants to establish in successive years.

### Migration

Bracken grows by spreading underground tubers, in warmer European countries the plant may also produce spores but this is uncommon in the UK. This network of underground tubers will spread as the plant matures. This means if a stand of bracken is situated on a habitat of high ecological importance, such as moss lands or rare grassland, bruising of the plant may be essential to limit plant migration across the site. To remove bracken from your site it is recommended that the plant is bruised twice a year, once in spring and again in late summer/early autumn. This

process is then to be repeated for 2 to 5 years to remove further occurrences. If bracken is not to be completely removed but just controlled this process can be targeted and only shoots growing away from the designated area be removed. Alternatively, the stand may be removed once a year to slow its growth rate and limit its migration.

### Toxic Effect

Bracken spores and sap have been identified as carcinogenic. Therefore, when managing for bracken it is important to minimise exposure. To minimise spore exposure cutting should take place outside of the peak summer months. Spring is rare in the UK as the climate is too cold but avoiding cutting in July –August further mitigates this risk. To limit the exposure to sap cutting should be performed with a blade (such as scythe or brush hook) and left to dry. Cutting can then be safely raked and removed once dry, approximately 48 hours in warm weather.

### C3.1 Tall herb and fern



*Willow herb sp.*  
Source Philip Precey

Tall herb and ferns offer elevated structure to open habitats. By growing taller they provide isolation and protection for fauna. This transitional habitat is often overlooked for conservation. Initially, before conservation efforts take place a floral survey should be undertaken with the help of an Ecology Recording Service. This will identify the plant species present and may identify target species for conservation. If no floral species are identified for targeted conservation, further fauna surveys should be undertaken. Small mammals, invertebrates, small birds and ground-nesting birds all value this habitat for its protection.

Conservation of this habitat should be focused on the species identified. General conservation would look at removing rank vegetation after the foliage has gone to seed and the habitat is vacated by nesting species. The main consideration for this habitat is Succession.

#### Succession

Areas of tall fern are usually enriched in some way and capable of supporting pioneer tree species, therefore regular scrub clearance is essential. As discussed previously scrub can be managed by targeted cutting, or pulling. Scrub over 3cm in diameter will have to be managed with a bow saw, and have the rootstock removed or the stump treated with glyphosates.

## F1 Swamp



*Fen habitat*  
Source Ross Hoddinott/2020VISION

### Swamp and Fen

Swamp is identified as the transitional area between open water and terrestrial habitats dominated by tall emergent vegetation with standing water through the majority of the year. This area is valuable habitat for wetland breeding birds, amphibians, invertebrates and small mammals.

Fauna surveys of this habitat must be carried out before completing any work as there is a high potential for red list species to be present, should surveys identify protected or endangered species conservation efforts should be targeted around them.

In the absence of specific conservation targets, the practice of yearly partial fen cuts should be adopted. By cutting a portion of your fen each year you produce a multi-stage habitat which caters for the needs of a wider variety of species. Ideally, three sections of growth should be established:

- New growth,
- Mature Growth (1 year),
- Senescent Growth (2 years).

It is essential that cuts don't eliminate the fen in its entirety and that mature reed and new growth are present.

## Succession

Although wet through most of the year pioneer tree species are able to establish themselves in this habitat, most frequently after periods of drought. Therefore, scrub clearance should be undertaken as part of the reedbed management.

As with terrestrial habitats scrub can be managed by targeted cutting, or pulling. Scrub over 3cm in diameter will have to be managed with a bow saw, and have the rootstock remove. Glyphosate treatment is regulated by the environments agency in area near water, so this treatment must be undertaken following strict near water application parameters, by suitably qualified individuals.

## Enrichment

To limit enrichment of the water and soil cut material should be removed from the area and stored/ decomposed were runoff won't leach back to the waterbody.

## **G1 Open water**

Open water is difficult to manage as this habitat will be heavily influenced by its surrounding habitats and watercourses. Regular water quality assessment could help in identifying conservation objectives, and litter picking/ waste removal programs may help to improve a watercourse but this must be undertaken with care, due to working around water, working around waste and working around potential water-borne contaminants.

Mersey Rivers Trust can provide training and may supply equipment for it volunteer river surveyors

## J1.2 Amenity grassland



*Amenity Grassland*

Amenity Grassland is of relatively low ecological value, management of this habitat to maintain its current state is achieved through regular cutting and weed treatment schedules. However, in areas of large amenity grassland, land usage and value should be considered. Areas along the boundaries of playing fields or in a transitional area towards another habitat may be more valuable as wildflower meadows or hedgerows and have little impact of the utilisation of the remaining amenity land. Both native diverse hedgerows and wildflower meadows have a considerably higher ecological value, and often schemes are available towards establishing these habitats at relatively low cost, or as part of stewardship programs. An example of this is the “TE1: Planting standard hedgerow tree” Countryside Stewardship Grant.

## J2.6 Dry Ditch



*Dry Ditch*

Source <https://www.geograph.org.uk/photo/1113301>

The primary purpose for dry ditch systems is to manage excess surface water and runoff across a larger habitat. Therefore, the management of dry ditches should focus on maintaining the flow of water. The key considerations when managing dry ditches are:

- Encroachment
- Fly-tipping
- Erosion

### Encroachment

In the short term vegetative encroachment may have little impact on the functionality of the dry ditch but a regular management schedule will mean that less effort will be spent in the overall maintenance of the ditch when dealing with encroachment. Larger trees will reduce the volume of the ditch and impact the throughput of the ditch; the removal of large tree stumps may also cause substantial damage to the integrity of the ditch banking.

### Fly-tipping

Similarly, fly-tipping and littering may produce obstructions to the flow reducing throughput and causing damage to surrounding habitats, to prevent this litter picks should be scheduled and proper disposal of waste be arranged.

### Erosion

Erosion the banks of the ditch systems may occur in periods of high rain particularly after extended dry spells where the soil is prone to fragmenting. Vegetated banks will minimise this erosion and add structural stability to the banks. In places of substantial erosion, banking reinforcement may be necessary. However, re-profiling the ditch with hand tools is normally sufficient.



### 3. Management methods

#### Dead hedges

**Simple Dead hedge** - The simplest form of dead hedge is with fresh-cut brush. Lay branches parallel between 4 posts such that the posts restrain the pile into a uniform shape. This form of dead hedge is loose and is easily accessible by birds and other fauna. The disadvantage of this form of dead hedge has low structural strength and decomposes quickly.



*Simple Dead hedge*  
<http://alamy.com> - K75HC9

**Weaved Dead Hedge** - Another form of dead hedge may be built using greenwood and bush craft skills. Firstly, the path off the dead hedge is plotted using vertical posts. Each post should be placed less than  $\frac{3}{4}$  the length of brush cuttings apart. You can then weave the brush cuttings between these posts. However, for the best effect, each cutting can have all sides shoots weaved along its length. This will result in a tighter dead hedge with more structural rigidity. These hedges offer less shelter to wildlife as they are narrower but they produce a clear boundary and have a more ornamental finish.



*Weaved Deadhedge*

Source: <http://www.dcpwa.org.uk/Newsletters/Autumn-Winter%202016.html>

Dead hedges of a weaved nature can be used to bound a simple dead hedge giving a more substantial dead hedge with reinforced sidings. This form of dead hedging takes considerably longer but it retains the advantages of both hedges.



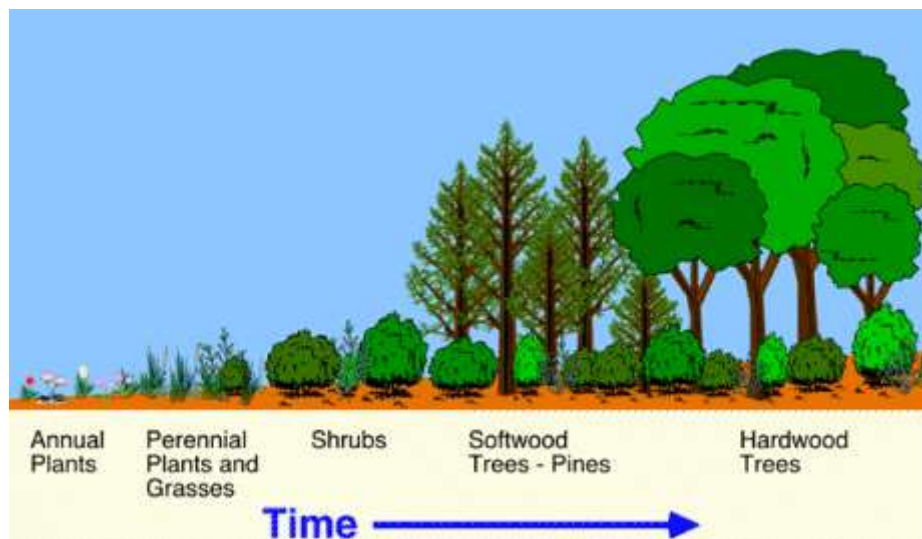
*Simple dead hedge with weaved boundary*

Source: <https://www.pinterest.co.uk/pin/493918284103600632/?lp=true>

## Avoiding nutrient enrichment and understanding succession

When cutting vegetation on a habitat it is important to ensure that there isn't a long term detrimental effect on that area. One of the major contributors to this damage is enrichment. When working in a habitat that is in the early stages of Successional progressions such as a grassland or fen, it is important not to add nutrients to this habitat.

An area of bare rock will become colonised by nitrogen fixing lichen. This habitat will last for hundreds of years with lichen growing and decaying and adding nitrogen to the ground. Over time this will form a soil able to support grasses and small pioneer plants. Again this habitat will last for a substantial length of time producing leaf litter and contributing to the soil profile. As the soil profile gathers more nutrients from leaf litter and external sources it will gradually become sufficient to support tall herbs and scrub. This scrub will produce leaf litter at an ever increasing rate and pioneer tree species will soon find the soil conditions suitable to colonise, eventually leading to a climax habitat such as a broadleaf woodland.



*Succession*

Source [http://stmary.ws/HighSchool/science/APBio/Populations/ecological\\_succession.htm](http://stmary.ws/HighSchool/science/APBio/Populations/ecological_succession.htm)

Therefore, when managing a habitat, wherever vegetation is left to decompose will receive substantial enrichment and potentially be accelerated through its successional path. This is a problem if an early-stage habitat is being managed. To prevent this, it is advantageous to dispose of vegetation in an area of latter stage successional progress, such as a broad leaf woodland, if such an area is unavailable then vegetation should be disposed of in an area where water flows away from valuable habitats vulnerable to enrichment.

## Hay cuts

Hay cuts can be undertaken in a variety of ways; however, the main principles remain the same:

- Vegetation is cut once it has gone to seed
- Vegetation is left in-situ to dry and release seeds
- Dry vegetation is baled and/or removed from site

When cutting a grassland with a focus for conservation the objective is to remove as much of the rank vegetation as possible. This can be done with many tools but the most common hand tools for this is the scythe, this is a skilled activity and should be trained by a suitably qualified and experienced person. Alternatively, a strimmer or brush cutter may be used, this activity will require the operator to hold adequate operator qualifications and follow safe working practices for that device. Other tools include: Grass Hooks, Reciprocating Mowers, and Sickles. A conventional ride on or rotary Mower is not advised as this will mulch the vegetation and make it harder to remove from site.

Cutting is undertaken in a regular method where either a party work in parallel cutting strips from the target area before moving across and repeating the process, or a singular person works from 1 edge and cuts parallel strips making their way across the target area.

A method to be avoided is spiralling towards the centre of the area cutting each edge in turn. This is because wildlife may flee the disturbance produced by cutting to find itself trapped in an ever decreasing area, and once trapped may come to harm.



*Raking into windrows*

Source <https://scythecymru.co.uk/2013/07/09/progressive-hand-hay-making/>

The cut vegetation should then be raked into windrows or stacks, depending on spaces and land usage, this will help prevent the vegetation being scattered by the wind. Each windrow should be produced using the reach of a grass rake to pull back material into a pile then progressing parallel through the field, as shown in the image above.

Once the grass has been cut the material should be left to dry, over the period of 48 hours, in warm sunny conditions, longer in adverse conditions. This will promote the release of seeds back into the grassland and support future growth. Once the vegetation in the windrow has sufficiently dried it should be removed from site to prevent nutrients leaching back into the soil. This can either be removal from site in bails, or as compost/brush piles away from the site. Hay bailing can be performed by hand using a sturdy tub and string. Lay the string across the bottom of the tub, and anchor the ends beneath the tub. Then fill the tub and compress, refiling until full. Finally tie off the string and remove the bale from the tub.



*Handmade hay bales*

Source <https://www.pinterest.nz/pin/440649144788591397/>

#### 4. Invasive species guidance notes

It is imagined that Himalayan balsam can be removed as a volunteer activity but that giant hogweed and japanese knotweed would require specialist contractors.

##### Himalayan Balsam



*Himalayan Balsam*  
Source Amy Lewis

The management of Himalayan Balsam is a major issue for a many sites. The seeds of Himalayan Balsam are distributed by water courses and can survive in the seed bank for over 5 years. As each plant produces on average 800 seeds and can project these seeds 4meters the coverage of these plants grows exponentially if left unchecked.

Himalayan Balsam grows quickly with shallow roots. It is adapted to living in harsh climates with low nutrients, so it can establish itself quickly and easily out competes native plants. Once established stand of balsam will go unbroken across a habitat only making way for tall trees and well established scrub.

The management of Himalayan Balsam is easy but very time consuming, each plant can be pulled by hand with little effort, or in larger stands bruised with weed slashers. The plant must be severed from its root stock between the first and second node to ensure the plant wont germinate/ re-root. Balsam can then be piled and composted although compost piles should be trampled.

The versatility, abundance and distribution of the seeds of Himalayan Balsam means that it is important to complete clearance work in the early/mid-summer before the flower goes to seed. In some cases, it may be possible to return to an area and remove secondary growth in the same year. This is advantageous as it will exhaust the seed bank quicker. This is a long term problem and once Himalayan Balsam is established it will require management for at least 5 years.

## Giant Hogweed



*Giant Hogweed*

Source: <https://www.goodhousekeeping.com/home/gardening/a21598753/giant-hogweed/>

Giant Hogweed should not be handled, cut or moved by anyone who has not been trained to manage Giant Hogweed. Interactions with this plant can cause third degree burns to the skin caused by an increased photosensitivity. This increased sensitivity will mean that the UV light from the sun is capable of burning the skin in seconds, this is a painful injury and will leave a permanent scar wherever the sap of the plant touches, is exposed to light.

Chemical (glyphosate) treatment can be applied to Giant Hogweed, however the approach to and from the hogweed must be clear and at no point should someone be required to touch the target plant, or other Giant hogweed plants to reach the target plant. Chemical treatment of the plant should be performed before the plant goes to seed because vegetative material should be left in-situ to avoid contact with the plant's sap. Cutting Giant Hogweed should be avoided at all costs as this will release the sap, and transfer from tools is sufficient to cause a reaction. Mature and immature plants have sap that produces the photosensitive reaction, therefore in an area where Giant Hogweed is present vegetative surveys should be performed before any work commences to ensure immature plants aren't present in the foliage.

## Japanese Knotweed



*Japanese Knotweed*  
Source Philip Precey

Japanese Knotweed is an invasive species needing control due to its prolific nature and its ability to have a destructive effect on structures and infrastructure. Rhizomes from Japanese Knotweed can crack foundations, cement, mortar and other building or roadway subbase.

Management for Japanese Knotweed must utilise Glyphosate treatment regimes, these regimes must be recurring, over a number of years, to exhaust rhizomes and prevent new growth.

Japanese Knotweed should never be cut and in instances where cutting is required the material should not be removed from site. Spoil containing even a small piece of rhizome are sufficient for the plant to re-establish itself, so must not be moved. If plant material or spoil need to be removed from site all material must be taken to a licenced disposal site.

**If you cause Japanese Knotweed to spread you are guilty of an offence under the Wildlife and Countryside Act, 1981**

The most effective method of treatment for Japanese Knotweed is stem injection. Spraying can be effective if applied while the plant is in growth; however, spraying mature plants is ineffective.