



This information note is one of a series produced by the Community Woodlands Association. It outlines the main factors to consider when creating new woodland, whether by planting or natural regeneration, identifies various online resources and signposts to sources of more detailed information such as other CWA information notes or external bodies. The principles of woodland creation are relevant everywhere, but reference to grants and regulations are applicable to Scotland only.

Introduction

Most community woodland groups, with a few notable exceptions, have focussed on taking on the management of existing woods, but there is increasing interest in new woodland creation, not least because of growing awareness of the role of woodland creation in helping tackle the twin climate and biodiversity emergencies.

Objectives

As with any other development project, when planning to create new woodland you first need to be clear about your objectives and the capacity of the site. In addition to carbon sequestration and habitat restoration, there are a range of other reasons that communities and others might wish to create new woodland, including:

- Timber and firewood production
- Public amenity and recreation
- Shelter and forage for livestock
- Reducing soil erosion and improving water quality.

These objectives are not mutually exclusive, and while different communities will have a different balance of objectives, all new woodlands should be designed and managed to deliver multiple benefits. Your objectives, together with the capability of the site, will influence every aspect of the process, from species choice and stocking density to who carries out the work. A key phrase to remember is to plant “the right tree in the right place for the right reasons.”

Many tree-planting and maintenance operations can be carried out by volunteers, especially on smaller scale projects. However, you should consider engaging a professional forestry consultant to deliver other aspects of your project. They can help navigate the planning and

funding process, advise on likely surveys, produce maps to the required standard and recommend contractors for e.g. ground preparation and fencing.

Regulatory process

You should discuss your plans at an early stage with your local Scottish Forestry (SF) woodland officer. They will provide guidance on the suitability of the site, grant options and how to work through the regulatory process, including ensuring that your proposals conform with the [UK Forestry Standard](#).

Scottish Forestry will also advise whether an [Environmental Impact Assessment](#) (EIA) will be required: usually this is only needed for very large projects or on very sensitive sites. However, even if you do not intend to apply for grants SF must determine that an EIA is not needed.

Consultation

The extent of consultation required will depend on the scale of the project and the sensitivity of the site. At a minimum you will need to consult with your neighbouring land owner and present your plans to key government agencies: this is likely to include the local council, SEPA and any organisation responsible for designated sites within or adjacent to your planting site.

For larger projects you will be expected to carry out stakeholder consultation and engage a wide range of organisations and individuals, especially those who currently use the site. Regardless of size it will be valuable for you to identify local interest groups that you can get on-side and discuss ideas with. This may help you recruit volunteers to carry out surveys and implementation of the project.

Woodland Design

The design of your woodland should reflect your objectives and the constraints and capabilities of the site. Key aspects include ground preparation techniques, species, and provenance, planting densities, protection and access provision.

Site survey

The first step in delivering your project is a site survey to confirm that the land is suitable for woodland creation and accessible for planting operations. It should cover:

- Geology and soils
- Topography, exposure and drainage
- Flora and fauna.

You will need to identify any features that might preclude or constrain planting:

- Archaeology
- Services (e.g. power lines)
- Deep peat
- Designated sites
- Protected species or habitats.

Peat is an important carbon store and there is increasing awareness of the importance of minimising disturbance. Planting on deep peats (defined as peat greater than 50cm in depth) is not supported through the forestry grant scheme, and all areas of contiguous deep peat over 0.25ha must be mapped as unplanted.

It is important to record current land use and that of neighbouring land, and the extent and nature of public access. Much information is available online but some aspects will need ground survey to establish or confirm, e.g. breeding bird survey, soil/peat depth survey, phase one habitat survey. Staff from Scottish Forestry, NatureScot, RSPB and local special interest groups may be able to advise.

CWA Information Note 7 covers woodland surveys in more detail and includes links to a wide range of useful online data sources.

Survey data should be compiled into a suite of maps, covering soils/hydrology map, habitats and features, designated areas, etc., and used for an analysis of opportunities and constraints. Do

your aims and objectives still fit the site?

You will need to set up an “[Issues Log](#)” to record any potential environmental impacts and associated mitigation measures if you’re applying for woodland creation grants or if your scheme will be subject to EIA assessment.

Species and provenance

Forest Research have developed an [Ecological Site Classification](#) tool to help identify suitable species and their potential productivity (yield class) for any given site. You need a grid reference and some data on soil types, a proxy for which can be the current ground vegetation. If the site has been heavily grazed, improved or cultivated, the current ground flora may not be a true indication of its potential for trees.

You will need to consider provenance of your trees, e.g. native woodland schemes usually require plants grown from seed sourced from your local region. For native woodland, once your initial planting is established you may want to consider planting additional species that will be able to create the diversity found in a long-established wood, especially if the species need the shade and shelter of the older trees, e.g. dog rose, honeysuckle, holly, yew, hazel and other site-appropriate native woodland plants.

Planting density

Planting density reflects your silvicultural objectives. Higher densities incur additional planting costs but produce better quality timber as trees tend to have fewer, smaller branches and straighter stems. Earlier canopy closure increases initial growth rates and may reduce the need for weeding, whilst the higher number of trees gives future managers more options for stand improvement by thinning.

Protection and maintenance

You must decide how you will protect young trees from browsing animals (e.g. fencing, tree-shelters, deer control) and identify likely weeding and fertilising requirements.

Access

Site access is important, not just for public recreation but also for transporting plants and

planting squads onto site, for monitoring and culling deer, and for future forest roads and timber extraction, if relevant.

Other considerations

Landscape design and the inclusion of unplanted buffers around special features such as archaeological sites must be considered in your woodland design. You may also want to factor in other ecological features such as ponds or wetland areas, the location for huts or a forest school building.

Funding and support

There are substantial grants and other support available for woodland creation, although a key constraint for many projects is that whilst grants are paid in arrears, there are significant upfront costs, including the survey and design process, ground preparation and tree protection measures, the trees themselves and the cost of planting.

Forestry Grant Scheme

The great majority of woodland creation projects in Scotland are grant-aided through the [Forestry Grant Scheme](#) (FGS), which is administered by Scottish Forestry. The scheme has nine woodland creation options, each featuring an initial planting payment and an annual maintenance payment for five years, with higher rates payable in target areas.

The nine woodland creation options each have their own grant rates and different minimum specifications for woodland size, species mix and stocking density. A single woodland creation scheme can incorporate areas planted with different options but these must be discrete and identifiable. The scheme also includes a range of [capital grants](#) for operations such as fencing, tree protection and removal of bracken or gorse.

Other funding and support

The CWA website includes a [page](#) dedicated to funding support for tree planting. This includes programmes from the [Woodland Trust](#) and the [Tree Council](#) which can supply small volumes of free trees to community projects and other organisations such as the [International Tree](#)

[Foundation](#) and [Carbon Footprint](#) which can support planting projects.

The [Croft Woodlands Project](#) was established to support small-scale woodland creation projects in the crofting counties. It produced the [Highlands and Islands Woodlands Handbook](#), which was developed specifically for small and community scale land managers and contains a wealth of detailed advice on project planning, species and site suitability; despite the name it will be useful all across Scotland.

Carbon finance

New woodlands sequester carbon and woodland owners/managers can generate income by “selling” this carbon to those who wish to offset unavoidable emissions. The [Woodland Carbon Code](#) is the voluntary standard for UK woodland creation projects where claims are made about carbon sequestration. The code creates verifiable carbon “units” that can be sold and provides assurance that the planted trees will be sustainably managed and capture the carbon dioxide claimed.

Owners/managers can register schemes (which must be done before planting) and market their carbon units themselves, or engage a [project developer](#) to do this on their behalf. Carbon finance does not preclude future timber harvesting but it will significantly reduce the quantity of carbon units for sale.

CWA information note 18 covers woodland carbon finance in more detail.
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Future Woodlands Fund

The [Future Woodlands Fund](#) offers land managers a simple and low risk way to plant or regenerate native trees, and works alongside the FGS. The fund covers the costs of developing applications to the FGS and pays an annual incentive to the land manager for 20 years. In return, the land manager assigns ownership of the carbon sequestered by the new woodland to the Future Woodlands Scotland, which takes on the administrative and financial responsibilities of compliance with the Woodland Carbon Code.

Small Woodlands Loan Scheme

The Small Woodlands Loan Scheme is aimed at small farmers, crofters and other small landowners to assist with the costs of implementing new Woodland Creation schemes. The loan provides 50% of the value of the capital items for FGS contracts that contain up to 50 hectares of woodland creation, rounded up to the nearest £100, up to a maximum value of £40,000 per application. This loan is effectively an advance on your approved FGS woodland creation capital grant and repayment is netted off from your subsequent FGS grant payment when claimed.

Woodland creation operations

Once you have your plans approved and finance in place you can proceed with actually creating your new woodland. On smaller sites much of the work can be carried out by suitably trained volunteers, but be prepared to check and if necessary redo work done by schools or other novice volunteers.

CWA information note 12 covers working with volunteers in more detail.

Site marking

Clear marking out of the woodland creation site is required before any inspection by Scottish Forestry and prior to contractors or volunteers working on site. General practice is to use 1.5m long bamboo canes with coloured tape to identify where machines can and cannot go and which species to plant where.

Coloured tape may fade, deer will bite it off the canes and wind will shred it, so ensure it is refreshed and serviceable before any works take place. It is also helpful if contractors can be given geo-referenced maps of the planting scheme to load into their map apps onto hand-held devices.

Ground preparation

Ground preparation is intended to produce an optimal site for tree growth, reduce weed competition and assist mineralisation of the soil to release nutrients that will be available to the tree. It can also help in finding seedlings for future monitoring and weeding. Some methods,

like mounding and ploughing, should be done well before planting to allow soil to settle and stabilise.

The UKFS requires that soil and water are protected from the potential adverse effects of cultivation operations. As a general principle, the least intensive cultivation method possible should be used to successfully establish woodland.

Scottish Forestry has recently published guidance on [ground preparation on upland sites](#) which includes new measures to reduce disturbance. This guide contains illustrated technique sheets for the various methods of ground preparation as well as a wealth of useful information matching methods to soil types and objectives.

Hand screefing, removing surface vegetation at the time of planting, using a planting spade or mattocks is the simplest form of ground preparation. It is physically hard on your planting and seedlings may quickly become choked by weed competition.

Chemical screefing is the use of a broad-spectrum herbicide to kill 1m diameter spots, or 1m wide strips, of vegetation into which transplants can be planted. There is no disruption of soil profile and structure, but it can be hard to find trees a year or two later as the vegetation grows back.

Mechanical scarification “roughs up” the ground surface, and can be employed prior to natural regeneration or planting of seedlings. It is done with a low ground pressure excavator or with equipment towed behind a tractor or forestry machine. It removes competing vegetation but does not improve soil drainage or mixing.

Mounding is where an excavator lifts and turns over a digger bucket-sized sod to create a raised, weed-free planting position. In “hinge mounding” the sod is flipped over to lie next to the hole, creating a very rough planting site, whereas in “inverted mounding” the soil is put back into the excavation hole upside-down, which reduces future access issues.

“Trench mounding” extracts material from a trench and deposits it in mounds. Continuous acting mounders, towed behind tractors, create lines of mounds. This is cheaper than using an excavator but can have more negative impacts (runoff, visual impact, soil carbon loss).

Ploughing is probably the cheapest technique and provides straight lines of trees for future planting and weeding, but has the greatest visual impact and disturbance of soils. Scottish Forestry will not accept any Forestry Grant Scheme applications which include ploughing on soils where peat depth exceeds 10 cm.

Ploughing on wet sites can create future windblow risks due to tree roots not growing across plough furrows. Plough tines are helpful in breaking layers of indurated sub-soil that prevent downward root growth or increase water-logging.

Trees and planting

Tree supply has historically been dominated by a small number of large nurseries, notably [Christie-Elite](#) and [Alba Trees](#), but the recent growth in demand for planting stock has led to an expansion of the sector and there are increasing numbers of small, local nurseries, including on [Eigg](#) and at [Little Assynt](#). In recent years some nurseries have struggled to meet demand, so it is important to order your trees well ahead of your intended planting date.

Mechanical planting is possible on very accessible sites but most tree planting is still done manually. The planting season is through the winter months when trees are dormant: this varies across the country. In milder areas tree roots can start growing in March if the soil is warm enough and trees planted later in the spring can struggle to develop sufficient fine root hairs to absorb the water they require when the buds burst.

Large transplants usually have a lower shoot to root ratio so they can struggle to get going in the spring compared with smaller plants with fewer leaves to sustain. However, larger transplants can be useful for fertile sites where finding seedlings for future monitoring or

weeding might be difficult. The planting season can be extended by keeping trees in cold storage in the nursery or by using cell-grown trees.

Trees are supplied “bare-rooted” or “cell-grown” (with an individual plug of soil from growing in a container). The former are usually cheaper, easier to move around a site and are planted with a spade, opening a vertical notch in the ground and then heeling in to cover roots.

Cell grown trees need an appropriate-sized hole, made by a planting spear, with the top of the plug half an inch below the level of surrounding ground. Using cell-grown trees can extend the planting season somewhat, and may be a better option for small scale volunteer planting as they are easier to plant correctly and the soil plug can protect the tree roots from poor handling.

Good tree handling practices are important: if bags of plants are thrown about and roughly handled the trees won’t thrive. Transplants kept in air-tight bags for too long will go mouldy, and if bags are left open for more than a few hours on a sunny day trees can be ruined by the roots drying out.

Transplants planted too loosely or with roots hanging out of the planting slot or hole will dry out and die, or get thrown out by frost. Seedlings planted too deep will suffocate: most tree seedlings only tolerate being planted to just cover the root collar, which is where the roots come together to form a main stem.

Fertiliser

Fertiliser shouldn’t be needed on fertile, grassy sites, indeed it can be counter-productive as it stimulates weed growth. However, on poorer upland sites, lack of phosphorus and sometimes nitrogen constrains tree growth. The traditional method has been to apply 50g of rock phosphate or phosphate-based fertiliser in a ring around the base of the tree after planting. Newer coated, slow release NPK fertilisers, sometimes with added boron, are applied direct into the hole under the tree at 10g/tree where it does not feed the weeds.

Protection

Fencing is often necessary to exclude livestock and wild herbivores such as rabbits and deer, if control of the latter by other measures cannot be achieved. While fences are expensive to install, intrusive and restrictive on access, for larger sites they are a cost-effective option for protecting any investment in buying and planting tree seedlings.

Self-closing gates will need to be installed to provide sufficient access for recreation. Badger gates may also be required in many locations. Marking to improve the visibility of fence wire will be necessary where capercaillie and black grouse are present.

Individual treeshelters are often cost effective for protecting small planting sites (<0.5ha) or for specific vulnerable trees (e.g. broadleaves on a mainly conifer site) but there is increasing awareness of the climate impact of plastic use and research is ongoing to identify less harmful alternatives. Note that standard length shelters of 1.2m do not provide sufficient protection against red deer. Tree tubes won't be necessary if you have fenced the site, but additional vole guards may be effective on grassy sites.

Mesh guards are less visually intrusive than solid guards, but the latter can produce a better micro-climate for some species. While leading shoots can grow out through mesh and strangle themselves, trees grow more steadily in mesh guards and are less likely to become 'top heavy' as they emerge from the guards. Unless they are fully biodegradable, tree shelters need to be removed from the tree and the site once they have served their purpose.

Future 'specimen' trees can be grown in 1m diameter, 1.5m tall weld-mesh guards supported by a deer-fence post. If you are using recycled deer net for this purpose, remember to use something to protect the stem from hare or rabbits and ensure the guards can be opened up easily to facilitate weeding. Conifers in general do not perform well in 'tree-tubes' but can be given some protection in shrub guards.

There are various chemical repellents on the

market such as [Trico](#) which may provide some protection from deer.

Maintenance

Once you've finished planting it's tempting to think the job is done but maintenance will be required for several years until the trees are successfully established. Regular inspections will be required to ensure fences stay rabbit and deer-proof, and measures put in place to remove or shoot any that find their way in. You should also provide fire beaters and consider insuring your new woodland against fire.

Weeding

On fertile sites young trees will probably need weeding to protect them getting smothered by bracken or brambles or to reduce the competition for water by adjacent grass roots. The former can be tackled with physical cutting and the latter can only be resolved with chemical control that kills the grass plants entirely. There are selective weed killers that target grasses and these are safe to use around trees. Alternatively, timing or shielding can be employed to ensure tree seedling leaves are not contacted by wider spectrum herbicides.

For small sites, biodegradable mulch mats can be used and installed around trees at the time of planting. A double layer of cardboard secured with wire 'pins' or weighed down with bark mulch can also be effective to suppress weeds. They are organic but time-consuming to install and often best done by volunteers. Mulch mats also give good protection against voles: the inside edge should be weighed down to reduce the chance of voles getting easy, sheltered access to the stems of transplants.

Beating-up

This is the planting of new transplants to replace those that have failed for one reason or another. It is usual to budget for a 10 to 15% loss in the first year and a 5% loss in the following year. After this the replacement transplants might be too far behind those that established first to compete effectively, although significant gaps where there are a high percentage of losses will still need to be planted.

Natural regeneration

Woodland creation by natural regeneration is ecologically desirable, especially where existing native woods are being expanded. A key limiting factor is the availability of suitable seed sources. Typically, natural regeneration takes longer to establish than planting, and may produce more variable stocking.

Natural regeneration is usually cheaper than planting but rarely if ever free: fencing and/or culling are usually needed to reduce browsing pressure and ground preparation and/or or by control of competing vegetation may be required to improve germination and growth rates.

Resources

Community Woodlands Association (advice and support for community woodlands)

<http://www.communitywoods.org>

Making Local Woods Work (advice, tools and resources for woodland social enterprises)

<https://makinglocalwoodwork.org>

Forestry Grant Scheme – Woodland Creation

<https://www.ruralpayments.org/topics/all-schemes/forestry-grant-scheme/woodland-creation/>

UK Forestry Standard (UKFS)

<https://www.gov.uk/government/publications/the-uk-forestry-standard>

Environmental Site Classification (ESC)

<https://www.forestresearch.gov.uk/tools-and-resources/fthr/ecological-site-classification/>

Croft Woodlands Project (support for small scale woodland creation)

<https://www.woodlandtrust.org.uk/about-us/where-we-work/scotland/croft-woodlands/>

<https://www.woodlandtrust.org.uk/media/44068/highlands-and-islands-woodlands-handbook.pdf>

Scottish Forestry Guidance on Ground Preparation for Upland sites

<https://forestry.gov.scot/publications/1032-cultivation-for-upland-productive-woodland-creation-sites-applicant-s-guidance>

Creating new native woodlands (FC Bulletin 112)

<https://www.forestresearch.gov.uk/publications/archive-creating-new-native-woodlands/>

Woodland Carbon Code

<https://www.woodlandcarboncode.org.uk/>

This information note was produced by the Community Woodlands Association. The work of the CWA is supported by Scottish Forestry. Published in May 2022



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