GSA Biosphere & Ayrshire Tree Planting Programme

TREE PLANTING: TIPS FOR GOOD PRACTICE

South Ayrshire Council
LandEnergy
Scottish Forestry
Coilltearachd na h-Alba
Woodland Trust
Galloway and Southern Ayrshire Biosphere

Trees for biodiversity, landscape and people.

This document provides guidance on the the type of trees and shrubs the GSA Biosphere and its partners wish to promote as well as information about planting project design. Trees for planting should be suited to the site conditions. You will find 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 the GSA Biosphere.

Native species are species that occurs naturally in an area, or have not been introduced by humans. Because of their longer lineage within the ecosystem, native trees support a much greater diversity of dependent and associated species. Many common trees found in the South of Scotland, such as beech and sycamore, were brought here by people in Roman times or more recently and are considered introduced species. While introduced species make a contribution to the landscape, a greater contribution is made by native trees. Therefore, the GSA Biosphere & Ayrshire Tree Planting Programme prefers the planting of native species.

We wish to promote the planting of large native trees such as oak. 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. Planting of ash is not recommended presently, due to ash dieback disease. Elm, of which we have lost so many to Dutch elm disease, may be planted if disease-resistant elms are sourced from specialised nurseries. Please contact the Biosphere for advice.

Native tree species

Common Name	Latin Name	Size*	Site Conditions
Alder	*Alnus glutinosa*	Medium	Wet soils. Suitable on riverbanks for stabilisation.
Aspen	*Populus tremula*	Medium to large	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	*Prunus padus*	Medium	Suitable for moist (but not very wet) soils and riverside planting. Not suitable for very exposed sites.
Crab Apple	*Malus sylvestris*	Small	Sheltered, sunny sites. Prefers moist soils.
Downy birch	*Betula pubescens*	Large	Hardy tree that will grow well on most sites. Prefers moist to wet soils. Tolerates frost and exposure. Requires full sunlight.
Gean (Wild Cherry)	*Prunus avium*	Medium	Rich, free draining soils in a sunny, sheltered location
Goat Willow	*Salix caprea*	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	*Ilex aquifolium*	Small	Tolerates a wide range of soil types as long as they are free draining. Shade tolerant. Evergreen.
Pedunculate Oak	*Quercus robur*	Large	A very long-lived tree that prefers rich, moist soils. Requires full sunshine. Tolerates temporary waterlogging and exposure.
Rowan	*Sorbus aucuparia*	Small	A very hardy tree that will grow in almost any condition except very wet soils. Tolerates high altitudes, frost and high exposure
Scots Pine	*Pinus sylvestris*	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	*Quercus petraea*	Large	A hardy tree that grows well in exposed, upland sites. Prefers free draining, acidic soils.
Silver birch	*Betula pendula*	Large	A hardy, versatile tree that will grow on most sites as long as the soils are freely draining. Requires full sunlight.
Wych Elm	*Ulmus glabra*	Large	Like all elms, susceptible to Dutch elm disease. Planting of trees grown from local seed is encouraged (see below for more information). Fertile, freely draining soils. Handles all soils pHs except very alkaline. Tolerates partial shade.
Yew	*Taxus baccata*	Medium	Shade tolerant woodland understory tree. Slow growing. Poisonous to livestock and people.

*Small: Under15m, Medium: 15m – 25m, Large: over 25m

Native shrub species

Shrubs provide important diversity in a woodland and are also covered by the grant. Integrate a few in your design!

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

*Very Small: 2m - 4m, Small: 4m - 8m, Medium: 8m - 12m, Large: 12m - 15m

Ash and Elm

Ash *(Fraxinus excelsior)*

Ash trees have been an integral part of our landscape for millennia, and many species of fungi, lichen and invertebrates are associated exclusively with ash. In total, ash supports over 900 species. Unfortunately, these trees are susceptible to ash dieback, a disease caused by a fungus, and many ash trees have already been lost. It is projected that many more will be lost to the disease in the future. For this reason, we do not fund the planting of ash, but recommend the planting of tree and shrub species that can mitigate the impact of the loss of ash trees. See the table below for alternative tree species.

Ash Tree Alternatives		
Common Name	**Latin Name**	**Note**
Oak (Sessile/Pedunculate)	*Quercus petraea/robur*	Oak supports the most ash-associated species.
Alder	*Alnus glutinosa*	Alder provide the best alternative in terms of ecosystem function (nutrient recycling, leaf litter)
Elm (English/Wych)	*Ulmus procera/glabra*	Elm also supports many ash-associated species. English elm is susceptible to Dutch elm disease, see below for more information.
Hazel	*Corylus avellana*	Hazel supports many ash-associated species
Birch (Downy/Silver)	*Betula pubescens/pendula*	Birch supports many ash-associated species

Elm *(Ulmus spp.)*

Dutch Elm Disease has killed millions of elm trees in the UK since it emerged in the 1960s, considerably altering the landscape and leading to the decline of White-Letter Hairstreak butterfly. Lots of research has been done, and disease resistant hybrids have been created. Planting these hybrids is not a perfect solution, as they cannot perform the same functions in the ecosystem, but we will fund the planting of disease resistant hybrids, such as the English elm (Ulmus procera) LUTECE cultivar. For more information about disease resistant elms, please visit: https://disease-resistant-elms.org or contact GSA Biosphere staff.

Non-native species

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

Common Name	Latin Name	Size*	Site Conditions and Benefits
Beech	*Fagus sylvatica*	Large	Shade tolerant. Cannot tolerate wet soils.
Black poplar	*Populus nigra*	Large	Wild black poplar are rare in the UK. Black poplar is the food plant for the caterpillars of many moths.
Douglas fir	*Pseudotsuga menziesii*	Large	Prefers sheltered sites.
Field maple	*Acer campestre*	Medium	Field maple attracts aphids and their predators, such as ladybirds and hoverflies. Lots of species of moth feed on its leaves. Its flowers provide birds and bees with nectar and pollen, and the fruit are eaten by small mammals.
Hornbeam	*Carpinus betulus*	Large	Fertile, moist, well-draining soils. Like beech, keeps its leaves all year round, providing shelter, roosting and nesting opportunities for birds and mammals, who also feed on its seeds.
Horse chestnut	*Aesculus hippocastanum*	Large	Full sun to partial shade. Moist, well drained soils. Its flowers provide food for pollinators such as bees. Moth caterpillars feed on its leaves, such as the horse chestnut leaf-miner moth, whose caterpillars provide food for blue tits.
Norway maple	*Acer platanoides*	Large	Tolerates partial shade. Like the field maple, provides food for invertebrates, birds and mammals.
Small-leaved lime	*Tilia cordata*	Large	Well-drained and nutrient rich soils. Its leaves are a food source for caterpillars of many moth species. They are very attractive to aphids, which in turn attract hoverflies, ladybirds, birds and other predators. The flowers provide nectar and pollen for insects.
Sweet chestnut	*Castanea sativa*	Large	Full sun to partial shade. Well drained soils. Long lived trees. Their flowers are an important food source for bees and other insects, while many small moths feed on its leaves and nuts.
White poplar	*Populus alba*	Medium	Tolerates salty coastal winds. Supports early pollinators.
White willow	*Salix alba*	Medium	Tolerates wet soils, suitable for riverside planting.
Whitebeam	*Sorbus aria*	Small	Moist but well–drained soils. Partial-shade to full sun. Its leaves are a source of food for many moth caterpillars.
Fruit trees (apple, pear, plum, etc.)		Small	Great for pollinators. Heritage strains encouraged. Contact GSAB or your provider for species specific conditions.

*Small: Under15m, Medium: 15m – 25m, Large: over 25m

Trees in Hedges

Mixed species hedges are highly beneficial to wildlife, provide shelter for livestock, help slow run-off and provide food for pollinators throughout the season. Large trees in hedges provide further benefits to invertebrates and their predators as well as further shelter for livestock.

Although we do not fund the planting of new hedges, we can provide funding for planting trees in existing hedges. For further information about hedgerow trees, their benefits and their maintenance, please see the Woodland Trust's Woodwise edition on Hedgerows and Hedgerow Trees.

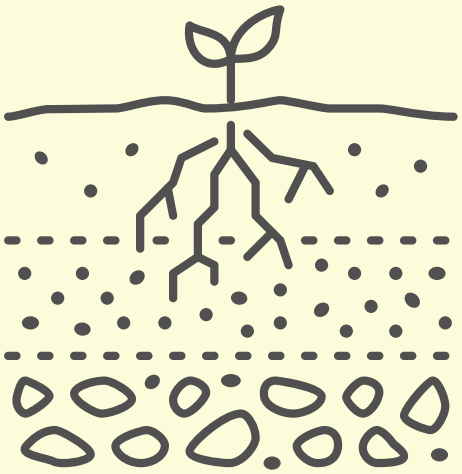
Ideal Trees in Hedgerows Species (Depending on site)

- Crab Apple *Malus sylvestris*
- Wild Cherry *Prunus avium*
- Field Maple *Acer campestre*
- Oak *Quercus robur/petraea*
- Rowan *Sorbus aucuparia*
- Yew *Taxus bacata*
- Horse Chestnut *Aesculus hippocastanum*
- Beech *Fagus sylvatica*
- English Elm *Ulmus procera*
- Wych Elm *Ulmus glabra*

HOW TO SELECT, PLANT & CARE FOR YOUR TREES

01

Site suitability



Check if your site is suitable for planting trees, and what species would grow best.

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.

WHAT ARE THE WEATHER CONDITIONS OF THE SITE?

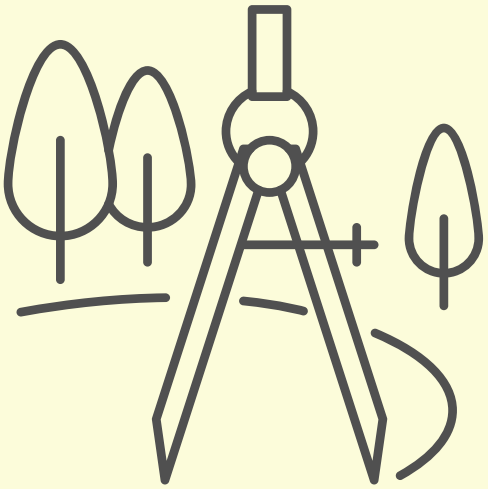
Excessive shade and wind exposure can restrict tree growth. If you think wind exposure may be an issue, consider protection. Salt spray may also affect tree growth, and some species are better adapted to coastal conditions.

WOULD TREE PLANTING AFFECT THE SITE IN A NEGATIVE WAY?

The site may already be important for nature conservation such as species rich grassland or wetland. If that is the case, consider another site for planting. If you are unsure, please get in touch with the GSA Biosphere.

02

Project Design



Think about where to plant your trees within your site, and what they might look like in the future.

ARE THERE ANY RESTRICTIONS ON THE SIZE OF TREES ONCE THEY MATURE?

Consider the proximity of buildings, underground services such as drains, gas and water mains, site boundaries and overhead wires.

WHAT SPACINGS BETWEEN TREES?

Trees should ideally be planted at least 2m apart, and 1m apart for shrubs. Consider planting your trees in irregular, random patterns and varied intervals, as this provides a wide variety of wildlife habitats.

HOW TO CREATE A VARIED VERTICAL STRUCTURE?

A mix of tree and wood species of different sizes will create a complex vertical structure and provide a multitude of different habitats. Consider interspersing trees with shrubs and even ground flora.

03

Site Preparation

Check if your site is suitable for planting trees, and what species would grow best.

IS YOUR PLANTING SITE OVERGROWN WITH VEGETATION?

Young trees must be protected from competing vegetation. If the site is overgrown, cut the grass and weed the area.

MARK WHERE EACH TREE WILL BE PLANTED.

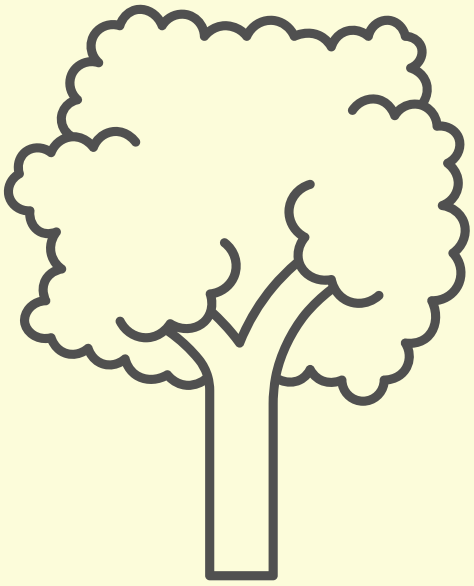
Use stones, sticks or any other means to mark where each tree will be planted. To achieve a random design throw your stones randomly and plant where they fall, keeping minimum spacings in mind.

WOULD TREE PLANTING AFFECT THE SITE IN A NEGATIVE WAY?

The site may already be important for nature conservation such as species rich grassland or wetland. If that is the case, consider another site for planting. If you are unsure, please get in touch with the GSA Biosphere.

04

Tree Species



Get inspired by looking around to see what trees grow well in the locality.

DO YOU HAVE A SPECIFIC PURPOSE IN MIND?

You may want to plant fruit trees within an orchard, parkland trees, trees for wildlife, or trees for some other purpose.

WHAT ARE THE SOIL CONDITIONS OF THE SITE?

Different trees require different soil conditions. Identify where soils are most often dry or wet and plant tree species accordingly. Contact GSAB for advice if you are unsure.

HOW BIG WILL THE TREES GROW?

Consider how tall and wide the trees and canopy will get. Will they shade out building or gardens? Will they block the view?

05

Type of planting stock & when to plant

Trees are usually supplied from a nursery as either ‘bare rooted stock’ or ‘cell grown stock’.

BARE ROOTED STOCK

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 should be planted when the plants are dormant and before individual leaves start to bud.

CELL GROWN STOCK

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.

WHAT SIZE TO PLANT?

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. We do not advise the planting of standard trees (up to 3m in height) 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, although they may suitable for parkland planting projects.

06

Stock provenance

Try and purchase stock from a local nursery that can provide you with a provenance certificate.

PROVENANCE CERTIFICATE

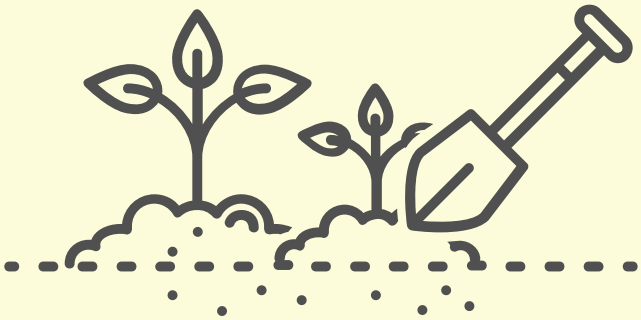
The provenance certificate will tell you where the tree seeds have come from and whether they are likely to grow well in your locality. Trees that have been grown from seed collected many hundreds of miles away (particularly to the south and east) are much more likely to be less tolerant to disease and suffer higher stress levels due to more challenging growing conditions.

UK AND IRELAND SOURCED AND GROWN ASSURANCE SCHEME

The UK and Ireland Sourced and Grown assurance scheme is the industry standard for tree procurement. Tree nurseries should have UKISG approved status. If you wish to acquire saplings from an unregistered nursery, please contact GSAB first.

07

Planting your trees



Different planting techniques are suitable for different soil types.

PIT PLANTING

Suitable for all ground types, but can be difficult in stony soil. 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.

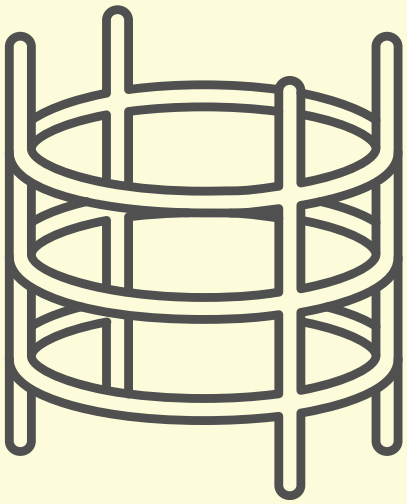
SLIT PLANTING IN STONEY SOILS

Push the spade deep into the ground, then push it forwards to create a slit. Make sure it's deep enough for the tree roots. Keep the slit open with your spade and place your tree inside with the root plug about 2cm below ground level. Remove the spade and push the soil back around the tree.

- 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.

05

Protection of young trees



Trees and shrubs must be protected from browsing animals.

CREOSOTE

Creosoted posts will not be funded as creosote is a toxic and environmentally hazardous substance.

LIVESTOCK

Ensure stock fences are of sufficient standard and height to prevent animals leaning over into the excluded area. Depending on the tree being planted and fence type, the distance required between the tree and the fence can vary from between 1m and 2m (i.e. field boundary trees) to 3m (i.e. parkland trees). Alternatives to fencing include spikey tree guards as well as deer deterrent spray.

DEER

Fencing at a height of 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 high) around base of tree or firmly installed tree shelters (ensure there is no space between shelter and ground).

COMBINING PROTECTION

In most typical Ayrshire 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.

07

Aftercare & Maintenance

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.

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.

08

Other maintenance tasks

You are responsible for maintaining the trees you plant. Success rate should be no less than 80% after 5 years.

WIND BLOW

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.

WATERING

Young trees are vulnerable to drought. They should be watered in case of prolonged dry spells.

TREE SHELTERS

Remove tree shelters, ties and stakes after about 5 years (or when the tree has filled the width of the tube).

Eligible items and capital grant support

Please note that all grants are for materials only and for labour for not-for-profit organisations. Actual costs are likely to vary depending on location, site conditions, suppliers and fluctuating material prices. We strongly recommend you ask your chosen supplier for an accurate quote prior to submitting your application.

Typical Costs (as of August 2024)	
Item	**Approximate Material Cost**
1. Erection of	
• Stock Fence	£5.50/m
• Flake Gate	£80 each
• Single Stile	£50 each
• 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)	£0.50 each
3. Native-species tree (bare root or cell grown)	£1.00 - £1.50 each (40cm)
4. Tree guard and stake (i.e. 1.2m tree shelters)	£2.00 - £3.00 each
5. Vole guards	£0.28 each
6. Parkland trees – standard sized amenity trees (native/exotic tree standards)	£25.00 each
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

Want else can you do?

Structural complexity

Planting trees is great for biodiversity. But trees in the ground don't quite make a woodland. If you want to increase the biodiversity value of your planting project, it is important to add complexity to the woodland structure, from the canopy down to ground level. This means planting trees and plants that will grow to different sizes. Besides trees and shrubs you can also plant ground covering plants like bluebells, woodrushes or dog mercury. You can also integrate horizontal complexity by designing your planting to include areas of open ground, scrub and denser planting. Don't hesitate to contact GSA Biosphere staff for advice.

Connectivity

Another way to increase your project's benefits for biodiversity is to connect it to existing woodland habitat. This could be by planting your trees next to woodland or by planting them by a hedge that connects them to another copse or woodland. By doing so, you increase habitat and create wildlife corridors. If you think your neighbour would be interested in planting trees, you can design a project together and both receive a grant to create a larger project.

This project along the Stinchar valley is expanding existing riparian woodland and creates a wider wildlife corridor

Baseline Survey

An important aspect of conservation is data gathering. If you would like to see how your project is impacting biodiversity, you can start by surveying your project site for plants, invertebrates, birds and mammals and repeat the survey in the years to come. Even if you don't know what the different species are, there are guides and apps out there to help you. Some apps not only help you identify the species but also help gather data, once the identification has been verified by experts. If you would like to start surveying your site but don't know where to start, contact GSA Biosphere staff.

FURTHER INFORMATION

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The Galloway and Southern Ayrshire
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