Kilsheelan
Biodiversity Action Plan 2023-28

Plan produced by:

Green Pine Consultants

Mac Gowan Ecology
Botanical & Ecological Services

FACILITATED BY
Community Foundation Ireland

Kilsheelan Biodiversity Action Plan 2023-28

Contents

Acknowledgements & Contact Details

Thanks to everyone who helped produce the Kilsheelan Biodiversity Action Plan including our members, volunteers, residents and resident associations, and Tipperary County Council. A special thanks goes to the Community Foundation for Ireland who provided funding to produce the Plan.

We would also like to thank everyone who has supported us and helped finance the delivery of biodiversity actions in the past. There are too many to mention here but we very much appreciate it.

Finally, we would like to thank a few of the resilient and persistent team who strive to do their best for our natural environment. Firstly, Martin Kermerca (Biodiversity Officer KTT) and mentor on all things sustainable and climate change mitigation. And secondly to Mieke Brosnan, who carried out the ecology study in 2020.

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

- *Kilsheelan Tidy Towns*

Getting Involved:

If you wish to get involved with any of the actions outlined in this Plan, please contact:

Facebook: https://www.facebook.com/kilsheelantidytowns

Instagram: https://www.instagram.com/kilsheelantt/?hl=en

Photographs

Photographs used in this Plan are courtesy of Kilsheelan Tidy Towns, Brian Gaynor, and Dr Fiona MacGowan.

Summary of Principles, Objectives and Targets

We are currently in the middle of a biodiversity crisis. This is not just a problem for countries in other parts of the world. Here in Ireland, a Biodiversity Crisis was officially declared by the Dáil in 2019. Although we lost most of our native woodland's long ago, we still are seeing declines in native biodiversity across the country. To stop this decline, we will need to increase our efforts significantly at all levels of society including at the local level.

General principles:

The following general principles guide this Plan and actions:

1. Protect what you have! As a first step, ensure the protection of the existing sites and features of biodiversity interest in the local area and the network of green corridors connecting them. Where gaps exist in the network strive to connect them.
2. Less is more! Work with, rather than against nature to make actions taken for biodiversity conservation more efficient. Areas of natural succession and 'untidy' spaces with nettles, briars, etc. are positive for nature and reduce unnecessary maintenance.
3. Manage more areas of amenity grasslands less intensively as meadow. This includes grasslands on roadside verges, parks, residential estates, gardens, commercial estates, and elsewhere in the local area.
4. Increase native tree cover where space allows in the local area.
5. Move towards the elimination of herbicide in the local area.
6. Take steps to control and eradicate invasive species in the local area.
7. Raise awareness and engage the local community on issues and actions to conserve biodiversity in the area. This can include practical volunteer events, talks and walks, children's events, etc.
8. Monitor and survey biodiversity in the area to inform decision making processes and the success of current actions.
9. Encourage and promote actions to make the community more self-sufficient and reduce its environmental footprint, including the people, landowners, businesses, and other land managers in it.
10. Try to understand the big picture and be aware that some actions considered to be beneficial may not always be of benefit to biodiversity and nature in every setting. For example, planting trees is usually a good idea, but not if we are trying to protect a rare grassland and its associated flora and fauna.
11. Remember that people can benefit from biodiversity, as much as biodiversity can benefit from people. Strive to make our community spaces, and all new developments, places that deliver a range of environmental, cultural, and economic benefits. For example, trees can improve drainage and air quality, sequester carbon, provide shade and shelter, create habitat for biodiversity, and much more.
12. A coordinated response to climate change and biodiversity decline is required and is taken into account in the preparation of this BAP. Here wherever possible actions that are beneficial to both climate change and biodiversity are recommended, helping to mitigate and adapt to climate change as well as to conserve and restore biodiversity.

Kilsheelan Biodiversity Action Plan 2023-28

Preface to the Objectives, Targets and Actions:

This is a shared plan of action for Kilsheelan community to build on recent progress and help increase biodiversity in the area. The plan has five Objectives, each with specific targets and a list of actions. These Targets (listed below) and Actions, which are detailed in Section 3, are to be considered as guides for the community to achieve these Objectives. Their implementation is dependent on the resources available to the community of Kilsheelan including volunteer time, funding, and external support. Achieving even just some of these targets and actions will help make Kilsheelan a better place for biodiversity.

Objective 1	**Making more room for biodiversity in Kilsheelan**
Target 1.1	Continue to make more room for biodiversity on Kilsheelan's transport network
Target 1.2	Continue to make more room for biodiversity in the village centre
Target 1.3	Continue to look after the River Suir corridor with biodiversity in mind
Target 1.4	Continue to support Scoil Cill Síoláin to take actions for biodiversity
Target 1.5	Continue to support local faith communities to take actions for biodiversity
Target 1.6	Continue to work with residential estate committees and garden owners to take actions for biodiversity
Target 1.7	Continue to work with Kilsheelan GAA Club to take actions for biodiversity
Target 1.8	Work with local businesses to take actions for biodiversity
Target 1.9	Continue to work with surrounding landowners to take actions for biodiversity
Target 1.10	Protect and strengthen existing features of biodiversity importance and links between them
Objective 2	**Controlling Invasive Alien Species**
Target 2.1	Take measures to control Invasive Alien Species in the community
Objective 3	**Move towards the elimination of herbicide use**
Target 3.1	Move towards the elimination of pesticide use in the community
Objective 4	**Raising awareness of biodiversity**
Target 4.1	Raise awareness of local biodiversity and biodiversity projects
Target 4.2	Create opportunities for conservation volunteerism
Target 4.3	Increase biodiversity street art and signage
Target 4.4	Lobby the local authority on issues of biodiversity concern regarding new developments and future planning of the area
Target 4.5	Promote & support positive actions to encourage more sustainable lifestyles & individual choices
Target 4.6	Encourage children to connect with nature in the local area
Objective 5	**Citizen Science: Collecting evidence to track change and measure success**
Target 5.1	Monitor and record biodiversity and biodiversity actions taken
Target 5.2	Build capacity in the community to manage and record biodiversity
Target 5.3	Increase participation with this Biodiversity Action Plan

Section 1: Introduction

Welcome to our little village of which we are very proud. What makes Kilsheelan special? It has been described as a little gem. Indeed, there are many little gems to be found in our picturesque village. Nestling close to the River Suir, the old stone bridge built around 1820 is one focal point from which the majestic Slievenamon mountain can be admired.

Kilsheelan is situated on the north bank of the River Suir, 8 km east of Clonmel and 12 km west of Carrick-on-Suir. There is a population of around 1,000 people. Kilsheelan has won Tidy Towns twice, in 1975 and 1979.

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 Kilsheelan. The Plan is not intended to be a static document but rather to be regularly reviewed and updated over its life.

PROCESS TO PRODUCE THIS PLAN

Kilsheelan Tidy Towns received a grant from the Community Foundation for Ireland to develop a Biodiversity Action Plan (BAP) for the village and surrounding area. Green Pine Consultants and Dr Fiona Mac Gowan were contracted to deliver the project.

An initial visit to Kilsheelan was carried out to develop the Plan in late April 2023 where the consultant team met members of Kilsheelan Tidy Towns and took a walk about the village.

A draft of the Plan was produced in August 2023 and this was shared with Kilsheelan Tidy Towns whose feedback was sought. This was taken on board for the production of the final Plan, which was completed in November 2023.

A follow up visit is planned by Fiona to launch the Plan and meet with other members of the community and help further awareness locally about biodiversity and its protection and informed enhancement into the future.

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.



Why Protect It?

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. This is not just a problem for other parts of the world either. In Ireland, biodiversity still demonstrates worrying and ongoing declines. In 2019, a Biodiversity Crisis was officially declared by the Irish government in the Dáil. At the time they reported that Irish habitats, especially the peatlands, grasslands, and some of the marine habitats, remain under enormous pressure and that insects were declining on a massive scale throughout Europe – and this is still the case.

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.

Finally, we should respect the wonder of nature in all its glory and diversity and recognise that it has its own intrinsic value i.e. that nature has value in its own right, independent of human uses, even if it does not directly or indirectly benefit humans.

Why is Biodiversity in trouble?

In 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services[1] (IPBES) listed seven major global drivers of biodiversity loss. These drivers also affect biodiversity at the national and local level. In the same year, Ireland's latest report (Article 17) on the Status of EU Protected Habitats and Species[2] found that of the 59 habitat types and 60 species assessed, 85% of the habitats and 30% of the species were in an 'unfavourable' status (i.e. Inadequate or Bad), indicating no improvement on the 2013 assessments or a continuing decline in condition, extent and numbers. The report identified the main pressures on habitats as:

- Ecologically unsuitable grazing levels, which can be undergrazing (or even abandonment) as well as overgrazing;
- Pollution of fresh waters & coastal marine waters;
- Drainage and / or cutting of peatlands;
- Invasive species; and
- Recreational pressures.

When habitats become degraded there is a negative knock-on effect on the species that these habitats support. Considering that all habitats and species assessed in the Article 17 report are afforded legal protection, with SAC (Special Area of Conservation) designation for many of these habitats and species, the high level of unfavourable assessments is of concern and highlights the plight of biodiversity for habitats and species not specifically protected under EU directives. The government has committed to a broad range of actions with commitments across government departments to restore degraded ecosystems and species.

Main Drivers of Biodiversity Loss (IPBES)
1. **People's disconnect with nature** Connectedness to nature is the extent to which people are aware of their natural world and dependence on it. As human societies became industrialised and urbanised this connection with the natural world was lost. This disconnection is at the heart of our environmental crisis and alongside the lack of recognition for the value and importance of nature (Driver 2) are often the precursor to the remaining drivers listed here.
2. **Lack of recognition for the value and importance of nature** In many areas of human activity, nature has been taken for granted. The value of ecosystem services - the services that nature provides to us and which support our societies - has not been counted & nature's intrinsic value rarely recognised.
3. **Invasive Species and Disease** Invasive species out compete native species for space, food and other resources and can fundamentally alter local ecosystems. For example, the introduction of the grey squirrel has resulted in a dramatic decline in the native red squirrel population and invasive plants such as Cherry Laurel continue to harm native habitats (native woodlands in the case of Cherry Laurel). The global trade in animals and plants also risks the spread of pathogens to which native species have no resistance, e.g. Ash Dieback Disease.
4. **Pollution** Pollution has devastating direct effects on biodiversity, particularly in freshwater and marine habitats. Examples include the plastics, chemicals including pesticides, and nutrients released into the environment.
5. **Climate Change** The climate crisis is dismantling ecosystems at every level - extreme weather events destroy habitats; warmer temperatures change the timing of natural events and the distribution of species and their range is also changing.
6. **Direct exploitation of organisms** Logging, hunting, and fishing and the extraction of soils and water particularly at industrial scale has significant negative impact on biodiversity.
7. **Changing use of sea and land** Human land management for intensive agriculture, deforestation, industrialisation, extractive industries and urbanisation leads to an increase in habitat loss, degradation and fragmentation.

[1] The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services: https://ipbes.net/
[2] National Parks & Wildlife Service: https://www.npws.ie/publications/article-17-reports/article-17-reports-2019

One may feel powerless at this depressing list and yes, most of biodiversity loss will have to be addressed at a statutory level. However, 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!

In the words of our former President and former UN Special Envoy on Climate Change Mary Robinson, current chair of The Elders, we need a 'moonshot mentality' meaning we can still head into our best future world but positive leadership between civil society, business and governments is needed to deliver this. She feels that while the transition to net zero is generally depicted as sacrifices and costs, a green transition actually has the capacity to raise standards of living all over our planet. In her own words:

''I think the world has to have a wake-up moment of responsibility now. It's not a guilt trip. It's not making accusations to people. It's saying we have to manage this and manage it well, because our best world is still in front of us. We can get there.''

So, what can Kilsheelan do?

This Biodiversity Action Plan was commissioned for the community of Kilsheelan to have a professionally guided tool to make more room for biodiversity and engage the wider community.

Section 2 will highlight some of the main areas of biodiversity in the area.

Section 3 will list the biodiversity objectives and targets, and the actions that will achieve them.

Finally, **Section 4** 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 in the park.

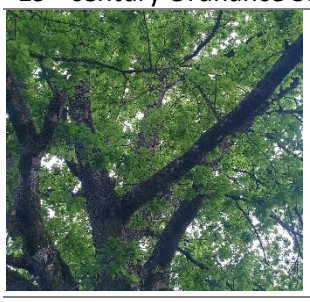
Section 2: Biodiversity in Our Area

Kilsheelan village is situated in a beautiful part of Ireland, along the banks of the River Suir nestled under the foothills of the Comeragh Mountains along the border between south County Tipperary and north Co. Waterford. To the north the famous rich farmland of the Golden Vale stretches towards Slievenamon. This iconic mountain famed in story and legend is covered with rich mountain blanket bog and heathland habitats while mixed woodlands skirt its base. The village of Kilsheelan faces southwards to the northern foothills of the Comeraghs which are covered in forest. Mostly State owned and run by Coillte, these forests do host pockets of native woodland habitat that is of wonderful biodiversity value, most especially along the Glasha river valley as it flows north down into the Suir.

Within the village, there are also several community sites that are acting as good habitat for a wide range of wildlife e.g. Isobel's herb garden; the old church & graveyard; the river side woodlands. 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. In the wider locality, it is also important to be aware of site designated for their national and international biodiversity importance – Natural Heritage Areas (NHAs) and Special Areas of Conservation (SACs). See www.npws.ie/maps-and-data for more detailed information on these sites.

Lower River Suir SAC (002137): The Lower River Suir SAC consists of the freshwater stretches of the River Suir and many of its tributaries immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford. The Suir is at the heart of Kilsheelan and the recent development of the Blue Way has ensured the beauty of the river is accessible for all.

Kilsheelan Lake pNHA (001701): This lake is a proposed NHA which is now included in the Lower River Suir SAC. The NPWS site synopsis written in 2013 described how it is one of only two lakes in Ireland known to support breeding carp. Carp need high summer water temperatures to breed but with climate change, ten years on this situation may change. The lake originally formed part of the greater landscaped gardens of Gurteen house and is portrayed on the 19th century Ordnance Survey maps as a 'decoy' lake meaning it was used for attracting wildfowl for hunting.

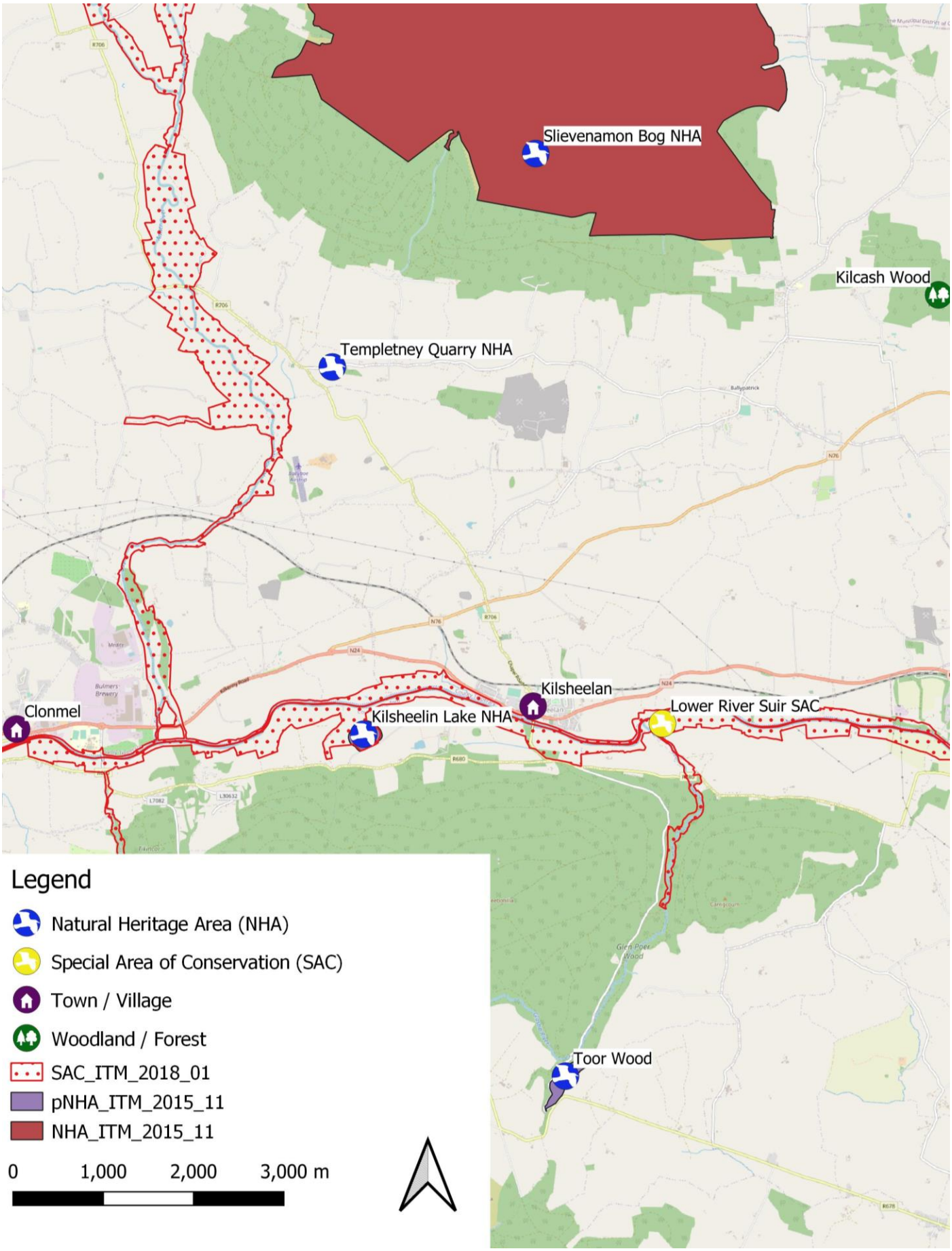


Toor Wood NHA (001708): Situated along the Glasha River valley, south of Kilsheelan, Toor Woods occurs as a small area of mixed deciduous woodland largely surrounded by conifer plantations, all of which is in State ownership managed by Coillte. Toor Wood is part of the greater Gurteen Le Poer woodlands which have covered these hills for hundreds of years. Being under Coillte management this means that these woods are open to the general public for walking and enjoying nature. Despite large areas of coniferous plantations, being an old woodland area, there are patches of mature relict oak woodland with a good diversity of native species including oak, ash, rowan, hazel and holly.

Slievenamon Bog NHA (002388): The iconic mountain of Slievenamon lies just 5km north of Kilsheelan dominating the south Tipperary landscape and famed in song and story. This NHA site is of considerable conservation significance as it contains good examples of upland blanket bog, wet and dry heath habitats hosting a range of wildlife. The lower slopes are covered in forestry, mostly coniferous plantations but there are some pockets of native deciduous woodland dominated by large, old oak trees.

Templetney Quarry NHA (001982): Templetney Quarry is a disused limestone quarry situated on the southern slopes of Slievenamon about 4km northwest of Kilsheelan. In addition to supporting a typical undisturbed limestone flora, this quarry contains several rare plant species thus highlighting the importance of the conservation of such places. This site contains a spectacularly rich assemblage of plant species that is very unusual in the intensively farmed landscape of south Tipperary.

Map of the Main Natural Heritage Sites of Interest



Recent Progress

The following are just some examples of actions taken in recent years to enrich the village's biodiversity:

Increasing Tree Cover in the Community

Kilsheelan Tidy Towns have helped to significantly increase tree cover in the greater Kilsheelan area. This has included 9,350 trees, made up of native saplings and fruit trees. They have achieved this by partnering with local landowners, the local authorities, and tree planting charities (e.g. Trees on the Land). Some of the tree planting projects include:

- 600m of native hedging was planted on the Blueway and the Clonmel Road
- 4 orchards were planted on public spaces in the town
- A pocket forest using the Miyawaki tree planting system was carried out on part of a local residential green space

Isobel's Herb Garden

An extensive herb garden, 'Isobel's Herb Garden' was planted in the centre of Kilsheelan, prominently placed for all to enjoy. This includes herb beds, a shelter, and interpretation signage all constructed on what was previously an unused piece of land.

Pollinator Friendly Planting

The group has embraced the concept of pollinator friendly flowerbeds as a way to boost and support biodiversity in urban landscape of Kilsheelan. They have created extensive flowerbeds, full of plants that are good for pollinators on the N24 on both sides of the village and in the town centre e.g. at the Grotto.

In addition, Kilsheelan Tidy Towns have undertaken a spring bulb project on some of the urban amenity lawn areas. This is been carried out in partnership with MSD.

Interpretation & Street Art

Kilsheelan Tidy Towns have taken several steps to promote the local natural heritage and the work they are doing for biodiversity. Some examples of this

- A wooden sculpture of honeybees which was erected in 2020 to create awareness about the importance of pollinator species.
- Wooden interpretation signs of local biodiversity were installed at the car park in the town centre.
- Other signs have been installed around the town including at the River Garden, Isobel's Herb Garden, etc.

In addition, the school have also put up a set of colourful biodiversity signs on their garden area. This covers a range of wildlife that can be expected in the area.

Sustainable Actions

Kilsheelan Tidy Towns recognise the importance of promoting more sustainable lifestyles and have taken actions to support local people in this regard. Some projects they have undertaken include:

- Installation of a public charging bench
- Installation of a bottle cap recycling station

They have been recognised for their endeavours, winning several awards in the National Tidy Towns Competition for this:

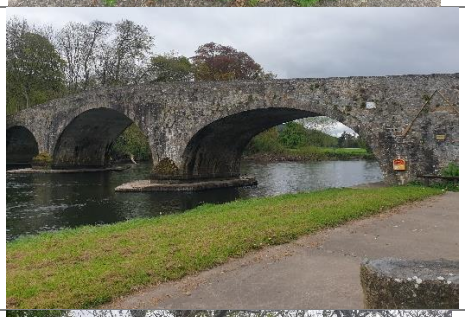
- Sustainable Development Goal Award, Small Towns 2022
- Sustainable Development Goal Award, Youth Category 2023
- Climate Action Award, Runner-up 2023

Grow Your Own

Kilsheelan Tidy Towns propagate their own annuals in their polytunnel. These plants are then used in some of their flowerbeds.

Litter Picking

Kilsheelan Tidy Towns also carry out the traditional work of Tidy Towns, picking litter. This helps to minimise the amount of rubbish entering the River Suir which negatively impacts water quality and aquatic biodiversity.



Biodiversity Training

In February 2020, Mieke Muyllaert was engaged by the Heritage Office of Tipperary County Council to carry out biodiversity training with Kilsheelan Tidy Towns. The group did a walk of the village focusing on the main habitat areas and a discussion was held at each, covering the features and value of the habitat and the most appropriate management for biodiversity. The main points were summarised in a short written report for the group.

Botanical Art Appreciation

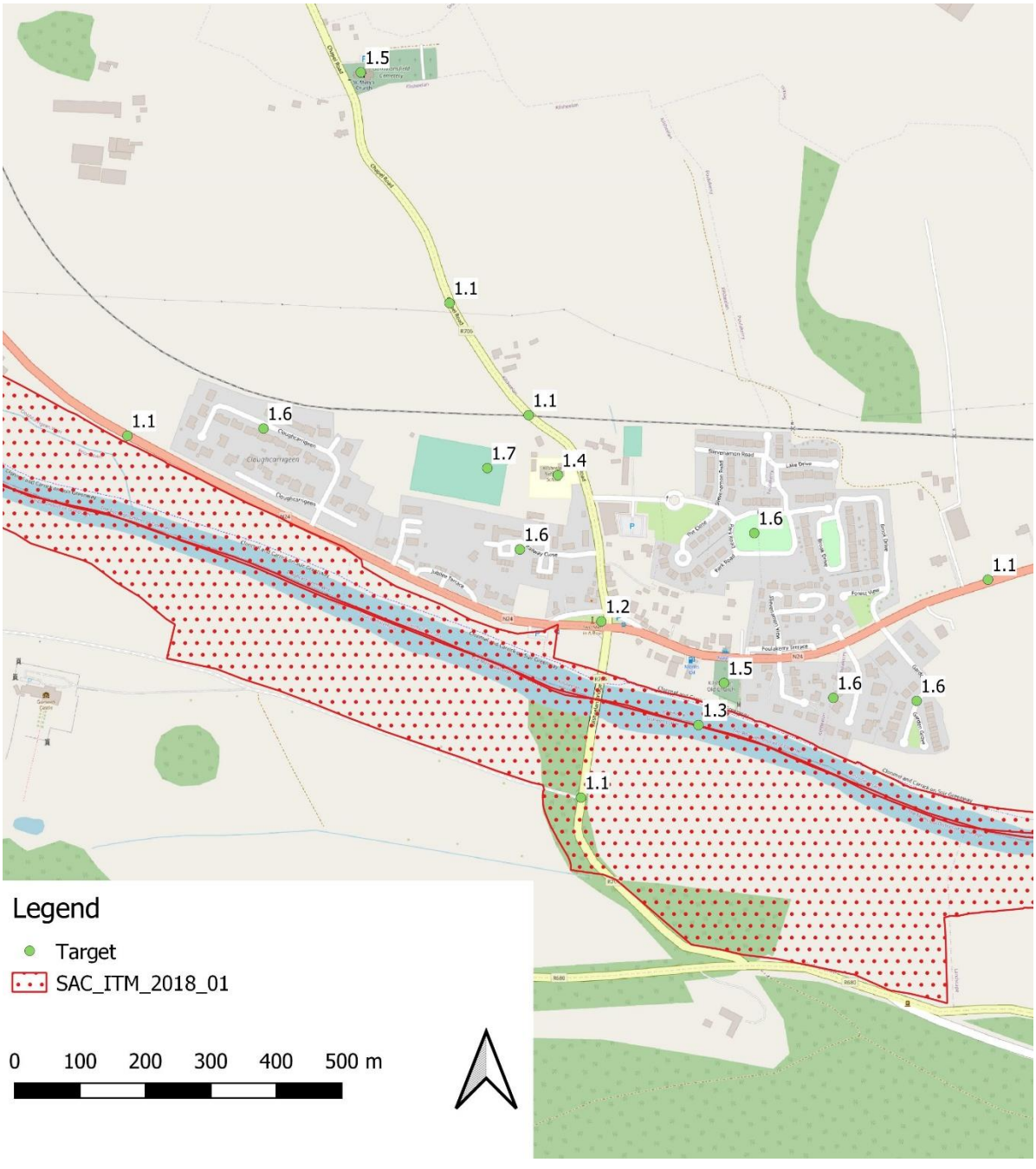
In 2022 local botanist & artist Mieke Muyllaert, funded by Creative Ireland, ran a Botanical Art workshop with KTT using art to gain a greater understanding & appreciation of the local flora along the River Suir Blueway. This is a new & innovative approach to spreading awareness of local biodiversity for a community group and no doubt, many will follow in KTT's footsteps!

Section 3: A Call to Action

This is a shared plan of action for the community to build on recent progress made for biodiversity and help Kilsheelan reach its full biodiversity potential. The plan has five objectives, each with several specific targets and actions:

Objective 1	Making more room for biodiversity in Kilsheelan
Objective 2	Controlling Invasive Alien Species
Objective 3	Move towards the elimination of herbicide use
Objective 4	Raising awareness of biodiversity
Objective 5	Citizen Science: Collecting evidence to track change and measure success

Map of Site-Specific Biodiversity Actions



Objective 1: Make more room for biodiversity in Kilsheelan

This objective aims to deliver practical benefits on the ground for biodiversity. Ten targets, each with a list of actions, have been identified. These are spread across a range of public and private spaces to where nature can be better accommodated.

Why:

- This Objective aims to conserve and increase habitats and native species in the village and surrounding landscape that will support biodiversity. This includes the conservation of existing and / or creation of new ecological corridors for species to move easily from one area to another.
- To deliver benefits for the wider environment e.g., carbon sequestration, improve soil processes and condition, improve air and water quality, etc.
- To make the village of Kilsheelan a greener, more attractive place to live, visit, and do business.
- To create opportunities for people of all ages to experience the natural world in their everyday lives and foster a greater appreciation of it.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 1.1	Continue to make more room for biodiversity on Kilsheelan's transport network
Target 1.2	Continue to make more room for biodiversity in the village centre
Target 1.3	Continue to look after the River Suir corridor with biodiversity in mind
Target 1.4	Continue to support Scoil Cill Síoláin to take actions for biodiversity
Target 1.5	Continue to support local faith communities to take actions for biodiversity
Target 1.6	Continue to work with residential estate committees and garden owners to take actions for biodiversity
Target 1.7	Continue to work with Kilsheelan GAA Club to take actions for biodiversity
Target 1.8	Work with local businesses to take actions for biodiversity
Target 1.9	Continue to work with surrounding landowners to take actions for biodiversity
Target 1.10	Protect and strengthen existing features of biodiversity importance and links between them

Target 1.1: Continue to make room for biodiversity on Kilsheelan's transport network

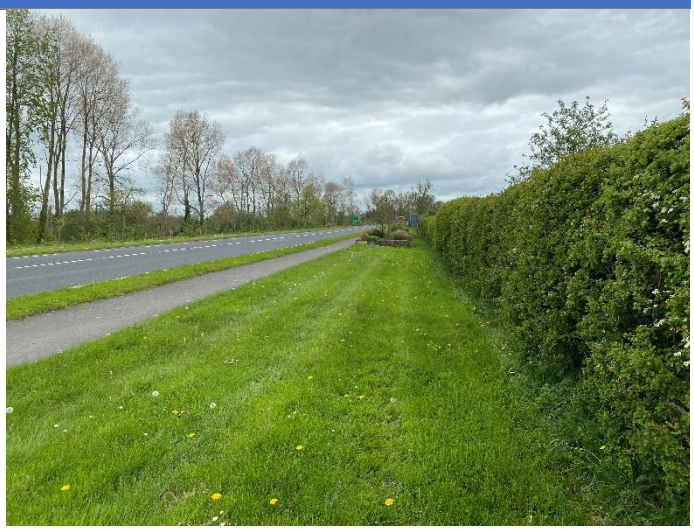
Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
1.1.1	Engage with Tipperary County Council with the aim of developing a grassland management plan for the N24 and R706 roadside verges leading into Kilsheelan. This should include adopting less intensive mowing regimes on suitable wide stretches of verge that don't interfere with road user health and safety. This could be the short cut meadow and / or hay meadow types (see Appendix 1). Some examples of suitable wide verges that could be considered are: a) The verge on both sides of the N24 (Clonmel side) within the 60km per hour zone – this includes the areas of grass verges between the raised planting beds. These could be managed less intensively as hay and / or short cut meadows. b) The verges on the N24 on the Carrick-on-Suir side all the way into the village could be manged less intensively as hay and / or short cut meadows. c) The grass verge outside the school grounds on the R706 could be managed as a short cut or hay meadow.
1.1.2	Engage with Tipperary County Council to ensure that all hedgerows on approach roads are managed with biodiversity in mind where this doesn't interfere with road user health and safety. See Appendix 3.
1.1.3	Continue to maintain existing pollinator friendly flowerbeds and planted verges on the N24 approach roads. a) Where plants have failed on the planted verges on the Carrick-on-Suir side consider trialling more salt tolerant pollinator friendly perennials in their place. b) Infill any gaps in all the flowerbeds with pollinator friendly perennial species. Where possible engage keen local gardeners to use cuttings or splittings of suitable plants to infill the gaps.
1.1.4	Engage with Irish Rail to find out what actions they are taking for biodiversity, and opportunities to increase biodiversity on the railway line verges and station in the village. See their guidance document for biodiversity below*.

*Link to Irish Rail Biodiversity Guidance Document: https://www.irishrail.ie/Admin/getmedia/cc260fdf-7f93-47d2-a55a-ddf3887432a6/Iarnrod-Eireann-Biodiversity-Guidelines.pdf

Photo Board: Transport Network

Verge on the approach from Clonmel – this could be managed as meadow with the fringe along the road mown more regularly



Green verge on the N24 (Clonmel side) which could be managed as meadow. Continue to maintain the large flowerbeds on this verge.

The grass verges on the approach from Carrick-on-Suir could be better managed as meadow during the growing season.

The grass verges on the approach from Carrick-on-Suir could be managed as meadow. The gaps in the flowerbeds could be infilled with more pollinator friendly planting.

The verge outside the school could be managed as meadow, maintaining the fringe along the footpath.

Trial the use of salt tolerant perennials along the roadside planted verges.

Target 1.2: Continue to make more room for biodiversity in the village centre and streetscape

Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 7

	Action
1.2.1	Explore opportunities to increase biodiversity in the car park area: • Manage the lawn areas on both sides of the car park less intensively as a short cut meadow (see **Appendix 1**). The fringes along the footpaths and roads should be maintained regularly as short grass. • Continue to maintain the existing flowerbeds and if there are gaps, infill plant with pollinator-friendly perennial species (refer to All Ireland Pollinator Planting Code for suitable plant lists: https://pollinators.ie/wp-content/uploads/2022/12/Pollinator-Planting-Code-Guide-2022-WEB.pdf). This is an opportunity to engage any keen gardeners in the area and use suitable splitting's from their gardens and other beds in the village.
1.2.2	Explore opportunities to increase biodiversity on the village green: • Manage the grassland less intensively as a short cut meadow (see **Appendix 1**). The fringes along the footpaths and roads should be maintained regularly as short grass. • Where there are gaps in the planting beds around the green, infill plant with pollinator friendly perennial species. This is an opportunity to engage any keen gardeners in the area and use suitable splitting's from their gardens and other beds in the village. • Work with Tipperary County Council to produce a wrap for the litter bin to raise awareness of biodiversity in the area. • Continue to manage the base of the street trees with clever planting schemes.
1.2.3	Explore the opportunity to manage grass on the motte and grotto less intensively as a meadow, either short cut or hay meadow (see **Appendix 1**). This will support a range of flora and fauna, the flowers will add visual interest throughout the year, and reduce resources required to manage this steep grassland.
1.2.4	Continue to maintain the herb garden, which is a very clever use of this space in the village centre. As the planting continues to mature these could be used as a source of splittings for other beds in the village.
1.2.5	Continue to maintain the existing meadow and trees on the green space beside the car park and River Suir walk.
1.2.6	Carry out a community rain garden project in the village to encourage and support homeowners, businesses, and local authority to install rain gardens to manage rainwater from roofs and in the urban streetscape. See the Info Box below.
1.2.7	Install water butts and ponds to harvest rainwater runoff for watering flowerbeds, containers and hanging baskets. Note: the use of perennial pollinator-friendly plants instead of annual bedding plants in flowerbeds will significantly reduce the need for watering throughout the year.
1.2.8	Identify any excess hard standing areas in the village and engage Tipperary County Council about the potential to replace them with soft landscaping and street trees.

Note: Maintenance plans should be put in place for each area being managed for biodiversity outlined above.

Photo Board: Village Centre

The lawn beside the car park could be managed as a short cut meadow.

The village green lawn could be managed as a short cut meadow, maintaining the fringes along hard standing areas.

Infill any gaps in existing flowerbeds using splittings from other flowerbeds (with help from local gardeners)

The Motte and Grotto grassland would be a lovely meadow if managed correctly

The herb garden is a great feature in the village.

The proposed park should be developed in keeping with its landscape and ecological setting.

Info Box: Rain Gardens and Bioswales

Rain gardens and bioswales can be simply described as vegetated landscape features designed to slow down and hold on to rainfall, slowly releasing it. Alongside Sustainable Drainage Systems (SuDS), they are a more natural way of managing urban drainage, especially around roads, properties and developments.

These features help to delay the peak flow of rainwater experienced after a rainfall event, more accurately mimicking what you'd expect in the natural water cycle, where vegetation and the natural landscape slow down water.

They can be used alongside other landscape features such as ponds, wetlands, trees, meadows in housing, schools, leisure or retail parks, community gardens and neighbourhoods as part of an holistic approach to manage rainwater in the urban landscape.

Bioswales

These are wide channels or large basins designed to allow water to move along them and infiltrate into the ground as it passes along. An overflow pipe is typically included to handle excess water.

Rain Gardens

A rain garden is a shallow area of ground or dip which receives run-off from roofs and other hard surfaces. It is planted with plants that can tolerate periods of waterlogging and drought. Storm water fills the depression and then drains.

They can be either in-ground rain gardens or rain garden planters. In-ground rain gardens are vegetated shallow depressions at ground level such as this one on Main Street in Tramore, Co Waterford.

Rain garden planters are designed to take-in rainwater from roofs into planters. For information on how to build a rain garden planter see Dublin City Council's guide: https://www.dublincity.ie/sites/default/files/2021-04/a-how-to-guide-to-rainwater-planters-english.pdf

Case studies:

The following two community rain garden projects have lots more information and ideas:

- NatureRX Rain Garden Pilot (Dublin based): https://www.biurban.ie/rain-garden-project
- 10000 Rain Gardens for Scotland Project: https://www.10kraingardens.scot/about-the-campaign/

Target 1.3: Continue to look after the River Suir corridor with biodiversity in mind

Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 7

No.	Action
1.3.1	Continue to organise bankside clean ups and litter picks to prevent waste in particular plastics from entering the waterway.
1.3.2	Raise awareness of the problem of microplastics entering our rivers and encourage their reduction, Tidy Towns can take a lead on this, Waterways Ireland can assist in clean ups.
1.3.3	Seek to protect and strengthen hedgerows, treelines, and woodlands adjacent to the River Suir. This includes allowing for natural regeneration of native woodland species and where trees are to be planted that these should be native and of Irish provenance and origin only (ideally sourced from mature native species in the locality).
1.3.4	Engage with the local authorities about the grass verge management along the river. The grass verges would be better managed less intensively as meadow to support wildlife along the river's edge (the fringe of approx. 40cm on both sides of the footpath could be managed more regularly).
1.3.5	Continue to develop the riverside garden as a space good for people and nature: • Infill plant the flowerbeds with a more varied mix of pollinator friendly herbaceous perennials and edible plants. This is an opportunity to engage any keen gardeners in the area and use suitable splittings from their gardens and other beds in the village. Ensure that no invasive plant species are used in the garden. • A new bed could be created along the front boundary of the garden to soften the grey / hard look of the garden. Use a mix of pollinator friendly species and as per the point above use this as an opportunity to engage keen local gardeners in the area. • Use locally harvested seed (grasses and wildflowers) to create the new meadow area. • Consult with local experts to ensure that no invasive plant species are used in the garden to avoid any unwanted escapees into the surrounding river corridor.
1.3.6	Engage with the NPWS and local authorities to eradicate known invasive species along the corridor. Cherry Laurel and Winter Heliotrope were both recorded in the woodland adjacent to the river (beside the car park). See Objective 2.
1.3.7	Engage with Local Authority Waters Programme about the potential to get a detailed local river management plan carried out. This should include a survey of the section of river through the village and recommendations for actions and management.

Note: It is important to consult with the local Heritage Officer, the NPWS, and Waterways Ireland prior to undertaking any actions adjacent to the river to ensure they are in compliance with all Water Framework Directive and Habitats Directive Legislation requirements.

Photo Board: River Suir Corridor

Riparian corridors should be protected – a detailed river corridor management plan would ensure the best practice management and actions going forward

Seek to eradicate known invasive species such as the Cherry Laurel here in the woodland along the river.

The grass verges along the river corridor would be better managed less intensively to support biodiversity. This would also be more in keeping with the natural landscape setting. Only the fringe along the footpath requires regular cutting.

The existing beds in the riverside garden could be planted with a broader mix of pollinator friendly and edible species

Use locally harvested seed to create the new meadow.

Target 1.4: Continue to support Scoil Cill Síoláin to take actions for biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
1.4.1	Continue to work with the school to explore opportunities to maximise the grounds for outdoor learning and to increase biodiversity. Some actions to consider include: • Continue to use and maintain the food garden. This is a great space for teaching children about local food and how it is produced. • Manage a selected area(s) of the lawn space as a meadow. The lawn in front of the food garden could be considered for this. Maintaining mown paths through them will allow the children access into it so they can experience all the wildlife that use them. See **Appendix 1**. • Ensure all pots and flowerbeds are planted with pollinator friendly perennial species. • Explore the opportunity to create a small wildlife pond within the grounds. These can be very biodiversity rich features and a great learning resource. • Ensure the school has a copy of the All-Ireland Pollinator Plan guide for schools, which has lots of great ideas. This is available at: https://pollinators.ie/resources/

Photo Board: Scoil Cill Síoláin

The garden is a great outdoor resource for the school

A brilliant example of signage on the colourful garden fence

Target 1.5: Continue to support local faith communities to take actions for biodiversity

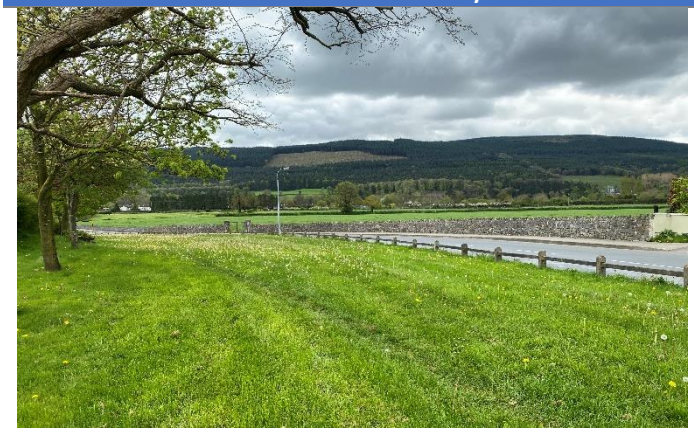
Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 7

No.	Action
1.5.1	Continue to work with St Mary's Church to take actions to increase biodiversity on their grounds and with their congregations. Some suitable ideas include: • Manage selected areas of grass less intensively as shortcut meadow. See Appendix 1. • Where space allows plant native trees, hedging and traditional Irish varieties of fruit trees. For example, the Irish Yew tree has long been associated with church grounds and graveyards and some of these could be considered for planting here. See Appendix 3.

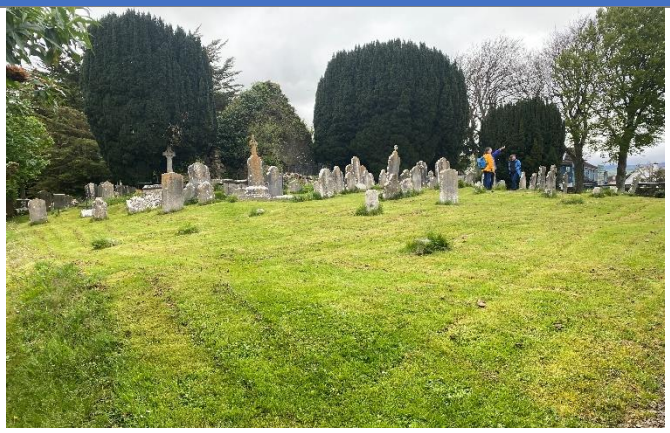
No.	Action
	• Use pollinator friendly plants in hanging baskets, pots, and flowerbeds in place of annuals. • Move towards the elimination of herbicide use to control weeds on green spaces and hard standing surfaces where this is carried out. See Objective 3. • Encourage their congregation to take actions for biodiversity where they live.
1.5.2	Explore the opportunity to increase biodiversity in the Old Church Graveyard. Some ideas include: • Manage selected areas of grass less intensively as meadow. These old graveyards are often very rich in different and unusual plant species if they are given a chance to flower. See Appendix 1. • Work with the Tipperary Heritage Officer to put in place a management plan for ivy on the old stone walls. Ivy is a native plant of huge biodiversity value, however, its presence on old stone structures can be damaging. It is crucial that professional guidance is sought if ivy needs to be removed from such structures as uninformed removal can often lead to wall collapse. The maximum a community group can do is to give heavy ivy growth on old walls a 'short back and sides haircut' i.e. a trimming of heavy growth leaving stems and roots on the walls alone! N.B. other species of small plants are not damaging and should be left – many are relict plants bringing the building's past to life. • Move towards the elimination of herbicide use to control weeds on green spaces, walls, and hard standing surfaces where this is carried out. See Objective 3.

For a fuller list of ideas the All-Ireland Ireland Pollinator Plan has a guidance document especially for Faith Communities: https://pollinators.ie/wordpress/wp-content/uploads/2018/08/Faith-Communities_actions-to-help-pollinators-2018-WEB.pdf

Photo Board: Faith Community Grounds



Explore the opportunities to work with St Mary's Church where it is practical to manage selected areas of grass less intensively



The lawn grass in old graveyards are often very species rich, selected parts of the grass could be managed less intensively to allow these species to flower

The vegetation on the old stone walls provide important habitat for lots of different invertebrates and birds – it is important to manage it correctly in partnership with the local Heritage Officer

The headstones are rich in different lichens, which are dual organisms i.e. a fungus and one or more algae in a stable, mutually beneficial (symbiotic) partnership

Target 1.6: Continue to work with residential estate committees and garden owners to take actions for biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 3, 4, 5, 7

The following are some general actions for residential committees to consider increasing biodiversity.

No.	Action
1.6.1	Manage selected part(s) of the common green areas as meadow, either shortcut or hay meadow. These should be targeted at the areas not used for recreation. For larger meadows, incorporate mown paths to allow residents to access the meadow. See Appendix 1.
1.6.2	Manage the trees in the common green spaces, including the area around the base of them, using environmentally sensitive methods. This can be achieved by: • Eliminating herbicide for the control of vegetation (where this is the current practice). • Use leaf litter to mulch around the base of trees each autumn. Strimmers and ride-on-mowers should not be used against the base of trees as they can kill or weaken them. • As much as possible avoid planting trees as individuals, instead plant trees in small groups and manage the vegetation underneath less intensively. • Monitor any tree ties and stakes used on planted trees on an annual basis. Adjust as necessary and remove once the trees can stand unsupported without bending or shifting in the ground (typically 1.5-3 years depending on the size of the tree at planting). Note: Tree ties and stakes are only required on trees planted at larger sizes.
1.6.3	Plant native hedgerows along unplanted estate boundaries. Where space allows consider planting native trees in small groups and traditional Irish fruit trees – if possible use local varieties including apple, pear, plum, and cherry. See Appendix 3.
1.6.4	In existing flowerbeds and containers use pollinator friendly herbaceous perennials to infill any gaps and to replace annual bedding plants where these are used. Where possible engage keen local gardeners to source the plants and use this as an opportunity for a community event on plant propagation.
1.6.5	Manage hardstanding areas (paths, roads, and car parking areas) and around site infrastructure in lawn areas (e.g. manhole covers, road signs, utility boxes, etc.) using environmentally sensitive methods like: • Use non-herbicidal methods for weed control on hard standing areas e.g. mechanical sweepers. • Strim around site infrastructure located in lawns rather than using herbicide. • Collect fallen leaves on hard standing areas for reuse as mulch around trees and in flowerbeds. • Where possible create swales and rain gardens to manage rainwater runoff.
1.6.6	Consider incorporating natural play and learning opportunities into common green areas. This can be done simply by maintaining paths through any new meadows, tree planting, and other 'wild areas', and by incorporating other natural features that promotes play (e.g. fallen tree logs, boulders, mounding, etc.) cleverly within these new natural spaces in the estate. Example: The existing playground in 'The Park' could be expanded if natural play was developed on the green spaces around it. A landscape plan would be beneficial to guide any development of this space for these purposes.
1.6.7	Run workshops to encourage residents to take actions in their gardens to increase biodiversity. Some practical actions they can take in their gardens include: • Leave corners / pockets of the garden to be managed less intensively, this will include allowing nettles, briars, and other native plants to grow. • Manage part(s) of the lawn less intensively. **See Appendix 5**. • Erect and maintain bird boxes and baths (these require regular maintenance) • Use native shrubs and trees as much as possible and avoid using invasive species. • Construct a wildlife pond.

No.	Action
	• Use pollinator-friendly plants in flowerbeds and containers - where possible work with other keen local gardeners to source / share suitable plants from splitting / cuttings. • Compost green waste and reuse once ready in garden beds as mulch • Eliminate the use of herbicides. • Manage rainwater runoff from roofs and hardstanding areas e.g. harvest rainwater for reuse in the home / garden and / or create rain gardens. The *'Biodiversity for Gardening'* booklet has lots more ideas and tips: https://Tipperary.ie/wp-content/uploads/Garden-Wildlife-Booklet-WEB-17MB.pdf
1.6.8	Engage with Tipperary County Council to ensure that any future residential developments are designed with green infrastructure principles in mind. This should include the protection of existing biodiversity features or ecological corridors of importance on the site, and the development of new green spaces and features that deliver multiple environmental and social benefits e.g. vegetated bioswales and / or rain gardens in the common green spaces can minimise rainwater runoff from the site.

Photo Board: Residential Estates

The larger green spaces in estates could be better managed to create a wider range of functions including for natural play, biodiversity, visual, etc.

New pocket forest in 'The Close' – these are great features on the common green spaces providing habitat for all sorts of wildlife

Target 1.7: Continue to work with Kilsheelan GAA Club to take actions for biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 7

No.	Action
1.7.1	Encourage and support Kilsheelan GAA with the continued development of green infrastructure on their grounds. Some practical ideas they could consider increasing biodiversity include: • Manage the grass verges along the entrance road as meadow. See **Appendix 1**. • Plant a native shelterbelt along the western boundary once the new pitch development is completed. • Plant native shelterbelts, hedgerows, and pockets of trees on other unused space to increase shelter and habitat for biodiversity. • Consider installing Swift boxes and a caller on the club building. • Eliminate the use of herbicide where / if it is used for weed control. See Objective 3.
1.7.2	Participate in the GAA's new Green Club Programme aimed at making clubs around Ireland more sustainable and biodiversity friendly: https://www.gaa.ie/my-gaa/community-and-health/green-clubs-sustainability/

Target 1.8: Work with businesses to take actions for biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 7

No.	Action
1.8.1	Engage with local businesses to carry out actions to increase biodiversity on their premises and in their locality. Some ideas include: • Where they have areas of lawn grass on their premises that is not used for other purposes then these could be better managed as meadow. **See Appendix 1**. • Where space allows on their premises, plant native trees, hedgerows, and traditional Irish varieties of fruit trees. **See Appendix 3**. • Use pollinator friendly perennial plants in their flowerbeds in place of annuals where this is done. • Install Swift boxes and callers on suitable buildings. • Move towards the elimination of herbicide use to control weeds on green spaces and hard standing surfaces. • Encourage their staff to take actions for biodiversity. • Sponsor local biodiversity projects. • Run staff volunteer biodiversity events e.g. tree planting events For a fuller list of ideas the All-Ireland Ireland Pollinator Plan has a guidance document especially for Businesses: https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Businesses_actions-to-help-pollinators-2018-WEB.pdf
1.8.2	Encourage local businesses to implement environmental management systems with the aim of: - Cutting down on waste - Lowering energy use - Using renewable resources - Avoiding risk and preventing pollution - Complying with regulatory and legal requirements - Designing for the complete product lifecycle.
1.8.3	Continue to engage with and support MSD as they carry out actions to increase biodiversity on their premises at Kilsheelan.

MSD Ballydine

The international biopharmaceutical company MSD established its first site in Ireland in Ballydine just outside Kilsheelan in 1976. It is located in an area located between the River Suir and the railway on the site of the old Ballydine House and farm. Today the site retains many of the characteristic landscape features of the farm with several different habitat types scattered across the site. With many of Kilsheelan's population working for MSD, the links to the community are strong including working together for the benefits of the local flora and fauna. A number of employees have formed a biodiversity group and two nature trails have been developed with various biodiversity projects on site including tree planting, pollinator-friendly bulb planting and an eel release project working with Inland Fisheries Ireland. Kilsheelan TidyTowns will continue to liaise with MSD Ballydine sharing local biodiversity knowledge and furthering awareness.

Biodiversity sign at entrance to Nature Trail

Old tree-lined avenue retained as part of nature trail

Different grass-mowing regimes on site

Ballydine stream along Nature Trail 1

Target 1.9: Work with surrounding landowners to take actions for biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 3, 4, 5, 6, 7

No.	Action
1.9.1	Organise and / or promote training workshops and events to local farmers and smallholders on sustainable farming methods that will also increase farm biodiversity. This can include talks and farm walks aimed at promoting protecting and increasing farm tree cover / agroforestry systems, managing hedgerows with biodiversity in mind, improving farm soil health, nutrient management, organic farming, etc.
1.9.2	Work with tree planting charities to carry out a farm tree cover project which would support interested farmers and smallholders with the provision of native trees for native hedgerows and farm woodland.
1.9.3	Encourage farmers and smallholders to consider the tradition of managing 'Hare's corners' in small pockets around the farm. See Info Box below.
1.9.4	Explore the opportunity to engage with Coillte as they plan the future management of their publicly accessible forest sites in the vicinity of Kilsheelan. Some of these are already being managed for their biodiversity value as part of Coillte's aim to ''enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025'' (www.coillte.ie).

Info Box: The Hare's Corner, an old Irish farming tradition

The Hare's Corner is an age-old tradition in Ireland where small areas are left for nature around a farm. People knew that wildlife needed spots free from human intervention - clearing and tidying. The concept has been taken on expanded in Co. Clare by the Burrenbeo Trust where they are encouraging farmers to consider small projects such as pocket woodlands, mini orchards, small ponds and green sheds for corners of their farms (https://burrenbeo.com/thc/).

Such small areas can be of huge value for biodiversity on busy farms where the intensification of agriculture over recent decades has left little room for nature. Returning to this tradition of our forebears and spreading the idea to other counties in Ireland has the capacity to slowly but surely increase the space for nature that the Biodiversity Crisis so badly needs.

Target 1.10: Protect and strengthen existing features of biodiversity importance and links between them

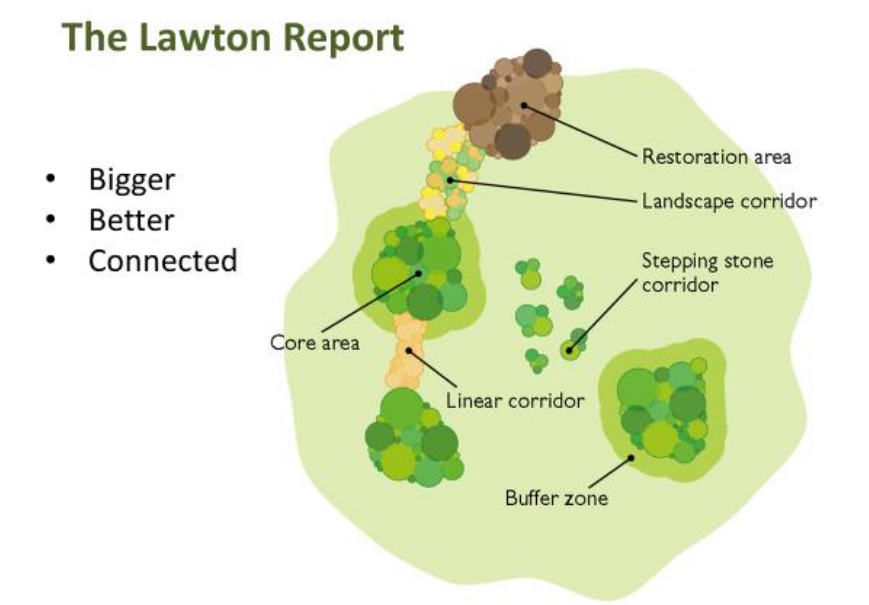
Biodiversity Loss Drivers Addressed: 1, 2, 3, 4, 5, 7

No.	Action
1.10.1	Conserve and build upon the existing green infrastructure or biodiversity features of importance in the community and the network of ecological corridors in the landscape. Some of these features and corridors include farm hedgerows; wide treelines; woodlands; the River Suir; the old stone walls, meadows; parks, ponds, etc. As a first step, seek funding to get a green infrastructure plan should be developed that would survey and map these important features. The conservation of these features should be built into local area plans and any future developments. Local knowledge helping to inform decisions being made and implemented for your locality can be crucial.

No.	Action
1.10.2	Where gaps have been identified between natural sites in the landscape take steps to connect them. For example, if there is a break between hedgerows or areas of woodland in the landscape then engage with the landowner(s) in between to see if they would allow new hedging or tree planting to connect them.
1.10.3	Engage with Tipperary County Council about preparing a comprehensive Tree Strategy for the village, which includes an assessment of the nature & extent of the existing tree population. All new tree planting should be recorded.
1.10.4	Promote the better management of hedgerows and trees with the land managers and contractors. Attention should be given to the best timing and to the proper cutting / trimming of them to promote biodiversity. See **Appendix 3** and https://www.farmingfornature.ie/resources/best-practice-guides/hedgerow-management/ .
1.10.5	Work with neighbouring communities to create new, and strengthen existing, ecological corridors.

Info Box: The Lawton Report – Making Space for Nature

This action is adapted from *Making Space for Nature: A review of England's Wildlife Sites and Ecological Network* (2010). It concluded 'that England's collection of wildlife sites is generally too small and too isolated' and that 'we need a step-change in our approach to wildlife conservation, from trying to hang on to what we have, to one of large-scale habitat restoration and recreation'. The report coined the phrase: our wildlife sites need to be '*better, bigger, more and joined up*'. The report, and its findings and recommendations, can be applied to our current situation here in Ireland.



Making Space for Nature: a review of England's wildlife sites and ecological networks: defra 2010

Main Findings of Lawton Report

- Many wildlife sites are too small
- Losses of certain habitats have been so great that insufficient remains to halt additional biodiversity losses
- With the exception of Natura 2000 sites and sites such as NHAs, most of semi-natural habitats important for wildlife are generally insufficiently protected and under-managed
- Many of the natural connections in our countryside have been degraded or lost, leading to isolation of sites
- Climate change will make matters worse for many habitats and species

Proposed Solutions/Actions "MORE, BIGGER, BETTER AND JOINED"

- Improve the quality of current sites by better habitat management (and enhance heterogeneity)
- Increase the size of current wildlife sites
- Create new sites
- Enhance connections between, or join up, sites, either through physical corridors, or through 'stepping stones'
- Reduce the pressures on wildlife by improving the wider environment, including through buffering wildlife sites
- Better management of existing sites > Bigger sites > More sites > Enhance connectivity > New corridors
- The impacts of climate change mean that these actions will be even more important in the future

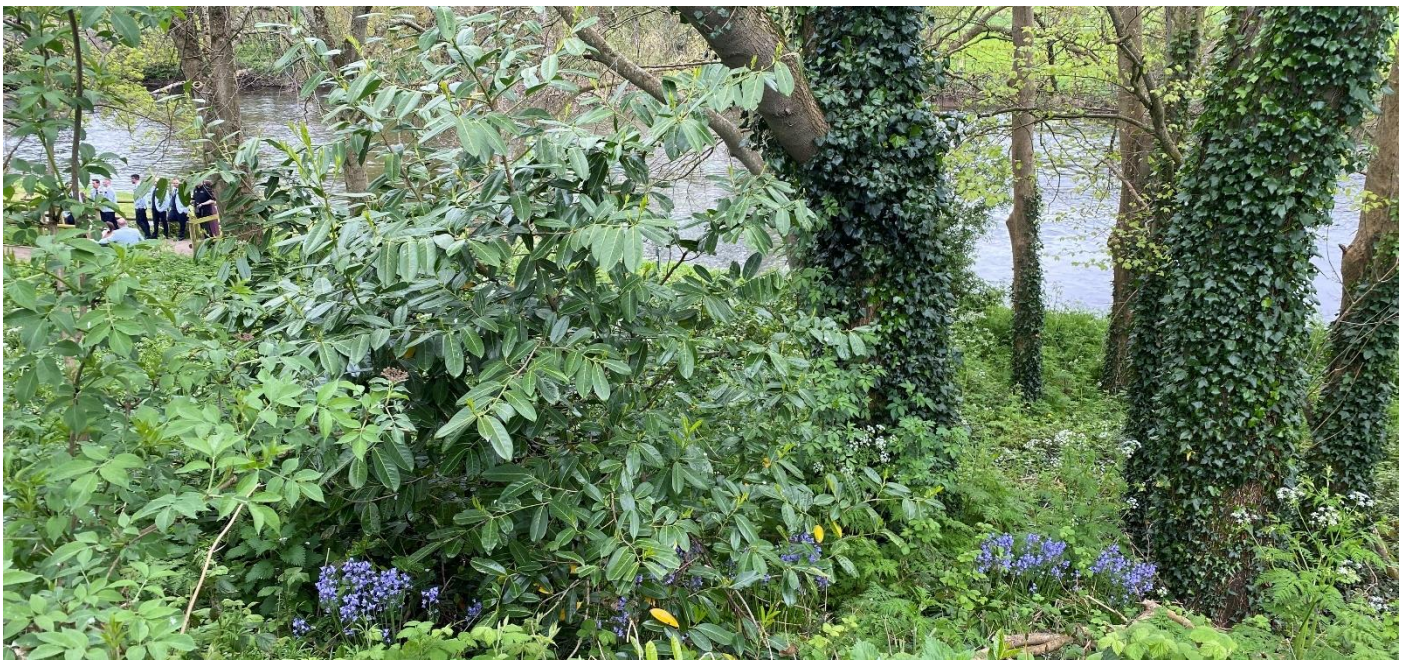
Objective 2: Controlling Invasive Alien Species

This objective aims to help control the spread of invasive alien species in the community on both public and private lands. They 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/

Why:

- Invasive species are one of the main drivers of biodiversity loss both globally and here in Ireland. It is important for all communities to understand the problem and take steps to tackle it.
- As well as contributing to native biodiversity loss, invasive species have other negative impacts for our society. Some have negative human health impacts (e.g. Giant Hogweed) while others can cause damage in their receiving environment (e.g. Himalayan Balsam can lead to riverbank erosion and Japanese knotweed can damage built infrastructure). Control measures for different invasives, once they have become established, can be expensive and time consuming to carry out.
- Carrying out surveys will identify the extent of the problem and guide targeted control measures.
- Taking a landscape scale approach to tackling the problem will help identify the sources of the problem species, which can often be outside the community area, but which have the potential to infest / reinfest in the future if not tackled.
- Many invasive plant species are still available for purchase and are widely used in new planting schemes. This exacerbates the problem by spreading them to new areas – native and non-invasive alternatives are available and should be used.
- Tackling invasive species will help deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, etc.

Target 2.1 Take measures to control Invasive Alien Species in the community



Target 2.1: Take measures to control Invasive Alien Species in the local area

Biodiversity Loss Drivers Addressed: 1, 3

No.	Action
2.1.1	Engage with Tipperary County Council to have them produce a strategic plan at county level for tackling the problem of invasive species. **Example:** Dún Laoghaire-Rathdown County Council have developed a roadmap for their council area to control invasive species*.
2.1.2	Engage with Tipperary County Council to get a survey of the village and surrounding landscape for invasive species carried out. It should include recommendations for the control of any recorded species. The scope of the survey should be set by the community and the most immediate threats (local knowledge is very important). **Note:** it is important to survey potential corridors in the surrounding landscape which invasive species may travel e.g. rivers, roadsides, etc. Control measures taken in the village maybe unsuccessful if the problem isn't tackled at the source.
2.1.3	Engage with Tipperary County Council about the potential to train relevant members of staff (grounds staff and relevant officers) and interested members of the local community on how to identify common invasive species. See **Appendix 6** for examples of some of the common terrestrial invasive plant species. It is also important to remain vigilant for any new invasive species that could potentially establish in the area and report them to the local NPWS staff and / or Tipperary County Council.
2.1.4	Engage with Tipperary County Council to explore the potential for them to run an awareness campaign among the public about invasive species and alternative plant species that are better for biodiversity e.g., alternatives to Cherry Laurel. This can include talks, posts on social media, and setting examples by removing them from public sites.
2.1.5	Engage with local market suppliers & garden centres to promote native and non-invasive species over invasive plants.
2.1.6	Engage with Tipperary County Council and other state landowners to adopt a ban on the use of invasive plant species in new planting schemes on public lands and community spaces.
2.1.7	Use trees of Irish provenance and origin rather than imported stock for hedgerows and woodland planting i.e. seeds of native Irish species sourced, sown and grown in Ireland.
2.1.8	Take necessary steps to mitigate the potential biodiversity and landscape impacts of Ash Dieback in the village and surrounding countryside. This includes: • Planting other suitable native tree species into our hedgerows and woodlands where Ash is dominant to build resilience. Any planting in sensitive habitats should only be carried out with the advice of an ecologist. • Recording any trees showing resistance to the disease to Teagasc and the National Biodiversity Database. These trees may act as a source of disease resistant seed. • Where possible for mature Ash trees of important biodiversity / aesthetic value, collect, remove and destroy ash leaf litter in autumn from under the tree. This is currently the only effective option to reduce spread of the disease as it disrupts the fungus's life cycle and thereby reduces spore production the following summer. See **Appendix 7** for more information on Ash Dieback.

*Dún Laoghaire-Rathdown County Council Invasive Species Action Plan:
https://www.dlrcoco.ie/sites/default/files/atoms/files/dlr_ias_action_plan_lr.pdf

Objective 3: Move towards the elimination of pesticide use

This objective aims to move the community towards a pesticide free environment. One target with three actions has been identified to help start moving away from pesticide use in the community.

Why:

- Pesticides, including herbicides and rodenticides, have negative implications for biodiversity, the environment, and human health. If they get into waterways such as drains, streams, rivers, canals, and lakes, it can impair their water quality and lead to negative impacts on aquatic life and any potential human use.
- Herbicide and other pesticides can also negatively impact the biological component of soils, crucial for producing food.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 3.1 Move towards the elimination of pesticide use in the community

Examples of typical but unnecessary herbicide use in public park and rural roadside settings in Ireland.

Target 3.1: Move towards the elimination of pesticide use in the community

Biodiversity Loss Drivers Addressed: 1, 2, 4

No.	Action
3.1.1	Move towards the elimination of pesticide use in public spaces. This should begin with a review of current use with the immediate aim of eliminating any unnecessary use (e.g. around the bases of trees), its use near sensitive habitats (e.g. along watercourses and drains), and it's use on sites with children present or of public health concern (e.g. school, sports grounds, playground, etc.). This should then extend to all other public areas as soon as possible thereafter. Alternative approaches include: **1.** To do nothing or do less: this involves recognising that herbicide has been overused and used unnecessarily. **2.** Use physical methods: this is the age-old method of physically pulling up, snipping or hoeing out plants that are in the wrong place. Plants need their leaves to photosynthesis (i.e. make their own food), therefore if their leaves are continually removed they will not survive. This should only apply to making paving safer for pedestrians or clearing formal flower or vegetable beds. We need to change our mindset about what really is a weed in other situations! **3.** Using new technologies: e.g. mechanical road sweepers with steel brush heads, hot foam machines etc. These are often costly and may be out of the reach of most small communities but they can still be discussed with local authorities and large landowners. Exceptions to this rule include for the treatment of invasive species such as Japanese knotweed.
3.1.2	Encourage private landowners to go pesticide free on their lands. This can be communicated through a combination of local media and word-of-mouth.
3.1.3	Engage with the public, land managers, and landowners in the community to tackle the cultural perception of what is considered to be 'tidy' and 'untidy', and learning to accept and appreciate the vital role that these plants that are considered as 'weeds' play in a healthy environment.

Photo Board: Herbicides

Herbicide used on a ditch in rural Ireland compared with the biodiversity rich verge on the opposite side of the road.

Dandelions, long considered as weeds, are now known to be one of the most important plants for pollinators

Info Box 3: Herbicide / Pesticide

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! Pesticide includes, herbicide, insecticide, nematicide, molluscicide, piscicide, avicide, rodenticide, bactericide, insect repellent, animal repellent, microbicide and fungicide.

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 too. We are, therefore, 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?

Alternatives to herbicide/pesticide use:

- To do nothing or do less: this involves recognising that herbicide has been overused and used unnecessarily
- Hot foam systems, like hot water systems, kill plants using heat, but can be used in all weather conditions. This gives them a major advantage over chemical herbicides which can only be sprayed under ideal weather conditions.
- Hand weeding is an option particularly for smaller areas such as playgrounds and on paths running through parks. Use physical methods: this is the age-old method of physically pulling up, snipping or hoeing out plants that are in the wrong place. Plants need their leaves to photosynthesise (i.e. make their own food), therefore if their leaves are continually removed they will not survive. This should only apply to making paving safer for pedestrians or clearing formal flower or vegetable beds. We need to change our mindset about what really is a weed in other situations!
- Acetic acid (vinegar) dilutions have been used very effectively to control weeds on hard surfaces in a variety of situations. Acetic acid is biodegradable and poses no risk of bioaccumulation.
- Other types of manual approaches are available in the form of differing types of mulching. This is a particularly useful approach in ornamental beds and in parks.
- Steel brushing can be used for large scale areas such as pavements and roads and in combination with the use of acetic acid spraying can be a very effective alternative.
- High pressure hot water treatments can be particularly effective and also have other uses such as chewing gum removal.
- Electronic control systems that kill stems and roots instantly and are particularly suited to dealing with invasive species are also available.
- Using new technologies: e.g. hot foam machines etc. These are often costly and may be out of the reach of most small communities but they can still be discussed with local authorities and large landowners.

In the event that herbicide/pesticide use is deemed necessary e.g. by contractors working in your locality then the Department of Agriculture guidelines re. responsible use of pesticides in public areas must be followed. The Department has produced a very helpful leaflet entitled 'Straight a's for Amenity' and it is available to download at: https://www.pcs.agriculture.gov.ie/media/pesticides/content/sud/ResponsiblePesticideUsePublicAmenityGardenAreas200217.pdf

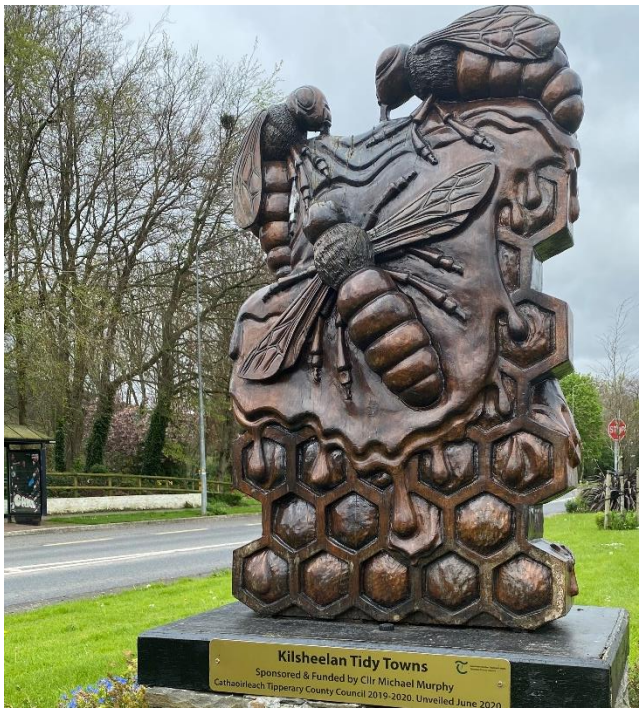
Objective 4: Raising awareness of biodiversity

This objective aims to raise awareness of biodiversity in the wider community. Six targets have been identified including installing street furnishings and art, social media, and community events to achieve this objective.

Why:

- To create awareness and appreciation of biodiversity around us so that we can get the support and knowledge necessary to better protect and conserve it (these are the first two drivers identified by the IPBES Report outlined in Section 1). These drivers are often the precursor to the other main biodiversity loss drivers identified such as pollution, invasive species, habitat loss, etc.
- Raise awareness of and provide updates on local biodiversity projects so that local people understand what is going on and why. This may also be used to encourage people in the community to get involved with local community and residential groups who are active in conserving biodiversity in their area.
- To provide information to the public about actions they can take to increase biodiversity in their lives (e.g. in their gardens) or reduce their impact on biodiversity loss by making more sustainable lifestyle choices.
- The biodiversity themed trails, street art and signage, as part of the wider practical actions for biodiversity, can help make the village a more attractive place for people to live, visit, and do business.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 4.1	Raise awareness of local biodiversity and biodiversity projects
Target 4.2	Create opportunities for conservation volunteerism
Target 4.3	Increase biodiversity street art and signage
Target 4.4	Lobby the local authority on issues of biodiversity concern regarding new developments and future planning of the area
Target 4.5	Promote and support positive actions to encourage more sustainable lifestyles and individual choices
Target 4.6	Encourage children to connect with nature in the local area



Target 4.1: Raise awareness of local biodiversity and biodiversity projects

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.1.1	Use different forms of traditional local media (print press and radio), social media, and word of mouth to raise awareness and to reach out to the community about actions and issues relating to biodiversity in the community. This will also include reaching out to the various groups and the school in the village to encourage them to come on board with the Plan.
4.1.2	Raise awareness of the All-Ireland Pollinator Plan and its resources in the local community. Share links to the All-Ireland Pollinator Plan website including its resources and relevant content (https://pollinators.ie/). Also share their relevant resources guides directly with different sectors in the community e.g. the school, faith communities, sports clubs, gardens, etc.
4.1.3	Deliver, or participate in, biodiversity training talks and workshops over the course of this Plan. These could be organised with other neighbouring communities. The exact topics will depend on the key messages that the community group would like to convey and skills they want to pass to the community, and the areas of biodiversity interest of people in the community. Some ideas include: • Workshops on 'gardening for biodiversity' • Workshops for residential associations on how they can increase biodiversity in their estate • Wildlife identification events in the village – bat walks and talks are great family events for the summer. Other event ideas include wildlife walks along the River Suir, plant id workshops, dawn chorus, etc. **Tapping into other events:** Nowadays wildlife charities are regularly running events for the public both online and in person. Any of these that are of relevance to the local community should be promoted.
4.1.4	Raise awareness of local designated natural sites and protected biodiversity including the Lower River Suir SAC. This can be done through posts on local social media and by hosting walks and talks (see Action 4.1.3) about the sites. Liaise with the local NPWS officer when organising events on the local designated sites.
4.1.5	Engage with Tipperary County Council and neighbouring communities to organise campaigns to raise awareness of issues of biodiversity concern. The following are some issues of concern (it is not intended to be an exhaustive list): • The problem of introducing wildflower seed mixes to grasslands in the community. See: https://pollinators.ie/wildflower-seed/ • The threats to native bee species through the importation of honeybee and bumblebee colonies. The Native Irish Honey Bee Society is an established group with the aim to conserve the native Irish honeybee: https://nihbs.org/ • The importance of soil health and biodiversity and actions needed to improve it. • The impact of increased lighting in the landscape (e.g. on greenways, sports pitches, etc.) on wildlife such as bats and moths. Bat Conservation Ireland produced a guidance document on bats and lighting: https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf

Target 4.2: Create opportunities for conservation volunteerism

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.2.1	Encourage members of the community to get involved in the delivery of actions outlined in this Plan. Some of the suitable actions include tree planting, meadow management, planting and maintenance of flowerbeds and other planting schemes, litter picks along watercourses and other sensitive habitats, invasive species control (for certain species), installing habitat boxes, helping run biodiversity events and children's nature-based activities, etc.
4.2.2	Encourage and support the local schools to get involved with developing and delivering biodiversity projects in community spaces (and on their own premises).

Target 4.3: Increase biodiversity street art and signage

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.3.1	Carry out an audit of all street art, sculptures, and interpretation signs in the village and highlight those that contain information about biodiversity.
4.3.2	Engage with Tipperary County Council to develop and implement a signage and street art plan based on the audit (Action 4.3.1 above). The plan should include recommendations for the location and types of signs and street art required, and the content to be covered. These would highlight sites and species of interest in the village and be located at key locations along new waymarked routes. Some ideas include: • Install an interpretation sign at the lake (beside Carrick Swan GAA Club) to highlight some of the biodiversity using it and the problem of feeding wildfowl. • Painting / wrapping selected street furnishings (e.g. bins, utility boxes, etc.) in full with aspects of local biodiversity such as wildflowers, pollinators, birds, etc. • Biodiversity murals on selected walls. • The installation of new biodiversity themed sculptures at selected locations in the village.

Info Box: Biodiversity Street Art

Street utility boxes are often dull but essential parts of the streetscape in towns and villages across the country. However, many community groups have turned them into colourful and informative features by painting biodiversity murals on them with the permission of the relevant authorities.

Abbeyleix Tidy Towns is a good example of how to maximise their value for the local community and to raise awareness of local biodiversity. The painted murals on Main Street's bins and service boxes are of local biodiversity found on Abbeyleix bog which is located on the edge of the town. As well as raising local biodiversity awareness the murals also help create stronger links between the town centre and the bog for the community and for visitors.

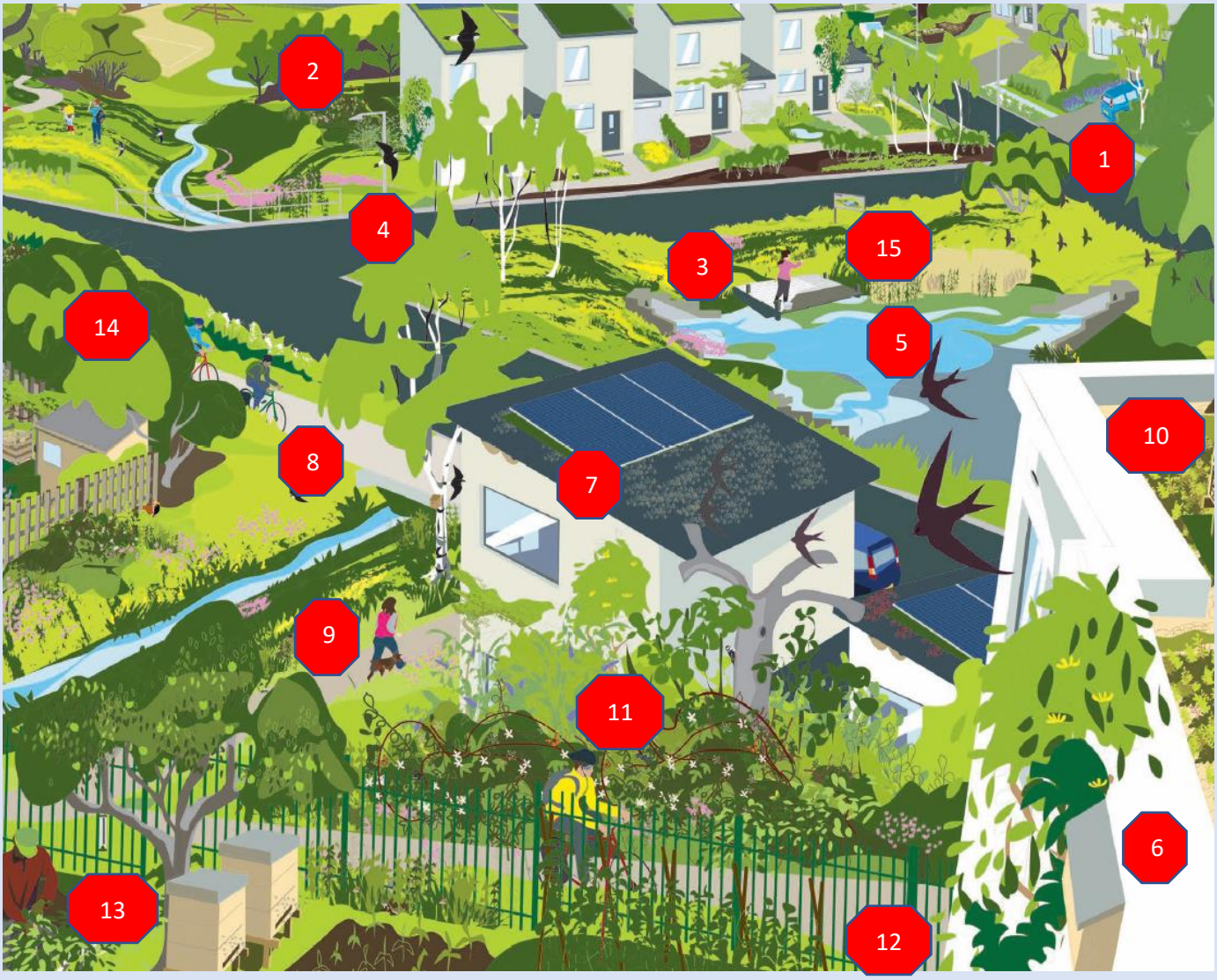
Target 4.4: Work with the Local Authority on issues of biodiversity concern regarding new developments and future planning of the area

Biodiversity Loss Drivers Addressed: 1, 2, 3, 5, 7

No.	Action
4.4.1	Maintain awareness of proposed developments in the area and engage in the planning and development process for Kilsheelan, including adding observations on proposed developments. Engage fully with the development of County and Local Development plans to ensure biodiversity is included in all plans and projects proposed for the Kilsheelan area as well as broader environmental planning and sustainable transport etc. Lobby for use of green infrastructure instead of grey infrastructure where possible e.g. in relation to sustainable drainage, and ecological connectivity in the wider landscape.
4.4.2	Engage with Tipperary County Council to ensure that all suitable new buildings should incorporate appropriate biodiversity habitat boxes and features e.g., Swift bricks and callers, bat boxes, etc.
4.4.3	Engage with Tipperary County Council to ensure the protection of existing biodiversity features or ecological corridors of importance on new development sites, and the development of new green spaces and features that complement them. See Target 1.7.
4.4.4	Engage with Tipperary County Council to ensure that no known invasive species should be planted as part of any new developments. This includes Cherry Laurel which is commonly used for hedging. See Objective 2.

Info Box: Green Infrastructure in Community Spaces

The European Commission defines green infrastructure as a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity.



1. Permeable driveways to help reduce flood risk	6. Bat roosts, bird boxes and other wildlife features designed into buildings	11. Native, wildlife-friendly plants of local origin used in gardens & landscaping
2. Trees, hedgerows, water and other habitats integrated with development	7 Renewable energy and water efficiency built in from the outset	12 Wildlife-permeable boundaries between gardens and open space
3. Wildflower verges along roads and formal open spaces	8. Safe, attractive, connected pedestrian and cycle routes	13. Allotments and community orchards for local food
4. Lighting designed to avoid disturbing wildlife	9. Features and corridors to help invertebrates, hedgehogs, and other mammals	14. Street trees for wildlife, shade and improved air quality
5. Sustainable urban drainage, swales and rain gardens for wildlife and flood relief	10. Wildlife friendly green roofs and walls	15. Interpretation panels to help people understand the needs of wildlife and the environment
Infographic Source: Wildlife Trusts https://www.wildlifetrusts.org/news/new-guidelines-call-homes-people-and-wildlife		

Target 4.5: Promote and support positive actions to encourage more sustainable lifestyles and individual choices

Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 6

No.	Action
4.5.1	Promote and support initiatives to make the community of Kilsheelan more sustainable both now and as it develops in the future. Some ideas include: • Make the village fully pedestrian and bicycle friendly to encourage less car use locally. • Promote more planting of edible plants throughout the village on public and private lands and the creation of more community gardens. • Explore the potential for Kilsheelan to become a sustainable energy community. See SEAI's Community Energy Project: https://www.seai.ie/community-energy/sustainable-energy-communities/start-an-energy-community/ • Manage rainwater sustainably (see **Target 1.2**). • Reduce Kilsheelan's waste by following the principle of '6 Rs': refusing, reducing, reusing, repairing, recycling, and rotting. Only after these six elements are exhausted should something be considered waste. For further ideas and information on how to make the community of Kilsheelan more sustainable see Ecolise (the European network for community-led initiatives on climate change and sustainability): https://www.ecolise.eu/
4.5.2	Use Kilsheelan's collective voice of local community / residential groups, businesses, and individuals to advocate for better environmental and biodiversity protection at the local, county, and national with local elected officials.
4.5.3	Promote and support campaigns that encourage individuals to consider more environmentally sustainable lifestyle and consumer choices e.g. shop local campaigns, source food from local producers and / or grow your own, manage household waste separately (recycling, composting and general waste), stop food waste (stopfoodwaste.ie), reduce single use plastics, insulate your home, use public transport or car pool to work, etc.
4.5.4	Promote the UN Sustainable Development Goals (SDGs) in the community and use them to help guide local community actions, planning, and land use decisions: https://sdgs.un.org/goals . Tidy Town's National Competition supports making the UN SDGs relevant to National Competition Categories.
4.5.5	Organise community screenings of films of sustainability, climate and biodiversity interest.
4.5.6	Liaise with relevant local authority officers to support projects / initiatives above.

Target 4.6: Encourage children to connect with nature in the local area

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.6.1	Organise nature-based activity events for children over the course of this Plan. These could be organised with other neighbouring communities. Some ideas include: woodland camping with activities; wildlife detective; mini beast hunts; pond dipping; woodwork and nature crafts; and nature walks. These could be organised with local forest school providers (https://irishforestschoolassociation.ie/), local wildlife charities, and relevant local authorities.
4.6.2	Promote nature-based activities and skills on local social media for people to carry out with their own children.
4.6.3	Organise a junior wildlife photography training and exhibition event. A selection of the photos could be exhibited in the local library or other community building to coincide with National Heritage Week or Biodiversity Week. This could be delivered in partnership with the local camera club.
4.6.4	Work with Tipperary County Council to develop more natural playgrounds and play opportunities in the village. Two potential options could include incorporating the green space around the existing playground in 'The Park' and at the proposed new park beside the car park. See Info Box on the next page for some ideas.

Info Box: Natural Play

Natural play spaces are designed to adapt to the particular place where they are implemented. They provide a space and setting of play rather than an over-emphasis on equipment for children to play with. There is an emphasis on the use of natural features to create play and learning opportunities. It can be as simple as meandering paths in wildflower meadows, mounds that kids can run over, boulders or trees for climbing, etc. Natural play spaces incorporate an element of risk to replicate natural experiences and encourage contact with nature. They create more stimulating play for children, are usually less costly to install and maintain, it looks better, and it creates space for biodiversity.

Fallen tree for climbing and hanging out

Mounds with tussocky grass, trees and balance beams

Objective 5: Collecting Evidence to Track Change and Measure Success

This objective aims to encourage and support people in the community with biodiversity recording and monitoring. Three targets have been identified to achieve this objective.

Why:

- Understanding the trends in biodiversity loss / gain at the local, national, and international levels are crucial to developing targeted solutions to address the problems and build on the successes.
- To help build up a picture of the health of the habitats and species in the area, which can act as an indicator of the overall health of biodiversity.
- The training of Citizen Scientists by experts equips local people to accurately monitor and record biodiversity in their area. For more specialist surveys, communities should engage the services of professional ecologists.
- Monitor actions taken to see if they are making a difference for biodiversity in the area.
- Help identify threats and opportunities for biodiversity.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 5.1	Monitor and record biodiversity and biodiversity actions taken
Target 5.2	Build capacity in the community to manage and record biodiversity
Target 5.3	Increase participation with this Biodiversity Action Plan

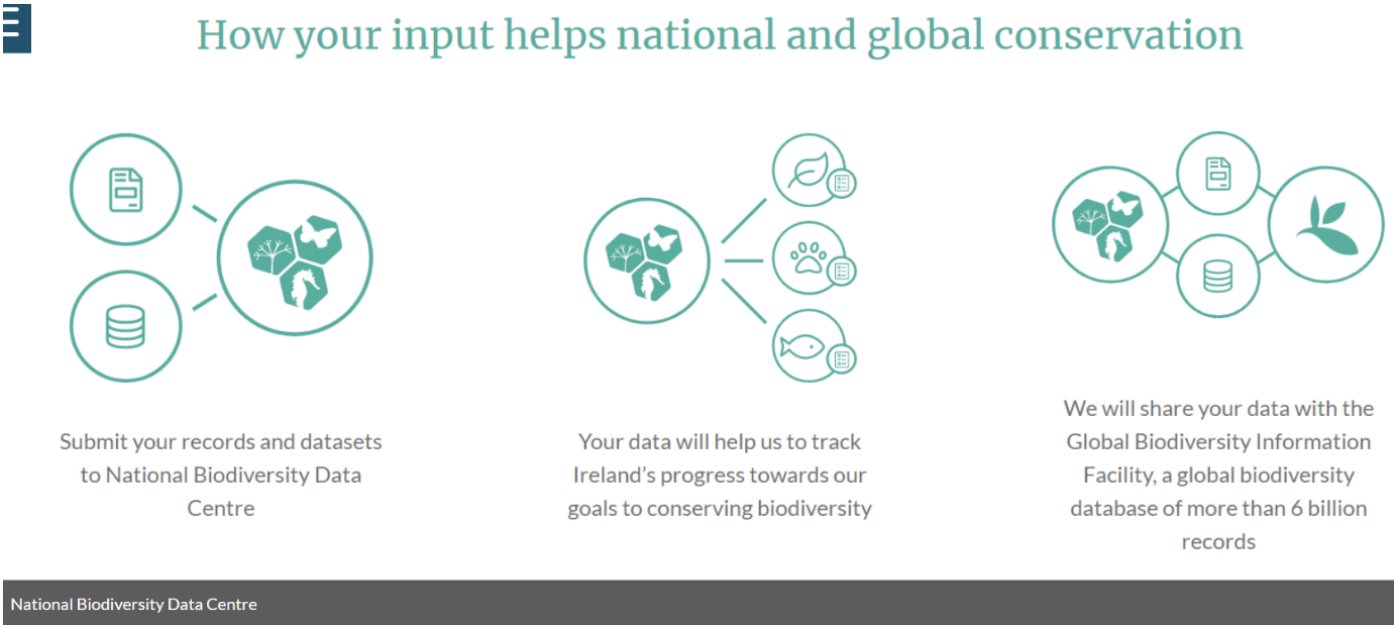
Info Box: Who are Citizen scientists?

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 Kilsheelan 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.



Target 5.1: Monitor and record biodiversity and biodiversity actions taken

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
5.1.1	Monitor and record different pollinator species. Some recording activities to consider include: • Establish at least one bumblebee and / or butterfly transect. • Increase the number of moth records by encouraging interested member(s) of the public to put out moth traps in their gardens on a regular basis. **Note:** A licence is required to operate a moth trap and can be got from the NPWS. • Identify any solitary bee nesting sites in the community and monitor the species and populations. Solitary bees make up the majority of our native bee species and are crucial for pollinating wildflowers. See the link below* for further information on these species and good nesting habitats. https://biodiversityireland.ie/app/uploads/2022/05/ActionSheet_Solitary-Bees-WEB-2.pdf • Carry out a Flower Insect Timed Counts (FIT Counts) the methodology of which is outlined in the https://pollinators.ie/record-pollinators/fit-count/ This allows the community to monitor any change in the abundance of flower visiting insects. This is a great activity for children and schools.
5.1.2	Monitor the uptake of all bird nest boxes installed (Swift boxes, garden bird boxes, etc.). When / if the boxes become occupied then it will be worth considering installing additional boxes.
5.1.3	Monitor and record other specific habitats and species. The exact habitat or species will depend on the conservation status of the species or habitat, the interest of people in the community, their willingness and availability to get involved, and resources available to carry out professional surveys. Some ideas include: • Monitor bat boxes installed in the community. This could be done as part of community bat events. • Organise a Citizen Science hedgehog garden survey. • Monitor local populations of other key stone species such as red squirrel, kingfisher, pine marten, otter, etc. These species are indicator species for the quality of habitats - the advice of an ecologist is recommended in setting up mammal monitoring devices such as trail cams and spraint surveys. • 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/ • Participate in the National Biodiversity Data Centre's national dragonfly and damselfly survey. See the website for more information: https://biodiversityireland.ie/surveys/dragonfly-ireland/
5.1.4	Monitor any newly created meadows and verges in the community for different wildflowers, grasses, and other associated species. For support on this, link with the BSBI (Botanical Society of Britain and Ireland, https://bsbi.org/) to highlight any plant occurrences or populations of local or national importance in the Kilsheelan area. There is also the potential to run flora id courses in conjunction with Tipperary County Council.
5.1.5	Monitor water quality in local waterbodies by taking part in the annual Irish WaterBlitz: https://www.freshwaterwatch.org/pages/events In addition, An Taisce have a project to support communities with the management and biodiversity audits of lakes. Their support should be availed of to carry out an audit. See **Appendix 4**.

Note: Where more detailed information on habitats or species are required then an ecologist should be engaged to carry out surveys of the area. These may be required to build up a more comprehensive list of species and habitats.

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 insects who carry out the pollination of flowering plants that is vital for fruit and seeds to be produced. Many are aware of honeybees 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 more generally. 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.



Target 5.2: Build capacity in the community to manage & record biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
5.2.1	Engage with the local library to ensure it is well stocked with biodiversity books, identification guidebooks, information leaflets and booklets, All Ireland Pollinator Plan guides, and other relevant information resources.
5.2.2	Engage with the school to ensure they have or have access to equipment and identification resources. This can include posters, charts, guidebooks, swatches, pond dipping equipment, nets, pots, etc.
5.2.3	Liaise with the local schools and Tipperary Education and Training Board https://tipperary.etb.ie/ to support opportunities for access to funding for training and community education opportunities for teachers and local youth leaders.

Info Box: Biodiversity Atlases

There is a wealth of information out there to inform us all on how populations of plants and animals have changed over recent decades. This can help when it comes to planning and prioritising biodiversity projects but also in helping to raise awareness and inform the public about the real state of affairs for species that may once have been common.

Many of these productions are freely accessible online but the trick is knowing where to look! A prime example is the production in 2023 of the Plant Atlas 2020 by the Botanical Society for Britain & Ireland (BSBI). See: https://bsbi.org/plant-atlas-2020-in-ireland for an introduction to this hugely valuable publication and how to use it as a tool for informing you about your local flora. Some other atlases include:

The Mammal Atlas of Ireland which can be downloaded as a pdf here: https://biodiversityireland.ie/app/uploads/2021/11/Mammal_Atlas_web.pdf

The Bird Atlas for Europe is available to research at this link: https://birdwatchireland.ie/bird-atlas-maps-for-all-of-europe-now-online/

Target 5.3: Increase participation with this Biodiversity Action Plan

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
5.3.1	Consider having an official launch of the BAP at the outset.
5.3.2	Carry out annual reviews of the Biodiversity Action Plan. This review should be used to identify progress on actions delivered, updates, and plans for the upcoming year.
5.3.3	Have an overall review of the Plan before it expires in 2028 and update it for the next agreed period of time.

Section 4: 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

In 2023 Community Foundation Ireland teamed up with the National Biodiversity Data Centre to produce a wonderful resource for community groups working to look after their local biodiversity. It is a website entitled 'Action for Biodiversity' available at this link: https://actionforbiodiversity.ie/ In many ways this website will provide a 'one-stop-shop' with a huge array of helpful documents to download and read and links to informative websites etc. The following 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/
BSBI Plant Atlas for Ireland	• https://bsbi.org/plant-atlas-2020-in-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/
Farming & Biodiversity	• https://www.farmingfornature.ie/ • https://www.irishagroforestry.ie/ • https://www.irishorganicassociation.ie/ • https://www.teagasc.ie/
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.farmingfornature.ie/resources/best-practice-guides/hedgerow-management/ • 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
Invasive Alien Species	• https://invasives.ie/ • https://www.fisheriesireland.ie/Invasive-Species/invasive-species.html
Meadow Creation & Restoration	• https://pollinators.ie/wp-content/uploads/2023/06/Meadow-Guideline-2023-WEB.pdf
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/

Subject	Link(s)
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/
Signage	• https://www.heritagecouncil.ie/content/files/bored_of_boards_1mb.pdf • https://pollinators.ie/resources/signage-templates/
Soils	• https://www.soilassociation.org/
Swifts	• https://birdwatchireland.ie/publications/saving-swifts-guide/ • www.swiftconservation.ie/
Trees and Woodlands	• https://www.treecouncil.ie/nativeirishtrees • http://www.woodlandsofireland.com/sites/default/files/Management%20Guidelines%20for%20Ireland%27s%20Native%20Woodlands%202017.pdf • https://leafireland.org/
Wildflower Identification	• http://www.wildflowersofireland.net/index.php • www.bsbi.org
Wildlife Ponds	• https://www.farmingfornature.ie/your-farm/resources/best-practice-guides/building-a-wildlife-pond-on-your-land/ • https://burrenbeo.com/thc/the-hares-corner-ponds/ • https://invasivespeciesireland.com/wp-content/uploads/2017/10/AQUATICS_BOOK5.pdf • https://www.antaisce.org/ponds

Biodiversity Podcasts

The following is a list of some podcasts on biodiversity.

Subject	Link(s)
***In Your Nature*:** Birds & general wildlife in Ireland	https://inyournature.buzzsprout.com/
Farming for Nature: Biodiversity on the farm	https://www.farmingfornature.ie/resources/podcasts/
***Naturefile*:** All sorts of Irish ecology topics expertly presented	https://www.rte.ie/radio/podcasts/series/2407-naturefile/
Root and Branch: Each episode features a different native Irish tree	https://www.rte.ie/radio/podcasts/22155202-root-and-branch-birch-the-lyric-feature/
Wild Flower (Half) Hour: great wildflower information	https://tunein.com/podcasts/Podcasts/Wild-Flower-(Half)-Hour-p1065716/
Climate	https://climateambassador.ie/podcast/
Birds and Biodiversity	https://podcasts.apple.com/ie/podcast/in-your-nature/id1554068928

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, South Tipperary Development Company	To discuss potential project ideas and the availability of funding, contact the Tipperary Partnership Company offices at (052) 7442652. Website: https://www.stdc.ie/
Tipperary County Council	For additional information in relation to funding for biodiversity and heritage projects, contact the Heritage Officer. Website: https://www.tipperarycoco.ie/heritage-and-conservation
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/
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
An Taisce	An Taisce is currently running a project supporting community groups with the creation of wildlife ponds. Visit their website for further details: https://www.antaisce.org/ponds

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
Tipperary County Council	The local Heritage Officer is available to discuss and provide information on biodiversity and heritage related matters and projects.	https://www.tipperarycoco.ie/heritage-and-conservation
Public Participation Network Tipperary	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 PPN Tipperary.	https://www.ppntipperary.ie/
Irish Wildlife Trust	National environmental charity covering all aspects of biodiversity. .	https://iwt.ie/

BirdWatch Ireland	For information on Ireland's birds. There is an active branch in Tipperary.	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/
Trees on the Land	This charity aims to increase the amount of native Irish trees across Ireland.	https://www.treesontheland.com/
Environmental Protection Agency	The EPA is committed to protecting people and the environment from the harmful effects of pollution. As part of this commitment, they provide a simple system for members of the public to make complaints about environmental pollution, disturbance or damage.	https://www.epa.ie/our-services/compliance--enforcement/whats-happening/make-an-environmental-complaint/

Appendix 1: Managing Community Meadows

A meadow is a semi-natural habitat that ecologists refer to as a semi-natural grassland. This means that its natural function and biodiversity are intact, but its existence is dependent on some human management. On the island of Ireland, a meadow left to its own devices, without any management, would eventually regenerate into woodland. There are a few common types of meadow described below that groups could consider as an alternative to short lawn grass. In addition, the All-Ireland Pollinator Plan has developed new guidelines on meadow creation and restoration: https://pollinators.ie/wp-content/uploads/2023/06/Meadow-Guideline-2023-WEB.pdf

Shortcut 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 4-6 weeks starting in mid-April and finishing in mid to late October.

Hay Meadow

This meadow aims to mimic the old agricultural hay meadow, once common across Ireland but now mostly gone. The grasses & other 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. This is typically carried out in Aug-Sept after most of the plants have set seed. The exact timing is site specific and is dependent on the species present and the landowner's needs / preferences. Additional cut and lifts may be required in the autumn or early spring to remove autumn / winter growth.

Roadside verges

The grass verges of roadsides can be a great space to increase biodiversity in your local area. A mower's width (approx. 50cm) can be mown regularly on the roadside of the grass verge whilst inside this can be left unmown until September - managed the same way as the hay meadows described above. This allows wildflowers and grasses to bloom and provides valuable nesting and resting habitats for pollinators, other invertebrates and mammals. If the verge is wide enough it can also be a good place to plant the occasional tree - especially on approach roads. It is recommended to use signs in these situations as people become familiar with this new method of verge management.

Cutting: The roadside edge of ~50cm width requires mowing regularly during the growing season. The inner meadow verge requires management as one of the two meadows mentioned above.

Meadow Creation & Maintenance:

Planning

The change of management from traditional lawn grass to meadow, whilst delivering many positive benefits for biodiversity and the environment, also presents maintenance challenges. With proper planning these can be overcome. Some things to consider at the outset:

1) What type of meadow is suitable for your location?

A few meadow options are listed above but the choice of meadow for each site will depend on practical issues, aesthetics, and personal / community preferences.

2) How are you going to cut the meadow?

Currently most communities rely on landscape / grass maintenance contractors to manage them and their public grasslands. Their equipment is typically not suited to cutting the longer grass in a meadow. It requires specialist equipment. For smaller meadows then this can be done using handheld scythes and / or handheld power tools such as strimmers, brush cutters or a power scythe. Larger meadows may require the assistance of contractors or local farmers who would be willing to cut and take the grass cuttings away.

- In larger areas, cut out from the centre. This gives mammals and birds in the meadow a chance to naturally move from the area
- If possible, let the grass cuttings lie for a few days. This allows more seed to drop and gives any insects a chance to escape! A dry cut is also easier to lift, particularly if it is being done manually.

The management of a community meadow offers the potential for an annual community event. It could include showcasing the old tradition of scything – perfect as a Heritage Week event. There may even be the opportunity to organise a community event that could tie in with tie in a local vintage club if they have old hay meadow equipment!

3) What are you going to do with the grass cuttings?

Finding a sustainable use for the hay / grass cuttings is important and one of the trickiest aspects of the meadow management. Some ideas include:

- Community or personal composting - this may only be practical for smaller meadows. It should not be composted near sensitive habitats such as a watercourse.
- For larger meadows, if there is an interested farmer in the area, they may be able to use it as fodder or for bedding. If this is not an option, then consult with Tipperary County Council to explore your options and support with this issue.

Creating a Meadow

For existing grasslands, simply allow the grass to grow and maintain it as a meadow suitable for your requirements. It is not recommended that any wildflower seed be purchased for the purposes of adding it to the grassland. The grass sward will likely already contain a mix of grasses and other wildflowers naturally.

The seed of the annual wildflower Yellow Rattle (*Rhinanthus minor*) may be added to proposed hay meadows if it is not present and soil conditions suit. Seed should only be sourced from the local area from old unimproved meadows with the permission of the landowner.

Cutting Requirements

As per the tables above for the different meadow types.

Mown Fringes & Paths

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 opportunities for natural play, learning and other social benefits.

Meadows and the Law

It is the responsibility of the landowner to control plants listed under the Noxious Weeds Act 1936. Currently these are Ragwort, Thistle, Dock, Common Barberry, Male Wild Hop Plant, and Wild Oat.

Appendix 2: Note on Pollinator-friendly Planting

A crucial point to note before we go further with this section is that **the most beneficial areas** for pollinators and indeed other wildlife species are **natural, undisturbed habitats** such as native, wild grasslands in the photograph below (i.e. not lawns, golf courses, playing pitches or pasture fields). This intuitive point has been recently scientifically established through research by Russo *et al.* (2022) of Trinity College Dublin and the All-Ireland Pollinator Plan (https://pollinators.ie/conserving-diversity-in-irish-plant-pollinator-networks/). Therefore, managing as many of our mown lawn areas as possible as meadows for biodiversity (see 3.2 below) is the absolute best actions we can take for local biodiversity.

If, however, you are dealing with pots, planters and flowerbeds in gardens and the urban situation, then native Irish plants wherever possible are always the best choice.

Traditionally in recent years, community groups have turned to annual bedding plants such as Pelargoniums, Petunias, and Begonias for lots of colour. They are, however, of no use to pollinator species as the pollen has either been bred out of them or they have so many petals, the pollinators cannot physically access the pollen!

There are many other plants, a lot of them familiar as the beautiful cottage garden plants long used by Irish gardeners, that are pollinator-friendly. Another fantastic feature of these plants is that they are sustainable – they do not require replanting annually because they are perennial, and this also means that they require less watering – making them eminently sustainable in this time of Climate and Biodiversity Crisis. Where possible, using plants sourced locally from keen gardeners is a cost effective and sustainable way of creating new or adding to existing flower beds. Various time-honoured propagation methods are simple to learn and encourage the exchange of organic locally grown plants which are not treated with pesticides often invisible to the gardener but lethal to the insects we are trying to help. Several community garden groups around the country organise plant swaps which support this ethos of exchange of organic plants and gardening expertise. A list of pollinator friendly plants for different situations and seasons can be found in the All-Ireland Pollinator Plan Planting Code (https://pollinators.ie/resources/).

Planting bulbs to support pollinators

Another gardening action that can lengthen the time period of both pollinator food value and human interest is to plant spring-flowering bulbs into lawn areas. Pollinator-friendly spring bulbs are Snowdrops, Crocuses, and Grape hyacinths. The ever-popular daffodils and tulips unfortunately, are of no biodiversity value but even mixing through crocuses, snowdrops and grape hyacinths will be of some value. Planting these three bulb types through lawn areas is great for adding a splash of colour early in the season, announcing the arrival of spring! Delay the first cut until the bulbs leaves have died back, allows other wildflowers such as dandelions to flower, also vital for emerging pollinators. Bulbs should only ever be considered for amenity grasslands, they are not suitable for use in species rich semi-natural grasslands. Planting bulbs such as these is considered a biodiversity-friendly gardening action but not a habitat creation action such as natural meadow actions outlined below.

Appendix 3: Tree Planting Design & Maintenance Considerations

Woodland Planting Design Considerations

Trees deliver a wide range of benefits and where possible we should aim to increase tree cover in our communities without disturbing other existing habitats of biodiversity importance e.g. wetlands, semi-natural grasslands etc.

Hedgerows
Hedgerows have huge nature value as 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 biodiversity further the vegetation at the base of the hedgerows should be managed less intensively.

Small Groups & Clusters of Trees
Smaller groups of trees are ideal for smaller common / public green spaces and parks. They are also useful in breaking up larger green spaces while still maintaining mostly open space where this is a requirement. By planting trees in blocks rather than singly, it offers the opportunity to eliminate grass cutting directly underneath the trees. This reduces the potential damage from lawnmowers and strimmers and creates additional habitat to support wildlife e.g. bumblebees.

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 support native wildlife and offer opportunities for recreation and amenity. The photo shows a newly planted woodland in a residential estate. Note 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.

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 – ideal for sports grounds! 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.

Orchards & Food Forests
These woodland types are great for community spaces as they not only provide benefits for biodiversity, but they also provide people with fruit and the potential for community events at blossom and harvest time.

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:** 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 in their own right).
- **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 native 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, NHA or any other designation without prior approval from the NPWS or relevant statutory body.

  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 and natural 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.

  Grasses and other herbaceous vegetation 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. After 1-2 years, the trees will have put roots below the other vegetation layer and you will find they take off and grow up fast, quickly shading out these plants. In the meantime, the grasses and other vegetation will provide important habitat for wildlife.

  In general, any tall vegetation that is falling or hanging over the newly planted trees should be pulled or trampled as these can cause trees to lean or fork. This may be required 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.
- **New Tree Planting:** The following are some practical tips for planting new trees:
    - 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 depending on the size the tree was planted at.
    - 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.

- 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.
- 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 vegetation to grow under new tree planting is the best way to avoid damage while providing additional habitat.

Hedgerow & Shelterbelt Planting

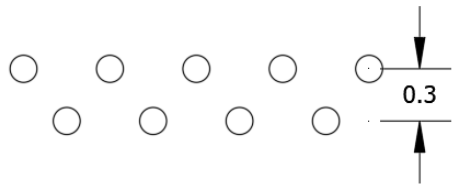
Native hedgerows and shelterbelts are suitable for use along site boundaries to provide biodiversity habitat, shelter, screening, and to act as a deterrent to would-be intruders and livestock, while allowing small mammals such as hedgehogs to pass through.

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.

Planting Design Considerations for Hedgerows

A hedgerow can be planted at anything from 3-8 plants per metre during the bare root season (Nov-March). For best results, it should be planted in double staggered row approximately 30cm wide. Use a string line to achieve a straight line at planting.



Newly planted native hedgerows along site boundaries – while it is hard to make out the trees from the other vegetation in the photos, the long grass can actually help the new trees by providing shelter, prevent the ground from drying out excessively during dry spells, and deterring rabbits. They also provide habitat for a host of other wildlife.

Maintaining Hedgerows for Biodiversity

The ideal hedgerow to support biodiversity is tall, wide and dense at the base, with a wide, uncultivated, grassy margin and that is connected with other hedgerows, woodlands, and natural habitats in the landscape. This applies to most hedgerows on farms, residential estates, commercial properties, roadsides, gardens, etc. where space and site safety considerations allow.

The following graph has been adapted from the Irish charity *Farming for Nature's* guidelines on hedgerow management. Their website and leaflet has further information on why and how to manage hedgerows for biodiversity: https://www.farmingfornature.ie/resources/best-practice-guides/hedgerow-management/

Getting Started

- Carry out a simple assessment of the hedgerows and other site / field boundaries including the species and condition

- Tailor the management of each hedgerow to suit the hedgerow and the needs of the landowner. Avoid over management of hedgerows as regular tight cutting of a hedge can reduce the biodiversity potential of it. The most important action for established hedgerows can often mean doing nothing - at least for a while - until it is taller and wider. Some of the encroaching vegetation into the margins of the neighbouring fields / green spaces (e.g. blackthorn and briars) may need to be kept cut back when they are young to prevent them becoming established.

- Ideally, established hedgerows should be allowed to grow upwards and outwards

- Tall hedgerows with plenty of trees should be given just a side trim.

- Where there is a row of trees but the hedge is gappy at the base, consider cutting back sections to allow more light in and therefor encourage greater diversity.

- Hedges with wide grass or wildflower margins and short hedges with few or no trees are better cut in an A-shape so the broad base allows light and encourages a dense growth at the ground level which is better for ground nesting birds.

- Avoid cutting all hedgerows at once, consider a 3-5 year rotation to allow flowers and berries to grow in alternate sections.

- For hedgerows in poorer conditions, fill gaps in hedges by planting more diverse native species (of Irish origin and provenance). Consider coppicing or laying the leggy, gappy areas (for more information on laying hedgerows see https://hedgelaying.ie/). If livestock are causing a lot of damage, it may be better to fence them back until the hedgerow is more established and resilient.

- For new hedgerows in fields with livestock then fence up to 2m out from the hedgerow base.

Further Actions & Considerations

- Manage in a landscape context rather than an individual hedgerow context. This means strengthening and managing the wider network of field / site boundaries in the landscape with biodiversity in mind including other hedgerows, treelines, drains / ditches, banks, stone walls, etc.

- Delay trimming as late as possible outside the bird nesting season - maybe until January and February (though make sure the ground isn't prone to becoming too wet / soft) as the surviving berry crop will provide valuable food for wildlife.

- Similarily, allow the hedgerow bases and other field / site margins to flower and set seed before cutting.

- Avoid using chemical sprays or fertilisers near hedgerows as they can have a negative impact on biodiversity that live there.

- For roadside hedgerows, the health and safety of road users takes precedence over other considerations. These may be cut during the year as needed to maintain sight lines and road safety.

- If planting a new hedge, consider banking it like old hedgerows; this creates more than one habitat.

- Hedgerow cutting is usually undetaken with a flail, but a circular saw is a less damaging alternative which results in a cleaner cut and encourages better re-growth.

- If there are any invasive plants in the hedge then take the appropriate measures should be taken to control and eradicate them.

- 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.

Species Selection for Woodlands, Hedgerows and Shelterbelts

It is recommended that native species should be used for new woodland, hedgerows, and shelterbelts. Non-native invasive species, such as Cherry Laurel (*Prunus laurocerasus*), Snowberry (*Symphoricarpos albus*), *Rhododendron ponticum,* etc. should be avoided in all circumstances.

Plants should only be sourced from certified Irish native seed origin and provenance. This 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. It is also important to avoid using 'improved' or forestry selected genotypes of native trees as they will narrow the genetic base of our native trees.

The following table lists some of the native trees and shrubs. Please note the selection of the exact species mix and percentage of each will depend on site conditions, landowner requirements, and availability of suitable tree stock.

Species	Notes
Small trees / shrub species	
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.
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.
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.
Larger trees	
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*.

Species	Notes
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.
Silver Birch (*Betula pendula*)	This is a tall native tree with an open crown that is similar to the Downy birch but needs good drainage.
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 through the importation of 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 it.

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

Appendix 4: Ash Dieback

Unfortunately, our Ash (*Fraxinus excelsior*) trees all over Ireland are facing into a very uncertain future as the invasive fungal pathogen known as Ash Dieback (*Hymenoscyphus fraxineus*) is now well established across every county in Ireland. Foresters' opinions on the survival rates of Ash in the landscape range between 1% and 10%. 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. Monitoring Ash trees in the local landscape is a project that may interest the local community groups 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 in the local community 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 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/

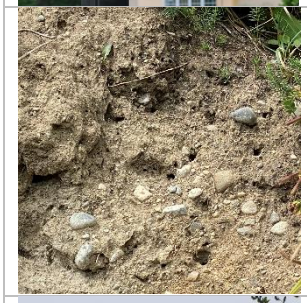
Appendix 5: An Taisce Wildlife Pond Project

Wildlife ponds and other wetland features can be one of the most biodiversity rich habitats in urban settings. An Taisce currently has a project underway to raise awareness and engage communities about these small wetland habitats and their importance for biodiversity, water quality and climate adaptation. It describes ponds as '*extraordinary reservoirs of biodiversity and have a critical role as Ireland faces our significant biodiversity loss. Over 50% of Ireland's amphibian wetlands have been lost to drainage, industrial peat extraction, pollution and natural senescence in the past 100 years. Of the 12,200 small enclosed water bodies across Ireland, 8,000 are less than a hectare in extent and the smallest categories have been subject to the greatest pressures. Ponds have been demonstrated to host more biodiversity than rivers and lakes, particularly macroinvertebrates and less common species (⅔ of all freshwater species!). Permanent and naturally vegetated ponds are excellent at carbon sequestration (Gilbert et al., 2014). Taylor et al. (2019) found that small ponds sequestered 20-30 times the amount of carbon compared with woodlands, grasslands and other habitats*'.

Ponds can be considered for most sites, from small gardens to large parks. Careful design and construction are essential to ensure they are successful and deliver maximum value for the community.

Appendix 6: Making and Leaving Room for Biodiversity

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 - untouched by human hands! Some to consider include:

	**Bee Boxes** These days there are many types of bee boxes that can be made or bought. 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. https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Nesting-2018-WEB.pdf
	**Solitary Bee Banks** Patches of bare earth on well drained, sunny south or west facing banks (or an aspect in between) can provide nesting opportunities for solitary bees. It is important that there is a good supply of flowers nearby for the bees to feed from. For further details please see: https://biodiversityireland.ie/app/uploads/2022/05/ActionSheet_Solitary-Bees-WEB-2.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. Over millennia it has evolved to live alongside humans with house gables and gutterings replacing its original cliff face nesting sites. It has suffered declines for several reasons, one of which is a lack of nesting sites due to better maintenance and draught-proofing of houses. 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/
	**Bat Boxes** According to the Atlas of Mammals in Ireland 2010-2015 (Lysaght & Marnell 2016), of the nine confirmed resident species of bats in Ireland, eight have been recorded and confirmed in Co Tipperary. Local groups can aid the conservation efforts by working with bat specialists to install bat boxes at identified locations in the community where it is deemed appropriate. Bat Conservation Ireland, the national charity for bat conservation in Ireland has lots of helpful guidance and advice: https://www.batconservationireland.org/
	**The Hare's Corner** This is an old Irish tradition that was carried out on farms across the country in the past. It is a beautiful idea and the concept of creating a mini wildlife sanctuary in today's world makes so much sense. It acts a safe place for insects, birds, mammals, and plants to flourish without the constant tidying that us humans bring to nature. There is lots of potential with this action: you could have a small example in your own garden and a larger one in your local park or nearby farm.

Appendix 7: Common Terrestrial Plant Invasive Species

The following are just some of the more common terrestrial plant species that are found in Ireland.

Species	Description
 **Cherry Laurel** *Prunus laurocerasus*	**Means of Spread:** Some spread by berries being eaten by birds but most spread is by layering and suckering. It is still widely sold in garden centres / nurseries and used in landscaping schemes. Most popular garden hedging species. **Main Risks:** 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. **Control:** Excessive growth can be tackled by continuous cutting back (it's important to avoid it flowering and setting seed). However, to eradicate it requires cutting back hard and the stem treatment with herbicide. With bigger plants growing freely in woodland situations it grows back strongly after being cut and will spread from lateral roots and shoots. For the community, it will be important to create awareness about its problems and discourage its use in the community.
 **Japanese Knotweed** *Fallopia japonica*	**Means of Spread:** 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. **Main Risks:** Seriously damages houses, buildings, hard surfaces, and infrastructure growing through hard surfaces, usually where weaknesses already exist. It forms dense thickets, shading out natural vegetation. **Control:** Control must only be carried out by professionals. Professional treatment required for several years but costs fall sharply as amount of foliage to be treated reduces.
 **Rhododendron** *Rhododendron ponticum*	**Means of Spread:** Produces large quantities of viable seed (3000-7000 per flower) i.e possibly one million seeds per plant! Readily layers i.e. forms new growth, where branches touch the ground. It is still widely sold in garden centres / nurseries and is used for game cover and in forestry landscaping. **Main Risks:** Forms thick impenetrable stands that casts year-round shade, suppressing natural vegetation, exacerbated by the very acidic nature of leaf litter. **Control:** 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.
 **Traveller's joy** *Clematis vitalba*	**Means of Spread:** Also known as Old Man's Beard this climbing species with small cream flowers in summer and woolly/hairy seed heads in autumn that will spread on the wind. A garden escapee, probably deliberately planted in hedges and woodland in the past. **Main Risks:** This deciduous climber can form dense thickets that blanket trees, shrubs and ground flora, ultimately depriving them of light. **Control:** Excessive growth can be tackled by cutting back, but herbicide treatment is required to eradicate, with application over 2-3 years required to deal with regrowth. Large plants will need to be dealt with professionally but small saplings can be simply pulled up.

Species	Description
 **Winter Heliotrope** *Petasites pyrenaicus*	**Means of Spread:** 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. **Main Risks:** Winter heliotrope forms dense colonies of plants that outcompete native species. The dense growth creates abnormal shade in Irish habitats e.g. woodlands. With its strong growth in late winter & early spring this allows it to outcompete native woodland spring flora. **Control:** 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. Where this plant occurs under trees, this just leaves either glyphosate use or physically digging out the plants. However, another point to consider is if a plant population is growing along a stream or waterway. Both these methods have the potential to negatively impact upon the waterway and any other sites downstream. Often the best work that can be done by a local community is to limit the extent of the Winter Heliotrope in their local area and where colonies exist, to confine them to its current area.
 **Pheasantberry** *Leycestria formosa*	**Means of Spread:** Also known as Himalayan honeysuckle this is a deciduous shrub and its seeds are dispersed by water and by birds and mammals. Still widely sold in garden centres/nurseries and popular as game cover. **Main Risks:** Forms thick impenetrable thickets that shades out natural vegetation. **Control:** Control of this plant can be carried out by a local community. 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*	**Means of Spread:** Small herbaceous perennial, spreads vegetatively and by seed. A garden escape and scheduled species. **Main Risks:** 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:** Control of this plant can be carried out by a local community. 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.
 **Himalayan balsam** *Impatiens glandulifera*	**Means of Spread:** This pretty plant was deliberately planted in the past along river banks. Its seeds drop into the water and then get spread further downstream. This is why it must be dealt with on a catchment-wide basis. **Main Risks:** It shades out native flora and then in winter when it dies back, it leaves the river/stream banks exposed and susceptible to erosion. **Control:** Despite being so problematic, it is easily pulled up and therefore is one that can be dealt with by community groups. It is worth remembering though that even if a catchment-wide project cannot be achieved, then local plant removal is still worthwhile as it will help the native flora to return and will lower the number of seed that spreads.

Appendix 8: Soils and Biodiversity

Soil physical properties (edaphic factors) affect the diversity of organisms living in the soil environment. These include soil structure, temperature, pH, and salinity. Soils are home to more than 25% of the earth's total biodiversity and support many natural processes on which we all depend:

- life on land and water,
- nutrient cycling and retention,
- food production,
- pollution remediation,
- hydrological processes and the conservation
- climate regulation and carbon sinks, carbon sequestration.

There is increasing evidence that shows that multiple sustainability goals can be addressed simultaneously when soil organisms are put at the focus of land management; this is because the activity and interactions of soil organisms are intimately tied to multiple processes that ecosystems and human society rely on.

The Soil Food Web

The **soil food web** (see image on the next page) is the community of organisms living all or part of their lives in the soil. It describes a complex living system and an often-overlooked area of biodiversity in the soil and how it interacts with the environment, plants, and animals. Processes in this biologically active part of soils support vital processes such as nutrient cycling, water storage capacity, and carbon fixation in our soils. A healthy soil microbiome supports local biodiversity and climate resilience.

Rethinking our Relationship with Soils

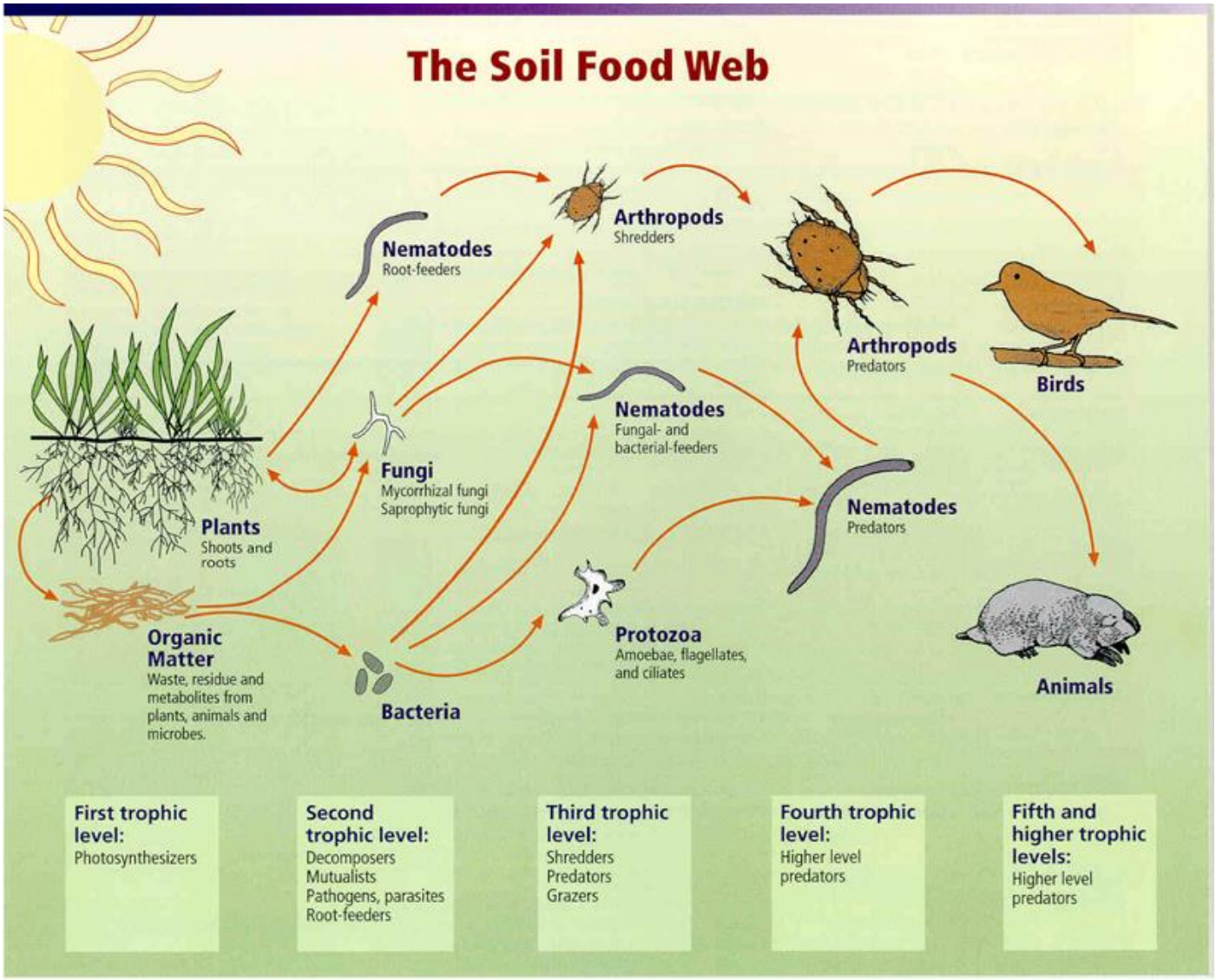
It's important that we start to re-think our relationship our soils and their management including in urban areas, town parks and amenity grasslands. Traditional management of amenity grasslands and landscaped areas has relied heavily on inorganic fertilisers and pesticides (fungicides, insecticides, and herbicides). There have come to be accepted as normal management practice and even essential for urban green space management. This approach is totally unsustainable, in ecological terms.

Natural grasslands and woods are self-sustaining systems, so we need to start thinking of our parks and urban green areas as eco-systems which should have minimal management input and to maintain healthy soils with well-balanced biological and natural physical/chemical processes and cycles.

Useful Links

7-ways-to-save-our-soils-2016.pdf (soilassociation.org)

https://www.teagasc.ie/crops/soil--soil-fertility/soil-analysis/soil-sampling/



Relationships between soil food web, plants, organic matter, and birds and mammals
Image courtesy of USDA Natural Resources Conservation Service
http://soils.usda.gov/sqi/soil_quality/soil_biology/soil_food_web.html.

Appendix 9: Legal Protection of Biodiversity in Co Tipperary

Biodiversity is the different plant and animal life that can be found in a place. We in Tipperary live within our natural environment. The protection of this environment provides many benefits to the community. Over time the impact of people on the environment in County Tipperary has degraded some habitats. With greater understanding of the importance of the protection of nature various laws, help protect and maintain our precious natural environment within our County.

Our natural environment is legally protected on a European, National and County basis.

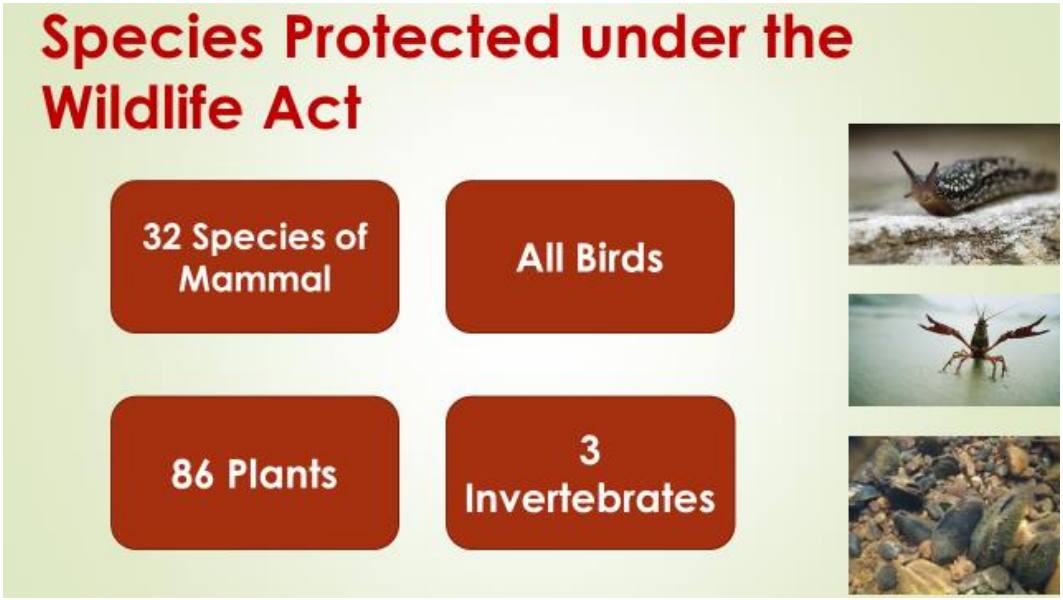
The main legislation to protect Biodiversity in Ireland is the Wildlife Acts 1976 to 2022.

This is a collective citation for the following:

- Wildlife Act 1976 (no. 39 of 1976)
- Wildlife (Amendment) Act 2000 (no. 38 of 2000)
- Wildlife (Amendment) Act 2010 (no. 19 of 2010)
- Wildlife (Amendment) Act 2012 (no. 29 of 2012)
- Heritage Act 2018 (no. 15 of 2018), Part 3
- Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 3
- Flora (Protection) Order, 2022

Nature conservation legislation was substantially enlarged and improved by the Wildlife (Amendment) Act, 2000 and the Birds and Natural Habitats Regulations.

The Acts affords strict **protection for species** from injury and disturbance and also to their necessary **habitat** (e.g. breeding, resting sites). There are 32 species of mammal protected under the act, all birds, 86 plants and 3 invertebrates.



European Law- Special Protection Areas and Special Areas of Conservation

Much of our Environmental Law comes from obligations under European Union laws. For example, the Birds Directive, Directive 2009/147/EC, requires the protection of habitats of particular importance to bird life. These habitats are designated as Special Protection Areas for Birds (SPA). In Co. Tipperary, we have an important bird habitat along the Shannon both in its Callows and in Lough Derg but also the uplands of the Slievefelim and Silvermines which are all designated as SPAs.

An SPA provides for the protection of the habitat. Activities such as directly threatening birds for example egg taking and the destruction of nests are prohibited. Hunting on such sites is strictly controlled and the hunting of some birds is not permitted.

Another EU law which provides habitat protection is the Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna). This Directive provides for the creation of a network of European Sites known as Natura 2000 sites. SPAs for birds are included in this network for nature. Other areas supporting habitats and species of conservation importance are protected under the Habitats Directive as Special Areas of Conservation (SAC). These European Sites are strictly protected, they recognise that the habitat protected is important on a European wide basis. Under the Habitats Directive, any project or work on the site which would potentially cause damage must be assessed in a scientific manner. These plans can only be approved if they represent an overriding interest and there is not an alternative. If a European site is damaged by necessary works, then Compensatory Habitat must be provided to ameliorate the damage. Tipperary has several SACs.

The 27 European conservation sites for biodiversity in County Tipperary are the following:

Site Name	Site Code
Special Protection Areas (SPA)	
Lough Derg (Shannon)	004058
Middle Shannon Callows	004096
River Little Brosna Callows	004086
Slievefelim to Silvermines Mountains	004165
Special Areas of Conservation (SAC)	
Anglesey Road	002125
Arragh More (Derrybreen) Bog	002207
Ballyduff/Clonfinane Bog	000641
Blackwater River (Cork/Waterford)	002170
Bolingbrook Hill	002124
Clare Glen	000930
Galtee Mountains	000646
Keeper Hill	001197
Kilcarren-Firville Bog	000647
Kilduff, Devilsbit Mountain	000934
Liskeenan Fen	001683
Lough Derg, North-east Shore	002241
Lower River Shannon	002165
Lower River Suir	002137
Moanour Mountain	002257
Philipston Marsh	001847
Redwood Bog	002353
River Barrow and River Nore	002162
River Shannon Callows	000216
Scohaboy (Sopwell) Bog	002206
Sharavogue Bog	000585
Silvermine Mountains	000939
Silvermines Mountains West	002258

Natural Heritage Areas

There is also, under the Wildlife Amendment Act 2000, provision for the protection of National Heritage Areas (NHA) which are recognised as protecting nationally important habitats.

The EU Biodiversity strategy for 2030 aims to protect nature and reverse the degradation of ecosystems.

Protected under Wildlife Amendment Act 2000 from the date they have been formally proposed.

Proposed NHAs (pNHAs) have **limited protection** but are treated the same as NHAs under the **County Development Plan** which has legal standing under the Planning and Development Act 2000. There are dozens of these type of site scattered across the county representing many types of habitats. They can be viewed online on the map viewer page at www.npws.ie where they are coloured blue alongside red SACs, green NHAs and pink SPAs.

There are 12 designated NHAs in Co Tipperary, as seen in the table below. All are raised or mountain blanket bogs with one exception: 000564 the River Little Brosna Callows which comprises river, wetland and grassland habitats.

Site Name	Site Code	Main Habitat or Species
Arragh More Bog	000640	Raised bog
Ballymacegan Bog	000642	Raised bog
Bleanbeg Bog	002450	Mountain blanket bog
Cangort Bog	000890	Raised bog
Killeen Bog	000648	Raised bog
Lorrha Bog	001684	Raised bog
Mauherslieve Bog	002385	Mountain blanket bog
Monaincha Bog/Ballaghmore Bog	000652	Raised bog
Nore Valley Bogs	001853	Raised bog
River Little Brosna Callows	000564	River, wetland, grassland
Scohaboy Bog	000937	Raised bog
Slievenamon Bog	002388	Mountain blanket bog & heath

Role of Local Authorities in protection of Biodiversity

As a public authority Tipperary County Council (LCC) has **obligations to protect biodiversity** under The European Communities (Birds and Natural Habitats) Regulations 2011 477/2011.

LCC exercises **consent functions** (e.g. water management, road development, housing and planning) which may have implications for or effects on Nature Conservation.

It is mandatory to exercise these functions so as to secure compliance with the Wild Birds and Natural Habitats Directives.

For **European Sites, (SACs and SPAs**) and **candidate** European Sites Public Authorities are compelled to take appropriate steps to:

- Avoid deterioration of natural habitats
- Avoid significant disturbance of species
- Avoid pollution
- Take appropriate enforcement action
- A Public Authority must also strive to avoid deterioration of natural habitats and species **outside** a European or Candidate European Sites

Other Environmental Legislation of Importance to Biodiversity

The **Strategic Environmental** Assessment (SEA) Directive (CEC, 2001);

- Aims to ensure a high level of environmental protection and that environmental considerations are taken into account when preparing, adopting and implementing **public plans and programmes.**
- It promotes sustainable development by ensuring that environmental assessment is carried out of certain plans and programmes likely to have significant effects on the environment.
- Public plans and programmes covered by the Strategic Environmental Assessment (SEA) Directive are subject to an **environmental assessment** during their preparation and before their adoption, e.g. The Tipperary County Development Plan.

The **Environmental Impact** Assessment (EIA) Directive, as codified (CEC, 2011).

- Ensure that projects above given thresholds likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to development consent being given.

Laws to Protect our Water

Ireland's water resources are protected through the implementation of EU and national legislation.

- Water Framework Directive
- River Basin Management Plan 2018 - 2021
- Nitrates Directive
- Management of Surface Water Runoff in Urban Areas

Forthcoming Laws for Nature Conservation

EU Nature Restoration Law

This proposed new law aims to repair damage done to Europe's nature by 2050.

It will be the first-ever legislation that explicitly targets the restoration of Europe's nature, to repair the 80% of European habitats that are in poor condition, and to bring back nature to all ecosystems, from forest and agricultural land to marine, freshwater and urban ecosystems. Under this proposal for a Nature Restoration Law, legally binding targets for nature restoration in different ecosystems will apply to every Member State, complementing existing laws. The aim is to cover at least 20% of the EU's land and sea areas by 2030 with nature restoration measures, and eventually extend these to all ecosystems in need of restoration by 2050.

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