



# Guidance Note: Hedgerow Translocation

## Hedgerows Ireland

### Abstract

Hedgerows are increasingly being removed to enlarge agricultural fields and construct new developments, however, there is an alternative option—translocation. This involves moving hedgerow plants from the original donor site to a new receptor site. After an initial survey and planning stage, a work schedule should be agreed between contractors, site managers, and operatives. The work will involve ground preparation at the donor and receptor sites, such as removing fencing and pruning roots, and then the steps of lifting and rebuilding the individual plants in the new trench. The key factors to consider are hedgerow condition, timing, site characteristics, labour costs, and the hire of machinery.

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## Introduction

Agricultural intensification and construction are driving the removal of mature hedgerows (Holden et al., 2019). Translocation should be used as a last resort if site constraints prevent the hedgerow from being retained in its current location (Box & Stanhope, 2010; Foulkes, 2008; FPCR Environment and Design Ltd., 2021). Depending on the contractors' expertise and site conditions, it should be possible to move more than 50m per day (Foulkes, 2008).

Hedgerow translocation is less documented in Ireland than in the UK, hence the County Hedgerow Surveys' recommendation for further research. Subsequently, Roscommon County Council and the Heritage Council funded the step-by-step report by Foulkes (2008). This guidance note compiles translocation advice from this Co. Roscommon example alongside these UK case studies: Box & Stanhope, 2010; Devon Hedge Group, 2015; FPCR Environment and Design Ltd., 2021; and Larcombe, 2020. We also reference our members Eamonn McLoughlin and Robert Hogg who have completed translocation on their land.

Lifting and re-building is the most commonly used hedgerow translocation technique. However, there is also the method of dragging sections or incremental dragging. The Devon Hedge Group (2015) prefers this if the hedgerow is on a bank, needs to be moved directly back over less than 5m, and is on level ground. Skilled contractors must use extreme caution to avoid damaging the trees (Devon Hedge Group, 2015). Here we discuss the lifting and re-building method, outlining key stages and factors to consider in quotes. You can view the Devon Hedge Group (2015) document for step-by-step guidance on the dragging method. **For more photographs, in the references section, click the links for Devon Hedge Group (2015), Foulkes (2008), and FPCR Environment and Design Ltd. (2021).**



In December 2023, Robert Hogg relocated 359 stems of whitethorn hedge from a local GAA pitch 1 mile away to a 12 acre field at their family farm in Co. Westmeath. These stems were 14-15 years old and 8-10 feet high. To date, every stem is alive with healthy buds and leaves. The stems were left uncoppiced and will be laid in a few years.



Eamonn McLoughlin coppiced, lifted and moved back a few metres of his roadside hedgerow to improve visibility at a field gate on his farm in Co. Offaly. He used a reversible bucket to grab the plants from underneath with as much original soil and root ball as possible. Since then, the coppiced stems have seen strong regrowth.

## Stages of Translocation

### 1. Initial Survey

See Appendix 1 for a sample survey template.

- a. Consult your local authority on any permissions that might be required.
- b. Determine if there are any nearby Natura 2000 sites using the [NPWS Designations Viewer](#). These will require extra precautions.
- c. Conduct an ecological survey. For example, badger setts, bird nests, and protected or rare flora and fauna (especially if there is a Natura 2000 designation).
- d. Assess hedgerow condition using a [Hedgerow Appraisal Survey](#) (Foulkes et al., 2013).
  - A 'Heritage Hedgerow' should be prioritised for conservation (Foulkes et al., 2013).
  - Other valuable features include evidence of past hedge laying (horizontal stems); old age (thick stems); bank-and-ditch features; a diversity of woody and ground flora species, e.g. bluebells indicate ancient woodland (Box & Stanhope, 2010).
- e. Determine if there are bordering walls, ditches, or hedge banks. Consult heritage experts on the historic value of any stone walls, e.g. the [Dry Stone Wall Association of Ireland](#).
  - These elements currently have no set procedures for translocation (Foulkes, 2008). In Foulkes (2008), the stone wall was hand-picked and stored for future use on the site.

- f. Determine the site characteristics (e.g. aspect, slope, soil, and hydrology). The donor and recipient site should match as closely as possible (Box & Stanhope, 2010).
- Level ground will be easier than sloping ground; the dragging method is only suitable on level ground, using lifting and re-building elsewhere (Devon Hedge Group, 2015).
  - Heavier soils will be easier than light, sandy soils (Devon Hedge Group, 2015).
  - Translocation may not be possible on very shallow, rocky soils (Foulkes, 2008).
  - The proximity to the road will determine what side the work will be completed on and the extent of excavation that can happen on the roadside (Foulkes, 2008).

## 2. Planning Stage

- a. Identify individual plants and label which ones you will move (Foulkes, 2008). If there are time and cost constraints, the following factors should be considered:
- Unhealthy or decaying plants are less likely to survive translocation (Foulkes, 2008).
  - Less common species should be prioritised over common species (e.g. Hawthorn) (Monmouthshire County Council, 2011).
  - Older sections may be prioritised over newly planted ones (Box & Stanhope, 2010).
  - Previously laid sections (with thick horizontal stems) should be moved in one go without severing the stems (Box & Stanhope, 2010).
  - Extra machinery and time will be required if you are not coppicing and instead moving taller stems to be laid later (Foulkes, 2008; Hogg, personal communication).
- b. Take photographs of each hedgerow section to be moved (Foulkes, 2008).
- c. Schedule the translocation.
- Do not complete work during the bird nesting season of 1st March-31st August, as stipulated in the Wildlife Act 1976.
  - Complete work in autumn/winter when the vegetation is dormant and the ground is sufficiently moist, but not in freezing conditions or heavy rain (Box & Stanhope, 2010; Devon Hedge Group, 2015; FPCR Environment and Design Ltd., 2021; Larcombe, 2020). Heavy rain can soften the ground, making it difficult for machinery operators. The hedgerow's root system must be adequately established at the recipient site before summer water stress due to lower rainfall (Box & Stanhope, 2010).
- d. Draw up a written work schedule to ensure clear communication between contractors, site managers, and operatives (Foulkes, 2008). See Appendix 2 for a sample template.
- It is preferable if one contractor is available to complete all the work to maintain consistency (Foulkes, 2008).

- Include a post-translocation management plan (Foulkes, 2008).
- e. Determine what machinery will be used. The quality and size of the machinery affect plant survival (e.g. mechanical problems make it difficult to control lifting and positioning at the recipient site; inappropriate excavator bucket size can lead to loss of the root ball).
- Use a low-ground pressure tracked 360° excavator with a long-reach to minimise soil compaction (Box & Stanhope, 2010; Devon Hedge Group, 2015; Foulkes, 2008; FPCR Environment and Design Ltd., 2021; Larcombe, 2020).
  - A 0.6-1.2m bucket was used by Foulkes (2008), but a minimum 1.5m bucket width is recommended by FPCR Environment and Design Ltd. (2021) and Larcombe (2020). It should be big enough to remove roots from a depth of 1m, though most roots are within 0.5m (FPCR Environment and Design Ltd., 2021; Larcombe, 2020). In practice, this varies by site depending on the plants' age, species mix, and whether the stems are first coppiced. For non-coppiced plants, a larger bucket is necessary to stabilise the stem and minimise soil loss (Hogg, personal communication). A narrow bucket increases soil loss but enables better accuracy during placement; a wider bucket allows more material to be moved simultaneously but must be fully filled to avoid gaps between placements (Foulkes, 2008).
  - A quick-release reversible bucket allows the plants to be lifted from underneath and makes it easier to move non-coppiced stems (Foulkes, 2008). Foulkes (2008) and Hogg, R. trialled a non-reversible bucket; if using one of these, get as large a bucket as possible to minimise soil loss.
  - If translocating more than a few metres, use a flatbed trailer or tractor with a transport box fitted with a steel sheet to minimise soil loss and increase the support area (Foulkes, 2008; FPCR Environment & Design Ltd., 2021). Otherwise, transfer it directly in the excavator bucket (FPCR Environment & Design Ltd., 2021; McLoughlin, personal communication).
  - If you are not coppicing and instead moving taller stems, a block grab on a teleporter can stabilise plants as they are moved onto the transport box (Foulkes, 2008). Hogg, R. lifted the stems individually with a digger by putting a sling around the stem's base.
  - A root saw, air blade, or a hydraulically-powered root cutting attachment will sever roots before translocation (Foulkes, 2008; FPCR Environment & Design Ltd., 2021).
  - In dry conditions, you may need extra equipment for watering the hedgerow.

### 3. Donor Site

- a. Remove fencing and stone walls, keeping the materials on-site to reuse (Foulkes, 2008).
- b. Cut smaller shrubs and peripheral areas of suckering blackthorn or bramble which will not be translocated (Foulkes, 2008; Monmouthshire County Council, 2011).

- c. Prepare plants for translocation outside of the bird nesting season:
- For plants not being coppiced, trim side branches if necessary but retain as much height as possible (Hogg, personal communication). These plants should be laid after translocation to create a denser base and stimulate new growth, producing a faster visual impact (Foulkes, 2008).
  - For plants being coppiced, make clean 30° sloping cuts to 30cm above ground level using a circular saw or chainsaw; they will be further coppiced to 2-4” above ground level after translocation (Foulkes, 2008; Larcombe, 2020). FPCR Environment & Design Ltd. (2021) initially coppiced plants to 1m, rather than 30cm. The main thing is that they have a manageable height for the digger and bucket (FPCR Environment & Design Ltd., 2021). Use cut material to make insect habitat piles (Larcombe, 2020).
  - Lateral roots can be pruned within 1m from the hedgerow base 6 months before translocation (Foulkes, 2007; FPCR Environment and Design Ltd., 2021). The area is backfilled and left for a growing season to develop a fibrous root network around the root ball, which will reduce plant stress at the receptor site (FPCR Environment & Design Ltd., 2021).

## 4. Receptor Site

- a. Mark any new gateways, access roads, and the new hedgerow location; leaving a buffer to allow for hedgerow growth and a wildflower margin (Larcombe, 2020).
- b. To prevent the roots drying out, dig a 1m deep and 1.5-2m wide trench with shallow tapered sides immediately before lifting (Boxmore & Stanhope, 2010; Foulkes, 2008; FPCR Environment & Design Ltd., 2021; Larcombe, 2020). The exact size will depend on the hedgerow size and root extent.
- In very dry weather, only short lengths should be dug at any one time so the trench is open for a maximum of 1 hour. E.g., approximately 20 – 30m at a time, though in damp weather it will be safe to dig up to 50m at a time (Larcombe, 2020).
  - Store the topsoil and subsoil in two separate piles that are easily accessible for backfilling, but not on top of important habitats such as species-rich grassland (Monmouthshire County Council, 2011; FPCR Environment & Design Ltd., 2021).
  - Use the excavator teeth to scarify or loosen the soil in the bottom of the trench to a depth of at least 25cm and mix it with topsoil (Foulkes, 2008; FPCR Environment & Design Ltd., 2021; Larcombe, 2020).
  - In dry conditions, water retention gel can be spread along the trench, e.g. Broadleaf P4 granules at 30g/m (FPCR Environment and Design Ltd., 2021; Larcombe, 2020).

## 5. Lifting

- a. Remove slumped soil and vegetation away from the base of the bank and place aside for the receptor site (Devon Hedge Group, 2015).
- b. Dig a trench on the lifting side approximately 1m from the stems. Carefully comb through the soil to expose the roots rather than breaking them (Foulkes, 2008).
  - The exact trench size will depend on the extent of the roots (Foulkes, 2008). Retain soil to back-fill the receptor site (FPCR Environment and Design Ltd., 2021).
- c. Sever larger (greater than 15mm) lateral roots and those joining individual plants with hand tools, or more efficiently, using a hydraulically-powered root saw (Foulkes, 2008; FPCR Environment & Design Ltd, 2021; Larcombe, 2020). Do not break them using the excavator (Larcombe, 2020).
  - It may be necessary to smooth the cuts using a chainsaw, loppers, or a sharpened mattock to reduce the likelihood of fungal infection (Foulkes, 2008; Larcombe, 2020).
  - Root systems extending under the road surface will be severed to avoid road excavation and the hedgerow will be lifted from the field side (Foulkes, 2008).
  - Sever the tap root when lifting the plants (FPCR Environment and Design Ltd., 2021).
- d. Scoop up the plants, retaining as much of the root ball as possible (Foulkes, 2008).
  - Maximise the number of stems per bucket (Monmouthshire County Council, 2011).
  - For broad hedgerows in a double row, lift from the end of the hedge. Where hedges are substantially wider than the bucket width, it will be necessary to transfer two or three buckets from each linear section (Monmouthshire County Council, 2011).
  - For thin hedgerows with sparsely distributed plants, lifting can be done from the side (Monmouthshire County Council, 2011).
  - Separate roots and branches with a chainsaw to avoid tearing them (Box & Stanhope, 2010; FPCR Environment & Design Ltd., 2021; Larcombe, 2020).
  - Move previously laid sections (with horizontal stems) in one go without cutting the horizontal stem (Box & Stanhope, 2010).

## 6. Rebuilding

- a. Move the root balls:
  - If the distance is very short, move them directly with the excavator.

- If the distance is longer, move the root ball from the excavator to the four-wheel drive tractor with a 6' transport box fixed with a steel sheet.
  - Roots must be exposed for as little as possible to avoid drying out. If needed, wrap them in water-soaked coir matting (FPCR Environment and Design Ltd., 2021). A cool day with light rain is ideal for transporting the plants (Larcombe, 2020).
- b. Transport and install plants in the receptor site and ensure correct height and spacing, leaving enough space for the next plant (Foulkes, 2008).
- Maintain the original order or sequence of the plants (Box & Stanhope, 2010; Foulkes, 2008; FPCR Environment & Design Ltd., 2021; Larcombe, 2020).
  - Ensure the plants are not above or below ground level; they must be at the same level as at the donor site (FPCR Environment & Design Ltd., 2021; Larcombe, 2020).
  - People on the ground can assist the machine operator (Foulkes, 2008).
- c. Back-fill the trench with soil from the donor site after 4-5 plants have been installed, to minimise machine journeys in wetter conditions (Foulkes, 2008; Larcombe, 2020).
- Bury and firm around the root ball by treading and fill any air pockets by hand. Follow the correct profile order, i.e. subsoil from the donor site first, followed by the topsoil (Box & Stanhope, 2010; Foulkes, 2008; Larcombe, 2020).
  - Water the plants to fill voids and top up with more soil if necessary (Larcombe, 2020).
- d. Using a chainsaw, coppice plants again to 2-4" above ground level so that new growth comes from as low as possible (Foulkes, 2008).

## 7. Monitoring, Aftercare, and Maintenance

- a. Leave a 1-2m wide margin on each side of the hedge for biodiversity. Soil fertility can be improved for wildflowers by cutting and removing vegetation 1-2 times a year in line with the [All-Ireland Pollinator Plan](#).
- b. Double fencing at 1m on either side of the translocated hedge will protect against livestock and deer browsing. Use rabbit-proof fencing if necessary.
- c. In-plant gaps with native, Irish provenance species to improve density (Foulkes, 2008; FPCR Environment & Design Ltd., 2021; Larcombe, 2020). This may need to be repeated in subsequent years if plants fail to establish. Allow for 10m of additional infill planting in the project costs and preparation (Larcombe, 2020).
- d. Control competing vegetation, e.g. grasses, and ruderal species, e.g. docks (Foulkes, 2008; Larcombe, 2020). Use biodegradable plastic (e.g. suppliers include Maiztech or SAMCO) or mulching to avoid plastic pollution. McLoughlin, E. notes that some amount of ground vegetation can help retain soil moisture during dry summer conditions, which improves hedgerow growth.



- e. Watering will be necessary during dry weather conditions (Box & Stanhope, 2010; Foulkes, 2008). If weather conditions following translocation remain dry for more than 5 days, the hedgerow should be watered daily until it rains (Larcombe, 2020).
- f. Monitor the vegetation's health (Monmouthshire County Council, 2011).
  - A maintenance/defects period of at least 36 months should be applied to failed sections of the hedge. This should cover 100% of the replacement cost for failed sections, where failure is attributable to bad practice, negligence or lack of maintenance from the contractor (Monmouthshire County Council 2011).
- g. After translocation, lightly trim the hedgerow in an A-shape on a 3-4 year rotation and once it reaches an appropriate height, rejuvenate it using hedge laying: [Hedge Code](#).

## What affects the cost?

Consider the following factors when getting quotes for translocation work (Foulkes, 2008):

- Site assessment and survey
- Removal of fencing/stone walls/wire/debris
- Coppicing (e.g. stem density)
- Hire of machinery (e.g. distance to be transported)
- Ground labour
- Safety (pests/hazard tape).
- Disposal of brash (e.g. distance to be transported)
- Mulching/managing competing vegetation
- Watering

## Contractors

These contractors can be contacted for hedgerow translocation projects. If you know someone else with suitable experience, please contact [info@hedgerows.ie](mailto:info@hedgerows.ie).

- Eamonn McLoughlin: Contact details are on the [hedgerow services directory](#).
- Robert Hogg: Contact details are on the [hedgerow services directory](#).
- FPCR Environment and Design Ltd.: [www.fpcr.co.uk](http://www.fpcr.co.uk)
- McMullen & Sons, Contractors: Contact details to be confirmed.
- Bernard Casey, excavator machinery contractor: Contact details to be confirmed.
- Harrison Bros Ltd. designed the specialist root cutting attachment for the excavator machine: [www.kenequip.com](http://www.kenequip.com)

## References

- Box, J. & Stanhope, K. (2010) Translocating wildlife habitats: a guide for civil engineers. Proceedings of the Institution of Civil Engineers. 163 (3): 123-130. [Hyperlink](#).
- Devon Hedge Group (2015) Devon hedges and development 1: moving hedges. Devon Hedge Group. [Hyperlink](#).
- Foulkes, N. (2008) Hedgerow Translocation: Documenting the successful translocation of a mature hedgerow. Roscommon County Council & Heritage Council. Roscommon County Council Heritage Office. [Hyperlink](#).
- Foulkes, N., Fuller, J., Little, D., McCourt, S. and Murphy, P. (2013). Hedgerow Appraisal System - Best Practise Guidance on Hedgerow Survey, Data Collation and Appraisal. Woodlands of Ireland, Dublin. Unpublished Report [pdf].
- FPCR Environment and Design Ltd. (2021) Hedgerow Translocation Method Statement. Kirklees Council. [Hyperlink](#).
- Holden, J., Grayson, R.P., Berdeni, D., Bird, S., Chapman, P.J., Edmondson, J.L., Firbank, L.G., Helgason, T., Hodson, M.E., Hunt, S.F.P. & Jones, D.T. (2019) The role of hedgerows in soil functioning within agricultural landscapes. *Agriculture, ecosystems & environment*, 273, pp.1-12.
- Larcombe, W. (2020) Hedgerow Translocation and Aftercare Method Statement. I&G Ecological Consulting Ltd. [Hyperlink](#).
- Monmouthshire County Council (2011) Advice Note, June 2011: Hedgerow Translocation. Monmouthshire Sir Fynwy.

## Appendix 1

An initial survey template based on information from Foulkes (2008) and the Hedgerow Appraisal System (Foulkes et al., 2013).

<b>Site location</b>	
<b>Topography</b> (i.e. slope)	
<b>Soil type</b>	
<b>Underlying bedrock</b>	
<b>Hedgerow location</b> (i.e. roadside or field boundary)	
<b>Length of hedgerow to be transported</b>	
<b>Distance to be transported</b>	
<b>Stem density</b> (plants per metre/single line of plants/double line/random spacing)	
<b>Height</b>	
<b>Width</b>	
<b>Gappiness</b>	
<b>Basal density</b> (i.e. amount of undergrowth)	
<b>Presence of hedgerow trees</b>	
<b>Species composition</b>	
<b>Roadside verge</b> (present/width/species diversity)	
<b>Overall vigour of hedgerow</b>	
<b>Management status</b> (trimmed/unmanaged)	
<b>Management method</b> (flail/circular saw)	
<b>Evidence of laying</b> (e.g. large horizontal stems)	
<b>Presence of fencing, stone wall, drain, or hedge bank</b>	
<b>Wire or debris in the hedgerow</b>	

# Appendix 2

A work schedule template to be agreed between contractors, site managers, and operatives.

Date	Operator	Contractor/ Supervisor	Machinery	Stage of Translocation	Action (e.g. lift and place stems 1-10)