

Hedgerows: a guide to their establishment and management



A hedgerow has been defined as 'any boundary line of trees or shrubs over 20m long and less than 5m wide at the base ... it includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs'.

Northern Ireland's 37 priority habitats. Additionally, in an increasingly fragmented countryside, they provide connectivity between different habitats and can contribute towards landscape-scale conservation efforts.

Introduction

Hedgerows are one of Northern Ireland's most common and recognisable natural features and are largely a product of Land Enclosure Acts of the 18th and 19th centuries. Hedgerows are dominated by native shrub and tree species, ideally kept trimmed to maintain their function – that of containing, defining and protecting an area of land. Hedgerows have been recognised for their contribution to Northern Ireland's biodiversity - species-rich hedgerows have been identified as one of

The Wildlife (Northern Ireland) Order 1985 makes it an offence to kill or injure any wild bird; to destroy, damage or take the nest of any wild bird while it is in use or being built or to disturb the dependent young of such a bird. Bird nesting season generally runs from the 1st March to 31st August and during this period to comply with legislation, it is strongly advised to not undertake any work on hedgerows unless you can be absolutely sure that there are no nesting birds present. Land owners and land managers largely follow this advice, leaving hedgerows undisturbed during this period. Some pieces of legislation governing wildlife are under review and may result in tighter, better protection for wildlife.

A series produced by



In conjunction with



Ulster Wildlife Trust

Tree Preservation Orders (TPOs).

As many hedgerows possess mature trees, there may be instances where some of these are protected particularly in urban locations. TPOs may be used to protect trees, groups of trees or woodlands which add to the character and appearance of an area. The Planning Service is responsible for maintaining the database of TPOs across Northern Ireland and should be contacted if you are in doubt about the status of a tree/trees. Translink's Corgi system also has a data layer of TPOs although this should be verified for updates.

In addition to their wildlife value, hedgerows have a role to play in preserving the character and nature of the countryside. They possess historical and cultural value where hedgerows act as boundary markers for townlands, parishes or estates. In urban environments, town gardens are increasingly being valued for the part they play in providing for biodiversity. Hedgerows provide nesting and feeding opportunities for a wide variety of wildlife and also provide ecosystem services such as noise and air pollution filtering, soil stabilisation and flood mitigation.

Species-rich hedgerows have been recognised as a Northern Ireland priority habitat for wildlife by the Northern Ireland Environment Agency (NIEA) while at the same time, the Northern Ireland Countryside Survey

has consistently reported a decline in the total miles of hedgerow across Northern Ireland through agricultural improvements, mismanagement and development.

What's in a hedgerow?

As already stated, a hedgerow has been defined as 'any boundary line of trees or shrubs over 20m long and less than 5m wide at the base ... it includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs'. However, just as important as the length and width of a hedgerow is the species composition – the types of trees and shrubs growing there. A greater diversity of species means greater biodiversity value. Hedgerows can also foster a rich ground flora - plants found growing along the base of a hedgerow – and this adds further interest and diversity.

Hedgerow benefits and ecosystems services:

Depending upon who or what organisation you work for, hedgerows will offer differing benefits. A farmer and business owner may identify with different benefits to that of a gardener or a conservation organisation. Birds, mammals and insects utilise hedgerows at essential levels providing them with the means for survival - food, shelter, nesting and safe movement opportunities.

A series
produced by

 Translink

In conjunction
with



Ulster Wildlife Trust



Hedgerows under threat:

Northern Ireland has been steadily losing its native hedgerows from the 1950s and this trend has continued to the present day albeit the pace of loss has slowed. The Northern Ireland Countryside Survey 2000 reports a 4% decrease in hedgerows from the survey six years earlier. The modernisation and intensification of agricultural methods accompanied by increased pressure from industry and housing are the main causal factors. The principal means of loss are:

The benefits of hedgerows include:

- functioning as a barrier for landowners and stock-proofing while also defining land;
 - acting as a screen and also filters noise and air pollution;
 - providing valuable habitat for wildlife and connectivity between different areas;
 - providing food and fuel for wildlife and people;
 - providing protection from the elements and natural processes such as erosion;
 - securing cultural and historical reference through their association with countryside crafts, historic boundaries etc.
- Grubbing-out (total removal) due to land improvement schemes;
 - Industrial and domestic dwelling developments;
 - Mis-management of hedgerows can lead to their decline and ultimate loss.

A series
produced by



In conjunction
with



Ulster Wildlife Trust

Establishing a hedgerow

- Planning
- Preparation work
- Methodology
- Aftercare

Planting season for bare-root whips runs from mid-November to mid-March. Trees are dormant at this time and the establishment success rate is high. Many suppliers will only supply plants for hedging during this period. Projects need to be planned accordingly.

Planning:

When planning to establish a hedgerow, there are a few things to consider. A good rule-of-thumb when selecting species to plant is to see what grows well in the locality. Native species that are of local provenance (grown from local seed) should also be chosen. This ensures that the plants flower and fruit at the time our native insects and birds need them to. A hedge consisting of hawthorn and blackthorn is good for stock-proofing but a wider variety of species can be used if this is not an important factor.

The length of the hedgerow should be established and whether it will be planted as a single or double-staggered row – this will allow you to calculate how many whips you'll need. Whips (1-2 year old trees) are inexpensive making establishing a hedgerow a very low-cost project.

- note what grows well in the locality;
- check ground conditions and assess if any site preparation work is needed;
- establish what length the hedgerow will be and if it will be planted in a single or double row;
- use native species that have been grown from Northern Ireland seed.

Preparation work:

The ground to be planted will require some preparation. As the first few years are vital to the health and success of the hedgerow, it is important to control the growth of competitive grass species by using an appropriate herbicide or scraping-back the vegetation to expose the soil. Digging over the soil and creating a low furrow to plant into will also aid establishment. Once the hedgerow has been planted, either a permeable membrane or bark chip around the base of the plants will control subsequent growth of competitive grasses.

- remove existing vegetation if possible;
- dig-over soil to loosen it if it's compacted;
- ensure the hedgerow will be protected from trampling by people or animals by fencing;
- use mulch around and between the base of the plants to prevent the growth of competitive grasses.

A series
produced by

 Translink

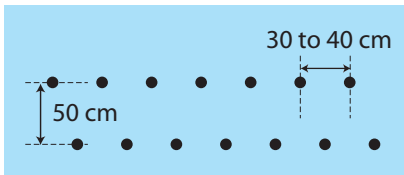
In conjunction
with



Ulster Wildlife Trust

Methodology:

Whips should ideally be planted in a double staggered row, 30-40cm apart along the row and with the two parallel rows about 50 cms apart - plant approximately 7 plants per meter. Hedgerows can also be established in a single row if space is an issue. Bare-root planting during the winter season when the trees are dormant is recommended as not only are plants cheaper to buy out of pots but they also have a much better survival rate.



Double Staggered Row: This method works out at approximately 7 plants per metre

Using a spade, push it into the soil and without pulling it out, rock it back and forth. When pushed forward, place the roots of a plant at the back of the spade, pushing them into the 'slit'. Now pull out the spade, holding the plant in place and firm the soil around the plant with the toe of your boot. No roots should be protruding.



If using a membrane, this will need to be placed along the planting area with cuts made at the appropriate intervals to allow planting into. It will also need to be weighed-down or pegged-down once you've finished. Alternatively, a few inches of bark mulch placed around the plants will suffice. This method is easier to put in place; it is less time-consuming and uses a bio-degradable material. However, you will need to consider quantities needed and transport issues to site.

A series
produced by

 Translink

In conjunction
with



Ulster Wildlife Trust

- planting season runs from mid-November to mid-March, depending upon the seasonal weather;
- decide on how much preparation work needs to be done and plan accordingly;
- a double-staggered row ensures the hedgerow is thick, more stock-proof and more attractive to wildlife;
- ensure that no roots are protruding and that the soil is firmed around the whips;
- plants will need to be pruned-back once planted;
- decide on the type of mulch you want to use or alternatively you can use a herbicide being careful to spray around the base of the plants and before they come into leaf.

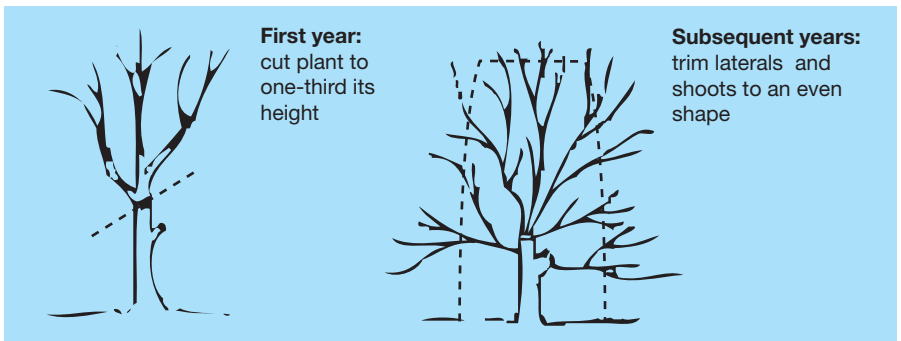
have taken. Aftercare is largely concerned with the correct trimming and management of the hedgerow and the suppression of 'weed' growth. Again, an appropriate herbicide can be used to manage 'weed' growth or for small lengths, hand weeding could be considered.

A hedgerow that is bushy at the base is ideal for wildlife value and for property protection. To achieve this, the hedgerow should be trimmed back in the first three years to encourage low lateral growth of branches. While it may seem severe, after planting trim each plant back to about 1/3 its height. In the second winter, cut back the previous season's growth by about 1/2 and in the third year, trim the laterals and shoots to an even hedge shape (as shown).

Aftercare:

While the success rate for the establishment of hedgerows is good as the species of trees used are hardy, you may still need to interplant the following season where plants may not

- check that whatever weed control method you are using is working eg spray-off competing grasses, weeding or top-up the mulch;
- interplanting may be necessary the



First year:
cut plant to one-third its height

Subsequent years:
trim laterals and shoots to an even shape

A series produced by

Translink

In conjunction with



Ulster Wildlife Trust

following planting season if not all the plants have established;

- after planting, the whips need to be trimmed back to 1/3 their height and trimmed again in their second and third winters;
- it may be necessary to fence-off the hedgerow to protect it from livestock, people or traffic;
- once the hedgerow has established (approx 3-5 years), you can increase its diversity by interplanting native climbers such as honeysuckle and dog rose.

Management

- Hedge trimming
- Hedge layering/hedge laying
- Replanting

Deciding on the shape and size of the hedgerow will be largely determined by its function and location. The hedgerow may form part of a party boundary in an urban garden setting, be located on a farm or be part of the road or rail infrastructure. Issues that will determine how the hedge is treated include resources, privacy, screening, safety and agricultural or wildlife value. A variety of tools and equipment will be needed to undertake practical work on a hedge. The type chosen will largely be dependent upon the age of the hedgerow and will range from secateurs, loppers, bow-saws and chain-saws to flails.



Hedge trimming:

Once planted and trimmed in its first couple of years, a hedgerow will only require minimum maintenance and this would largely be trimming. A hedgerow that is trimmed annually is being cut too frequently. This sort of regime will mean that plants will not have the opportunity to flower and fruit which reduces its value for wildlife. Additionally, rather than trimming a complete length of hedgerow or all hedgerows on a land holding, trimming on rotation is a good practice as this makes provision to feed the birds.

An ideal hedge would be 1.5m – 2m in height and be A-shaped in profile. This size and height allows for maximum sun exposure to the hedgerow, is easy to cut with a flail mower and also provides plenty of opportunities for wildlife. In terms of trimming hedgerows, due to their strong association with bird nesting season, it is essential to bear in mind the restrictions in place during

A series
produced by

 Translink

In conjunction
with



Ulster Wildlife Trust

nesting season which runs 1st March to 31st August.

Once a hedgerow has reached its desired height, it would be ideal to cut it on a rotational basis ie on a three-year rotating basis which would allow sections to flower and fruit, delivering benefits for biodiversity.



Hedge layering/hedge laying:

Hedge-laying is a method of rejuvenating a hedge. Rejuvenation through coppicing (cutting back young trees about a foot from the base) or laying young trees is used on the strength that there will be new growth which effectively prolongs the life of the hedge. This process needs to be carried out every 20-30 years, before trees become too thick. Theoretically, this will prolong the life of a hedge indefinitely.

Hedge-laying is the practice of cutting hedgerow stems partly through, removing over a half-moon section from the stem, near ground level so

that they can bend without breaking and will continue to grow. The laid stems are arranged to form a stock proof barrier. New growth comes from the cut stump, rejuvenating the hedge from the base upwards.



Re-planting:

In some instances, a hedgerow will have become defunct – no longer fulfilling its function. Perhaps it has become very gappy or it was allowed to become a mature tree line that has now reached the end of its life. There is always the option to replant the length of the hedgerow and for this, site preparation will be key. You will want to remove all old shrub growth, including root systems and bring-in soil to add to what is there. From here, follow the guidelines for establishing a new hedgerow.

A series
produced by

 Translink

In conjunction
with



Ulster Wildlife Trust

Translink's Biodiversity Action Plan

- Biodiversity Action Plan (BAP)
- Suitable species for planting

Biodiversity Action Plan:

Translink's 5 year BAP was published in September 2009 and sits in the overall context of Northern Ireland's Biodiversity Strategy and its targets for meeting EU biodiversity commitments. The presence of Northern Ireland priority habitats and species on Translink property were identified through the Biodiversity Project – one of which is species-rich hedgerows.



Hedgerows also provide connectivity from one type of habitat or area to another which is a valuable function. They also support a wide range of birds, mammals and insects, many of which are also Northern Ireland priority species. Therefore, other habitats and species will benefit if establishing a new hedgerow or managing a hedgerow following best practice.



Species-rich hedgerows are those which contain five or more native woody species on average in a 30 meter length. Hedges which contain fewer woody species but have a rich ground flora such as primrose, wood anemone, lords and ladies and bluebell are also included. (UK Habitat Action Plan)

Associated Translink Priority Habitats	Associated Translink Priority Species
Veteran trees	Badger
Semi-natural woodland	Otter
Wet woodland	Bats
Oakwoods	Tree sparrow
Species-rich grassland	Garden tiger moth
Urban	Primrose
Brownfield	

A series produced by



In conjunction with



Ulster Wildlife Trust

Suitable species for planting:

Select shrubs and trees that already grow in the locality and that are native to Northern Ireland and use stockists who can supply plants that have been grown from seed collected in Northern Ireland (local provenance).

Shrub/Tree species	Characteristics	Wildlife benefits
Hawthorn (<i>Crataegus monogyna</i>)	Tolerant of a wide-range of soils, fast growing and hardy. Excellent as a stock proof barrier.	Excellent wildlife value – its blossoms are a favourite of bees and its berries are eaten by birds and mammals.
Blackthorn (<i>Prunus spinosa</i>)	Tolerant of a wide-range of soils and hardy although does not like acid soils.	Early flowering so important for emerging insects. Good nesting cover.
Hazel (<i>Corylus avellana</i>)	Prefers free-draining soils that are fertile. Can be slow to establish although responds well to cutting.	Valuable for insects and its nuts are a good food source for birds and mammals.
Holly (<i>Illex aquifolium</i>)	A shrub that tolerates most soils other than water-logged. It's quite tough and grows best in shade.	Holly berries are eaten by a wide variety of birds.
Willow (<i>Salix sp.</i>)	Prefers damp or wet ground and is very tolerant of water-logging. Willows are rapid-growing.	The catkins which appear in March/April are a good food source for insects that appear early in the year.
Guelder rose (<i>Viburnum opulus</i>)	Prefers wet soil while it dislikes very acid or very dry conditions.	Its spring blossoms are beneficial for insects and its red autumn berries are a favourite of birds.
Beech (<i>Fagus sylvatica</i>)	A non-native tree that is also used in hedging. Translink should only use this species in urban locations where it fits in with the character of the local area or where thorny species may not suit.	Relatively low wildlife interest although its nuts are a food source for birds and mammals.
Crab apple (<i>Malus sylvestris</i>)	A small-sized tree growing only to 10m in height and suitable for network planting.	Its flowers and fruit are attractive for a variety of wildlife including insects.
Dog rose (<i>Rosa canina</i>)	A climber that frequently occurs in hedgerows. Tolerant of a wide range of soils but dislikes very wet soils. Plant a few years after hedgerow has established.	Flowers from June to August benefitting a variety of insects. Rosehips are produced in the autumn.
Honeysuckle (<i>Lonicera periclymenum</i>)	A deciduous woody climber that twines itself through hedgerows. Plant a few years after the hedgerow has established.	Flowers from June to October, its nectar is sought after by bees and moths.

A series produced by

 Translink

In conjunction with



Ulster Wildlife Trust

Project and operational considerations

- Always look for mitigation opportunities where loss of a habitat has occurred.
- Fencing contracts – can some hedgerow establishment or management be incorporated into work?
- Fencing-off closed user-worked crossings – where a hedgerow exists on either side of crossing already, establish a hedgerow to ensure connectivity between the two sections while also creating new habitat.
- A planting specification in a typical countryside setting should look something like the following:

75% hawthorn with the other 25% comprising blackthorn, hazel, holly and willow. If there is scope to plant trees, the small-growing crab apple tree could be planted every 10m.*

eg. 100m of a double-staggered hedgerow using 7 plants per meter would require 700 plants.

525 hawthorn (75%) @ 20p each	£105.00
70 blackthorn (10%) @ 40p each	£ 28.00
70 hazel (10%) at 50p each	£ 35.00
35 willow (4%) at 45p each.....	£ 15.75
7 holly (1%) at £4 each	£ 28.00
10 crab apple standard trees @ £10 each.....	£100.00

Total Cost of plants = £311.75

* mulch will also need to be costed in – either permeable membrane or bark chip (3cm deep) should be used.

- Equipment used for hedge-trimming should be used to the manufacturer's specifications eg flails should only cut hedging to the maximum recommended cm diameter. Chain-saws should be used for anything larger.
- When trimming a hedgerow with the flail, aim to cut the hedge to an A-shape with a flat top, as this is the optimal shape for a healthy, diverse hedgerow.
- Examples of species-rich hedgerows should be identified and managed following best practice guidelines.

A series produced by



In conjunction with



Ulster Wildlife Trust

Further information and references

Information:

Translink established a 3-year partnership with the Ulster Wildlife Trust in 2007. A 'Biodiversity Action Plan: Taking Action for Local Wildlife' was developed and produced, outlining priority habitats and species, one of which is species-rich hedgerows. A copy can be downloaded at <http://www.translink.co.uk/biodiversity.asp>

The Ulster Wildlife Trust's 'Guide to Planning and Planting a New Hedge for Wildlife' and 'Guide to Restoring and Managing Hedges for Wildlife' can be downloaded from <http://www.ulsterwildlifetrust.org/advice/>

British Trust for Conservation Volunteers 'Hedging: A Practical handbook' – an excellent, complete guide to all aspects of hedges. To order a copy go to <http://www2.btcv.org.uk/>

The Northern Ireland Environment Agency (NIEA) advise on and implement government policy, strategy and legislation in areas including sustainable development, biodiversity and climate change. To find out more about biodiversity or to view Northern Ireland's action plan for species-rich hedgerows, go to <http://www.ni-environment.gov.uk/biodiversity/>

Tree Supplier:

Conservation Volunteers Northern Ireland's Tree Nursery, Clandeboye Estate, Bangor Tel: (028) 91853570 or email CVNI-Nursery@btcv.org.uk

Trainers:

The Hedge Laying Association of Ireland <http://hedgelaying.ie/>

The Association was established in 2004 to encourage and facilitate the conservation, protection and appropriate management of hedgerows. The Association organises training sessions, sets standards and researches/documents the tradition of hedge laying.

Conservation Volunteers Northern Ireland <http://www.cvni.org/>

As well as being able to supply whips and trees, CVNI can also plant hedgerows or hedge lay as part of project work. Conservation Volunteers Northern Ireland, Beech House, 159 Ravenhill Road, Belfast BT6 0BP. Tel (028) 90645169.

A series
produced by

 Translink

In conjunction
with



Ulster Wildlife Trust