

GSA BIOSPHERE & AYRSHIRE TREE PLANTING PROGRAMME

SOUTH AYRSHIRE PILOT

GUIDE TO GOOD TREE PLANTING PRACTICE

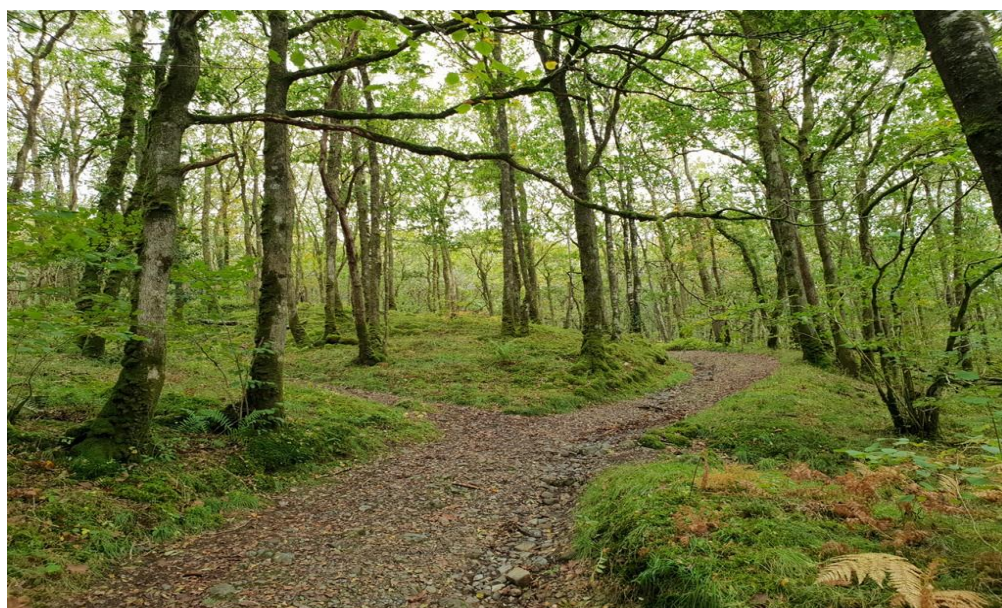
What trees are we encouraging for planting and which species are classed as natives?

Native species are plants or animals that colonise an area naturally i.e. without human assistance. Because of their longer lineage, native trees support a much greater diversity of dependent and associated species and are therefore more highly favoured. Many common trees found in the South of Scotland, such as Beech and Sycamore however, were actually brought here by people in Roman times or more recently. The GSA Biosphere & Ayrshire Tree Planting Programme recognises the contribution that the introduced species make to the landscape but also acknowledges the greater contribution made by native trees.

We wish to promote the planting of large native trees such as Oak or naturalised non-natives such as Beech. These trees are long lived and add greatly to the landscape appeal of the countryside.

Oaks are particularly striking as field boundary trees, parkland trees or amongst other trees in small copses. In addition to tall trees, there are many appropriate small and medium sized trees, if planting space is limited. Ash is a common landscape tree but planting of Ash is not recommended presently, due to Ash dieback disease. It is largely because we are losing so many landscape trees to disease and old age, that this tree planting grant has been established.

Trees for planting should be suited to the site conditions. The following list is a general guide to the various species that may be suitable within the South of Scotland. If you are at all unsure about what trees you should be planting, please seek advice from project staff based at the GSA Biosphere.



Native tree species

Tree Species			
Common Name	Latin Name	Size*	Site Conditions
Alder	<i>Alnus glutinosa</i>	Medium	Wet soils and riverbanks
Ash (Not being planted due to infection)	<i>Fraxinus excelsior</i>	Large	Rich, free draining soils that are neutral or slightly alkaline. Full sunlight.
Aspen	<i>Populus tremula</i>	Medium	Tolerates a wide range of soil types, climates and exposures. Full sunlight. Not suitable for planting near buildings, drains or other services due to spreading root system.
Bird cherry	<i>Prunus padus</i>	Medium	Suitable for moist (but not very wet) soils and riverside planting. Not suitable for very exposed sites.
Crab apple	<i>Malus sylvestris</i>	Small	Sheltered, sunny sites. Prefers moist soils.
Downy birch	<i>Betula pubescens</i>	Large	Hardy tree that will grow well on most sites. Prefers moist – wet soils. Tolerates frost and exposure. Requires full sunlight.
Gean (wild cherry)	<i>Prunus avium</i>	Medium	Rich, free draining soils in a sunny, sheltered location.
Goat willow	<i>Salix caprea</i>	Small	Versatile tree that will grow on most sites but thrives in wet soils and on riverbanks. Requires full sunlight. Not suitable for planting near to buildings, drains or other services due to spreading root system.
Holly	<i>Ilex aquifolium</i>	Small	Tolerates a wide range of soil types as long as they are free draining. Shade tolerant. Evergreen.
Pedunculate oak	<i>Quercus robur</i>	Large	A very long lived tree that prefers rich, moist soils. Requires full sunshine. Tolerates temporary waterlogging and exposure.
Rowan	<i>Sorbus aucuparia</i>	Small	A very hardy tree that will grow in almost any conditions except very wet soils. Tolerates high altitudes, frost and high exposure.
Scots pine	<i>Pinus sylvestris</i>	Large	A versatile tree that will grow in thin, infertile soils as long as they are free draining. Tolerates exposure and drought. Requires full sun. Evergreen.
Sessile oak	<i>Quercus petraea</i>	Large	A hardy tree that grows well in exposed, upland sites. Prefers free draining, acidic soils.
Silver birch	<i>Betula pendula</i>	Large	A hardy, versatile tree that will grow on most sites as long as the soils are freely draining. Requires full sunlight.
Wych elm	<i>Ulmus glabra</i>	Large	Fertile, freely draining soils. Handles all soils PH's except very alkaline. Tolerates partial shade.
Yew	<i>Taxus baccata</i>	Medium	Shade tolerant woodland understory tree. Slow growing. Poisonous to livestock and people.

*Small: Under 15m, Medium: 15m – 25m, Large: over 25m

Native shrub species

Shrub Species			
Common Name	Latin Name	Size*	Site Conditions
Bay willow	<i>Salix pentandra</i>	Small	Wet soils and riverbanks. Not suitable for planting near to buildings, drains or other services due to spreading root system.
Blackthorn	<i>Prunus spinosa</i>	Small	A prickly shrub that grows best on freely draining, moderately fertile soils. Provides an effective wind break. Can spread quite quickly. Requires full sunlight.
Eared willow	<i>Salix aurita</i>	Small	Wet soils and riverbanks. Not suitable for planting near to buildings, drains or other services due to spreading root system.
Elder	<i>Sambucus nigra</i>	Small	Tolerates a wide range of site conditions but prefers sheltered, woodland sites with moist, freely draining soils. Tolerates partial shade. Can spread quickly.
Grey willow	<i>Salix cinerea</i>	Small	Wet soils in upland sites. Not suitable for planting near to buildings, drains or other services due to spreading root system.
Guelder rose	<i>Viburnum opulus</i>	Very Small	An understory woodland shrub that prefers moist, neutral soils.
Hawthorn	<i>Crataegus monogyna</i>	Small	A versatile shrub that will grow in most soils and conditions except waterlogged soils. It is tolerant of exposure and makes a good windbreak.
Hazel	<i>Corylus avellana</i>	Small	Rich, free draining soils. Not suitable for very acidic soils. Requires full or partial sunlight. Tolerates some exposure.
Juniper	<i>Juniperus communis</i>	Small	Freely draining acidic or alkaline soils. Prefers open, sunny sites and can handle exposure.



Non-native tree and shrub species

Although we wish to encourage the planting of native species, some exceptions, depending on site and conditions, may be made for non-native species. The following non-native species provide important habitat and other benefits, and are not invasive. They are best suited to lowland sites with freely draining, fairly fertile soils.

Non-Native Tree Species			
Common Name	Latin Name	Size*	Site Conditions
Beech	<i>Fagus sylvatica</i>	Large	Shade tolerant. Cannot tolerate wet soils.
Black poplar	<i>Populus nigra</i>	Large	
Douglas fir	<i>Pseudotsuga menziesii</i>	Large	Prefers sheltered sites.
Field maple	<i>Acer campestre</i>	Medium	
Grand fir	<i>Abies grandis</i>	Large	
Hornbeam	<i>Carpinus betulus</i>	Large	
Horse chestnut	<i>Aesculus hippocastanum</i>	Large	
Noble fir	<i>Abies nobilis</i>	Large	
Norway maple	<i>Acer platanoides</i>	Large	Tolerates partial shade
Small leaved lime	<i>Tilia cordata</i>	Large	
Sweet chestnut	<i>Castanea sativa</i>	Large	
Sycamore	<i>Acer pseudoplatanus</i>	Large	Tolerates exposure.
Wellingtonia	<i>Sequoiadendron giganteum</i>	Large	
White poplar	<i>Populus alba</i>	Medium	
White willow	<i>Salix alba</i>	Medium	Tolerates wet soils, suitable for riverside planting.
Whitebeam	<i>Sorbus aria</i>	Small	
Fruit Trees (e.g. apple, pear, plum)		Small - Medium	

*Small: Under 15m, Medium: 15m – 25m, Large: over 25m

Trees recommended for field boundaries and tree line planting (depending on site)

- ▶ Beech
- ▶ Crab apple
- ▶ Field maple
- ▶ Oak
- ▶ Sycamore
- ▶ Whitebeam
- ▶ Wild Cherry
- ▶ Rowan



How to select, plant and care for trees

Important steps to consider for successful tree establishment.

1

Assessing the suitability of the site

It is important to check if the site is suitable for planting trees on and what types of trees would grow best. You need to consider ground conditions such as:

- ▶ What is under the ground surface? Rocks and shallow soil will restrict tree growth. Trees need a reasonable depth of good soil to establish well.
- ▶ Is the site excessively shaded or exposed to the wind? Both of these can restrict tree growth. Is tree protection needed? Is the site affected by salt spray?
- ▶ Is the site already important for nature conservation (such as species rich grassland or wetland) and somewhere that tree planting could affect in a negative way? Should you consider another site for planting?

2

Pre-planting work and site preparation

Think about where to plant trees within your site. Trees must be planted at least 2m apart, shrubs may be planted at 1m intervals. Consider planting your trees in irregular, random patterns, as this provides a wider variety of wildlife habitats.

Are there any restrictions on the size of trees once they mature? Consider the proximity to buildings, underground services such as drains, site boundaries, overhead wires and how large different tree species will become.

- ▶ Young trees must be protected from competing vegetation. This is best achieved by hand weeding.
- ▶ Would a mulch of some kind help suppress weeds?
- ▶ Plant the trees into the ground and ensure the roots are covered.
- ▶ Young trees must be protected from livestock. Where necessary, erect an appropriate stock proof fence or use a tree guard. Think also about potential risks from rabbits, hares and deer – see section 6.

3

Pre-planting work and site preparation

Tree choice is often best decided by looking around at what grows well in the locality. However, you may have a specific purpose in mind, i.e., fruit trees within an orchard, parkland trees, trees to attract wildlife, trees for autumn colour and berries and trees for landscape appeal. Species choice may be influenced by considering:

- ▶ If the trees need to grow quickly or for shelter.
- ▶ If there is enough soil moisture for them to grow.
- ▶ If the size of the site to be planted is appropriate to species selection.

If you are still in doubt, you should seek further advice and guidance from the GSA Biosphere.



4

Selecting the type of planting stock and when to plant

Trees are usually supplied from a nursery as either 'bare rooted stock' or 'cell grown stock'. Both types of stock have benefits. When planting, tree roots should never dry out or be exposed to frost. Trees are best planted on mild, overcast, and windless days. Care must be taken if planting on frosty or windy days. Trees should never be planted in prolonged dry or droughty conditions.

- ▶ Bare rooted stock can be planted between early October and late March. This can vary by a week or two at the beginning or end of the season depending on weather conditions. Trees come individually packed or bundled together. Trees should be planted when the plants are dormant and before individual leaves start to bud.
- ▶ Cell grown stock come in individual root containers or on trays. Because the trees come within their own soil plug, planting can be extended by up to 8 weeks at the beginning and end of the season, i.e. from early-August to late-May.
- ▶ Trees come in a variety of sizes. It is generally considered best to plant trees of 60cm in size. Whips up to 90cm in size can also be suitable. Standard trees (up to 3m in height) can do well in appropriate situations. However, it is a misconception that the taller the tree, the better the chance of survival, as shorter trees often outgrow taller (planted) trees in time. The general rule is the taller the tree, the smaller the chance of survival. Tall trees tend to be very expensive to buy.
- ▶ Try and purchase stock from a local nursery that can provide you with a provenance certificate. This will tell you where the tree seeds have come from and whether they are likely to grow well in your locality. Trees that have been grown from seed collected many hundreds of miles away (particularly to the south and east) are much more likely to be less tolerant to disease and suffer higher stress levels due to more challenging growing conditions. The UK and Ireland Sourced and Grown Assurance Scheme is the industry standard for tree procurement. Tree Nurseries should have UKISG approved status.

5

Planting your trees

When planting, dig a hole deep enough for the tree to be covered up to the root collar i.e. up to where the young tree was originally planted with soil. Place the tree in the hole and push the dugout soil back around it. Gently firm in the tree (with the sole of your boot) to prevent air gaps remaining around the roots. The tree may require watering initially. It is important to remember the following at all times:

- ▶ Never leave tree roots exposed to air when planting, as they will dry out very quickly.
- ▶ Prepare a hole big enough to take all of the root ball.
- ▶ Take steps to prevent compaction when planting in clay or wet soils.
- ▶ Keep the plant upright.
- ▶ Ensure the roots are covered by at least 3cm of soil to prevent the young tree roots from drying out.
- ▶ Control weeds and grass growth within 1m of the tree by using mulch or hand weeding.



6

Protection of young trees

Trees and shrubs must be protected from browsing animals including farm livestock, horses, deer, rabbits and hares. On some sites, mice, voles and weevils can also be a problem. It is also necessary to protect newly planted stock from cold and drying winds which can cause severe damage. Tree protection can be ensured in the following ways:

- ▶ Against livestock- Ensure stock fences are of sufficient standard and height to prevent animals leaning over. Depending on the tree being planted and fence type, the distance required can vary from between 1m and 2m (i.e. field boundary trees) to 3m (i.e. parkland trees).
- ▶ Deer- Fencing at 1.5m or 1.8m or staked tree shelters at 1.2m or 1.5m high.
- ▶ Rabbits & Hares- Rabbit netting on fencing 0.9m high with 150mm dug into ground or staked trees shelters 0.6m or 0.75m high.
- ▶ Mice & Voles- Use vole guards (25cm) around base of tree or firmly installed tree shelters (to ground).
- ▶ Against weather-Tree shelters offer some protection against wind and frost. Cold and drying winds can kill young trees. Selecting hardy trees for cold, exposed sites is the most effective.
- ▶ In most typical South of Scotland situations, a combination of stock-proof fencing with trees planted in tree shelters with good weed control will yield the best results. Beware that some trees such as Beech and Holly prefer open mesh tree shelters. The humid atmosphere within plastic shelters can cause mildew attacks on some plants.

7

Aftercare & Maintenance (weed control in particular)

One of the main causes of tree failure in the first years is through competition from weeds and grasses. It is essential that newly planted trees and shrubs are kept free from weeds and grasses for the first 3 years if they are to establish successfully. Ideally a 1m radius circle should be kept weed free around each tree. If a tree dies, replace it the following planting season.

Methods of weed control include:

- ▶ Mulching: Mulching, although not essential, can suppress weeds around trees and also has the added benefit of keeping the ground surface moist. There are a number of types of mulch mats or sheeting available. More organic forms such as chopped straw or wood chips are also effective.
- ▶ Hand weeding: This involves removal by hand, of all weeds and weed roots from around the base of the planted tree. This is usually only possible on very small sites.
- ▶ Mechanical weed control: strimming or mowing is not recommended, as trees can be easily damaged. Mowing can actually increase the competition for nutrients and water as cutting stimulates grass growth.
- ▶ Chemical weed control: Consider appropriate use of appropriate herbicide. Please seek professional advice prior to use.
- ▶ Other maintenance tasks:
 - ▶ During the first year, regularly check that the tree is still firm in the ground. Wind blow can create a hollow around the base of the tree trunk, leaving it poorly supported. Frost action or moles can also disturb the ground, loosening the roots. Tread around the loose stems to firm the tree into the ground and re-stake the tree if required.
 - ▶ Remove tree shelters, ties and stakes after about 5 years (or when the tree has filled the width of the tube).

Examples of eligible items and approximate levels of capital grant support*

*Please note that all grants are for materials only and exclude labour, as this cannot be grant aided. Actual costs are likely to vary depending on location, site conditions, suppliers & fluctuating material prices. We strongly recommend you ask your chosen supplier for an accurate quote prior to submitting your application. (NB: Labour costs can be included for community groups.)

Guidelines for Costs	
Item	Approximate Material Cost
1. Erection of	
– Stock fence	£5.50/m
– Flake gate	£80
– Single stile	£50
– Scare wire, temporary/electric or rabbit fence	£2.50/m
– Deer fence	£9-12/m
2. Mulch material (i.e. mulch mat for trees/wood chips)	50p ea
3. Native-species tree (bare root or cell grown)	£1.00 - £1.50 ea (40cm)
4. Tree guard and stake (i.e. 1.2m tree shelters)	£2.00 - £3.00 ea
5. Vole guards	£0.28 ea
6. Parkland trees – Standard sized Amenity trees (native/exotic tree standards)	£25.00/ea
7. Parkland tree protection- Post and rail fencing to protect from livestock/ horses.	£80-100 per box
8. Maintenance of trees – i.e weed control (to be undertaken in the year following planting), replacing dead trees, etc. Removal of tree guards (after 5 years).	Applicant's own expense



FURTHER INFORMATION

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