Cratloe
Biodiversity Action Plan 2022-27

Plan produced by:

Mac Gowan Ecology
Botanical & Ecological Services

Green Pine Consultants

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Cratloe Biodiversity Action Plan 2022-27

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Acknowledgements & Contact Details

Thanks to everyone who helped produce the Cratloe Biodiversity Action Plan including members of Cratloe Tidy Towns and all other members of the community who contributed in the making of this Plan. Thanks to Clare Local Development Company who provided funding through the LEADER programme to produce the Plan. This programme is financed by the Government of Ireland under the Rural Development Programme 2014-2020 and by the European Agricultural Fund for Rural Development.

Finally, we would like to thank consultant ecologist and botanist, Dr. Fiona Mac Gowan and Brian Gaynor from Green Pine Consultants for their commitment and dedication to the project and for sharing their expertise generously with the community.

We hope that the Biodiversity Action Plan will be beneficial in guiding local actions to promote and protect biodiversity in the coming years.

Getting Involved:

If you wish to get involved with any of the actions outlined in this Plan, please visit our website where our contact details are available:

https://www.sustainablecratloe.ie/home

Photographs

Photographs used in this Plan are courtesy of Cratloe Tidy Towns, Brian Gaynor, and Dr Fiona Mac Gowan.

Section 1: Introduction

Cratloe is a place of ancient heritage with biodiversity always featuring prominently. The name Cratloe is derived from the Irish *Creat Shaileóg*, or *Creath Saileág* which means 'the rough land of the sallow (sally or willow) trees'. Its heritage has long been intertwined with the local biodiversity as shown by the name Cratloe but also its fame over the centuries for its ancient oak woodlands. Indeed, it is reported that oak beams cut from Cratloe woods were used to roof Westminster Hall in London and the Royal Palace in Amsterdam and St Mary's Cathedral in nearby Limerick City. Cratloe Oak is also said to have been used in the construction of the British Navy's HMS Victory, Lord Nelson's flagship, which was used in the Battle of Trafalgar. Its famous woods dominated by the sessile oak (*Quercus petraea*) went the way of many ancient woodlands in Ireland and were gradually cleared until only a small area of the original habitat was left. This woodland area was enlarged over the years with commercial conifer plantations and today the state forestry company Coillte own and manage the majority of the forest know as Cratloe Woods.

Cratloe is of course situated, just 2km from the great Shannon Estuary, a wonderful area for biodiversity where nature hovers between the aquatic and marine. Many of the habitats mentioned here are of such biodiversity value they are protected under national and European law: Garrannon Wood; Shannon Estuary and Woodcock Hill bog. With a population of nearly 700 people (as of the 2016 census) this is a relatively small community but one which is growing due to its location near Limerick City and some of the major towns in Co Clare.

This Biodiversity Action Plan aims to guide the local community and stakeholders in their efforts to protect and restore some of this natural heritage and maximise the benefits that nature can provide for the people of Cratloe. The Plan is not intended to be a static document but rather to be regularly reviewed and updated over its life.

THE GREATER LANDSCAPE OF CRATLOE IS A SPECIAL ONE FEATURING ANCIENT WOODLAND, BOGS AND THE MIGHTY SHANNON ESTUARY

Process to Produce This Plan

Cratloe Tidy Towns received a grant from Clare Local Development Company which was funded by the LEADER programme to develop a Biodiversity Action Plan (BAP) for the local area. Green Pine Consultants and Dr Fiona Mac Gowan were contracted to deliver the project. Cratloe was visited in April 2022 to survey the main community spaces, meet with members of Cratloe Tidy Towns, and develop ideas to form the basis for the BAP. The BAP was presented to Cratloe Tidy Towns for review in July 2022, followed by a meeting to discuss changes and amendments in August 2022. Then in September 2022, the finalised BAP was presented to the wider Cratloe community as part of an open meeting where the thinking behind the BAP and its implementation over the coming years by the community was discussed with the ecologist Fiona and Green Pine landscape architect Brian.

Biodiversity

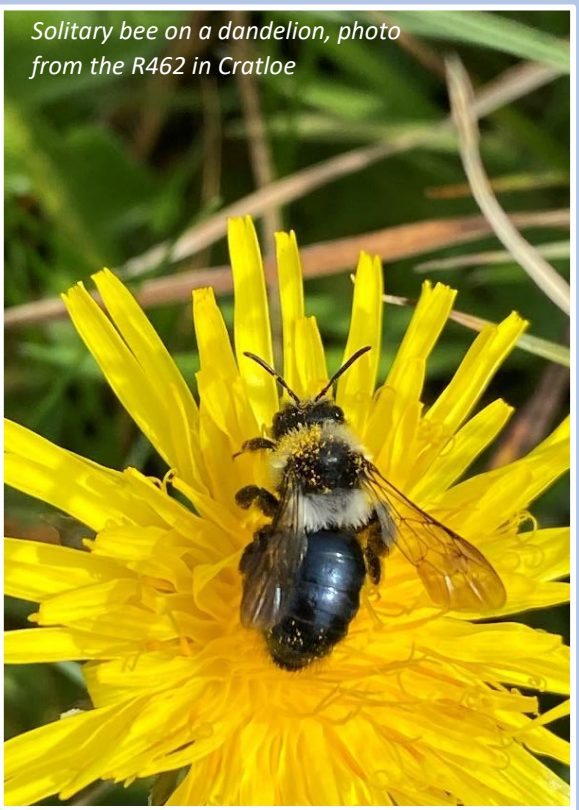
What is Biodiversity?

Biodiversity refers to the variety and variability of all living things including plants, animals, microbes, fungi and people. It also includes the places where plants and animals live (known as habitats), the interactions among living things (the web of life) and their environment (ecology).

Biodiversity is all around us, everywhere and in our everyday life. It forms complex systems that sustain life on Earth. Each part of the system is important no matter how small or trivial it may seem to us. Think of it as a puzzle; having a biodiverse system allows us to see the full puzzle but when we start to remove different pieces, or species, the picture loses important parts.

We rely completely on biodiversity to provide us with the basic elements we need such as clean air and water, food, fuel, building products and medicines. We also rely on it for the many free 'services' such as nutrient recycling, pollination and water filtration etc. It is therefore vital that we make space for nature in our towns, villages and countryside for us to continue living full and healthy lives.

"Biodiversity underpins the functioning of the ecosystems on which we depend for food and fresh water, health and recreation, and protection from natural disasters. Its loss also affects us culturally and spiritually. This may be more difficult to quantify, but is nonetheless integral to our wellbeing" *- Ban Ki-moon, Secretary General of the United Nations*



Solitary bee on a dandelion, photo from the R462 in Cratloe

Cuckooflower, photo from the R462 in Cratloe

Why Protect Biodiversity?

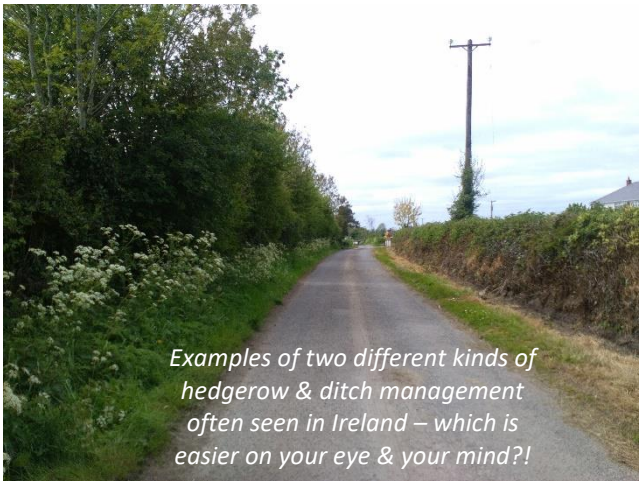
A Biodiversity Crisis was declared by the Dáil in 2019. On the 29th May 2019, during a Dáil Eireann debate, the Minister for Culture, Heritage & the Gaeltacht Deputy Josepha Madigan made an address which included the following excerpts (the full address is available here):

https://www.oireachtas.ie/en/debates/debate/dail/2019-05-29/35/)

''We are losing biodiversity around the globe at a rate unprecedented in human history. The number of plants, insects, mammals, and birds that are threatened or endangered grows every year, while the land, ocean and atmosphere are being altered to an unparalleled degree. A few weeks ago, the United Nations' platform on biodiversity and ecosystem services published its global assessment report and advised that unless action is taken to reduce the intensity of drivers of biodiversity loss, there will be a further acceleration in the global rate of species' extinction, which is already at least tens or hundreds of times higher than it has averaged in the past 10 million years. It is not just over there in the Amazon basin or Borneo. Although we cut down our forests centuries ago, biodiversity in Ireland still demonstrates worrying and ongoing declines…. My Department reports every six years to the EU on the status of habitats and species protected by the EU habitats directive. We recently submitted the draft report for the past six years and it shows that Irish habitats, especially the peatlands, grasslands, and some of the marine habitats, remain under enormous pressure…. I have also seen reports that insects are declining on a massive scale throughout Europe. Insects are the most abundant terrestrial organisms on the planet and of paramount importance to the ecosystem services that sustain life on earth. These are services such as pollination, natural pest control, nutrient recycling, and decomposition services. Of course, insects are also the main food for many fish, birds, and mammals. The occurrence and spread of invasive and non-native species in Ireland are also increasing for all environments. All of this makes for very sobering and worrying reading. To stop this decline, we will need to increase our efforts significantly at all levels of society.''

Why is Biodiversity in trouble?

The four major threats to Biodiversity today are: Habitat destruction; Invasive species; Over-exploitation and Climate change. One may feel powerless at this depressing list and yes, most of biodiversity loss will have to be addressed at a statutory level but the main thing to realise and understand is that these problems are occurring on our own doorsteps and therefore we can do something to make a positive change! Habitat destruction refers to rainforests being cleared in Brazil and Borneo but it also refers to hedgerows being cut back too hard, herbicide being sprayed along ditches and verges and wildflowers in our lawns being unable to flower due to over-mowing!



Examples of two different kinds of hedgerow & ditch management often seen in Ireland – which is easier on your eye & your mind?!

So, What Can Cratloe Do?

This Biodiversity Action Plan was commissioned by Cratloe TidyTowns in order for them to have a professionally guided tool with which to tackle the Biodiversity Crisis on their own doorstep. This BAP is also intended as a document to help inform all who are interested so that they can help on their own patches – private gardens, sports grounds, farms etc. There is no need to feel helpless in the face of this crisis – we can all do something to help!

Section 2 overleaf of this Community Biodiversity Action Plan will point out the biodiversity highlights of the greater Cratloe area.

Section 3 will explain various actions possible in and around Cratloe.

Section 4 will lists the biodiversity objectives for Cratloe TidyTowns and the actions that will achieve them.

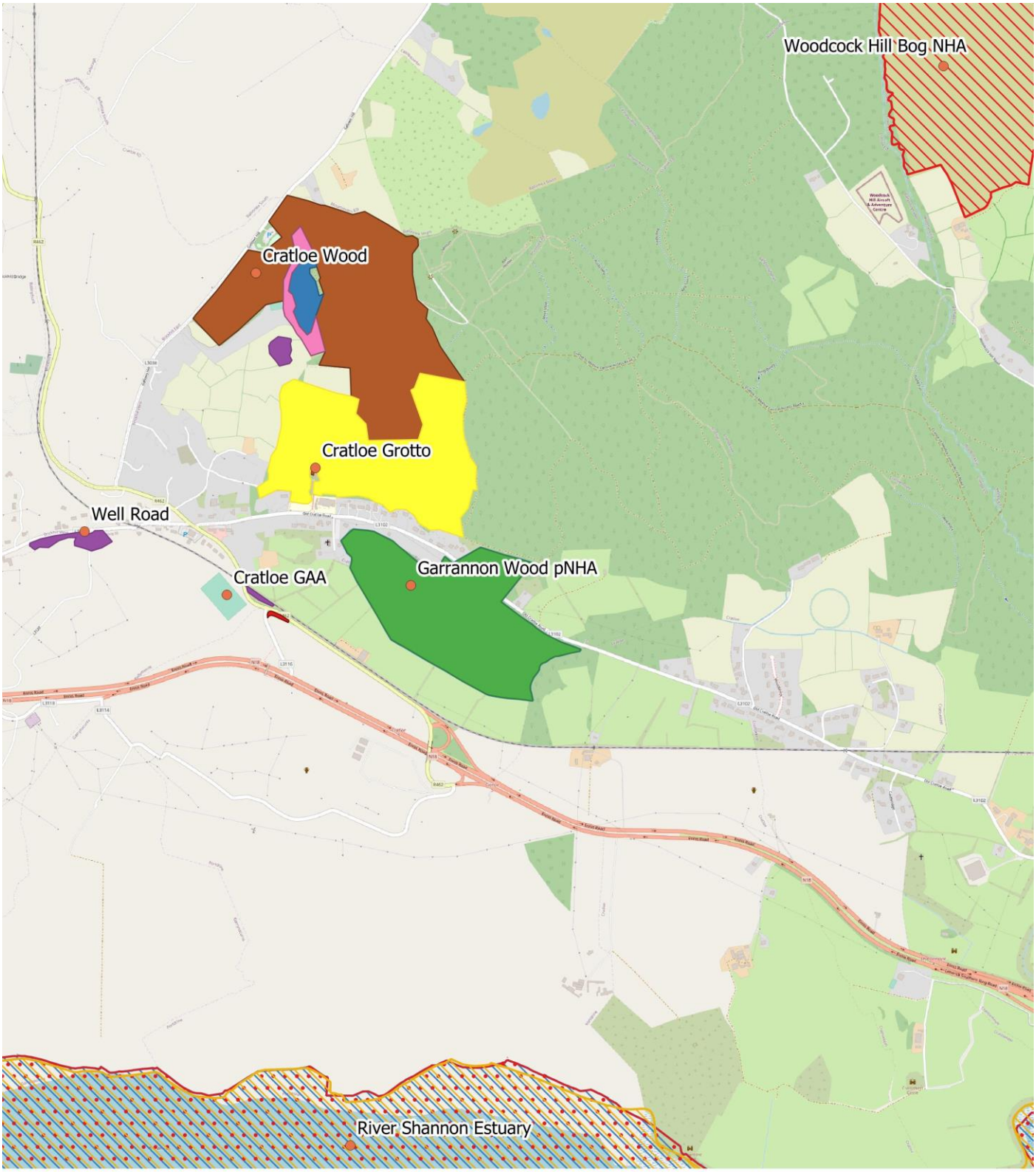
Finally, **Section 5** and the **Appendices** feature the resources that will help guide the community efforts that will be needed to ensure the protection and enhancement of biodiversity locally in Cratloe.

Section 2: Biodiversity in Our Area

Cratloe is nestled within a landscape rich in biodiversity with the Shannon Estuary 2km to the south and the north and east of the village surrounded by ancient woodland, forestry, and peatland. These are key sites of natural heritage interest both nationally and regionally that attract a wide range of biodiversity to the area.

Within the village, there are also several community sites that are currently providing good habitat for local biodiversity. These smaller community sites often play an outsized role in conservation, acting as ecological links between the larger designated sites and raising awareness among the local community about biodiversity and the need to protect it. Some of these sites include the grotto, some of the roadside verges, and the school grounds.

Other sites in the community, with some simple management changes and enhancement measures, could further strengthen the village as a place that is good for nature.



Legend

- Sites of Interest_Cratloe
- Conifer Plantation (WD4)
- Lake
- Oak-Ash-Hazel Woodland (WN2)
- Wet Willow Woodland (WN6)
- Dry Heath (HH2)
- Mixed Broadleaved Woodland (WD1)
- Scrub (WS1)
- Wet Grassland (GS4)
- SPA_ITM_2017_06
- SAC_ITM_2018_01
- pNHA_ITM_2015_11
- NHA_ITM_2015_11

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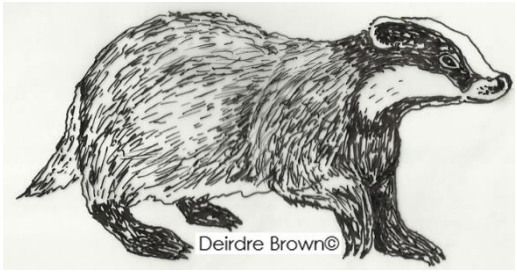
Main Biodiversity Sites

There are numerous places of important biodiversity value in Cratloe and the surrounding environs. The following are some of the main ones.

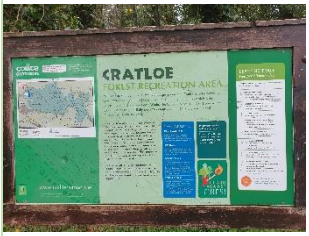
Site of Biodiversity Interest

Garrannon Wood pNHA (001012): This small wood is the only part of the former greater Cratloe Woods that is a proposed Natural Heritage Area protected under the Wildlife Act. It is an example of oak-ash-hazel woodland habitat growing here in Cratloe on a rocky, limestone outcrop. Oak and ash are the predominant big trees with hazel, holly and downy birch the main understorey trees. Great Wood-rush, honeysuckle, wood-sorrel, wood-sedge and herb benet all occur in the ground flora along with several fern species such as hard fern, broad-buckler and hay-scented buckler ferns. Fox, badger and pine marten are known from the wood too.



River Shannon Estuary: The estuary of the River Shannon, the longest river in Ireland and Britain is of such biodiversity value that it is designated as both a Special Area of Conservation (Lower River Shannon SAC 002165) and a Special Protection Area (River Shannon and River Fergus Estuaries SPA 004477). The SAC is protected under the European Habitats Directive for the presence of several important habitats and species such as: mudflats; sandbanks; saltmarshes; alluvial forests; otter; salmon & common bottlenose dolphin.

Woodcock Hill Bog NHA (002402): This Natural Heritage Area is located 2.5km to the north-east of Cratloe village. The slopes of Woodcock Hill are covered with a thin layer of peat, covered with two very important habitats: upland blanket bog and wet heath. These habitats are of international importance due to their scarcity and Ireland features some of the best examples but these wetlands are vulnerable to many pressures including trampling damage by hillwalkers, overgrazing by too high numbers of domestic animals and afforestation.



Cratloe Wood: Cratloe village is beautifully set within a large hinterland of woodland. It is a mix of the remnants of ancient oak woodland and more recent coniferous plantations which also features a small lake. Most of it is owned by the State under Coillte management and therefore is open to the public with many paths for long woodland walks. This offers a great opportunity for locals and visitors alike to get up close to nature with many different species and habitats to get to know better!

Cratloe Grotto: The grotto at Cratloe was carved out of the woodland by the local community 90 years ago in 1932. The grotto makes use of the natural limestone rocky outcrops to give a backdrop for the religious scene. The area is frequented by many as a place for quiet prayer and contemplation surrounded by nature. The rocky outcrops here feature some nice heath habitat species with ling heather, tormentil, milkwort, St John's wort, brambles and gorse/furze but the invasive alien species montbretia is colonising here and is the subject of control measures by the local community. This is also a great area to listen to birdsong with chiffchaffs, wrens, blackcaps, long-tailed tits and willow warblers commonly heard here in summer.

Recent Progress

Representatives from Cratloe Community Council who are involved with the Sustainable Cratloe Group, The Tidy Towns Group and the Community Woodland Group attended a biodiversity enhancement training programme hosted by Clare Local Development Company in 2019. On foot of this training, a lot of work has already been carried out in recent years to enhance the village's biodiversity, spearheaded by the local community. The following are just some examples:

A native hedge was planted along the roadside boundary of the R462 between Cratloe Cross and Aisling Court.

A large area of roadside verge on the R462 approaching the village before the railway bridge is being managed as a wildflower meadow. This is a lovely example of a damp grassland meadow including a fine display of cuckooflower in early summer.

A pollinator friendly flowerbed and strip of wildflower meadow was created at the entrance to the car park beside St John's Church.

A tree nursery bed was created on the grounds of the community hall in October 2021.

A Citizen Science audit of local red squirrel population was carried out in 2021-22 with records submitted to the National Biodiversity Data Centre. The photo was taken near the playground. Other records of deer, pine marten, foxes and badger were also recorded during the audit.

A community Montbretia control event was carried out in summer 2022 at the Grotto to start the process of removing this plant from the area to allow native wildflowers to thrive.

Section 3: Types of Biodiversity Proposals for Community Spaces

There are a range of ideas to enhance biodiversity that are suitable for community spaces. These include both habitat creation and management, and the installation of manmade features to enhance our enjoyment and understanding of nature.

3.1 Pollinator Friendly Planting Beds and Containers

Pollinator friendly plants are great for use in flowerbeds, containers and hanging baskets. Not only are they better for wildlife than some of the traditional annual bedding plants, they also can look more attractive, provide year-round interest, and eliminates the need to re-plant regularly. A list of pollinator friendly plants for different situations and seasons can be found in Appendix 1 and the All-Ireland Pollinator Plan Planting Code: https://pollinators.ie/resources/

3.2 Wildflower Meadows

Wildflower meadows are a great way to make community grasslands better places for people and nature. There are three main types of meadow that community groups could consider:

Bulb Meadow

This meadow is managed for pollinator friendly spring bulbs such as Snowdrops, Crocuses, and Hyacinths. It is great for adding a splash of colour early in the season, announcing the arrival of spring! The delay in the first cut also allows other wildflowers such as dandelions to flower, vital for emerging pollinators.

Cutting: the first cut of the season should be timed to allow the bulbs to flower and the leaves to die back.

Shortcut Wildflower Meadow

This is a low meadow that is great for small areas or where the taller hay meadows are not suitable. It can be full of nectar rich wildflowers such as clovers, bird's-foot trefoil, dandelions, selfheal, and more.

Cutting: cut and lift every 6 weeks starting in mid-April and finishing in mid to late October.

Hay Meadow

This meadow replicates the old agricultural hay meadow, once common across Ireland but now mostly gone. The grasses & wildflowers support a range of wildlife. Over the winter the vegetation is short.

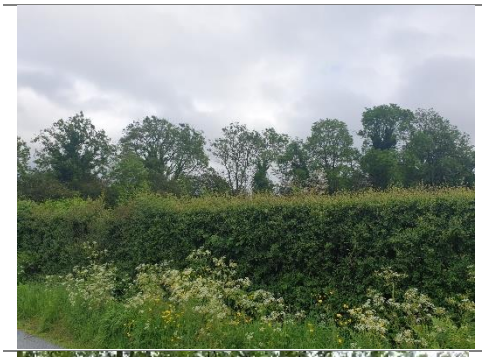
Cutting: this meadow requires a cut and lift at the end of the summer (Aug-Sept depending on species present) after most of the wildflowers have set seed. Additional cut and lifts may be required in the autumn or early spring to remove autumn / winter growth.

Meadow Creation & Maintenance:

- Planning: A meadow is a managed habitat and maintenance should be carefully planned in advance. Some things to consider: 1) how are you going to cut the meadow?; 2) how are you going to take the cuttings off the meadow?; and 3) what are you going to do with the cuttings?
- Creation: For existing grasslands, simply allow the grass to grow and maintain it as a meadow. There is likely to be a good mix of wildflowers naturally in the grass sward. There is no requirement to purchase wildflower seed to add into the grassland. However, the seed of Yellow Rattle (*Rhinanthus minor*) may be added to proposed hay meadows if it is not present and soil conditions suit. Seed should be sourced from the local area.
- Cutting Requirements: see table above
- Maintain the fringes on a regular basis along footpaths, seating areas, roads, and car parks. If the meadow is big enough mow paths through it to allow access and natural play.
- Noxious weeds: it is the responsibility of the landowner to control listed noxious weeds as per the Noxious Weeds Act 1936. Currently the species listed are Ragwort, Thistle, Dock, Common Barberry, Male Wild Hop Plant, and Wild Oat.

3.3 Tree Cover

Trees deliver a wide range of environmental, social and economic benefits for us. Where possible we should aim to increase tree cover in our communities. The following table outlines some of the common types of urban tree cover. See Appendix 2 for planting design and maintenance guidelines.



Hedgerows

Hedgerows can act as great wildlife corridors, connecting sites and linking them with their surrounding landscape. Mixed native hedgerows are the best for biodiversity and should be the number one choice for any new hedgerow.

Avoid using Cherry Laurel for any new hedges as they are highly invasive. To increase the biodiversity potential the base of the hedgerows can be left to grow long.

Small Groups & Clusters of Trees

Smaller groups of trees, typically consisting of anything from 5 to 50 trees in one block, are ideal for smaller green spaces and parks. They are also useful in breaking up larger green spaces while maintaining mostly open space. By planting trees in blocks rather than singularly, it offers the opportunity to eliminate grass cutting directly underneath the trees. This reduces the potential damage from lawnmowers and strimmers and creates great bumblebee habitat.

Woodlands (Small to Large)

A woodland can be thought of as an area of land with trees as the dominant vegetation type. In community settings they can vary from small pockets to larger areas of woodland. They are great habitats for a range of wildlife and offer opportunities for recreation and amenity, whilst reducing grass maintenance. The photo shows a newly planted woodland in a residential estate. Notice how the grass underneath is left uncut which creates additional habitat, reduces grass maintenance and avoids the potential for accidental damage to the trees from lawnmowers.

Scattered or Individual Trees

This category refers to trees scattered individually in an open landscape setting such as amenity grass. These are typical of old parks or parkland, which may include a mix of non-native tree species. In new parks and residential green spaces, lots of scattered individual trees can act as obstacles to grass cutting operations so it can often be better to plant small groups of trees instead. Where individual trees are planted care must be taken when cutting grass around the base of the trees to avoid accidental damage that may cause the trees to fail.

Treelines

A tree line is a single row of trees planted at close centres. They are typically planted to reduce wind speeds and provide shelter.

Shelterbelts

A shelterbelt is a linear strip of trees, anything from 2-20m width, that is designed principally to reduce wind speed and provide sheltered areas. They are also great for screening and act as important wildlife corridors. As for the woodland above, the grass underneath is left uncut creating additional habitat.

Avenue of Trees

An avenue of trees is a formal tree planting style that involves the planting of two rows of trees at regular intervals. It is traditionally used along roads or paths to emphasise the coming to or arrival at a landscape or architectural feature. Many new developments will have an avenue of street trees planted along the internal roads for aesthetic and architectural reasons.

Orchards & Food Forests

These woodland types are great for community spaces as they not only provide benefits for biodiversity, they also provide us with fruits.

Support for New Tree Planting Projects:

The charity project 'Trees on the Land' supports new native woodland and hedgerow projects for community groups, schools, sports groups, farmers, and other landowners. They also offer advice on the creation and establishment of trees: https://www.treesontheland.com/

3.4 Green Walls

Green walls are great ways to add biodiversity value and visual interest to concrete block walls that can otherwise be dull landscape features. The simplest and most suitable green wall uses climbers trained along the face of the wall. It is important to select climbers that have biodiversity value and are not invasive. A good example is *Pyracantha,* whereas the often-used *Cotoneaster* is invasive in places and therefore should be avoided. There are two native species worth considering: Ivy (*Hedera helix*) and Honeysuckle (*Lonicera periclymenum*).

In a formal garden or park situation, the garden plant Firethorn (*Pyracantha*) is a great choice with pollinator-friendly flowers and autumn berries that feed the birds.

Maintenance: As the climbers reach the height of the wall / feature they may start to get top heavy. A good short back and sides each year will keep the shape. Weeding around the base of the climbers should also be allowed for each season if there is a need to maintain a neat appearance. Otherwise, the weeds will provide additional biodiversity value.

3.5 Bioswales & Rain Gardens

Vegetated bioswales and rain gardens are natural features used primarily to manage rainwater runoff from hard standing areas such as roads, car parks, and buildings. They are designed to take in rainwater which will then percolate slowly into the ground or be taken up by the plants. They are not permanent waterbodies. They also create great wildlife habitat and are visually attractive.

3.6 Ponds & Wetland Features

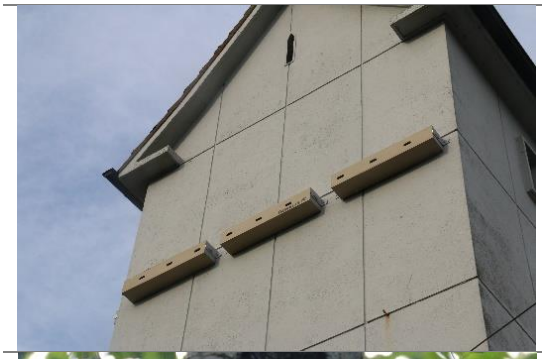
Wildlife ponds and other wetland features are one of the best ways to add biodiversity value to a site. Careful design and construction are essential to ensure they are successful and deliver maximum value for the community.

3.7 Habitat Boxes & 'Untidy Corners'

Some species can benefit from additional assistance for nesting, hibernating or resting spaces. These can be in the form of habitat boxes designed specifically for this species or by leaving areas largely unmanaged or 'untidy'. Some to consider include:

Bee Boxes

There are many types of bee boxes that can be made or bought now. It is now advised to move away from the large Bee/Bug hotels as disease can spread rapidly where there are big numbers of insects. So small is beautiful! They can be homemade with advice from websites such as the pdf below or this photo shows a specially made Solitary bee observation box which can be a great educational tool in the right setting.
https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Nesting-2018-WEB.pdf



Swift Boxes

The Swift (*Apus apus*) is an extraordinary migrant bird species. It overwinters in Africa before coming back to Ireland in late spring / early summer. It has suffered declines for several reasons, one of which is a lack of nesting sites. We can help by providing nest boxes on suitable buildings. For further information please see BirdWatch Ireland's guide:
https://birdwatchireland.ie/publications/saving-swifts-guide/

Other Bird Boxes

There are a range of other bird boxes for garden birds and raptors. Each is designed to cater for specific requirements of the targeted bird species e.g. Barn owls or Kestrels. BirdWatch Ireland have detailed guidelines:
https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/

Untidy Corners

Quite often the best thing we can do for biodiversity is to stop 'tidying up' all our green spaces. Allowing corners to be left go wild with nettles, briars, ivy, and other native plants creates ideal habitat for a host of insects, birds, and mammals. For example, the common nettle is the larval foodplant for 5 native butterfly species!

3.8 Natural Play

Natural play uses natural features to create play opportunities. It can be as simple as meandering paths in wildflower meadows, mounds that kids can run over, boulders or trees for climbing, etc. Where budget allows, other play features can be built-in such as balance beams, tunnels, slides, etc. Natural play creates more stimulating play for children, is usually cheaper to install and maintain, it looks better, and it creates habitat for wildlife.

3.9 Interpretation Signage

Interpreting the different types of biodiversity and the actions being taken are important for raising awareness among the community. It can include running events, social media posts, and the use of signage. The following are some ideas for signage that can be used:

All Ireland Pollinator Plan Signs

These commonly used signs are a great for highlighting areas that are being managed for wildlife. Free copies of the signs are available at: https://pollinators.ie/resources/

Information Post

A more permanent and cost-effective way to introduce interpretation is to use a 6x6" square post with small signs (6x10" x 3mm Aluclad material).

Interpretation Panels

For large sites or special areas of interest then it may be worth considering the use of interpretation signs / panels. These are great for showcasing more in-depth information or maps.

3.10 Murals

Murals are a great way of brightening up an unattractive wall and raising awareness of biodiversity (or other aspects of local heritage!).

3.11 Sculptures

In higher profile areas it may be worth considering installing an art feature / sculpture to raise awareness of biodiversity and enhance a space visually. These can range from small to large and from relatively low to high budgets.

Section 4: A Call to Action

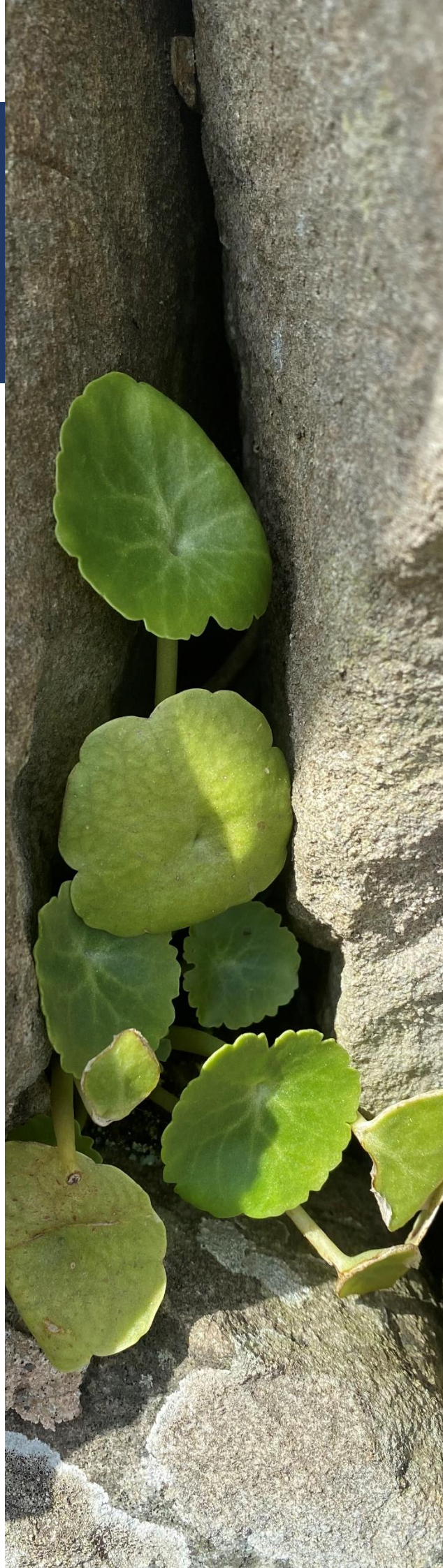
This is a shared plan of action for the community to build on the recent progress made to improve areas for biodiversity and to start developing other opportunities to maximise the community's full biodiversity potential. In doing so this will hopefully engage new people in managing their local green space or garden with biodiversity in mind. The plan has four main objectives, each with several targets and actions:

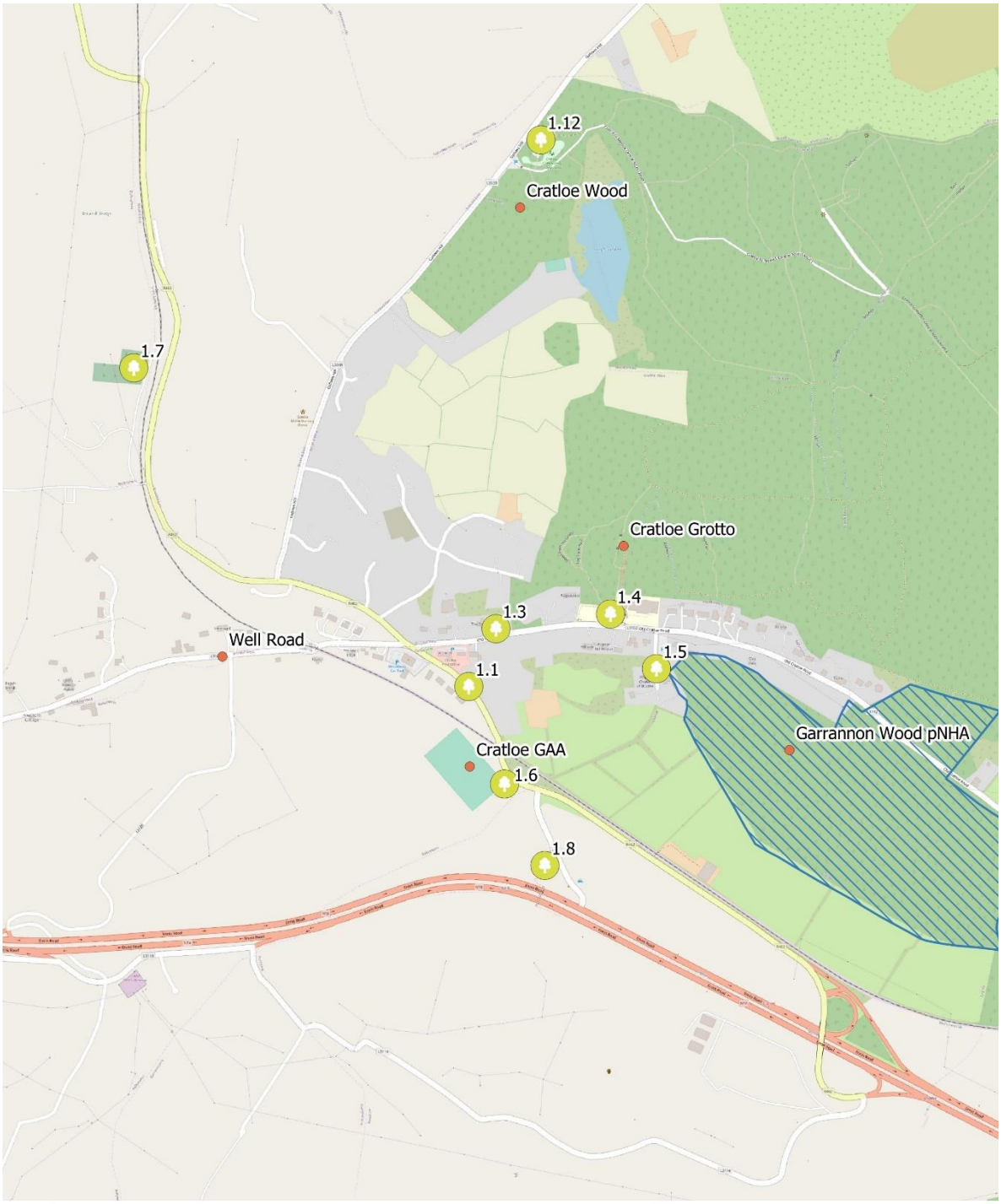
1. **Objective 1:** Making Cratloe biodiversity friendly.
2. **Objective 2:** Controlling invasive alien species.
3. **Objective 3:** Raising awareness of local biodiversity & how to protect it.
4. **Objective 4:** Collecting evidence to track change & measure success.

Objective 1: Making Cratloe biodiversity friendly

This objective aims to deliver real practical benefits on the ground for biodiversity. Twelve actions, some with sub-actions, have been identified. These are spread across a range of public and private spaces, to make Cratloe more biodiversity friendly.

Action 1.1	Make the R462 a 'Bee Highway' for Cratloe
Action 1.2	Make the secondary approach roads biodiversity friendly
Action 1.3	Maximise the biodiversity potential of the grounds of the Community Hall
Action 1.4	Maximise the biodiversity potential of the National School & Grotto
Action 1.5	Maximise the biodiversity potential of St John's Church & Car Park
Action 1.6	Maximise the biodiversity potential of Cratloe GAA Club
Action 1.7	Maximise the biodiversity potential of Craughan Cemetery
Action 1.8	Convert the gravel verge to the overpass (Setright's Tavern Car Park) to a hedge
Action 1.9	Support homeowners with actions to make their gardens more biodiversity friendly
Action 1.10	Support local businesses with actions they can carry out for biodiversity
Action 1.11	Support the local farming community with actions they can take to strengthen their farm green infrastructure
Action 1.12	Maximise the biodiversity potential of Cratloe Wood Playground & Car Park





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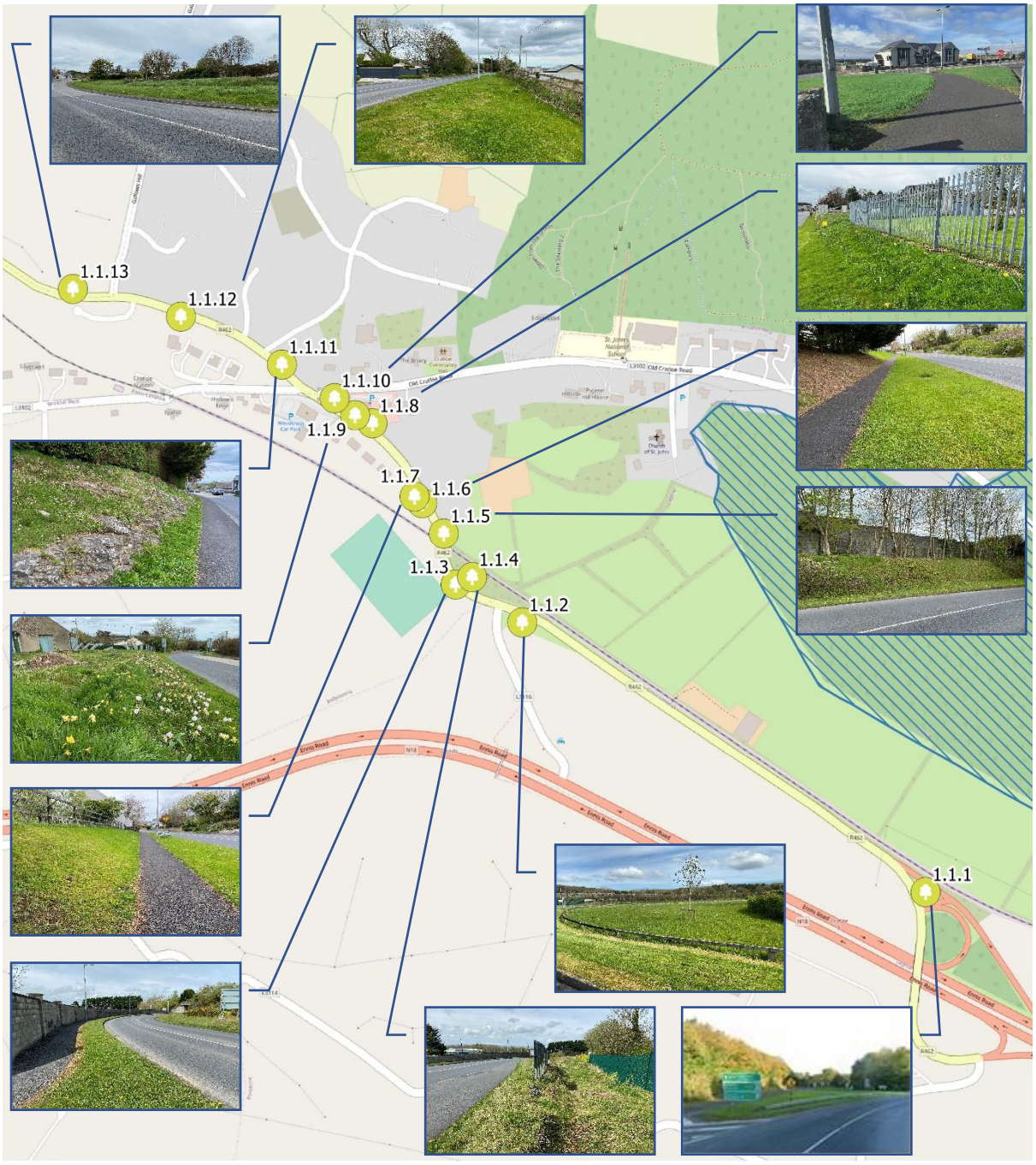
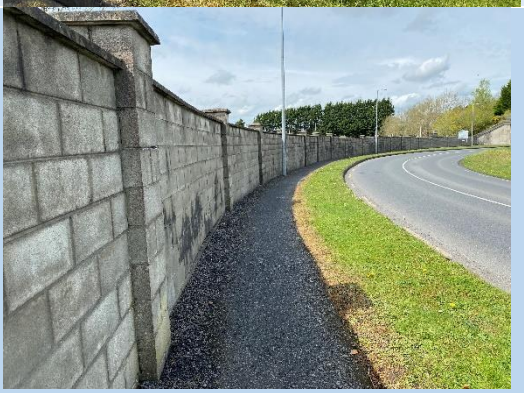
Legend

- Sites of Interest_Cratloe
- Objective 1: Making Cratloe biodiversity friendly
- Designated Site - pNHA

Action 1.1: Make the R462 a 'Bee Highway' for Cratloe

Action Summary: Explore the opportunity to maximise the R462 through Cratloe for biodiversity and visual amenity. It could be promoted as a 'Bee or Pollinator Highway'. This will include actions such as managing grass verges as short cut or hay meadow, planting trees and hedging, controlling invasive plants, and more. See below for full details.



Action No.	Description	
1.1.1	Explore the opportunity to manage the grass island at the N18 Junction 5 as a wildflower meadow, either shortcut meadow or hay meadow. See Section 3.2 for details on the different meadow management requirements.	
1.1.2	Continue to manage the wide grass verge at the junction with the L3116 as a wildflower hay meadow. Consider augmenting the meadow with Yellow Rattle seed harvested locally. This should be added after the meadow is cut in late summer. This area forms part of the Cratloe Gateway Plan (see Appendix 3).	
1.1.3	Explore the opportunity to manage the grass verge between the L3116 junction and the railway bridge as a shortcut wildflower meadow. The boundary wall should be painted a light green with selected panels painted with a mural depicting local heritage (including biodiversity and natural heritage). This area forms part of the Cratloe Gateway Plan (see Appendix 3). See Section 3.10 for examples of murals.	
1.1.4	This gateway point to Cratloe should be developed to maximise its visual impact, as well as a space that delivers other benefits for water management and biodiversity. The concept landscape plan for this area includes a large pollinator friendly flowerbed with sculptural feature, shortcut wildflower meadow, native tree planting, and a bioswale. This area forms part of the Cratloe Gateway Plan (see Appendix 3).	

1.1.5	Explore the opportunity to manage the steep grass bank beside the railway bridge as a wildflower meadow. This bank could also be planted with pollinator friendly spring bulbs such as Crocuses, Snowdrops, and Grape Hyacinth. Other early spring bulbs such as Daffodils could also be used for show. See Section 3.2 for details on the different meadow management requirements.	
1.1.6	Explore the opportunity to manage the grass verge between the railway bridge and Woodcross Bar as a short wildflower meadow. This area already features several wildflower species that will add great colour if allowed to flower. See Section 3.2 for details on the different meadow management requirements.	
1.1.7	Explore the opportunity to plant a native hedge on the grass bank in front of the timber post and rail fence. See Appendix 2 for planting design and maintenance details.	
1.1.8	Explore the opportunity to plant a native hedge on the grass bank in front of the palisade fence and connecting over to the remnant concrete block pillars / wall. See Appendix 2 for planting design and maintenance details.	

1.1.9	Manage the grass verge on the bank as a spring bulb meadow followed by a shortcut wildflower meadow during the summer months. Move the Allium bulbs to selected pollinator friendly flowerbeds. See Section 3.2 for details on the different meadow management requirements. An alternative treatment for this space is to plant some low growing groundcover shrubs. A planting list and specifications are provided in Appendix 4.	
1.1.10	Explore the opportunity to manage the grass island as a shortcut wildflower meadow. This could be augmented by planting pollinator friendly spring bulbs e.g. Crocuses, Snowdrops, and Grape Hyacinth. See Section 3.2 for details on the meadow management requirements.	
1.1.11	Manage the rocky grass verge / bank as a wildflower meadow. See Section 3.2 for details on the different meadow management requirements.	
1.1.12	Manage the grass verge, starting opposite the junction of L7118 and finishing near the entrance to Aisling Court, as a wildflower meadow. See Section 3.2 for details on the different meadow management requirements.	

1.1.13	Explore the opportunity to plant a native hedge along the boundary of the wide grass verge in front of the concrete post and rail fence. See Appendix 2 for planting design and maintenance details. Manage the grass verge to the front as a wildflower meadow. See Section 3.2 for details on the different meadow management requirements.	
1.1.14	Implement control measures for invasive species along the roadside (see Objective 2).	
1.1.15	Aim to eliminate or minimise the use of herbicide along the roadside verges.	

Info Box: Bee Highways / Green Corridors

Sorry for the pun but 'Bee highways' are a great current 'buzz' phrase. In truth, green corridor is a better phrase as we are talking about many more species than just bees benefiting from such corridors in our landscape. A green corridor is a linear area of natural habitat, be it a hedgerow or a stream/river that connects other areas of natural habitats. They are crucially important in our increasingly urbanised landscape as refuges for wildlife to feed and take shelter as they move across the land. Tarmac roads, concreted spaces, tightly mown lawns and intensively managed pastures all act as blocks to wildlife – they are deserts essentially with little to no sources of food or water or crucially protection from predators. Studying aerial photographs of your locality (freely available at Ordnance Survey Ireland's GeoHive Map Viewer) allows you to see what are the natural corridors in your local environment and are there breaks or chinks that can be addressed simply by allowing an area of natural meadow to grow or planting some trees or a length of native hedgerow?

Action 1.2: Make the secondary approach roads biodiversity friendly

Action Summary: Explore the opportunity to manage the secondary approach roads to Cratloe as biodiversity corridors. This will include infilling gaps in hedgerows using native species and managing suitable grass verges as wildflower meadow strips.

The verges on Well Road leading to the railway station and Wood Road are a good example of suitable roadside verges that could be managed as a linear meadow strips. These are already rich in native wildflowers and just need to be managed correctly to maximise their potential.

See Section 3.2 for details on the different meadow management requirements.

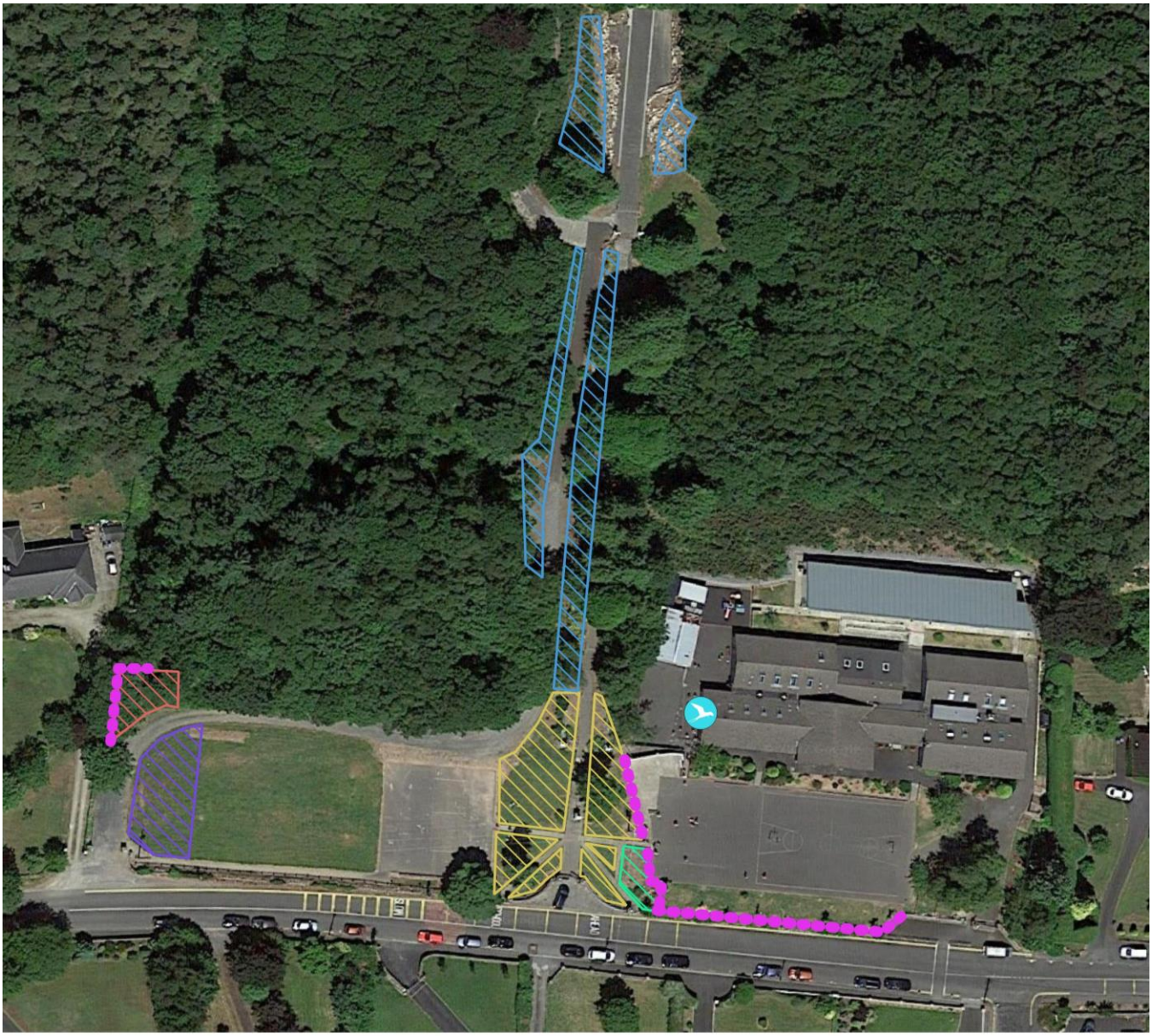
Action 1.3: Maximise the biodiversity potential of the grounds of the Community Hall

Action Summary: Explore the opportunity to make the grounds of Cratloe Community Hall more biodiversity friendly. This will include the following actions:

- Manage the lawn to the front of the grounds as a short cut wildflower meadow. See Section 3.2 for details on the different meadow management requirements.
- Install 2no. triple cavity Swift boxes and a caller system on the western side of the building. Please refer to https://birdwatchireland.ie/publications/saving-swifts-guide/ for more details on Swifts and how community groups / individuals can help conserve them.
- **Create a community orchard** on the front lawn**.** Plant 4-6no. traditional Irish fruit trees to the western side of the front lawn. Protect the base of the trees from lawn mower damage. Manage the grass underneath as short cut wildflower meadow.
- Plant the raised flowerbed in the southwest corner (on the roadside) with a mix of pollinator-friendly perennials. Suitable plant species for this area include (plant at p9 size in spring @ 9-11 plants / m^2):
  Groundcover (60%): *Bergenia* spp., *Alchemilla mollis, Hellebores, Geranium 'Rozanne'*
  Taller Perennials (40%): *Dicentra* spp., *Astrantia major 'Rubra', Achillea millefolium 'Moonshine', Nepeta; Japanese anemones.*

Action 1.4: Maximise the biodiversity potential of the National School & Grotto

Action Summary: Explore the opportunity to make the grounds of Cratloe National School & Cratloe Grotto more biodiversity friendly. This will include exploring the opportunity for the following actions. Please note that the areas shown on the concept landscape plan below are approximate only. A concept landscape plan is included (see Appendix 5).




Legend
Native Hedgerow
Composting Area
GIY Garden
Sensory Garden
Shortcut Wildflower Meadow
Wildflower Meadow
Swift Boxes
0
20
40
60 m

Ref. No.	Description	Photo
1.4.1	Install 2no. triple cavity Swift boxes and a caller on the school building. These should be installed on the western façade of the building. Please refer to https://birdwatchireland.ie/publications/saving-swifts-guide/ for more details on Swifts and how community groups / individuals can help conserve them.	
1.4.2	Plant a native hedgerow along the front boundary to provide screening, shelter and add biodiversity value for the grounds. Short gaps in the hedgerow can be left to retain views to the tree stump sculptures from the roadside. See Appendix 2 for planting design and maintenance details.	
1.4.3	Plant a native hedge to the front of the timber post and rail fence on the western side of the school yard. See Appendix 2 for planting design and maintenance details.	-
1.4.4	Develop this space as a small edible garden with fruit trees and bushes such as raspberries; blackcurrants and also some herbs that the children can use. All herbs have a great sensory aspect to them and all are pollinator-friendly too. Suitable plant species for this area include (plant at p9 pot size in spring @ 9-11 plants / m²): Chives; Rosemary; Thyme; Mint; Fennel; Sage. Also add in six small fruit bushes such as Blackcurrant and Redcurrant. Avoid Gooseberry as they are too thorny for the children. Raspberry canes could be planted along the wooden fence. If wanted a packet of Nasturtium seeds could be sown along the edge of the bed (their seeds can be pickled and eaten like capers).	
1.4.5	Manage the grass space as an orchard with meadow underneath. Fruit trees should be selected from local traditional varieties.	-
1.4.6	Convert the section of ground on the western side of the green to a community sensory garden and outdoor classroom (suggested area is outlined in the photo). This could include seating, paths, pollinator-friendly flowerbeds, trees, hedging, water features, etc. See the concept landscape plan (Appendix 5).	

Ref. No.	Description	Photo
1.4.7	Complete and manage the composting area at the western corner. Plant a native hedge along the perimeter to help screen the area from the neighbouring property (see Appendix 2 for planting design and maintenance details).	
1.4.8	Manage the grass verges on the ramped path up to the Grotto as wildflower meadow. The plants already exist here, they just need the chance to flower. See Section 3.2 for details on the different meadow management requirements. Consider installing a bench along the path at the midway point so people can rest and enjoy the surroundings. One to two number 6x6" square posts with little signs (6x10" 3mm Aluclad signs) installed along the path would provide information about the wildlife along the path and surrounding areas.	
1.4.9	The rocky outcrop areas of the grotto are naturally heath habitat featuring associated heathers and wildflowers. These areas are infested with Montbretia which should be eradicated to allow native wildflowers to flourish. See Objective 2 for the control measures required.	

Action 1.5: Maximise the biodiversity potential of St John's Church & Car Park

Action Summary: Explore the opportunity to enhance the grounds of St John's Church & Car Park for biodiversity by:

- Managing the lawn in the church, or part of it, as a shortcut wildflower meadow. See Section 3.2 for details on how to manage a shortcut meadow.
- Creating a seating feature out of the circular raised bed in the church yard.
- Remove the Cherry Laurel shrubs from the grounds – these pose a threat to the neighbouring native woodlands. See Objective 2 and Appendix 7.
- Landscape the car park verge as per the landscape plan (see Appendix 6).
- Maintain the new pollinator friendly flowerbed at the entrance. Infill any gaps that may occur in the planting area.
- Maintain the wildflower meadow strip created at the entrance (see Section 3.2). Augment with the following grass species which are important food plants for several native butterfly species: Cock's foot grass (*Dactylis glomerata*); Annual meadow-grass (*Poa annua*); Smooth meadow-grass (*Poa pratensis*) and Meadow fescue (*Festuca pratensis*).





St. John's Church


Car Park

Action 1.6: Maximise the biodiversity potential of Cratloe GAA Club

Action Summary: Explore the opportunity to enhance the club grounds for biodiversity. This will include:

- Managing the grass bank on the northern side as a wildflower meadow. See Section 3.2 for details on the different meadow management requirements.
- Installing 2no. triple cavity Swift nest boxes and a caller on the northern façade. Please refer to https://birdwatchireland.ie/publications/saving-swifts-guide/ for more details on Swifts and how community groups / individuals can help conserve them.
- Ensure Cratloe GAA Club has a copy of the guidelines for the pollinator-friendly management of sports clubs available to download at: https://pollinators.ie/sports-clubs/

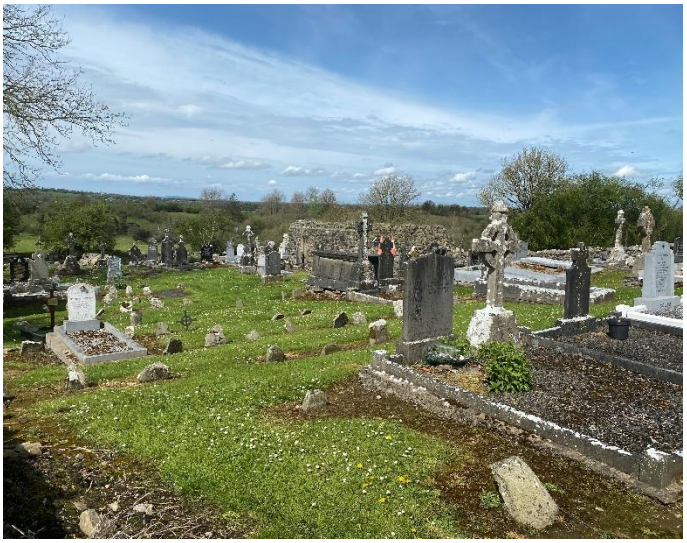
Action 1.7: Maximise the biodiversity potential of Craughan Cemetery

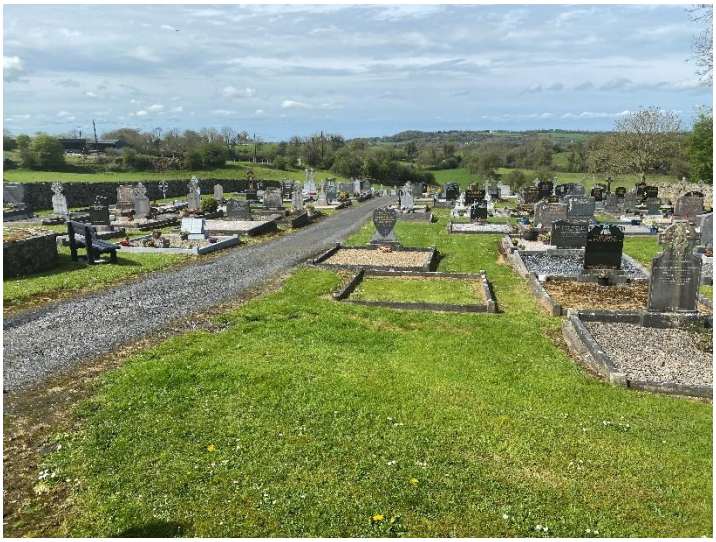
Action Summary: Explore the opportunity to manage selected areas as wildflower meadow, either shortcut or hay meadow. This can include managing parts of the new cemetery not currently containing graves as a temporary meadow until it is brought into use.

See Section 3.2 for details on the different meadow management requirements.

Where space allows then it would be worth considering planting some native trees. The native Yew (*Taxus baccata*) has been traditionally planted in cemeteries across the country and could add additional interest here as well.

Other actions to consider would be eliminating the use of herbicide. This is very damaging to wildlife and to human health. See Action 3.5.





Action 1.8: Convert the gravel verge to the overpass (Setrights Tavern Car Park) to a hedge

Action Summary: Explore the opportunity to plant a native hedgerow along the length of the unused gravel verge. This will create a wildlife corridor and screen the block wall.

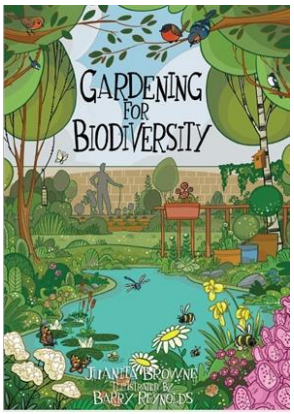
Proposed Planting Mix: 70% Hawthorn (*Crataegus monogyna*), 10% Hazel (*Corylus avellana*), 5% Holly (*Ilex aquifolium*), 5% Spindle (Euonymus europaeus), 5% Blackthorn (*Prunus spinosa*), 5% Guelder-rose (*Viburnum opulus*)

Plant @ 5 plants / m @ 60-90cm height BR.

In advance of the planting, the ground will have to be prepared. A planting trench should be excavated and backfilled with good quality topsoil sourced locally.

Action 1.9: Support homeowners with actions to make their gardens more biodiversity friendly

Action Summary: Support local homeowners with actions to make their gardens more biodiversity friendly. Actions include:



- Run a free garden tree giveaway: this involves offering free suitable native trees to any interested homeowner. This must be carried out during the bare root season, ideally in February. The charity Trees on the Land can support this initiative.
- Organise a workshop on wildlife gardening for the local community (see Action 3.2).
- Share the '*Gardening for Biodiversity*' booklet on local social media pages. This is packed with loads of ideas that homeowners can use to make their garden better for wildlife:

  https://www.clarecoco.ie/services/planning/publications/heritageconservation/gardening-for-biodiversity-37876.pdf

Action 1.10: Support local businesses with actions they can carry out for biodiversity

Action Summary: Support local business owners with actions they can carry out to make their premises more biodiversity friendly. Some ideas that may be suitable include:

- Planting native trees and hedgerows, particularly around site boundaries and verges.
- Managing suitable grass areas, including lawns and grass verges, as meadow - either a shortcut or hay meadow. See Section 3.2 for details on the different meadow management requirements.
- Convert existing or install new pollinator-friendly flowerbeds, containers, and hanging baskets (see Section 3.1) at suitable locations on their premises.
- Explore the possibility of setting up a moss-*Sedum* extensive green roof system at the shop car park to vegetate/green up the stony/concrete areas just below the footpath. This can be constructed by a landscape gardener and use of the GRO Code 2021 is recommended GRO-Code-2021-Anniversary-Edition.pdf (green-roofs.co.uk)

Example of Sedum roof showing autumn colours – throughout the year the roof moves from green to red and yellow colours

- Explore the possibility of planting the linear bed along the wall at the shop's car park with edible plants. Plant P9 pot sizes @ 9-11 plants per m^2. The area involved here is 30m x 1.5m = 45m^2. Note that if larger pot sizes are used then the quantity of plants per m^2 can be reduced. Choose from the following species with taller cover comprising 30% of the total mix: Fennel; Sunflowers; Teasel. Ground cover comprising 70% of total mix: Rosemary; Thyme; Sage; Chives; Marjoram; Mint; Lemon balm; Red cabbage (allow some of these to flower by leaving in the ground until the following year – their yellow flowers are great for pollinators); leeks (again allow some to bolt and flower – excellent for pollinators!)
- Become an official business supporter of the All-Ireland Pollinator Plan: https://pollinators.ie/partners/business-supporters/

Action 1.11: Support the local farming community with actions they can take to strengthen their farm green infrastructure

Action Summary: Explore the opportunity to support the local farming community on measures to maximise environmental and agricultural benefits using a range of farm green infrastructure. This can include supporting them with the creation of new hedgerows and strengthening existing ones for shelter, field drainage, biosecurity, and biodiversity. It could also involve directing them to local farm advisors or to organisations that can support their work such as Teagasc, the Irish Agroforestry Forum, Farming for Nature or Trees on the Land. The Cratloe Parish area, which extends down to the Shannon Estuary is rich in farming heritage. Working with the local farming community to enhance their farm green infrastructure i.e. hedgerows, shelter belts, streams, sward mixes, native tree cover, stone walls, soil biodiversity etc. offers great opportunities to benefit not only the farms but also the wider Cratloe environment.

Hedgerows, shelterbelts, and pockets of woodland can all be used to deliver farming benefits including shelter for livestock, field drainage, biosecurity, soil improvements, timber and firewood, and enhancing farm biodiversity.

Action 1.12: Maximise the biodiversity potential of Cratloe Wood Playground & Car Park

Action Summary: Engage with Coillte about the management of the grass banks and islands in the car parking areas. Actions proposed include:

- Managing the faces of the banks as wildflower rich meadows. The banks would need to be strimmed once a season and the cuttings removed. See Section 3.2 for details on the different meadow management requirements.
- Maintain selected, small areas (<1m^2) of the sunny south facing banks as solitary bee nesting habitat by keeping the vegetation cleared.
- Plant and protect a native Oak tree in the grass island of the main car park (see photo on the bottom right below).

Objective 2: Controlling Invasive Alien Species

This objective aims to identify some of the main invasive alien species recorded in Cratloe and outline measures for control. For the purposes of this plan, only terrestrial plant species recorded in the area have been included.

These were recorded as part of the site survey to produce this BAP, existing records, and from records noted by members of the local community. For further information please see Appendix 7.

Action 2.1	Increase local knowledge and understanding of Invasive Alien Species
Action 2.2	Take practical control measures for Invasive Alien Species
Action 2.3	Raise awareness and take practical steps to mitigate against the potential impacts of Ash Dieback disease

INFO BOX: WHAT ARE INVASIVE ALIEN SPECIES?

Invasive alien species are defined by Invasives.ie as *animals, plants or pathogens that would not naturally occur in Ireland but are here because of human activity. When introduced, they survive and thrive to the point of negatively impacting on our wildlife, on the services nature provides, on our economy, and the way we live.*

- https://invasives.ie/

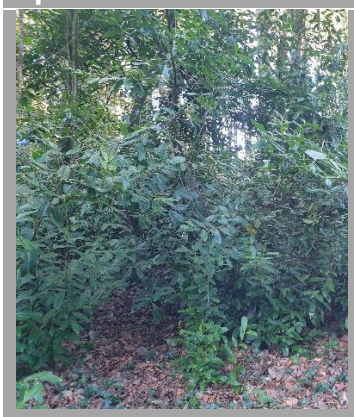
Action 2.1: Increase local knowledge and understanding of Invasive Alien Species

Action Summary: Increase knowledge and understanding of the problems posed by Invasive Alien Species among the local community. This can include:

- Adopting a policy of no invasive species used in new public or community planting schemes. This includes Cherry Laurel which poses a significant threat to local woodlands but is now one of the most commonly planted hedging plants nationally.
- Posting on local social media about Invasive Species and the actions that are being taken locally to control them.
- Encourage homeowners to use alternative species to known invasives e.g. plant a native hedge instead of using Cherry Laurel.
- Make submissions to the local authority that any new developments or planting schemes in the area use native or non-invasive plant species only.
- Encourage people to submit any records of invasive species on public sites to the local authority so they can take appropriate actions.

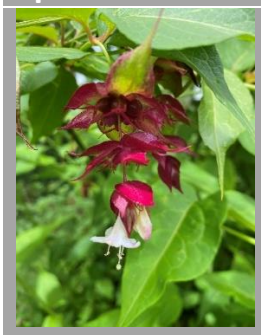
Action 2.2: Take practical control measures for invasive alien species

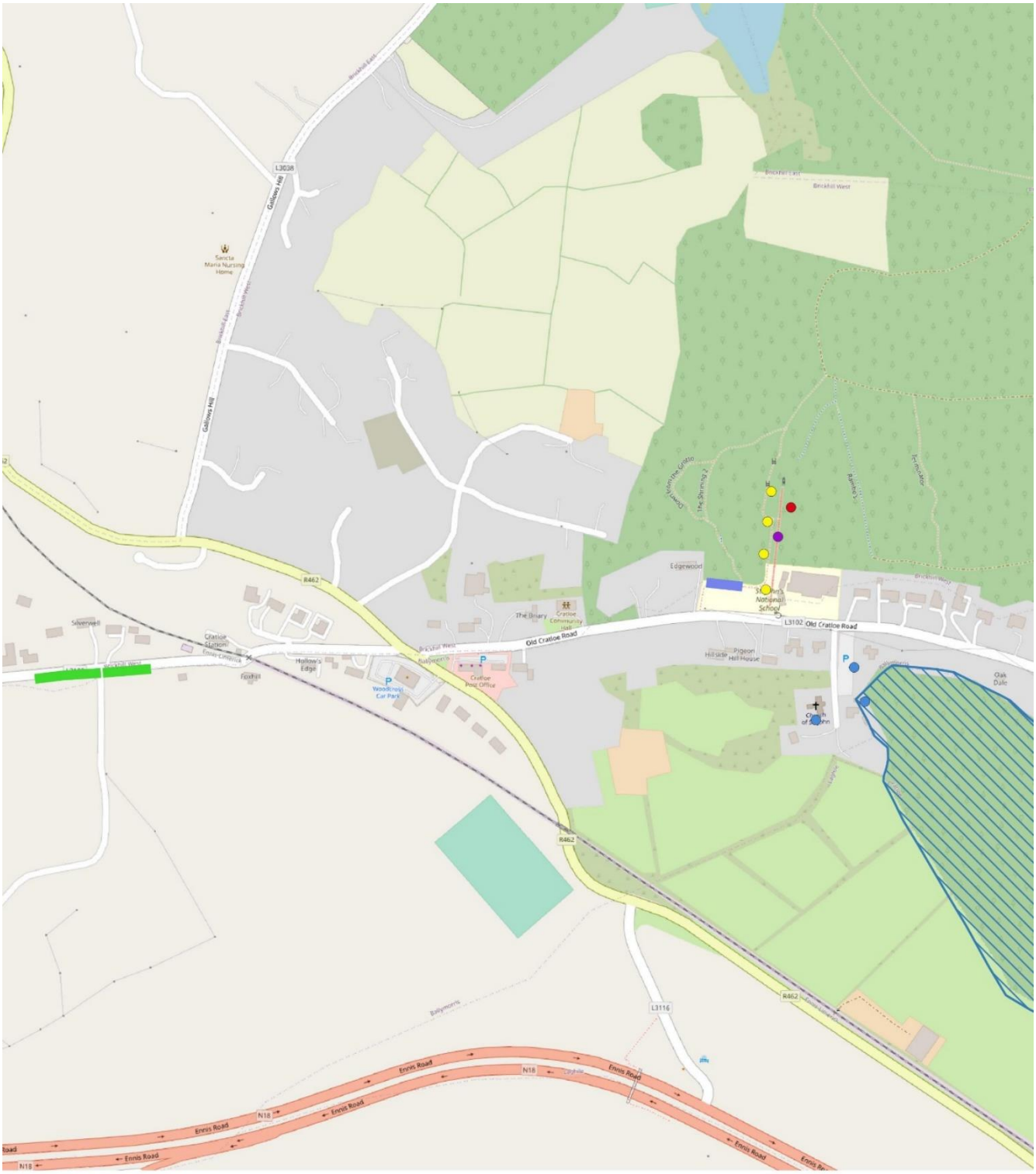
Action Summary: Take appropriate control measures for each invasive alien plant species recorded in Cratloe (see map below of recorded species) for this project as outlined in the following Table. Further detailed control measures for some of the listed plants are outlined in Appendix 7.

Species	Means of Spread	Main Risks	Control
 **Cherry Laurel** *Prunus laurocerasus*	Some spread by berries being eaten by birds but most spread is by layering and suckering. Still widely sold in garden centres / nurseries and used in landscaping schemes. Most popular garden hedging species.	Forms thick impenetrable thickets that cast year-round shade, suppressing natural vegetation. All parts of the plant contain the highly poisonous chemical compound cyanide, therefore wear gloves when dealing with it.	Excessive growth can be tackled by continuous cutting back. It's important to avoid it flowering and setting seed so annual cutting back controls this at least. However, professional herbicide treatment is required to eradicate it completely. With bigger plants, typically growing freely in woodland situations it grows back strongly after being cut and will spread from lateral roots and shoots. Coillte currently has a programme of laurel eradication focussing on their properties of high biodiversity value. For the local Cratloe community, it will be important to create awareness about the problems

Species	Means of Spread	Main Risks	Control
			and discourage its planting in gardens or public areas.
 **Japanese Knotweed** ***Fallopia japonica***	Plant is sterile in Ireland and only spreads through root and stem material, accidentally or deliberately moved by human action, or washed along rivers. As little as 0.6g of root or stem required to regenerate.	Seriously damages houses, buildings, hard surfaces, and infrastructure growing through concrete, tarmac and other hard surfaces, usually where weaknesses already exist. Forms dense thickets, shading out natural vegetation.	Control must only be carried out by professionals. If this plant is seen in the Cratloe area then notify the local authorities. Professional treatment required for several years but costs fall sharply as amount of foliage to be treated reduces.
 **Montbretia** ***Crocosmia x crocosmiiflora***	Spreads vegetatively by its creeping stolons. It has become problematic along verges and hedgerows in the western half of Ireland where it has been dumped or planted.	A popular garden plant in Ireland. It arose form the hybridisation of two South African species by gardeners in the 19th century. It has pretty orange flowers in late summer. It can form dense thickets in wooded areas or at the base of hedges and verges especially in the western half of Ireland where milder winter conditions suit it. Its vigorous growth in these habitats ousts the native flora.	Montbretia is a deciduous plant, making its control a little easier than other invasive non-native species. Small infestations of Montbretia can be controlled by trimming back the leaves to weaken the plant and digging-out entire plants and most importantly their corms (enlarged underground stems). All this material needs to be disposed of carefully – particularly the corms and roots. This means not composting them but sending them to landfill or incineration. It is advised to do this digging and clearing either early (April) or late (October) in their growing season at the grotto in order to minimise disturbance to the heath species which are particularly susceptible to human trampling damage.

Species	Means of Spread	Main Risks	Control
 **Winter Heliotrope** ***Petasites pyrenaicus***	Winter heliotrope is a persistent perennial i.e. it doesn't stop growing. It has an extensive rhizome system so the plant spreads vegetatively. Ireland only has male plants so no seed is produced.	Winter heliotrope forms dense colonies of plants that outcompete native species. The dense growth creates abnormal shade in Irish habitats e.g. woodlands and with its strong growth in late winter & early spring this directly impacts upon native woodland spring flora preventing them from growing and negatively impacting upon the biodiversity value of an area.	The EPA carried out an in-depth study of the control of Winter heliotrope in 2019. The rhizomes, stems & leaves all have the potential to generate new plants, so particular care should be taken to avoid transport of soil or vegetation off site. The EPA guide contains best practice guidelines which point towards the use of Synergon herbicide as having the best results, but it cannot be used near trees. The Cratloe population grows under trees along the Well Road. This just leaves either glyphosate use or physically digging out the plants. However, with this population growing along a stream which eventually feeds into the Ratty river in the Lower River Shannon SAC both these methods have the potential to negatively impact upon the European Conservation site downstream. The best work that can be done here by the local community is to limit the extent of the Winter Heliotrope in the Cratloe area. Even being able to just confine the colony to its current area would be helpful.
 **Rhododendron** ***Rhododendron ponticum***	Produces large quantities of viable seed (3000-7000 per flower head) i.e possibly one million seeds per plant! Readily layers i.e. forms new growth, where branches touch the ground. Still widely sold in garden centres/nurseries and used for game cover and in forestry landscaping.	Forms thick impenetrable stands that casts year-round shade, suppressing natural vegetation, exacerbated by the very acidic nature of leaf litter.	Excessive growth can be tackled by cutting back, but herbicide treatment is required to eradicate, with application over several years required to tackle seed bank in soil. Large plants will need to be dealt with professionally but small saplings can be simply pulled up, crucially before they flower after 4-5 years of growth.

Species	Means of Spread	Main Risks	Control
 **Pheasantberry / Himalayan honeysuckle** ***Leycestria formosa*** 	Deciduous shrub, seeds dispersed by water and by birds and mammals. Still widely sold in garden centres/nurseries and popular as game cover.	Forms thick impenetrable thickets that shades out natural vegetation.	Control of this plant can be carried out by the local community in Cratloe. Individual plants can be dug out in early Spring (i.e. February/March) before seed is set. Leave plants on site to dry and rot down.
Three-cornered leek ***Allium triquetrum*** 	Small herbaceous perennial, spreads vegetatively and by seed. A garden escape and scheduled species.	Outcompetes native plants at the base of hedgerows and along road verges. This is a scheduled invasive species i.e. its presence in the wild should be reported to www.invasives.ie	Control of this plant can be carried out by the local community in Cratloe. Individual plants can be dug out in early Spring (i.e. February/March) before seed is set. Leave plants on site to dry and rot down. The plant has a very distinctive three-angled stem. Both it and the leaves smell strongly of garlic.



0 150 300 450 m

Legend

- Pheasantberry (Leycesteria formosa)
- Winter Heliotrope (Petasites fragrans)
- Cherry Laurel (Prunus laurocerasus)
- Monbretia (Crocosmia x crocosmiiflora)
- Pheasantberry (Leycesteria formosa)
- Rhododendron (Rhododendron ponticum)
- pNHA_ITM_2015_11

Action 2.3: Raise awareness and take practical steps to mitigate against the potential impacts of Ash Dieback disease

Action Summary: Raise awareness of Ash Dieback disease within the community, including how to identify it and the potential implications for the local landscape and biodiversity. Particular attention should be given to engaging with the local farming community around the village.

Practical measures can also be taken including:

- Building resilience into our landscape by increasing the diversity of native tree species in our hedgerows. Encouraging farmers to plant new trees in their hedgerows to complement existing Ash trees will future proof these important features in our landscape.
- Removing leaves from around the base of existing Ash trees of importance in the local community. This will help reduce the disease load on that particular tree.

More detailed information on the disease is provided in Appendix 8.

Objective 3: Raising Awareness of Local Biodiversity & How to Protect It

This objective aims to raise awareness of local biodiversity and how to protect it among the local community. Six actions were identified and are outlined in the following pages.

Action 3.1	Use local social media to increase awareness
Action 3.2	Organise community wildlife events
Action 3.3	Raise awareness of local sites of biodiversity interest
Action 3.4	Utilise the resources of the All-Ireland Pollinator Plan
Action 3.5	Raise awareness of the problems associated with herbicide use
Action 3.6	Encourage proper green infrastructure design in new planning and developments for Cratloe

Action 3.1: Use local social media to raise awareness

Action Summary: Use local social media to raise awareness of biodiversity & conservation issues. Examples of useful posts include:

- Updates on local biodiversity related projects / actions
- Photos of wildlife recorded in the area
- Information about local designated sites (see Action 3.3)
- Information from other environmental charities & government bodies

Action 3.2: Organise community wildlife events

Action Summary: Organise at least one biodiversity related event each year such as a walk or talk with a professional ecologist specialising in the particular field. Events such as bat walks are always popular with people of all ages.

Other event ideas include woodland walks and plant id workshops, dawn chorus, wildlife gardening workshops / talks, etc.

As well as increasing awareness of local biodiversity these events are great social occasions especially when combined with a food element e.g. a pollinator picnic or a bat walk & barbecue. Such events can foster community spirit and sense of place.

It is worth noting that these events can be organised in partnership with neighbouring communities in the county. This will help reduce the workload and maximise resources locally as well as build relationships with other groups.

Action 3.3: Raise awareness of local sites of biodiversity interest

Action Summary: Raise awareness of local natural heritage designated sites and biodiversity areas / features of interest. This could be carried out through posts on social media and by organising talks or walks for the community to the sites (with permission from relevant authority / landowner where necessary). This action ties in with actions 3.1 & 3.2.

Please refer to Section 2 for details on local sites of biodiversity interest.

Action 3.4: Utilise the resources of the All-Ireland Pollinator Plan

Action Summary: The All-Ireland Pollinator Plan website has loads of useful resources free for communities to use. The community should make use of these resources and promote them within the community by:

- Ensure that the different landowners within the community are aware of the relevant All Ireland Pollinator Plan Guide for their sector. This will include the school, sports clubs, church and graveyard, cemetery, gardeners, etc.
- Use the All-Ireland Pollinator Plan signs at sites that are being managed with biodiversity in mind.
- Share posts and links to useful resources from the All-Ireland Pollinator Plan website on local social media.

Website: https://pollinators.ie/resources/

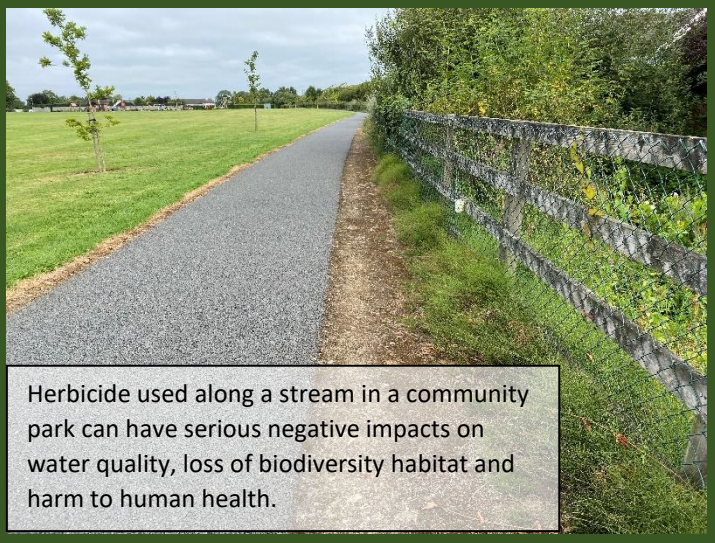
Action 3.5: Herbicide Use

Action Summary: Encourage landowners and property managers in the community to eliminate, or at least minimise, the use of herbicide on their land. A few ways to approach this action include:

- Foster a change in cultural mindset and what is acceptable when it comes to 'weeds' and tidiness in the landscape. Weeds and untidy areas are very important for native wildlife and support a range of pollinators, birds, and other wildlife. These spaces can be full of very attractive flowers and plants that provide interest throughout the year – remember that tourists come to Ireland to see natural and green landscapes not brown lines from spray and manicured lawns! They are also an important part of our natural and cultural heritage, every bit as important as our other heritage assets we rightly protect.
- Encourage landowners and property managers to eliminate the unnecessary use of herbicide to control vegetation along the edges of walls, hedgerows, fences, roadsides, etc. The tussocky grass edges along walls and hedgerows are often very important habitats for pollinators and other wildlife. For example, bumblebees will often use these areas for nesting and hibernating.
- Raise awareness of the harmful effects of herbicide use on human health and for biodiversity.
- Promote and trial alternative 'weed'. control methods where this is necessary.

Info Box: Herbicide

Did you know that chemically all herbicides are actually pesticides? Therefore, they will also harm animals as well as plants – and that includes us humans!



Herbicide used along a stream in a community park can have serious negative impacts on water quality, loss of biodiversity habitat and harm to human health.

Did you know that a single drop of herbicide/pesticide is enough to breach the drinking water limit in a small stream for up to 30km of its length! Yet people will spray many, many drops of herbicide into their local environment in their gardens or along ditches adjacent to their homes, schools or playing fields – probably oblivious to the harm they are causing. We need to think about what we are happy to put into our natural environment as our knowledge of biodiversity tells us that we humans are an intricate part of biodiversity and therefore we are also affected by abuses of our environment as climate change consequences worldwide are now teaching us.

Alternative thinking: As with nearly all things in life, pesticides have their uses – especially in the eradication of invasive alien plant species which are damaging Irish biodiversity through habitat destruction daily. However, weeds are a subjective matter – a dandelion is not a weed to a bumblebee but the best source of food and sustenance when you've just woken up starving from your winter hibernation! So, the first thought always needs to be: is that plant really a weed? Is it really bothering me? Is it causing problems to anyone or anything? If it really must go then the best course of action is to starve the plant of nutrients by cutting away its food makers i.e., its leaves and then preventing light getting to the plant by covering it up. This could be with a thick reusable plastic or a piece of old carpet but preferably something that will biodegrade away like cardboard.

Action 3.6: Green Infrastructure Design

Action Summary: Engage with Clare County Council on any new developments in the community that they should incorporate best practice green infrastructure design principles and biodiversity features. This should ideally be done at the planning stage. Where plans have developed beyond planning, engage with the developers about the benefits that green infrastructure design can deliver for them.

What is Green Infrastructure?

Green Infrastructure is a strategically planned network of high-quality green spaces and other environmental features. Green infrastructure includes established green spaces and new sites. It should thread through and surround the built environment while connecting the community spaces to their wider rural hinterland. Designed properly, it will deliver a range of economic, social and environmental benefits for community and the wider environment.

It can include a range of features (e.g. trees, hedgerows, grasslands, wetlands, etc.) that together or singularly deliver a range of benefits for the community and landowner. These benefits can vary for different landowners and can be at a local scale right up to the national and international scale. Some examples of how green infrastructure can benefit the local area are:

- A hedgerow or tree shelterbelt can deliver shelter for a sports pitch or farm field as its primary function. However, it can also improve field drainage, improve biosecurity between farms, create habitat for wildlife (including linking habitats) and capture carbon.
- A bioswale (see image below) can help capture rainwater runoff from a building, road or car park and allow to infiltrate into the ground at source reducing the pressure on storm water drains. It will also capture pollutants before they enter wider watercourses. They can also reduce more costly grey infrastructure in new developments, they are visually attractive, reduce urban heat island effect and create habitat for wildlife.
- Green features such as meadows, trees, mounds, boulders, etc. can be designed to create natural play areas and outdoor classrooms in parks, community spaces and schools.
- In healthcare campuses, access to green spaces can be used to deliver benefits for health and well-being for patients, visitors and staff. This benefit is not limited to healthcare campuses as community health will benefit from access to good quality parks, woodlands and other natural spaces.
- A good quality, green and natural environment is attractive to people who would want to live and work in the area. It can also be attractive to tourists. All of which can lead to a sustainable and prosperous community.

Bioswales are just one example of the type of green infrastructure design features that can deliver multiple benefits for us in new developments.

Objective 4: Collecting Evidence to Track Change and Measure Success

To ensure that our actions are making a difference we need to gather a baseline of data on our wildlife and then measure our success or lack thereof against this. This data can be gathered through regular surveys and Citizen Science efforts. This plan sets out the following actions to achieve this.

Action 4.1	Monitor and record pollinator species
Action 4.2	Monitor / survey specific species
Action 4.3	Increase local biodiversity records on national databases
Action 4.4	Build the capacity within the community to manage and record biodiversity
Action 4.5	Review the Biodiversity Action Plan

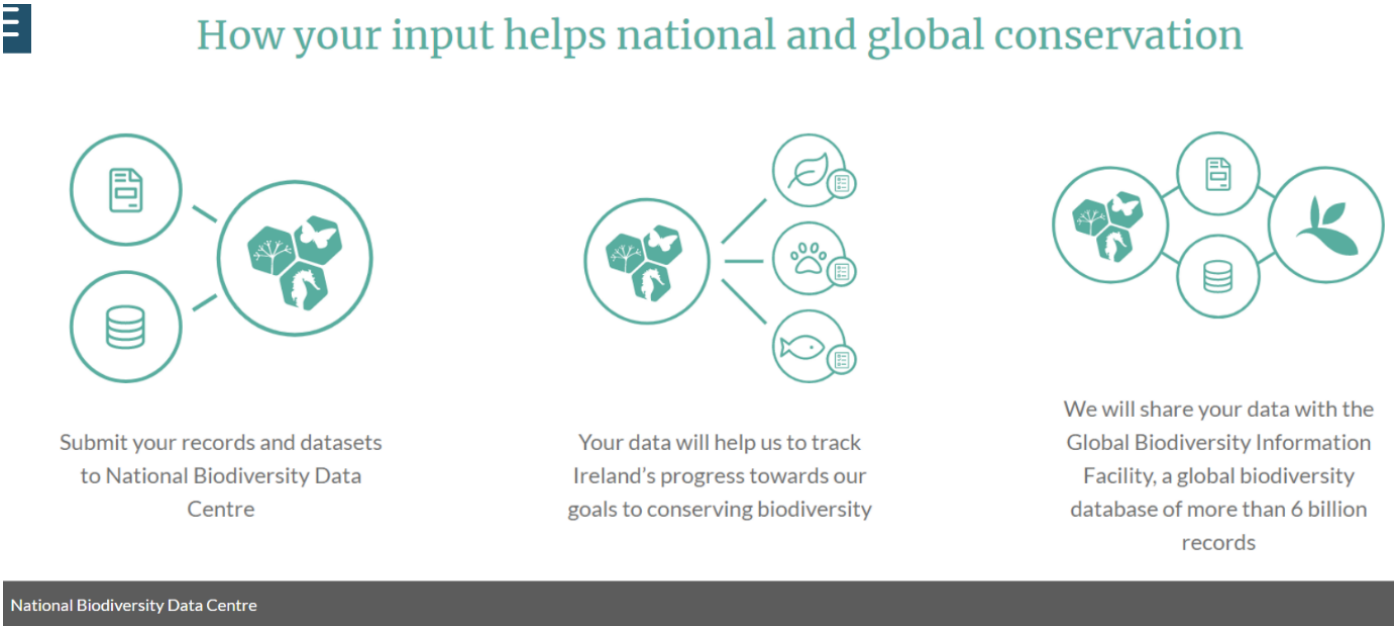
Info Box: Who are Citizen scientists?

All of us have the capacity to be Citizen scientists! This term refers to ordinary people being able to help with the scientific recording of biodiversity in our everyday lives. This has been transformed in Ireland with the advent of the National Biodiversity Data Centre (NBDC) who run the website wwwbiodiversityireland.ie The NBDC describe citizen science as 'data collection by members of the public to help answer research questions. Having a strong recording community is essential to citizen science' The NBDC website has become a hub for knowledge about Irish biodiversity. It features maps of the recorded occurrences of species of our Irish flora and fauna and information about their ecology and population trends. This is all vital information for scientists to use in order to assess how different species are doing over the years – a factor that has become crucial with our Biodiversity Crisis. For instance, this is one of the reasons why we know that one third of our bee species are in decline in Ireland – the NBDC has the figures to back this up.

The graphic representation below shows how Citizen science works with the NBDC from their webpage:

Citizen Science - National Biodiversity Data Centre (biodiversityireland.ie)

The other consideration is how Cratloe can use citizen science to help track how the actions of this BAP are working over the years. Doing things like pollinator FIT counts (flower-insect timed counts) can give lots of information as to how the local species and habitats are doing in general.



Action 4.1: Monitor and record pollinator species

Action Summary: Build up records of pollinator species in the local area through Citizen Science efforts. Typically, healthy pollinator populations will correlate with a healthy environment for other wildlife so monitoring them will give the community a good guide to the overall state of biodiversity affairs locally. They are also relatively easy to spot and identify with some training and practice. Actions can include:

- Establish at least one bumblebee and / or butterfly transect in the community. This should be carried out by interested member(s) of the public as part of Citizen Science.
- Increase the number of moth records in the community annually by encouraging interested member(s) of the public to put out moth traps in their gardens on a regular basis. All records should be submitted to the National Biodiversity Data Centre. Support people who are interested in taking up moth trapping through a moth trap loan scheme.
- Organise or promote locally run pollinator identification training workshops or online courses.
- Monitor the banks of the car park at Cratloe Woods playground for solitary bees.

All records should be submitted to the National Biodiversity Data Centre (https://biodiversityireland.ie/).

Info Box: Pollinators

Who are the pollinators?

Pollinators are species of insect who carry out the pollination of flowering plants that is vital for fruit and seeds to be produced. Many are aware of honey bees being pollinators but they are only one out of 99 native bee species in Ireland. The other 98 wild bee species are 21 bumblebees and 77 solitary bee species. In addition to bees, moths, butterflies, wasps, hoverflies, and ants can all act as pollinators – unwittingly transferring pollen with them from flower to flower as they seek tasty nectar to drink or gather pollen itself for their young to eat.

Why pollinators?

You may wonder what is all the fuss about pollinators in particular? Why are they the species that are being focussed on? The truth is that pollinator species are great indicators of the health of an ecosystem i.e. if there is a good number of various pollinator species then this means that there is enough food and nesting habitat for them i.e. enough healthy plants and undamaged natural habitats. So quite apart from pollinators being fascinating creatures – their presence or absence tells us a great deal about the state of biodiversity. Also they are relatively easy to recognise, if not at species level but at group level and it isn't always necessary for the citizen scientist to identify at species level e.g. FIT counts simply need the insect group identified – bumblebees, butterflies etc.



Action 4.2: Monitor / survey specific species

Action Summary: Build up records of other selected species in the local area through Citizen Science efforts. This can include the following actions:

- Continue to monitor the Red Squirrel in the local woodlands.
- Monitor any bird or other habitat boxes installed in the community.
- Promote the BirdWatch Ireland garden bird survey. All records should be submitted to BirdWatch Ireland. BirdWatch Ireland link: https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-garden-bird-survey/taking-part-in-the-irish-garden-bird-survey/
- Monitor the newly created wildflower meadows and verges for different wildflowers, grasses and other associated species.

All records should be submitted to the National Biodiversity Data Centre (https://biodiversityireland.ie/).

Action 4.3: Increase local biodiversity records on national databases

Action Summary: Ensure all biodiversity records and actions taken by the community are recorded:

- Ensure all records taken – Citizen Science or professional surveys - are submitted to the National Biodiversity Data Centre. https://biodiversityireland.ie/
- Ensure all biodiversity actions are recorded on the All-Ireland Pollinator Plan website. https://pollinators.biodiversityireland.ie/
- Encourage members of the public to download and use the National Biodiversity Data Centre App.

Action 4.4: Build the capacity within the community to manage and record biodiversity

Action Summary: Support interested members in the community with Citizen Science actions.

- Promote any wildlife identification courses to the local community including online courses.
- Ensure the nearest library is well stocked with biodiversity books, identification guidebooks, information leaflets and booklets, All Ireland Pollinator Plan guides, and other relevant information resources.
- Build a stock of equipment needed to monitor and record biodiversity. For example, moth traps and guidebooks that can be loaned to interested members of the public. Suitable moth traps are portable heath traps (bucket) with 6W tube and vane unit, 6W ballast unit, large funnel, and rechargeable battery. There are two guidebooks, one for micro moths and another for macro moths.
    - Field Guide to the Moths of Great Britain and Ireland (Paul Waring and Martin Townsend)
    - Field Guide to the Micro Moths of Great Britain and Ireland (Phil Sterling and Mark Parsons)

  The macro moths are easier for beginners. Encourage members of the public to download and use the National Biodiversity Data Centre App.

Action 4.5: Review the Biodiversity Action Plan

Action Summary: Review this Plan annually and update as necessary to ensure it delivers maximum value for the community and nature in the area. It is also important to plan for a new Biodiversity Action Plan in advance of this one expiring in 2027.

Section 5: Resources

It is not necessary to re-invent the wheel to deliver this plan. There are numerous people, organisations, publications, and online resources available to achieve the best possible outcomes. Some of these are outlined in this section, although this is not intended to be an exhaustive list. It is also important that as new information becomes available that this should be considered and actions delivered or adjusted accordingly.

Links to useful online resources

The following is a list of useful links to guides on a range of common biodiversity subjects.

Subject	Link(s)
Bats	• https://www.batconservationireland.org/
Birdwatching	• https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/
Children's Biodiversity Activities	• https://birdwatchireland.ie/our-work/fun-learning/for-kids/ • https://www.woodlandtrust.org.uk/blog/2020/03/kids-nature-activities-self-isolation/ • https://www.rspb.org.uk/fun-and-learning/
General Biodiversity Issues	• https://www.biodiversityireland.ie/ • www.npws.ie
Habitat Boxes	• https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-How-to-Guide-1-ALT_FINAL.pdf • https://birdwatchireland.ie/app/uploads/2019/09/Nestboxes-factsheet.pdf • https://www.batconservationireland.org/wp-content/uploads/2015/05/BCIrelandGuidelines_BatBoxes.pdf
Hedgerows	• https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-How-to-Guide-3-FINAL-1.pdf • https://www.heritagecouncil.ie/content/files/conserving_hedgerows_2mb.pdf • www.hedgelaying.ie
Interpretative Signage	• https://www.heritagecouncil.ie/content/files/bored_of_boards_1mb.pdf • https://pollinators.ie/resources/signage-templates/
Invasive Alien Species	• https://invasives.ie/ • https://www.fisheriesireland.ie/Invasive-Species/invasive-species.html
Orchards	• http://www.irishseedsavers.ie/blog/wp-content/uploads/2014/10/CreatingAnOrchard.pdf • https://www.theorchardproject.org.uk/
Pollinator Friendly Planting Schemes	• https://pollinators.ie/resources/
Pollinators	• https://pollinators.ie/
Recording Biodiversity	• https://www.biodiversityireland.ie/record-biodiversity/
Reducing Herbicide Use	• https://greensideup.ie/16-natural-alternatives-to-herbicide-why-you-should-use-them/
Schools & Biodiversity	• https://greenschoolsireland.org/biodiveristy/ • https://pollinators.ie/schools/ • http://www.heritageinschools.ie/teachers-resources/strand/living-things-science/p3?q=&c= • https://www.eckilkenny.ie/images/Biodiversity_Plan_for_Schools.pdf • http://www.ipcc.ie/discover-and-learn/resources/
Swifts	• https://birdwatchireland.ie/publications/saving-swifts-guide/ • www.swiftconservation.ie/
Tree Identification & Selection	• https://www.treecouncil.ie/nativeirishtrees • http://www.clarecoco.ie/services/planning/publications/tree-design-guide-for-towns-and-villages-in-co-clare-2017-28115.pdf
Wildflower Meadows	• https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Wildflower-Meadows-2018-WEB.pdf

Subject	Link(s)
Wildflowers	• http://www.wildflowersofireland.net/index.php • www.bsbi.org
Wildlife Ponds	• https://www.wildlifetrusts.org/actions/how-build-pond • https://invasivespeciesireland.com/wp-content/uploads/2017/10/AQUATICS_BOOK5.pdf
Woodland	• http://www.woodlandsofireland.com/sites/default/files/Management%20Guidelines%20for%20Ireland%27s%20Native%20Woodlands%202017.pdf • https://www.forestryfocus.ie/social-environmental-aspects/biodiversity-and-nature-conservation/biodiversity-in-forests/conservation-and-restoration/ • http://www.woodlandsofireland.com/sites/default/files/Silvicultural%20Guidelines%20for%20Native%20Trees.pdf • https://www.wildlifetrusts.org/wildlife-advice/how-manage-woodland-wildlife

The All-Ireland Pollinator Plan is one of the best sources of information on how to make our community spaces better for pollinators and wildlife in general. Check out the resources section of their website here:

https://pollinators.ie/resources/

Potential project funders

The following table outlines some of the potential sources of funding to help deliver the actions outlined in this Plan. It is also worth remembering other traditional forms of fundraising such as working with local businesses, bucket collections, table quizzes, etc.

Fund / Funding Body	Description
LEADER Programme, Clare Local Development Company	To discuss potential project ideas and the availability of funding, contact the Clare Local Development Company offices at (065) 686 6800. Website: www.cldc.ie
Clare County Council	For additional information in relation to funding for biodiversity and heritage projects, contact the Heritage Officer - cmcguire@clarecoco.ie
Community Foundation for Ireland	The Community Foundation for Ireland has funded biodiversity surveys and action plans under their Environment and Nature programme. https://www.communityfoundation.ie/grants/types-of-grants/environment-and-nature-fund
Heritage Council	The Heritage Council supports a wide range of heritage projects throughout the country through our annual grants programme. https://www.heritagecouncil.ie/funding
Local Authority Waters Programme	Their aim is to support communities and stakeholders in the delivery of local water quality projects and initiatives and have an annual grant package available. Contact your local officer to discuss potential projects by searching: https://lawaters.ie/funding/
Trees on the Land	This charity aims to increase the amount of native Irish trees across Ireland. https://www.treesontheland.com/
NeighbourWood Scheme	This Forestry Service grant supports the creation and enhancement of new native community woodland schemes over 1ha in size (up to 12ha size) including the improvements to woodland facilities such as trail infrastructure. https://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/2015/NeighbourWoodScheme240717.pdf

Useful contacts & sources

To help deliver the actions it will be important to work with a range of local and national stakeholder groups. The following outlines some of these. It is worth remembering that there may also be local individuals in your community who have particular interests and skillsets worth tapping into to deliver the actions. Remember that skills other than ecological skills can be an important asset when delivering certain actions.

Organisation / Group	Area of Expertise	Contact Details
Clare County Council	The local Heritage Officer is available to discuss and provide information on biodiversity and heritage related matters and projects.	Email: cmcguire@clarecoco.ie
Clare Public Participation Network	Public Participation Networks (PPNs) act as an independent structure to facilitate public participation in policy and decision making with the local authorities. Community and voluntary, social inclusion, and environmental groups are encouraged to join Clare PPN.	Website: https://clareppn.ie/
Clare Local Development Company	If your idea is eligible in principle for LEADER funding, a Project Development Officer will work with you to develop specifications of your project, help you with procurement, and assist in bring forward an application for funding. Funding is available in the following categories: capital, training, marketing, and analysis and development	Telephone: (065) 686 6800. Website: www.cldc.ie
Irish Wildlife Trust	National environmental charity covering all aspects of biodiversity.	https://iwt.ie/
BirdWatch Ireland	For information on Ireland's birds.	https://birdwatchireland.ie/
National Parks and Wildlife Service	Responsible for managing the Irish State's nature conservation responsibilities.	https://www.npws.ie/
All-Ireland Pollinator Plan	National Plan with the aim of creating an Ireland where pollinators can survive & thrive.	https://pollinators.ie/
National Biodiversity Data Centre	National centre for the collection, collation, management, analysis and dissemination of data on Ireland's biological diversity.	https://www.biodiversityireland.ie/
Vincent Wildlife Trust	National environmental charity with the aim of conserving and research into selected Irish mammals.	https://www.vincentwildlife.ie/
Botanical Society of Britain & Ireland	National organisation that promotes the study, understanding and enjoyment of British and Irish botany.	https://bsbi.org/ireland
The Local Authority Waters Programme	A shared service working with Local Authorities and State agencies to meet obligations under the EU Water Framework Directive for the development and implementation of River Basin Management Plans in Ireland.	https://lawaters.ie/
Bat Conservation Ireland	An all-Ireland charity that promotes the conservation of bats and their habitats.	https://www.batconservationireland.org/
Irish Peatland Conservation Council	A national charitable organisation with the aim of conserving and protecting a representative sample of Irish bogs, and to campaign on bog-related issues.	http://www.ipcc.ie/

Appendix 1: Pollinator Friendly Plants

The following is a list of some pollinator friendly plants that are suitable for flowerbeds and containers. This is not intended as an exhaustive list and each flowerbed planting plan will have to be designed to take account of the specific site conditions. A fuller list of pollinator friendly plants for flowerbeds can be found on the All-Ireland Pollinator Plan (https://pollinators.ie/resources/).

Species	Flowering Season	Other Characteristics
Examples of tall perennials & biennials suitable for the back of borders		
Japanese anemones (*Anemone x hybrid*)	Autumn	Available in a range of colours including pink and white
Verbena bonariensis	Late summer	
Foxgloves (*Digitalis* spp)	Mid-summer	Biennial i.e. flowers the year following sowing. Does best in slightly acid soils, should self-seed once it's established but may need help.
Mullein (*Verbascum* spp)	Mid-summer	Biennial i.e. flowers the year following sowing. Does best in slightly alkaline soils, should self-seed once it's established but may need help.
Fennel (*Foeniculum vulgare*)	Mid-summer	Perennial tall herb, beloved by hoverflies. Leaves and seeds are delicious edible herbs.
Teasel (*Dipsacus* spp.)	Mid-summer	Biennial i.e. flowers the year following sowing. Lovely blue, thistle-like flower beloved by bumblebees followed by seeds particularly loved by goldfinches. Important to leave the seed heads overwinter as bird food but the plant has a statuesque architectural beauty in the winter garden too.
Rudbeckia spp.	All summer long	Can be great in pots as well as borders
Examples of medium height perennials suitable for the middle of borders		
Sedum 'Autumn Joy'	Autumn	Loved by butterflies during warm weather in September and October.
Masterwort (*Astrantia major*)	Long flowering from Summer into Autumn	Available in various shades of pink and white
Yarrow (*Achillea* spp)	Summer into Autumn	Native form is white but can be bought in yellow & pink forms
Avens (*Geum* sp.)		Brightly coloured with long-lasting flowers
Columbine / Granny's bonnet (*Aqiliegia* spp.)	Early summer	A native species of limestone grasslands & woodland edges. Garden forms come in many colours
Macedonian scabious (*Knautia macedonica*)	Mid-summer	A relation of our native field scabious therefore great for hoverflies, coming in several colours on the blue-purple spectrum
Hardy Geraniums/Cranesbills (*Geranium* spp)		In a mix of colours, blue, pink and white. These plants (particularly blue varieties such

		as 'Johnson's blue') partner well with **Lady's mantle (*Alchemilla mollis*)** which are particularly lovely planted along the edges of beds. Rozanne is a new variety that flowers the longest of all form May-September.
Lenten Hellebores (*Helleborus orientalis*)	Winter / Early Spring	An evergreen hardy perennial suitable for the front of borders. Ideal for pollinators that emerge early from hibernation on warm days in February. Flower colours: white, green, pink, burgundy
Penstemons	Summer through to autumn	A semi-woody perennial with tubular flowers that last from early summer right through to late autumn.
Examples of low growing / groundcover perennials suitable for the front of borders		
Lady's mantle (*Alchemilla mollis*)	Summer	A native plant with attractive green flowers and leaves that flop over bed edges.
Elephant Ears (*Bergenia* spp.)	Spring	This is a bold evergreen low growing plant great for the fronts of borders. Once established it is good at suppressing weeds.
Lamb's-ear (*Stachys byzantine*)	Late spring – early summer	Is a sun-loving perennial plant grown for its thick, fuzzy, silvery foliage that creates a soft-textured mat in the garden.

Also many herb species are great for pollinators as well as providing food for ourselves: **Chives, Thyme, Lavender, Rosemary, Oregano/Marjoram and Sage.**

Appendix 2: Tree Planting Design & Maintenance Considerations

Woodland Planting Design Considerations

The following are some practical tips for new tree planting design and maintenance:

- **Marking Out:** Set out all tree planting areas and inform grounds maintenance staff to avoid accidental damage to trees.
- **Setting Back:** As well as the tree planting setbacks described above it is important to set back from walls, roads, kerbs, blacktopping, and buildings. Do not plant against field stone walls (these are an important habitat).
- **Appropriate Planting:** Do not plant trees in places where they will have a negative impact on special or protected habitats and landscapes and resident flora and fauna. In most cases tree planting is beneficial for the local environment and for biodiversity support. However, in certain situations planting trees can damage existing rare habitats and cause permanent habitat change. You must not plant trees on unenclosed land, moorland, wetland, heathland, bog or unimproved or minimally improved pasture or old meadow that has never been ploughed. Similarly, you must not plant on land falling within an SAC, SPA, ASSI or NHA or any other designation without prior approval from the NPWS.

  Similarly, it is important to consider your neighbours. Large trees may not be appropriate next to a building or garden where they will excessively block light or views, or otherwise interfere with their enjoyment of their property.
- **Site Conditions:** Design the planting mix to take account of local site conditions such as soil type, shelter, etc.
- **Scrub:** Avoid interfering with scrub and do not select scrubby areas for tree planting, they are best left alone.
- **Licence Requirements:** As of the production of this Action Plan, if any single block of new woodland planting exceeds 0.1 hectares (0.25 acres) then a Forest Service licence is required. This minimum area may be subject to change and so it should be checked in advance. A registered forester is required to carry out this on your behalf.
- **Maintenance Around New Trees:** Brambles, nettles, thistles and other common weeds all deter grazing and browsing animals and others who may trample or eat your trees. They are a cost-effective alternative to barbed wire and plastic tree guards and will protect and shelter your trees if you let them. They also add additional wildlife value to new planting schemes.

  Weeds and grasses will compete with young trees for nutrients and light and the trees will grow more slowly on account of this during the first few years. Under the ground however they will be establishing strong roots which will serve them well in future and they will make use of the valuable shelter provided by the weeds. After 1-2 years, the trees will have put roots below the grass/weed layer and you will find they take off and grow up fast, quickly shading out the worst of the weeds. Again, these grasses and weeds provide important habitat for wildlife.

  In general, any tall weeds that are falling or hanging over the trees should be pulled or trampled as these can cause trees to lean or fork. This should be carried out 2-3 times in the first two seasons after planting. This is also a good opportunity to take a head count and note any failures. Do not use herbicide to control vegetation around trees, this is damaging for biodiversity and can also damage soil growing conditions for the trees.

Tree Planting Details

The following are some practical tips for new tree planting:

- Where possible use bare root whips in planting schemes. These are preferable to standards as they establish quicker, have a higher success rate, and are less expensive to supply and plant.

- Tree stakes and ties are only required for larger trees. These should be monitored during the year for defects that may damage the trees. Similarly, the ties should be loosened as the tree grows to avoid damage. All ties and stakes should be removed once the tree can stand unsupported without bending or shifting in the ground. This usually takes about 18 months to 3 years.
- When planting new areas of woodland, avoid straight lines. Plant in small groups of the same species with the larger species concentrated to the back or centre of the mix and smaller species to the front or perimeter.
- Planting spacings for new woodland areas: this will depend on specific project requirements. However, a 2-metre centre guide can be used where biodiversity is the primary aim of the planting scheme (as recommended by Trees on the Land).
- The planting season for bare root whips is November to March. It is best to plant as early in the bare root season as possible to allow plants time to bed in and minimise losses in the case of a dry spring or summer.
- Guards may be required if there are significant local populations of rabbits, hares, or deer. The size of the guards is dependent on which of these species are the concern. Where there is no significant threat from these animals to the new trees then guards should not be used as they can add to plastic waste in the countryside.

- It is important to avoid any accidental damage caused by lawnmowers or strimmers. In general, it is best to avoid the use of these close to the base of trees as they can very quickly ring-bark a tree which will lead to the death of the tree. Allowing the grass to grow under new tree planting is the best way to avoid damage. See weeding section above.

Hedgerow & Shelterbelt Planting

Native hedgerows and shelterbelts are suitable for use along site boundaries to provide biodiversity habitat, shelter, screening, and to act as a deterrent to would-be intruders and livestock, while allowing small mammals such as hedgehogs to pass through.

A hedge or hedgerow is a line of closely spaced shrubs with or without occasional trees, planted and trained to create a barrier or to delignate the boundary of an area. These are a common feature in the Irish landscape.

A shelterbelt is a linear strip of trees, anything from 2-20m width, that is designed principally to reduce wind speed and provide sheltered areas. They are also great for screening and act as important wildlife corridors.

Species Selection for Hedgerows and Shelterbelts

Native species should be the first choice for most new hedgerows and shelterbelts. In certain circumstances non-thorn species may be required in which case the native Holly or Yew could be considered – these are slower growing evergreen species. Also some non-native species such as Beech (*Fagus sylvatica*) or Hornbeam (*Carpinus betulus*) could be considered.

No invasive species should be used as hedging (or other planting schemes) in any circumstance. This includes Cherry Laurel (*Prunus laurocerasus*), Snowberry (*Symphoricarpos albus*), *Rhododendron ponticum,* etc.

Sourcing plants from Irish provenance stock and grown in Ireland will help prevent the import of pests and diseases. For example, Ash Dieback was brought in on imported tree stock and has now spread across the country. Sourcing Irish provenance trees will also support Irish nurseries and growers.

The following table lists some of the trees and shrubs that should be considered for hedgerows and suggested percentages of the mix. Please note that the exact mix and percentage of each species used will be detailed on a site-by-site basis depending on site conditions, availability of Irish provenance plants, and site-specific design considerations.

The same species can be used in shelterbelt mixes but the proportion of tree species to shrubs will be higher.

Species	Notes
Main hedgerow shrub species (60-70% of hedgerow mix)	
Hawthorn (*Crataegus monogyna*)	This is the most common hedgerow species in the Irish countryside. It can be used as the principal species for most sites. It creates a good quality stock proof barrier due to its thorns and dense habitat after cutting. Good show of cream flowers in May and red berries in autumn but this will only happen on bushes that are not cut that year.
Other shrub species (25-35% hedgerow mix)	
Blackthorn (*Prunus spinosa*)	Another common hedgerow species. This is always the first to blossom in the hedgerows with white flowers in March before the leaves appear in April followed by purple fruit known as sloes in autumn. This is a particularly thorny species.
Hazel (*Corylus avellana*)	A small tree that favours limestone soils. Deciduous with large green leaves, catkins in early spring and hazelnuts in autumn.
Guelder Rose (*Viburnum opulus*)	A beautiful native shrub with large white blossoms in spring and scarlet red berries in autumn. Deciduous, its leaves turn deep red before they fall. Usually found in hedgerows along drains as it needs damp conditions to thrive.
Dog Rose (*Rosa canina* agg.)	A scrambling climber that will grow through other shrubs. Striking white flowers in June with bright scarlet hips in autumn. Thorny branches with small green deciduous leaves.
Purging Buckthorn (*Rhamnus catharticus*)	A native but uncommon deciduous shrub, favours damp, limestone soils. Green oval leaves with small white flowers in spring with green to black berries in autumn. The foodplant of the Brimstone butterfly caterpillars.

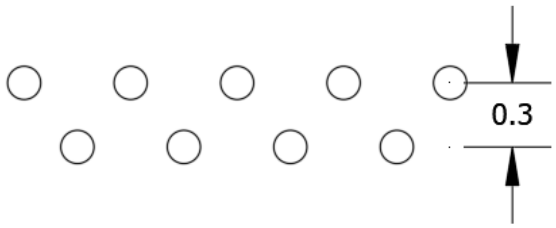
Species	Notes
Spindle (*Euonymus europaeus*)	A green-branched shrub, deciduous with leaves turning bright red before they fall. Dramatically hot-pink coloured fruit that open out to reveal orange seeds. It favours limestone to neutral soils. Often found growing with Guelder rose in the wild.
Holly (*Ilex aquifolium*)	An evergreen shrub/small tree. Prickly leaves. Male and female trees needed for berries to be produced. White flowers in spring and summer with the famous red berries in autumn and winter.
Elder (*Sambucus nigra*)	A common shrub of high biodiversity value with large heads of cream flowers in early summer and dark berries favoured by the birds in September. It germinates easily in most soil types but it does favour nutrient-rich areas.
Willow/Sally (*Salix* species)	A common tree of damp ground, willows have a high biodiversity value with their catkins being an extremely important food resource for pollinator species in early spring. Very fast growing, it can take a lot of cutting but it will grow on damp ground where other species might be slow to grow.
Tree Species used as hedgerow standards (2.5-5%)	
Pedunculate Oak (*Quercus robur*)	Both native oaks are of huge biodiversity importance supporting nearly 300 other species of insect, bird, lichen, fern etc. This species prefers heavy, damp, lowland soils.
Sessile Oak (*Quercus petraea*)	As above, this Oak species is hugely important for biodiversity. This is the species more suited to uplands and will grow in lighter, poorer soils than *Q. robur*.
Downy Birch (*Betula pubescens*)	This native tree is typical of bog edges and will happily grow on damp, peaty soils. Deciduous with small leaves, catkins in spring, good golden leaf colour in autumn.
Yew (*Taxus baccata*)	A native conifer, slow-growing evergreen with dense foliage thus making a good year-round screen. Both male and female trees needed to produce the red berries which are poisonous to humans but eaten by birds. Leaves are toxic to livestock and therefore it was widely planted in graveyards
Rowan (*Sorbus aucuparia*)	Native, does well in neutral to peaty soils. Clusters of cream flowers in spring with red berries favoured by birds in late summer to early autumn.
Crab Apple (*Malus sylvestris*)	Native, deciduous small tree. White & pink blossom, small green fruit in autumn.
Wild cherry (*Prunus avium*)	A small tree featuring many drooping clusters of white blossoms in spring with red cherries in late summer. Deciduous with lots of autumn colour on the leaves. Likes fertile soil but will tolerate clays.
Bird cherry (*Prunus padus*)	Another small native cherry with upright clusters of white flowers and black fruit in autumn. Great for birds. Prefers damp, fertile soils.
Alder (*Alnus glutinosa*)	A small tree that favours damp ground. The alder likes to have its roots in wet areas and is often found on stream and riverbanks in the wild.
Irish whitebeam (*Sorbus hibernica*)	Native to Ireland, favours limestone soils, deciduous. Attractive white undersides to oval leaves, cream groups of flowers in spring and red berries in autumn.
*Ash (*Fraxinus excelsior*)	The Ash is Ireland's most common tree species in the hedgerows. Ash dieback disease came into Ireland with the soil around Ash saplings from mainland European nurseries in the last decade. The disease has now been recorded in every county in Ireland and is expected to kill at least 90% of our Ash trees over the next decade. The only hope for the survival of Ash trees in Ireland is that a small percentage will prove immune to the disease.

*Please note that Ash, which is our most common hedgerow tree species is not available for planting due to the presence of Ash Dieback.

Planting Design Considerations for Hedgerows

A hedgerow can be planted at anything from 3-8 plants per metre. A rate of 4-5 per metre is recommended by the Irish tree planting charity 'Trees on the Land'.

To produce a good quality hedgerow, it should be planted in double staggered row approximately 30cm wide. Use a string line to achieve a straight line at planting.

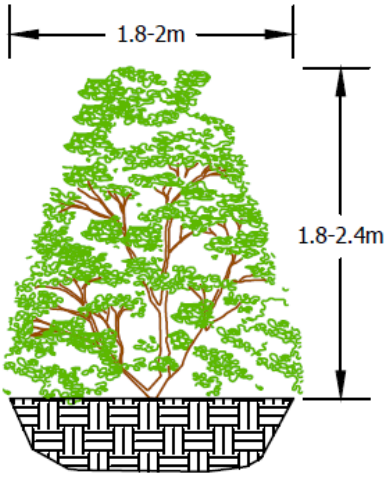


Maintaining a Hedgerow for Biodiversity

Where space, road safety and other site considerations allow then a native hedgerow should be cut on 2–3 year rotations. This will provide the maximum biodiversity value as the plants will be able to flower and fruit, which act as an important food source for pollinators and other wildlife. This will also provide maximum screening and security benefits.

When cutting a hedge, it should be cut in an A-shape with the base wider than the top (see Figure 4). This will allow light to reach all parts of the hedge including the base which will help maintain a dense, bushy form.

The cutting of hedgerows must be carried out in accordance with Section 40 of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 and the Heritage Act 2018. These Acts stipulate that is an offence to destroy vegetation on uncultivated land between the 1st of March and the 31st August each year. There are exemptions to this to allow for the maintenance of sight lines for road safety reasons.



Existing Invasive and / or Non-Native Problematic Hedges

The inappropriate species selection and placement of hedges in the past can be problematic from an ecological perspective but it can also affect the structural integrity of fences and fence posts when planted too close to them. Two of the most common non-native hedges that fit into this category are Cherry Laurel (*Prunus laurocerasus*) and Leylandii (*Cupressus* × *leylandii*).

To maximise biodiversity gain, and where these hedges have been planted too close to site infrastructure, they should be replaced with a mixed native hedgerow that complies with all relevant set back distances.

Existing hedges should only be removed outside the bird nesting and breeding season. The bird nesting and breeding season is between 1st March and 31st August.

Appendix 3: Cratloe Gateway Landscape Plan

The junction on the R462 before the railway bridge is a key gateway point for the village of Cratloe. It consists of a wide grassy verge with regenerating scrub, a large wildflower meadow verge, and a footpath and tall concrete block wall. While some aspects of the current layout have good biodiversity value, overall the area doesn't create a strong visual impact for people entering the village. The verges also fail to maximise the other benefits they could provide, particularly in relation to managing rainwater runoff from the road.

The aim of the landscape proposals are to:

- Create a gateway to Cratloe that has high visual impact
- Manage rainwater runoff from the road in a sustainable way
- Create good quality habitat for wildlife
- Highlight the rich built, cultural and natural heritage of the area using existing and new site features

The following plan is a **concept** landscape plan only. Further site investigations are required to produce detailed design plans.

Current view of the junction.


1
2
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2
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N
Legend:
1) New pollinator friendly flowerbed with specimen tree
2) Shortcut wildflower meadow verge
3) Wall painted in full with selected panels painted with murals
4) Vegetated bioswale
5) Pollinator friendly flowerbed with sculpture
6) Existing treeline
7) Shortcut wildflower meadow
8) Existing wildflower hay meadow

Mood Board

Example 1 of vegetated bioswale

Example 2 of vegetated bioswale

Pollinator friendly flowerbed

Shortcut wildflower meadow

Bespoke sculpture highlighing something of local heritage significance

Mural painted on a block wall to create interest and interpret aspects of local heritage

Suggested Planting List

The following are some plant species that are suitable for planting in the Gateway Area. Other suitable species may also be used depending on availability.

Planting Area	Trees	Small Shrubs, Groundcover & Perennials	Bulbs
New Flowerbed @ Railway Bridge	Rowan (*Sorbus aucuparia*)	*Alchemilla mollis*, *Hosta spp., Aquilega spp., Bergenia spp., Helleborus spp., Astrantia major, Geranium spp., Anemone spp., Eryngium spp., Dicentra spp., Achillea millefolium var., Nepeta* 'Six Hills Giant'	Ornamental onion varieties (*Allium* spp.)
Bioswale	Birch (*Betula pendula*)	Wildflower seed mix (native and Irish provenance seed only)	None
Bioswale Flowerbed	None	*Alchemilla mollis*, *Hosta spp., Aquilega spp., Bergenia spp., Sedum spectabile, Stachys byzantina, Kniphofia spp., Helleborus spp., Astrantia major, Geranium spp., Anemone spp., Eryngium spp., Dicentra spp., Agapanthus spp., Achillea millefolium var., Nepeta* 'Six Hills Giant', *Lavandula* 'Hidcote', *Verbena bonariensis* Grasses: Medium-tall height ornamental species	Ornamental onion varieties (*Allium* spp.), *Crocus* var.

Appendix 4: Shrub List for Grass Bank

Alternative Landscape Treatment for the Grass Bank

Action 1.1.9 proposes to manage the grass bank as follows:

Manage the grass verge on the bank as a spring bulb meadow followed by a shortcut wildflower meadow during the summer months. Move the Allium bulbs to selected pollinator friendly flowerbeds.

An alternative landscape treatment using low shrubs has been suggested if the community is not happy with the grass management option after a trial period. The following is a list of shrubs that will form a low height groundcover with year round cover:

- *Lonicera pileata*
- *Viburnum davidii*
- *Brachyglottis* 'Sunshine'
- *Hypericum* 'Hidcote'
- *Potentilla fruticosa* 'Abbotswood'
- *Euonymus fortunei* 'Emerald n Gold'
- *Euonymus fortunei* 'Emerald n Gaiety'
- *Juniperus communis*
- Heather varieties to the front of the bed.

These should be planted in large blocks and allowed to merge into each other to form an evergreen cover over the ground to prevent weeds.

They should be planted at 2-3L pot sizes and at 4-6 plants per metre square.

Appendix 5: Sensory Garden Landscape Plan

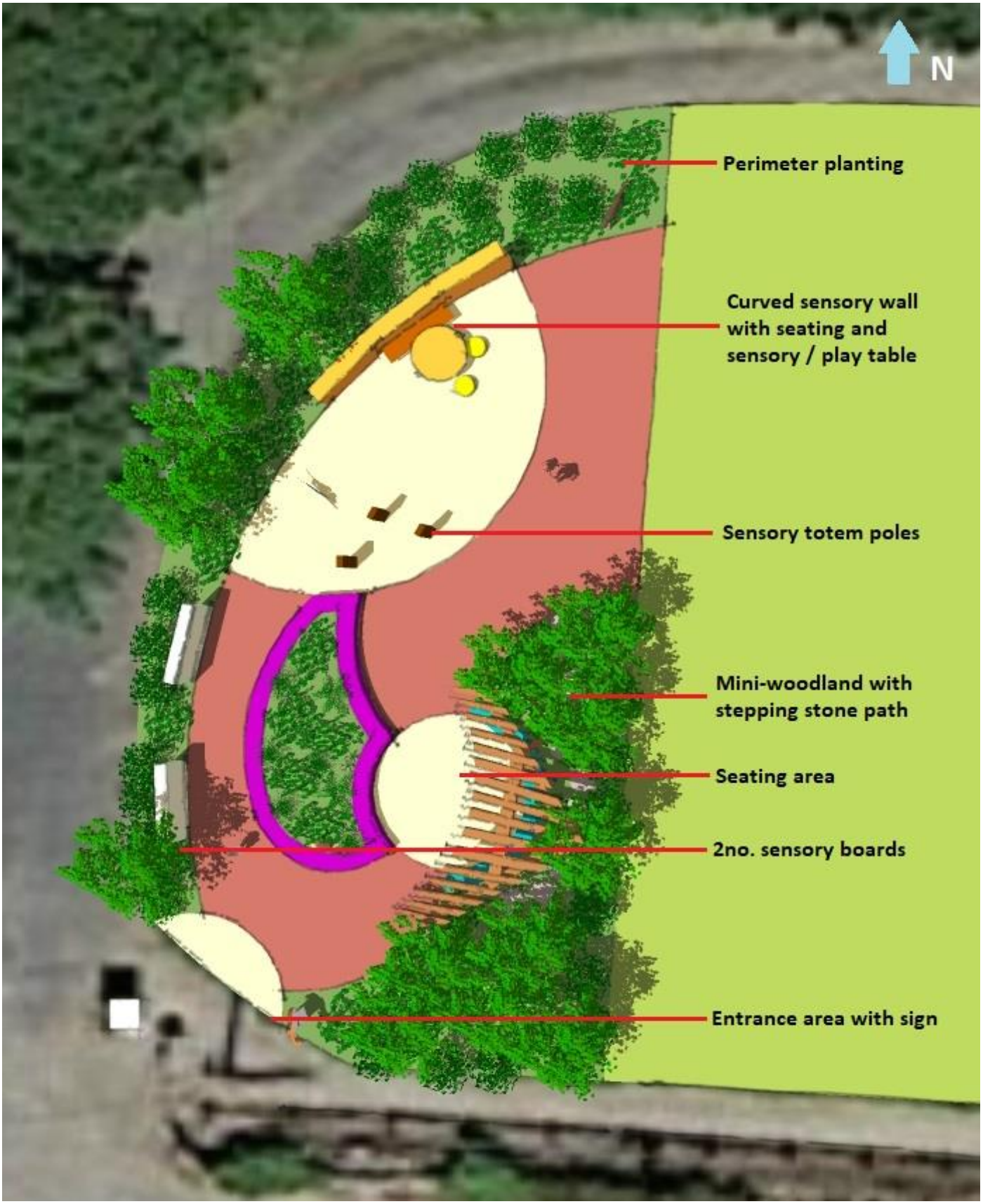
The large green area beside the school has been identified as an area to be developed to maximise its use for the school and community. The green is currently managed as short amenity grass and used for recreation purposes by the school. The plan proposes to retain the majority of the grass area for recreation and develop the end section on the village end as a community sensory garden.

The aim of the landscape proposals are to:

- Create a sensory garden for the school and local community use
- Create wildlife habitat
- Create a visually aesthetic space for the community to enjoy
- Use this space as an outdoor classroom where children can learn about biodiversity and the natural environment

The following plan is a **concept** landscape plan only. Further site investigations are required to produce detailed design plans.

Current view of the area for the proposed sensory garden.


N
Perimeter planting
Curved sensory wall with seating and sensory / play table
Sensory totem poles
Mini-woodland with stepping stone path
Seating area
2no. sensory boards
Entrance area with sign

View looking in from the entrance area

View looking in from the pitch area

View onto the seating area and woodland trail

View back onto the seating area and woodland trail

Mood Board

Example of a sensory board

Example of sensory totem pole

Example of sensory / play table

Example 2 of sensory / play table

Suggested Planting List

The following are some plant species that are suitable for planting in the sensory garden. Other suitable species may also be used depending on availability.

Planting Area	Trees	Large Shrubs	Small Shrubs, Groundcover & Perennials	Bulbs
Woodland Trail	Birch (*Betula pendula*)	Holly (*Ilex aquifolium*), Spindle (*Euonymus europaeus*), Guelder-rose (*Viburnum opulus*), Honeysuckle* (*Lonicera periclymenum*)	- Groundcover: Ivy (*Hedera helix* 'Hibernica') - Native Herbaceous Woodland Wildflowers: Primrose (*Primula veris),* Red Campion *(Silene dioica),* Wild Strawberry *(Fragaria vesca),* Wood avens (*Geum urbanum*), Cow Parsley (*Anthriscus sylvestris*), Hedge Woundwort (*Stachys sylvatica*) - Other Woodland Plants: Native ferns, Native Grasses & Sedges	Bluebell (*Hyacinthoides non-scripta*), Snowdrop (*Galanthus nivalis*)

Planting Area	Trees	Large Shrubs	Small Shrubs, Groundcover & Perennials	Bulbs
Perimeter Bed	Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Rowan (*Sorbus aucuparia*)	Holly (*Ilex aquifolium*), Bay Laurel (*Laurus nobilis*), Spindle (*Euonymus europaeus*), Guelder-rose (*Viburnum opulus*), Honeysuckle* (*Lonicera periclymenum*)	- Groundcover: Ivy (*Hedera helix* 'Hibernica')	Bluebell (*Hyacinthoides non-scripta*), Snowdrop (*Galanthus nivalis*)
Raised Planter	None	None	- Herbaceous Perennials: *Alchemilla mollis, Hosta spp., Aquilega spp., Bergenia spp., Sedum spectabile, Stachys byzantina, Kniphofia spp., Helleborus spp., Astrantia major, Geranium spp., Anemone spp., Eryngium spp., Dicentra spp., Agapanthus spp., Achillea millefolium var.* - Herbs: Lavander, Oregano, Chives, Fennel, Mint, Rosemary, Sage, Thyme, Bergamot, Borage, Chicory, Echinacea, Hyssop, Lemonbalm - Grasses: Medium height ornamental species	Ornamental onion varieties (*Allium* spp.), *Crocus* var.

Appendix 6: Church Car Park Landscape Plan

The raised bed forming the division between the car park and road beside the church at present has little biodiversity value and visual appeal. The bed is regularly crossed by school children while waiting for buses and to be collected.

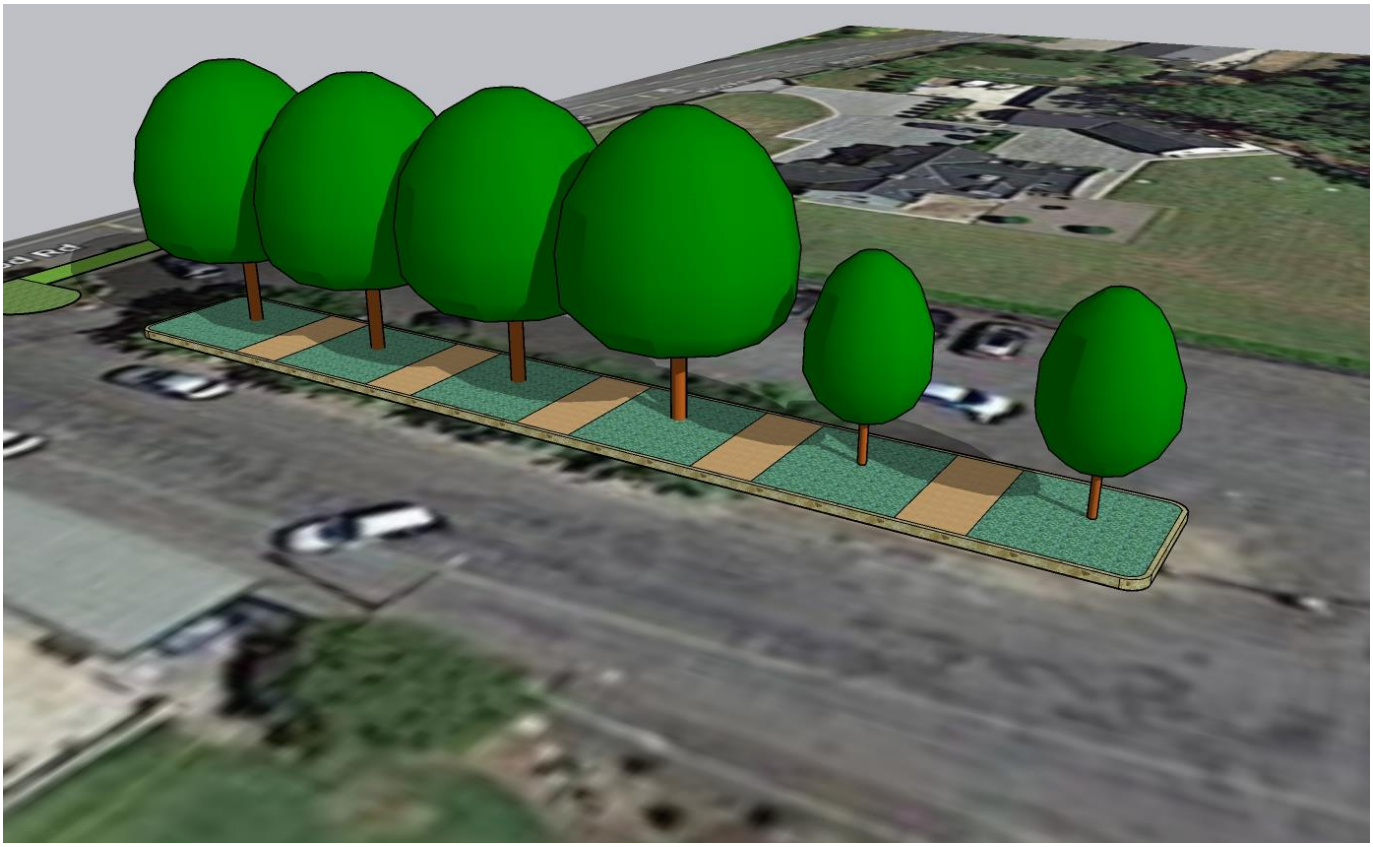
The landscape plan proposes to:

- Create beds of Ivy (*Hedera helix* 'Hibernica') with wildflower bulbs.
- Retain 2m wide paths at regular intervals between the trees. These should have a 100mm wide natural stone paving sett edging between them and the planting beds.
- Plant 2 new trees to replace the ones removed

As the ground is compacted ground works will be required to create the conditions for planting. This may require lifting the height of the low retaining walls to create extra depth of soil for planting. Care must be taken to minimise the disturbance to the roots of the existing trees.

Current view of the area for the proposed planting.


Legend
Existing trees
Proposed trees
Ivy & Bulb Mix
Crushed Stone Path
(2m wide)



View looking in from the entrance area

Suggested Planting List

The planting plan is a simple mix of ivy groundcover with flowering bulbs sown to emerge throughout the year. Other suitable species may also be used depending on availability.

Planting Area	Trees	Small Shrubs, Groundcover & Perennials	Bulbs
Planting Beds	2no. Whitebeam (*Sorbus aria* 'Lutescens)	Groundcover: Ivy (*Hedera helix* 'Hibernica') Planted at 9-11 plants / m² @ p9 pot size.	Bluebell (*Hyacinthoides non-scripta*), Snowdrop (*Galanthus nivalis*), Ornamental onion varieties (*Allium* spp.), *Crocus* var., Daffodil varieties

Appendix 7: Invasive Alien Species Control Notes for professional eradicators

Cherry Laurel (*Prunus laurocerasus*) Control Recommendations

Invasiveness	High Impact
Mechanism of Impact	Mature laurel develops into an impenetrable understorey, shading out any vegetation growing beneath. Establishment in woodlands results in lower plant diversity. Its wildlife value of bird nesting and pollen for pollinators is negated by its dense growth habit leading to the destruction of native woodland habitat in Ireland.
Scheduled Invasive?*	No
Critical Points about Laurel Biology	• Being in the cherry family, the seed is generally bird dispersed and therefore can have a far reaching dispersal from the parent plant. • Every part of the plant is poisonous due to its high cyanide content. It is therefore not grazed except by some insects. Birds eat the berries & their excretion of the seeds is the main method of seed dispersal. • Fresh cherry laurel leaves contain hydrocyanic acid which is very poisonous to humans and plants of alkaline soils therefore a mulch of cherry laurel will inhibit ground flora recovery in cleared areas. • Cherry laurel spreads vegetatively by both by branch layering and suckering from the roots.
Guiding Principles	• Do not allow any laurel plant to flower and set seed within areas that have undergone initial clearance. • Eliminate seed sources near cleared sites. • Timely follow-up and maintenance is critical to success. • Allow at least 10 years for eradication with effective implementation of control measures.
Treatment Recommendations:	**Initial Removal** • Stems should be cut as close to the ground as possible. • The cut material must be removed from the area to allow effective follow-up works and monitoring of cherry laurel. • Young single-stemmed plants <10 years old and up to 1m tall may be pulled by hand, if necessary, loosening the surrounding soils with a mattock or pick axe. In this case, all soil should be removed from the plant roots and roots allowed to dry out in-situ.
Treatment Recommendations: Stump Treatment	• Stump treatment involves cutting all stems of a plant close to the ground (within 2-4 cm) and immediately brushing the cut surface and any above ground parts of the plant with the herbicide using a paintbrush. Each cut stump must be treated in this way. • This method can be used on all plant diameters. • Including a plant-based dye in the herbicide will help to keep track of treated stumps. • Glyphosate: apply 'Roundup' in a 20% solution in water or • Tryclopyr: apply 'Garlon 4' in an 8% solution • It is important to treat all cut surfaces

Stump Treatment (cont.)	• This treatment must be undertaken in dry weather. It must remain dry for at least six hours. • It can be undertaken at any time of the year when the weather is dry and not windy. • Effectiveness of herbicide is reduced if plants are under stress from e.g. water logging, frost or drought. • As herbicide should not be used in sub-optimal conditions, it is possible to make a high cut (approximately 40cm), wait until the weather is dry, and then cut the remaining stump to ground level and then apply herbicide.
Treatment Recommendations: **Follow-up Control**	• Treated stumps need to be checked 15-18 months after treatment to see if a kill was achieved. Follow up should consist of the 'snip and treat' method for a full kill. The possible requirement of a follow up treatment means that record keeping is essential. • Snip and Treat: This method is essentially the same as the stump treatment method except that it is carried out on smaller plants or on the re-growth of stumps that were treated 15 months prior. Stems are cut back to ground level/old stump and painted as above using same concentrations. • Regrowth may need to be treated between 1 and 3 times. Any regrowth should be treated at most 3 years following previous treatment to prevent regrowth flowering and setting seed. • Three yearly follow-up monitoring and control is therefore required to check regrowth of treated stems and treat accordingly. • A systematic search of new laurel saplings should be undertaken at the same time, and seedlings/saplings treated appropriately.

* i.e. listed on 3rd schedule of the European Communities (Birds and Natural Habitats) Regulations 2011.

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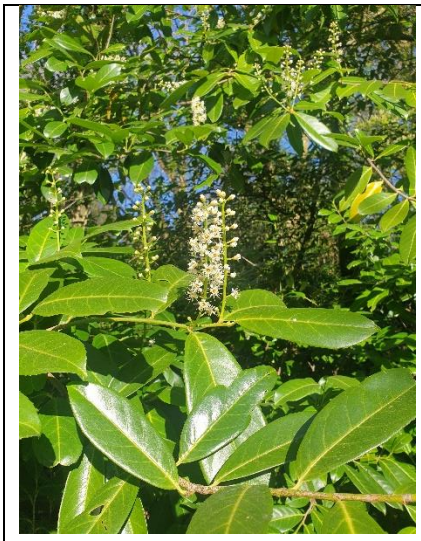
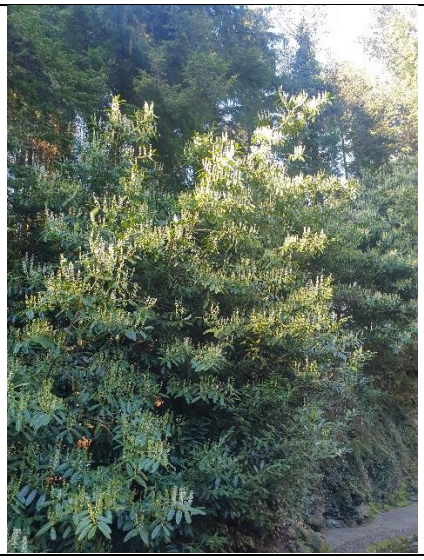
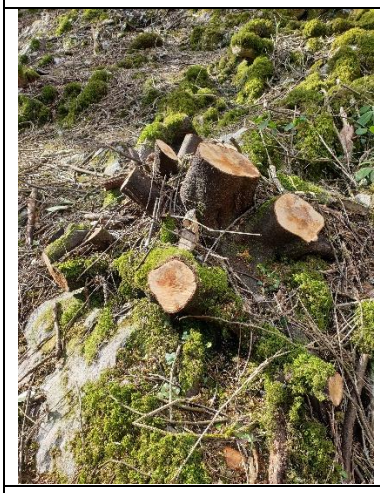
	
Cherry laurel flowering in March	Cherry laurel bush in full bloom
	
Typical understorey of Cherry laurel in Irish woodland – bare of any other species	A path under a grove of Cherry laurel with no other species growing. Note the heavy leaf litter which is slow to decompose & poisonous with a high cyanide content.
	
Cherry laurel stumps recently cut, March 2022 in Killarney National Park, Co. Kerry	Piles of cut & cleared Cherry laurel in Killarney National Park, March 2022

Rhododendron ponticum Control Recommendations

Invasiveness	High Impact
Mechanism of Impact	Mature rhododendron develops into an impenetrable understorey, shading out any vegetation growing beneath. Establishment in woodlands results in lower plant diversity. It is of little value for wildlife due to its toxic nectar and poisonous leaves.
Scheduled Invasive?*	Yes
Critical Points about Rhododendron Biology	• A plant from seed will start flowering from 10 to 12 years and from then on, usually annually. • **Regrowth from a cut stump usually starts flowering from 3 to 4 years of age**. • **A single plant can produce up to a million seeds** in one flowering period. Seeds are usually dispersed by wind. If seeds find a suitable substrate, they will normally germinate within a year. • Suitable conditions for germination are thin mossy carpets, rotten logs, with sufficient wet/humid conditions, bare peat or soil. • Most seeds are dispersed to within 100m of the parent plant. • In wetter conditions, **lateral branches close to the surface may give rise to roots while still attached to the parent plant**, thereby forming a new plant. This lateral spread is called 'layering'. • Rhododendron can be a vector for disease that kills native trees i.e. *Phytophthera ramorum* which causes Sudden Oak Death (Maguire, *et al*., 2008). The infected rhododendron plant may not die but the pathogen can be spread to nearby trees of which Oak, Ash, Beech, Sycamore, Horse Chestnut and Spanish Chestnut are all susceptible. Infected trees develop bleeding cankers of their trunks which can be fatal (Higgins, 2008).
Guiding Principles	• It is best not to allow any rhododendron plant to flower and set seed within areas that have undergone initial clearance. • Ideally seed sources near cleared sites also should be eliminated. • Timely follow-up and maintenance is critical to success. • Allow at least 10 years for eradication with effective implementation of control measures.
Treatment Recommendations: Initial Removal	• **Avoid cutting and removal of mature bushes when seed-heads are ripe (February to April)** which could increase seed dispersal. • **All stems** should be cut as close to the ground as possible. • The cut material ideally should be removed from the area to allow effective follow-up works and monitoring of rhododendron. • Young single-stemmed plants <10 years old and up to 1m tall may be pulled by hand, if necessary, loosening the surrounding soils with a mattock or pick axe. In this case, all soil should be removed from the plant roots and roots allowed to dry out in-situ. • If possible, clearance operations should begin downwind of the prevailing wind and continue to work in that direction in order to minmise seed dispersal across the clearance site.

Treatment Recommendations: **Stump Treatment**	• Stump treatment involves cutting **all stems** of a plant close to the ground (within 2-4 cm) and **immediately** brushing the cut surface and any above ground parts of the plant with the herbicide using a paintbrush. Each cut stump must be treated in this way. • **This method can be used on all plant diameters**. • Including a plant-based dye in the herbicide will help to keep track of treated stumps. • Glyphosate: apply 'Roundup' in a 20% solution in water or • Tryclopyr: apply 'Garlon 4' in an 8% solution • **It is important to treat all cut surfaces**. • This treatment must be undertaken in dry weather. It must remain dry for at least six hours. • It can be undertaken at any time of the year when the weather is dry and not windy. • **Effectiveness of herbicide is reduced if** plants are under stress from e.g. water logging, frost or drought. • As herbicide should not be used in sub-optimal conditions, it is possible to make a high cut (approximately 40cm), wait until the weather is dry, and then cut the remaining stump to ground level and then apply herbicide.
Treatment Recommendations: **Follow-up Control**	• Treated stumps need to be checked 15-18 months after treatment to see if a kill was achieved. Follow up should consist of the 'snip and treat' method for a full kill. The possible requirement of a follow up treatment means that record keeping is essential. • **Snip and Treat:** This method is essentially the same as the stump treatment method except that it is carried out on smaller plants or on the re-growth of stumps that were treated 15 months prior. Stems are cut back to ground level/old stump and painted as above using same concentrations. • Regrowth may need to be treated between 1 and 3 times. Any regrowth should be treated at most 3 years following previous treatment to prevent regrowth flowering and setting seed. • Three yearly follow-up monitoring and control is therefore required to check regrowth of treated stems and treat accordingly. • A systematic search of new Rhododendron saplings should be undertaken at the same time, and seedlings/saplings treated appropriately.

* i.e. listed on 3rd schedule of the European Communities (Birds and Natural Habitats) Regulations 2011.

Sources:

Barron, C. and D. Little. *The Control of Rhododendron in Native Woodlands*. Forest Service. Woodlands of Ireland. Native Woodland Scheme Information Note No. 3.

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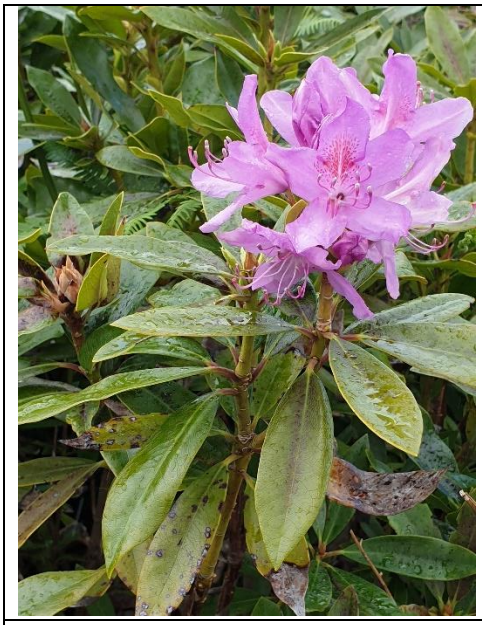
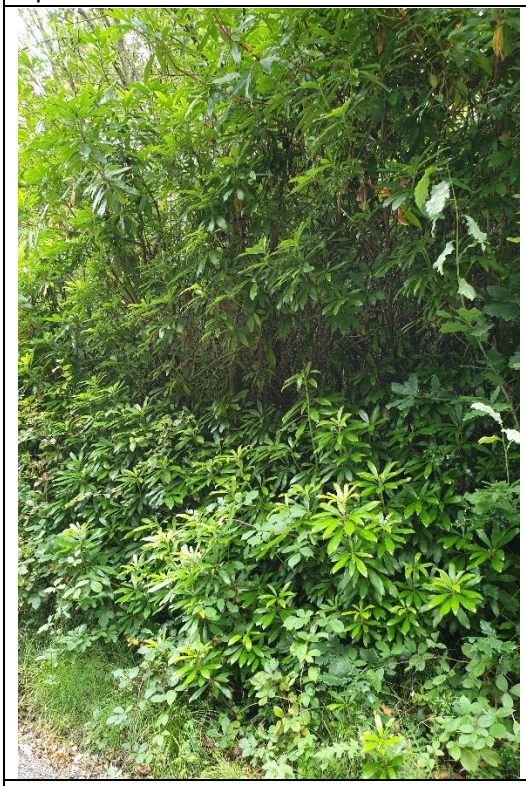
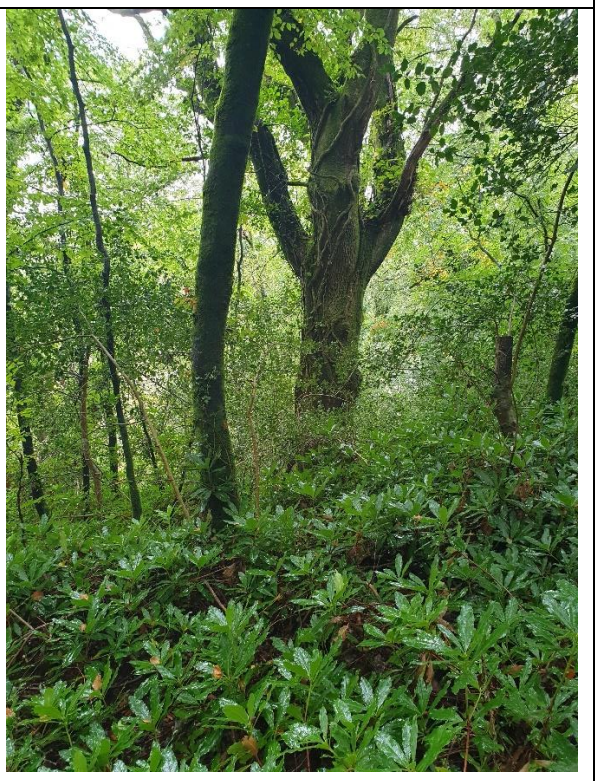
Maclean, J.E., Genney, D., Hall, J., Mitchell, R.J., Burslem, F.R.P. & Pakeman, R.J. 2019. *The effect of clearing invasive Rhododendron ponticum on the native plant community of Atlantic oak woodland*. Scottish Natural Heritage Research Report No. 1157.

Maguire, C. M., Kelly, J. & Cosgrave, P. J., 2008. Best Practice Management Guidelines Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*). Prepared for NIEA and NPWS as part of Invasive Species Ireland.

O'Halloran, D. 2015. Rhododendron & Cherry Laurel Management Plan 2015-2022 for the lands owned by Glenbower Wood & Lake Ltd. Report is publicly available to download: https://glenbower.com/wp-content/uploads/2015/03/Glenbower_Wood__Lake_Invasive_Mgmt_Plan_20-03-15_Rev_A1.pdf

Parrott, J. and N. MacKenzie. 2013. *A critical review of work undertaken to control invasive rhododendron in Scotland.* A report commissioned by Forestry Commission Scotland and Scottish Natural Heritage. August 2013.

***Rhododendron ponticum* images**

	
Rhododendron flowers each year from May to June & then seeds are shed from February to April	The only grazers of Rhododendron are invertebrates.
	
Dense regrowth occurs where Rhododendron is cut back & left unmonitored.	The dense growth of Rhododendron is the principle problem as it shades out all other plants leading to huge losses in the biodiversity value of a habitat.

Pheasantberry Control Recommendations (also known as Himalayan Honeysuckle (*Leycesteria formosa*))

Invasiveness	**Medium Impact**
Mechanism of Impact	Via competition. This plant can form dense monospecific stands where it can readily outcompete native shrubs and ground flora within woodlands.
Scheduled Invasive?*	No
Treatment Recommendations	<u>Mechanical Control:</u> • Individual plants can be dug out in early Spring (i.e. February-March) before seed is set. Leave plants on site to dry and rot down. <u>Chemical Control</u> • Cut down larger stands and paint stump or treat with herbicide. • Cut down to ground level and paint stump all year around. Stump paint with 200ml glyphosate per 1L water. or • Spray foliage with 100mL glyphosate (360g/l) per 10L water. • Treated stands to be monitored annually for regrowth. Repeated treatments may be required.

* i.e. listed on 3rd schedule of the European Communities (Birds and Natural Habitats) Regulations 2011.

Note: Within designated sites and other environmentally-sensitive areas, chemical control should be used as a last resort.

<u>Sources:</u>

Himalayan honeysuckle - Pest control hub - Northland Regional Council (nrc.govt.nz)

https://www.weedbusters.org.nz/what-are-weeds/weed-list/himalayan-honeysuckle/pdf/?nocache=1

Appendix 8: Ash Dieback

Unfortunately, our ash (*Fraxinus excelsior*) trees all over Ireland are facing into a very uncertain future as ash dieback disease (*Hymenoscyphus fraxineus*) is now well established across every county in Ireland. The disease is caused by a fungus, a blight similar to the potato blight that caused our Great Famine. Foresters' opinions differ between a 1% and 10% survival of our ash trees. This is a stark reality that we must acknowledge and therefore protecting the ash trees we have left is important too in order to monitor them for signs of resistance. This is a local project that may interest the local community in Cratloe to work on over the coming years. Scientists believe the key to survival of the ash species is the genetic biodiversity of wild ash trees i.e. some trees are bound to have a natural immunity if there is enough genetic diversity within the Irish ash population. Therefore, hopefully several of the ash trees at Cratloe will survive and thrive but unfortunately only time will tell.

Note the typical brown patches on these infected ash leaves

Leafless, outer branches of a diseased ash. Also not the epicormic growth i.e. green leaf shoots on the main branch but not on the outer branches.

What does ash dieback look like?

Ash dieback can affect ash trees of all ages. Younger trees are killed off quicker, as seen in hurley ash plantations but in general, all affected trees will show some or all these symptoms:

- Leaves develop brown patches in the summer.
- Leaves wilt and turn black. Leaves might shed early.
- Dieback of the shoots and leaves is visible in the summer.
- Lesions develop where branches meet the trunk. These are often diamond-shaped and dark brown.
- Inner bark looks brownish-grey under the lesions.
- New growth from previously dormant buds further down the trunk. This is known as epicormic growth and is a common response to stress in trees.

The fungus overwinters in leaf litter on the ground, particularly on ash leaf stalks. It produces small white fruiting bodies between July and October which release spores into the surrounding atmosphere. These spores can travel many kilometres to land on fresh ash leaves and infect another tree. The fungus then grows inside the tree, eventually blocking its water transport systems, causing it to die.

There is some good news! A very small proportion of ash trees are showing natural tolerance to the fungal disease. This means that they show minor symptoms and the disease does not have noticeable impact on their growth or health. Teagasc is working to identify such trees and build up a gene bank with the ultimate goal of producing tolerant ash seed and restore ash trees to Irish forests and hedgerows. This is where you come in! The Cratloe community can get familiar with their local ash trees and monitor them over the coming years. Any that show resistance should be highlighted to Teagasc and hopefully this beautiful species that plays such a huge role in our Irish culture and heritage will not be lost to us.

Sources:

https://treecouncil.org.uk/wp-content/uploads/2020/06/Tree-Council-Ash-dieback-tree-owners-guide-FINAL.pdf

https://www.teagasc.ie/crops/forestry/research/ash-resistance-to-ash-dieback/

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