



COMMUNITY BIODIVERSITY ACTION PLAN 2023

Kilbride Co. Meath

Commissioned by Kilbride Tidy Towns Group and
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Introduction

Ireland is a land of contrasting landscapes - peat bogs and limestone pavement, steep cliffs and rolling coastal dunes, rugged mountains and damp lowland pastures defined by a network of hedgerows, stone walls and patches of woodland and scrub. Equally so, we possess a landscape dominated by intensive agricultural practice, commercial forestry operations, degraded peatlands and heavily modified waterways. Recent scientific studies have linked exposure to nature with increased energy, a heightened sense of well-being and numerous health benefits (Maller et al. 2008, Townsend et al. 2015). These studies confirm what we instinctively know and feel already. With our recent experiences with the covid pandemic, and its global implications, we have perhaps learned to appreciate biodiversity as much in a local setting as we should do in a global context. People are spending more time outdoors; walking, running, cycling, gardening, and reconnecting with nature. Communities are coming together to look after their local environment, preserving their patch and learning more about the natural environment on their doorsteps. While there are both global and national efforts to conserve the natural environment through legislation and policy, the role of local communities in the conservation of our natural heritage is crucial. Communities must play their part in addressing the biodiversity crisis too. The aim of this biodiversity plan is to raise awareness of biodiversity and to empower the local community to undertake actions for the conservation and enhancement of biodiversity in their local area.

Methodology Used in Preparing the Plan

This biodiversity plan is the culmination of a series of field assessments conducted over the primary survey season March - September 2022, combined with extensive desk analysis and interpretation. Fintan Damer, Consultant Ecologist, worked with representatives from the Kilbride Tidy Towns Committee, gaining valuable specific local knowledge which was essential for the selection of key habitats to be included in the development of this plan. Desktop research was carried out including a review of protected species from the National Parks and Wildlife Service, records from the National Biodiversity Data Centre (biodiversityireland.ie), the Environmental Protection Agency (EPA.ie) and historic maps.

Developing the Community Biodiversity Plans had four key aspects:

Maps – habitat mapping using the Fossitt classification system (Fossitt 2000).

Inventory - A list of native flora and fauna

Actions - What can be done to conserve, enhance and develop habitats, where and how.

Linkages – How the plan can be associated with EU legislation such as the habitats and birds' directives, national legislation and policy documents related to the environment and local authority county plans and initiatives such as the National Pollinator Plan.

Mapping

The Fossitt classification system provides data that is consistent and complementary. The standardised nature of its construct, which is widely used by environmental and ecological consultants, makes it particularly useful in the development of national policy such as the Soon to be

revised 4th National Biodiversity Action Plan 2023 - 2027, currently out for public consultation and of course in the development of Environmental Impact statements (EIAs) for use in planning processes.

Inventory

The inventory consists of an extensive list of native flora and fauna including vascular plants, birds and mammals and may also include insects, aquatic invertebrates and bats where appropriate. Gathering of botanical data is of particular interest as indicator species will determine the precise Fossitt class to level 3. All species are recorded using scientific procedures for species recording (Scannell & Sinnott, 1990) including common and scientific names and have been submitted to the National Biodiversity Data Centre database. Attention was also given to the presence of non-native invasive species where detected. Invasive species if detected are submitted to the National Parks and Wildlife Service (NPWS), which include those listed in the 3rd schedule part I, Non-native species subject to restrictions under Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (transposed from the habitats directive). 13% of the 377 non-native species assessed for impact in Ireland, are considered invasive. The impact of invasive species on our native wildlife cannot be underestimated.

Actions

This is detailed description of relevant, attainable, and verifiable actions to enhance or protect biodiversity including specifics on why each action is important and where precisely it should be carried out. A clear understanding of how this can be done, under what time scale i.e., short term, medium term, long term and at what time of year if this is critical is provided. Of chief importance here is to communicate the importance of long-term gains and the requirement for ongoing monitoring to ensure benefits have a lasting positive impact well beyond the time scale of the implementation of the CBAP.

Linkage

European Directives have helped shape national legislation and policies towards the protection and conservation of biodiversity. The EU Habitats Directive and Birds Directive have directed the establishment of Special Areas of Conservation (SACs) for habitats and certain species and Special Protection Habitat A habitat is the natural home of an animal, plant or other organism. It can be an area such as woodland or grassland or a feature such as a tree or a stone wall. Biodiversity or biological diversity describes the variety of life on earth. It includes all living things, people, plants, animals, fungi and microorganisms and the places (habitats) where they live. Biodiversity is just another term for nature, flora and fauna, natural heritage, wildlife and the living environment. Biodiversity is all around us, from gardens to hedgerows, woodlands to wetlands, rivers to coastlines. We all interact with biodiversity and the living environment every day as we go about our daily lives. 9 Areas (SPAs) for birds. These conservation areas provide protection for important areas that contain the best examples of Irish habitats and important populations of certain species. However, these areas only contain a small fraction of Ireland's biodiversity, and it is important that biodiversity is afforded protection outside of protected areas. The EU Water Framework Directive and the EU Nitrates Directive are important for the protection of our waters both marine and freshwater. At a national level, the most important legislation for the protection of wildlife is the Wildlife Act 1976 (as amended). Conservation policy has also been driven by Ireland becoming a signatory to the Convention on Biological Diversity 1992. On signing, Ireland undertook to promote the conservation and sustainable use of biological diversity. This led to the development of a National Biodiversity Plan promoting the need for the integration of the conservation and sustainable use of biological diversity into all relevant sectors and into the development and implementation of other policies, legislation, and programmes. Local Authorities have adopted Local

(County) Biodiversity Action Plans and this Community Biodiversity Action Plan complements the Meath Local Biodiversity Action Plan 2015-2020.

Kilbride Village and Local Environs

Kilbride is a village located 15km northwest of Dublin city, the nearest large town of Ashbourne being 5km to the north. The village has retained much of its rural 'old world' charm despite the ever-expanding Dublin suburbs of Blanchardstown and Mulhuddart being visible from the townlands south of the village. In 2021 Kilbride village was awarded best in 'Community wellbeing' and 'Climate action' categories in the Ashbourne municipal district Pride of Place Awards.

South of the village is the Ward Rivers, sometimes known as the Swords River, which rises from just north of Dunboyne at Herberstown, flowing 20km eastwards into the jurisdiction of Fingal County Council where it runs through the town of Swords flowing into the Broadmeadows River and onwards to the Broadmeadows Estuary. Linear features such as these can be very valuable for biodiversity particularly where they intercept with hedgerows, woodland or scrub. At Prieststown, west of the village, there are two significant areas of mature mixed broadleaf woodland, Wesley's Woods and a copse nearby, both approximately 3.5 acres each with an additional adjoining wet woodland of 3.2 acres on the north side of Wesley's Woods. Beyond the treelines and hedgerows which provide a network of habitat in this largely arable landscape, these woodlands are the most significant areas of semi-natural habitat adjacent to the village. To the north of the village, near Cullen, is a graveyard and the ruin of an old church of which only the lower parts of the walls remain but which are densely vegetated with ivy (*Hedera helix hibernica*) and potentially possess suitable habitat for bat roosts and other fauna (Fig.1).

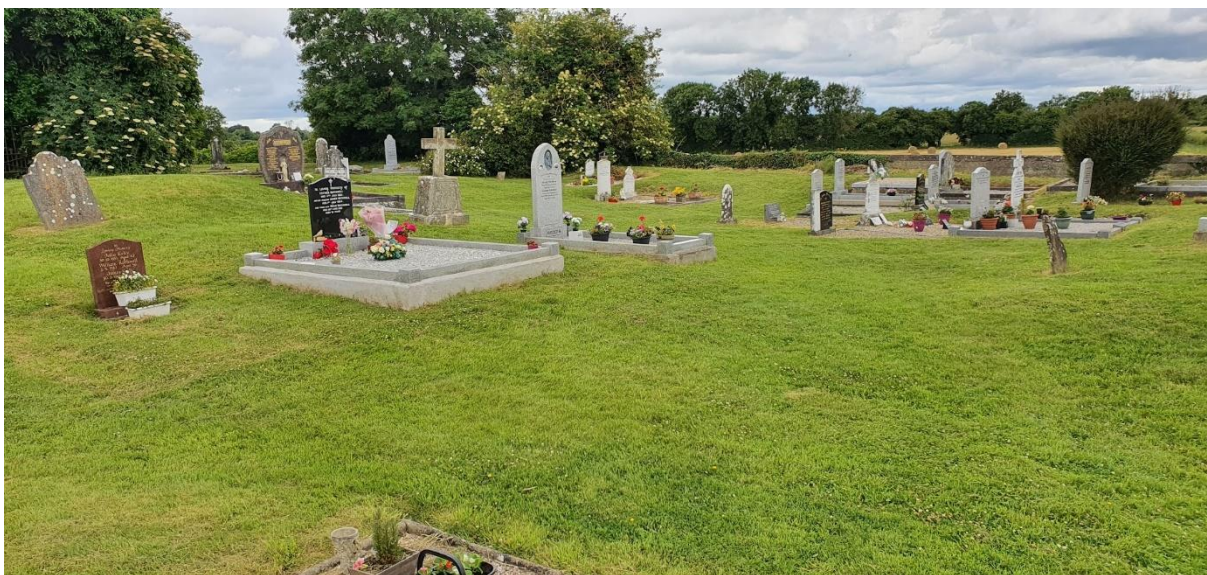


Figure 1. Kilbride graveyard altered management could significantly improve its biodiversity value

The graveyard is entirely grassed but it does not appear to have been 'Improved' and therefore the grassland botanical elements likely possess a very significant species count of

native semi-natural grassland plants which could prove very productive if managed as meadow and not short mown lawn.

A GAA club and pitch are central to the village as is the extensive ground of St. Brigid's church. The surrounding townlands are dominated by arable farmland of mostly tillage crops, bounded by hedgerows and some mature treelines of varying ecological value. Drainage ditches are numerous and hold good potential for species with aquatic requirements such as amphibians, aquatic invertebrates, and waterbirds.

Residential developments are mainly in the form of detached dwellings although a number of residential clusters exist at Cherry Drive (Fig.2) and Glenard to the northwest and northeast and a newer development, Prieststown Avenue, south of the GAA grounds. The Top Oil service station also has small grass margin areas as does some of the entrance roads into the village (Fig. 3 & 4).



Figure 2. Green spaces at Cherry Drive



Figure 3. Planting scheme at the church crossroads



Figure 4. Entrance road into Kilbride with grass margin

These clusters and the grounds of St. Brigid’s Church, collectively possess significant amenity grass areas which could be meaningfully enhanced to support biodiversity. Currently these grass areas are intensively maintained as short mown lawns with very limited biodiversity value.

An area of naturally revegetating scrub habitat (Fig.5) exists opposite the church at the Prieststown Kilbride road junction. Although not assessed, scrub habitat can be very rich in biodiversity and is all too frequently undervalued.



Figure 5. Scrub habitat near the centre of the village

Inventory

Floral Records

As defined under to the Fossitt Habitat classification system, a total of ten distinct habitat types were recorded during the field surveys conducted in April and June 2022. 61 botanic species, 34 bird species, 3 mammal species (or evidence of their presence) and 11 aquatic invertebrates were recorded. Included in these were several non-native species although most are considered naturalised. They are listed in Table 1 below.

Table 1. Non-native species recorded.

No.	Latin Name	Common Name
1	<i>Acer platanoides</i>	Norway Maple
2	<i>Acer pseudoplatanus</i>	Sycamore
3	<i>Aesculus hippocastanum</i>	Horse Chestnut
4	<i>Fagus sylvatica</i>	Beech
5	<i>Prunus laurocerasus</i>	Cherry Laurel
6	<i>Tilia platyphyllos</i>	Large leaved Lime

No invasive species as define under the 3rd schedule of the Birds and Natural habitats Regulations 2011, were detected over the course of the field surveys although the presence of Cherry Laurel *Prunus laurocerasus*, which is widely accepted as having invasive characteristics, was noted. Small amounts exist in Wesley's Woods and in the grounds of the church.

Fig.6 is a habitat map of Kilbride and the local environ, which presents the range of habitat types that occur here.



Figure 6. Habitat map for Kilbride

The following tables contain all the botanical species identified for each of the selected habitats chosen for evaluation.

Habitat 1. Wesley's Woods

Fossitt Habitat Classification: Highly modified Woodland. Mixed broadleaved woodland WD1.



Figure 7. Mixed woodland with Lesser Celandine ground flora



Figure 8. Mixed woodland with stand of Sitka spruce

Table 2. Wesley's Woods botanical survey results

No.	Latin Name	Common Name	Vegetation Type
1	<i>Alnus glutinosa</i>	Alder	Tree
2	<i>Anemone nemorosa</i>	Wood Anemone	Herbaceous
3	<i>Anthriscus sylvestris</i>	Cow Parsley	Herbaceous
4	<i>Arum maculatum</i>	Lord and Ladies	Herbaceous
5	<i>Asplenium scolopendrium</i>	Harts tongue fern	fern
6	<i>Betula pubesens</i>	Downy birch	Tree
7	<i>brachypodium sylvaticum</i>	Wood false brome	Grass

8	<i>Carex remota</i>	Remote sedge	Sedge
9	<i>Carex sylvatica</i>	Wood Sedge	Sedge
10	<i>Conopodium majus</i>	Pignut	Herbaceous
11	<i>Crataegus monogyna</i>	Hawthorn	Shrub
12	<i>Dryopteris filix-mas</i>	Male Fern	fern
13	<i>Epilobium hirsutum</i>	Great willowherb	Herbaceous
14	<i>Fagus sylvatica</i>	Beech	Tree
15	<i>Ficaria verna</i>	Lesser Celandine	Herbaceous
16	<i>Fraxinus excelsior</i>	Ash	Tree
17	<i>Geranium robertianum</i>	Herb Robert	Herbaceous
18	<i>Hedera helix hibernica</i>	Ivy	Shrub
19	<i>Heracleum sphondylium</i>	Hogweed	Herbaceous
20	<i>Ilex aquifolium</i>	Holly	Shrub
21	<i>Picea sitchensis</i>	Sitka spruce	Tree
22	<i>Plantago lanceolata</i>	Ribwort plantain	Herbaceous
23	<i>Primula vulgaris</i>	Primrose	Herbaceous
24	<i>Prunus laurocerasus</i>	Cherry laurel	Shrub
25	<i>Ranunculus repens</i>	Creeping Buttercup	herbaceous
26	<i>Rubus fruticosus</i>	Bramble	Shrub
27	<i>Sambucus nigra</i>	Elder	Shrub
28	<i>Tilia platyphyllos</i>	Large leaved Lime	Lime
29	<i>Urtica dioica</i>	Nettles	Herbaceous
30	<i>Vicia sepium</i>	Bush vetch	Herbaceous
31	<i>Viola riviniana</i>	Common Dog Violet	Herbaceous



Figure 9. Common dog violet, Wesley's Woods



Figure 10. Wood Anemone, Wesley's Woods

Habitat 2. Wesley's Woods Wet Woodland

Fossitt Habitat Classification: Semi natural Woodland. Wet Willow-Alder-Ash Woodland WN6.



Figure 11. Wet woodland dominated with willow.



Figure 12. Wet Woodland with ground flora typical of permanently wet ground



Figure 13. A Wet ditch dividing the mixed broadleaved woodland and the Wet Woodland

Table 3. Wet woodland botanical survey results

No.	Latin Name	Common Name	Vegetation Type
1	<i>Agrostis stolonifera</i>	Creeping bent	Grass
2	<i>Alnus glutinosa</i>	Alder	Tree
3	<i>Angelica sylvestris</i>	Wild angelica	herbaceous
4	<i>Asplenium scolopendrium</i>	Harts tongue fern	Fern
5	<i>Betula pudesens</i>	Downy Birch	Tree
6	<i>Chamaenerion angustifolium</i>	Rosebay willowherb	Herbaceous
7	<i>Dryopteris dilatata</i>	Broad buckler Fern	Fern
8	<i>Epilobium hirsutum</i>	Great Willowherb	Herbaceous
9	<i>Filipendula ulmaria</i>	Meadow sweet	Herbaceous
10	<i>Fraxinus excelsior</i>	Ash	Tree

11	<i>Salix cinerea</i>	Grey Willow	Tree
12	<i>Urtica dioica</i>	Nettles	Herbaceous

Habitat 3. Prieststown Copse Woodland

Fossitt Habitat Classification: Highly modified Woodland. Mixed Broadleaved Woodland WD1.



Figure 14. Mixed woodland, ground flora dominated with Cow Parsley on the norther side.



Figure 15. Mixed woodland, ground flora dominated with Lesser Celandine on the southern side.

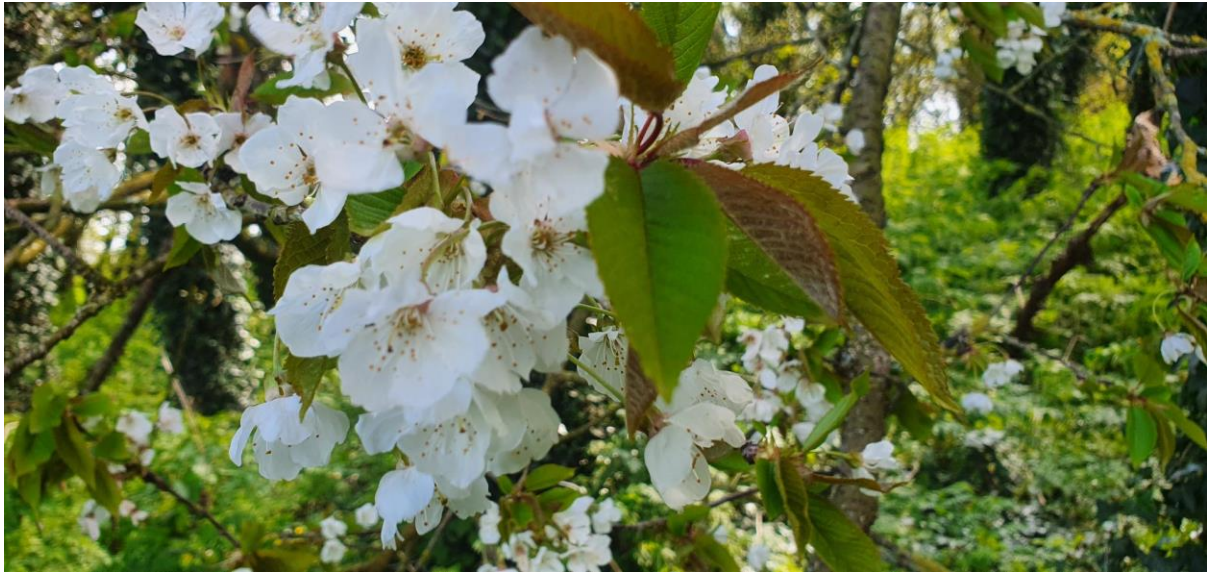


Figure 16. Wild Cherry, a frequent component of the canopy layer

Table 4. Priesttown copse botanical survey results

No.	Latin Name	Common Name	Vegetation Type
1	<i>Acer platanoides</i>	Norway Maple	Tree
2	<i>Acer pseudoplatanus</i>	Sycamore	Tree
3	<i>Aesculus hippocastanum</i>	Horse Chestnut	Tree
4	<i>Anthriscus sylvestris</i>	Cow Parsley	Herbaceous
5	<i>Arum maculatum</i>	Lords and Ladies	Herbaceous
6	<i>Carex remota</i>	Remote Sedge	Sedge
7	<i>Carex sylvatica</i>	Wood Sedge	Sedge
8	<i>Geum urbanum</i>	Wood avens	Herbaceous
9	<i>Crataegus monogyna</i>	Hawthorn	Shrub
10	<i>Fagus sylvatica</i>	Beech	Tree
11	<i>Ficaria verna</i>	Lesser Celandine	Herbaceous
12	<i>Fraxinus excelsior</i>	Ash	Tree
13	<i>Galium aparine</i>	Cleavers	Herbaceous
14	<i>Geranium robertianum</i>	Herb Robert	Herbaceous
15	<i>Hedera helix hibernica</i>	Ivy	Shrub
16	<i>Heracleum sphondylium</i>	Hogweed	Herbaceous
17	<i>Ilex aquifolium</i>	Holly	Shrub
18	<i>Prunus avium</i>	Wild Cherry	Tree
19	<i>Quercus patraea</i>	Sessile Oak	Tree
20	<i>Rosa canina</i>	Dog Rose	Scrub
21	<i>Rubus fruticosus</i>	Bramble	Shrub
22	<i>Rumex sanguineus</i>	Wood Dock	Herbaceous
23	<i>Sambucus nigra</i>	Elder	Shrub
24	<i>Tilia Platyphyllos</i>	Broad leaved Lime	Tree
25	<i>Urtica dioica</i>	Nettles	Herbaceous
26	<i>Veronica chamaedrys</i>	Germander speedwell	Herbaceous

27	<i>Vicia sepium</i>	Bush vetch	Herbaceous
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Habitat 4. The Ward River

Fossitt Habitat Classification: Depositing/lowland River **FW2**.



Figure 17. A relatively unsilted section of the Ward River adjacent to the Wesley's Woods and site for a Kick sample

Table 5. The Ward River botanical survey results

No.	Latin Name	Common name	Vegetation Type
1	<i>Anthriscus sylvestris</i>	Cow Parsley	Herbaceous
2	<i>Asplenium scolopendrium</i>	Hart's Tongue Fern	Fern
3	<i>Caltha palustris</i>	Marsh Marigold	Herbaceous
4	<i>Cardamine pratensis</i>	Cuckoo Flower	Herbaceous
5	<i>Chrysosplenium oppositifolium</i>	Opposite Leaved Golden Saxifrage	Herbaceous
6	<i>Crataegus monagyna</i>	Hawthorn	Shrub
7	<i>Epilobium parviflorum</i>	Hoary Willowherb	Herbaceous
8	<i>Filipendula ulmaria</i>	Sweet Meadow	Herbaceous
9	<i>Glyceria maxima</i>	Reed sweet grass	Grass
10	<i>Ligustrum vulgare</i>	Privet	Shrub
11	<i>Mentha aquatica</i>	Water mint	Herbaceous
12	<i>Salix cinerea</i>	Grey Willow	Tree

Habitat 5. Belgree Treeline

Fossitt Habitat Classification: Linear woodland/Scrub. Treeline **WL2**



Figure 18. Belgree Treeline

Table 6. Belgree treeline botanic survey results

No.	Latin Name	Common Name	Vegetation Type
1	<i>Acer pseudoplatanus</i>	Sycamore	Tree
2	<i>Crataegus monagyna</i>	hawthorn	Shrub
3	<i>Epilobium hirsutum</i>	Great Willowherb	Herbaceous
4	<i>Fagus sylvatica</i>	Beech	Tree
5	<i>Filipendula ulmaria</i>	Meadow Sweet	Herbaceous
6	<i>Geranium robertianum</i>	Herb Robert	Herbaceous
7	<i>Heracleum sphondylium</i>	Hogweed	Herbaceous
8	<i>Primula versis</i>	Cowslip	Herbaceous
9	<i>Rosa canina</i>	Dog Rose	Shrub
10	<i>Rubus fruticosus</i>	Brambles	Shrub

Habitat 6. Belgree Drainage Ditches

Fossitt Habitat Classification: Water Course. Drainage Ditch FW4



Figure 19. Drainage ditch at Belgree with female mallard and 8 chicks



Figure 20. Drainage ditch with aquatic vegetation of marsh marigold and water mint

Table 7. Belgree drainage ditches botanic survey results

No.	Latin Name	Common Name	Vegetation Type
1	<i>Caltha palustris</i>	Marsh Marigold	Herbaceous
2	<i>Cirsium palustre</i>	Marsh Thistle	Herbaceous
3	<i>Equisetum arvense</i>	Horsetail	Herbaceous
4	<i>Euonymus europaeus</i>	Spindle	Shrub
5	<i>Ficaria verna</i>	Lesser Celandine	Herbaceous
6	<i>Glyceria maxima</i>	Reed Sweet Grass	Grass

7	<i>Nasturtium officinale</i>	Water cress	Herbaceous
8	<i>Ononis repens</i>	Common Restharrow	Herbaceous
9	<i>Urtica dioica</i>	Nettles	Herbaceous
10	<i>Vicia sepium</i>	Bush Vetch	Herbaceous

Habitat 8. Prieststown Treeline

Fossitt Habitat Classification: Linear woodland, Treeline **WL2**.

No.	Botanical Name	Common Name	Vegetation type
1	<i>Fagus sylvatica</i>	Beech	Tree
2	<i>Rubus fruticosus</i>	Brambles	Shrub
3	<i>Primula versis</i>	Cowslip	Herbaceous
4	<i>Crataegus monagyna</i>	Hawthorn	Shrub
5	<i>Geranium robertianum</i>	Herb robert	Herbaceous
6	<i>Heracleum sphondylium</i>	Hogweed	Herbaceous
7	<i>Filipendula ulmaria</i>	Meadow sweet	Herbaceous
8	<i>Rosa canina</i>	Dog rose	Shrub
9	<i>Acer pseudoplatanus</i>	Sycamore	Tree
10	<i>Epilobium hirsutum</i>	great willowherb	Herbaceous



Figure 21. Beech tree in Priesttown treeline with suitable bat roost habitat

Bird Records

Table 8. Bird survey results for Kilbride

	Latin Name	Common Name	Location				BOCCI* status
			Wesley's wood's	Priesttown Copse Woodland	Wet Ditches	Arable/pasture farmland	
1	<i>Egretta garzetta</i>	Little Egret				✓	Green
2	<i>Anas platyrhynchos</i>	Mallard			✓		Amber
3	<i>Gallinula chloropus</i>	Moorhen			✓		Green
4	<i>Buteo buteo</i>	Buzzard		✓			Green
5	<i>Milvus milvus</i>	Red Kite				✓	Red
6	<i>Parus major</i>	Great Tit	✓	✓			Green
7	<i>Cyanistes caeruleus</i>	Blue Tit		✓			Green
8	<i>Tyto alba</i>	Barn owl				✓	Red
9	<i>Hirundo rustica</i>	Swallow				✓	Amber
10	<i>Sylvia atricapilla</i>	Blackcap	✓	✓			Green
11	<i>Phylloscopus collybita</i>	Chiffchaff	✓	✓			Green
12	<i>Turdus merula</i>	Blackbird	✓	✓			Green
13	<i>Regulus regulus</i>	Goldcrest	✓				Amber
14	<i>Turdus viscivorus</i>	Mistle Thrush		✓			Green
15	<i>Turdus philomelo</i>	Song Thrush	✓				Green
16	<i>Sturnus vulgaris</i>	Starling				✓	Amber
17	<i>Corvus cornix</i>	Hooded Crow				✓	Green
18	<i>Corvus frugilegus</i>	Rook				✓	Green
19	<i>Pica pica</i>	Magpie	✓				Green
20	<i>Garulus glandarius</i>	Jay	✓				Green
21	<i>Troglodytes troglodytes</i>	Wren		✓			Green
22	<i>Erithacus rubecula</i>	Robin	✓	✓			Green
23	<i>Carduelis cannabina</i>	Linnet				✓	Amber
24	<i>Fringilla coelebs</i>	Chaffinch	✓				Green
25	<i>Carduelis carduelis</i>	Goldfinch				✓	Green
26	<i>Pyrrhula pyrrhula</i>	Bullfinch		✓			Green
27	<i>Emberiza schoeniclus</i>	Reed bunting				✓	Green
28	<i>Emberiza citrinella</i>	Yellowhammer				✓	Red
29	<i>Passer montanus</i>	Tree Sparrow				✓	Amber
30	<i>Alauda arvensis</i>	Skylark				✓	Amber

31	<i>Streptopelia decaocto</i>	Collard Dove				✓	Green
32	<i>Columba palumbus</i>	Woodpigeon	✓	✓		✓	Green

Key Species

The current status of regularly occurring Irish bird species is classified using the Birds of Conservation Concern of Ireland (BoCCI) guidelines. The most recent assessment covers the period 2020 -2026 (Gilbert et al., 2021). To be red listed a species must be globally threatened, have experienced at least a 70% decline in the breeding population or a 70 % contraction in breeding range over the last 25 years in Ireland. To qualify as amber listed a species must have experienced a 35% decline in population or range over the last 25 years. Green listed species are of least concern and their population and range is assessed as stable or increasing. It is worth mentioning that each new assessment frequently sees the status of many species change, so what might be green listed and of least conservation concern now, might be amber or red listed in a subsequent assessments. There is a constant state of flux both positive and negative. Notable species of conservation concern recorded at Kilbride included yellowhammer, Red kite and Barn Owl. Yellowhammer were recorded in arable fields at Belgree and a large wintering flock of up to 34 birds was recorded at the old quarry to the rear of St. Brigids Church (Fig.22).



Figure 22. Large wintering flock of Yellowhammer, a red listed species of conservation concern

Yellowhammer are present year-round and are confirmed breeding locally as evidenced by an unfortunate road killed recently fledged juvenile bird, found at Belgree (Fig. 23).



Figure 23. Juvenile Yellowhammer. Road killed bird.

Red kite was recorded in arable fields west of the Prieststown Estate (Fig.24). They are a relatively recently reintroduced raptor species, first to Co. Wicklow in 2007 and then in the Fingal area north Co. Dublin in 2011. Their reintroduction has proved very successful particularly in Wicklow, but they are holding their own in the Fingal area and are slowly expanding their range from the release site to other part of north Dublin and into Meath. They are particular fond of farmland habitat with open pasture and arable land with nearby wooded areas for nesting (Golden Eagle Trust Ireland, 2023) so Kilbride could be considered ideally suited for their continued recovery and range expansion.



Figure 24. A Red kite with two accompanying buzzards

A barn owl was sighted on the Kilbride Road near to Cherry Drive (Fig.25). Barn owl are susceptible to a number of threats. As they frequently hunt along and near to roads and motorways, strikes from passing vehicles are an ever-present danger. Equally so, poisoning all be it unintendedly, is another serious threat to their status. Central and southern Ireland is their primary home range with patchy distribution elsewhere. They are absent in large parts of the east, possibly due to the use of rodenticides in tillage areas. Localised absence of suitable nesting locations may also be affecting their conservation status.



Figure 25. A barn Owl near Cherry Drive

As part of Kilbride's drive to enhance biodiversity, the Tidy Towns group has recently been getting involved in building barn Owl nest boxes for erection in open barns in local farmyards (Fig.26).



Figure 26. Barn owl boxes built by the tidy towns group

This is a very positive action, but it should be noted that the use of rodenticides would need to be curbed at these locations, otherwise the positive action may end up having a negative impact as Barn owls will inevitably feed locally to a nesting site should they take up using the boxes and inadvertently poison themselves and their chicks with rodents that are still alive but contaminated with poison. Research has confirmed (from recovered carcasses) that more than 85% of Barn Owls are believed to have rodenticide residues in their systems which is a very worrying statistic.

In addition to the 3 red listed species a further 7 amber listed species were also recorded which highlight the importance of Kilbride and the surrounding townlands for supporting bird species of conservation concern.

Mammal Records

Table 9. Mammals recorded at Kilbride

	Latin Name	Common Name	Evidence	Location
1	<i>Lutra lutra</i>	Otter	Holt	Ward River
2	<i>Meles meles</i>	Badger	Setts x4, spoil heaps, mammal trails, scratch post	Priesttown copse woodland

3	<i>Meles meles</i>	Badger	Snuffle holes	Wesley's Woods
4	<i>Lepus timidus hibernicus</i>	Hare	droppings	Priesttown treeline

An otter holt was detected in the bank of the Ward River which appears active although use by other mustelids such as American mink, *Mustela vison*, cannot be ruled out (Fig. 27). Although not uncommon it would be considered unusual for otter to have a holt this far upstream, with this section of the of the river being particularly narrow and shallow. Although the European otter population is listed as vulnerable, in decline or extinct, in Ireland we can boast to having the densest population in Europe. Otter is specifically protected under the wildlife Act 1976 (as amended) and under EU law, under the Habitat Directive (Council Directive 92/43/EEC) Annex II & Annex IV. A search on the Biodiversity Date Centre database revealed a record of an Otter from May 1980 in 'a stream south of Priesttown' in water 'seldom over 150mm deep'. This likely refers to the Ward River and it is encouraging to confirm that there may still be Otter present in the area some four decades later.



Figure 27. Possible active Otter holt in the bank of the Ward River

Several Badger setts were detected in the Priesttown copse woodland. A large main sett found, with 4 entrances, covering an area of several hundred sq. m, shows sign of its active use with spoil heaps and fresh digging (Fig.28). 3 further secondary setts were also detected on the fringes of the woodland. The nearest Annexe sett has a well-used trail leading to the main set and is also in active use (Fig.29). 2 outlier setts exist but may not be in current use or may be in use by other mammals such as fox or pine marten. Evidence of badger was also present in Wesley's Woods in the form of snuffles holes, shallow dug depressions often in clusters or lines as badger forage for earth worms or other soil invertebrates. This activity is within the territorial range of the setts at the Priesttown copse woodland.



Figure 28. The Main badger sett at the Priesttown copse



Figure 29. Annexe sett at the Priesttown copse

A decaying tree trunk nearby the main sett shows signs of very persistent use by this badger family (Fig.30). It's likely use is as a scratch post; a method of stretching their tendons prior to an evening's foraging.



Figure 30. Decaying tree trunk used as a scratch post by badgers

Although no Irish Hare were seen, some relatively fresh droppings were found on a rock adjacent to the Prieststown treeline, confirming their presence in the area.



Figure 31. Dropping of Irish Hare, adjacent to the Prieststown Treeline

Irish Hare is considered an endemic sub-species of mountain hare. Recent studies suggest that the levels of genetic diversity of hares within Ireland could indicate that the Irish hare may warrant full species status, making them unique in a European context (Hugh's et al., 2006). Irish Hare is in decline in most part of Ireland due to a variety of reasons, but persecution from legal and illegal coursing and the potential impact of Rabbit haemorrhagic disease (RHD) and the subsequent more virulent strain RHD2 is also significant. RHD was first found in Ireland in domestic rabbits but quickly spread to wild rabbit populations and to Hares. A search on the biodiversity data centre database did not reveal any known sighting of Irish Hare at or near Kilbride with the nearest occurrences being at Herbertstown Co. Meath in May 2011, at Damestown Co. Dublin in October 2013 and at Blanchardstown Co. Dublin in May 2016. Their confirmed presence in the Kilbride area is therefore a valuable record.

Aquatic Invertebrate Records

Table 10. Aquatic invertebrates identified from a kick sample at the Ward River

No.	Common Name	Scientific Name
1	Common black diving beetle	<i>Agabus bipustulatus</i>
2	Cased caddisfy	<i>Trichoptera</i>
3	Flat worm	<i>Platyhelminthes</i>
4	Fresh water snail	<i>Gastropoda</i>
5	Fresh water shrimp	<i>Gammarus pulex</i>
6	Fresh water Hog louse	<i>Asellus aquaticus</i>
7	Mayfly	<i>Ephemeroptera</i>
8	Water beetle	<i>Limnius larvae</i>
9	Sludge worm	<i>Tubifex tubifex</i>
10	True fly	<i>Diptera</i>
11	Leech	<i>Agabus bipustulatus</i>

In order to ascertain the biological quality of a river or stream, the Q-scheme method is used whereby a Quality-index is assigned to a river or stream based on macroinvertebrate data. The Q-index is a quality measurement ranging from Q1-Q5 with Q1 being of the poorest quality and Q5 being pristine / unpolluted. The results of the Kick sample would indicate the Ward River at this particular point has a Q value of Q3-4 which gives it a water Framework Directive status of Moderate, slightly polluted and unsatisfactory. An EPA biological quality survey carried out in 2008 gave The Ward River at Prieststown a Q value of Q3 which would suggest that the quality has largely remained unchanged. It is worth noting that the location for the kick sample was a relatively unsilted section adjacent to Wesley's Woods and not overly influence by farming activity such as tilling or riverbank disturbance by machinery. Other sections further downstream showed signs of heavy silt settlement on the stream bed. This can largely be attributed to ploughing and tilling activity right up to the banks of the stream.

Recommended Actions

River Enhancements

As part of the Meath County Development Plan 2021 - 2027, green infrastructure objectives include the development of a village green/ pocket park within the village environ. Additionally, there is an objective to develop a linear walkway/amenity area along the banks of the Ward River.

Infrastructural objectives include the management for flood risks which could be coupled with Amenity objectives through the development of Nature based Solutions along the Ward River by expounding wetland habitats with a dual amenity use in the form of a wetland walk/linear park. Such a development would also help to improve the water quality of the Ward River catchment and the requirements for its aquatic biotic inhabitants. Of note as a potential site is the linear parcel of land between the Belgree Lane and the Ward River (Fig.3).



Figure 32. Location of possible linear park along the Ward River at Belgree Lane

The Ward River at Kilbride/Priesttown, likely varies between moderate to poor biological and hydrological condition. Its heavily silted stream bed in places is almost certainly due to erosion of its banks and run off from farm activity. Silt or Sediment traps are a very useful method of restoring healthy river habitat with the primary function of trapping sediment runoff from land adjoining water bodies and urban storm water runoff and thus affording cumulative protection to larger rivers downstream when developed in unison with other similar pollution prevention methodologies at catchment scale such as riparian buffer zones. Riparian buffer zones are areas adjacent to water bodies where no chemical or organic fertiliser or cultivation can be carried out. An uncultivated minimum margin of 2m from the riverbank should be maintained and at least a 5m buffer for the spreading of fertilizers. The use of the new Agri-climate Rural Environmental Scheme (ACRES) should be investigated which compensates farmers for targeted environmental and ecological actions. Development of riparian buffer zones and planting trees in these riparian zones is two such actions.

Excessive sediment loads in streams results in excessive turbidity and when this fine sediment settles on the stream beds it fills the gaps between cobbles, gravel, and coarse material where invertebrates normally inhabit. Research has established that a well developed and managed river system can reduce the sediment load by up to 70% (Febria, 2018). In addition to the value of riparian buffer zones, sediment traps can also collect common nutrients such as phosphorous and nitrogen. These are conventional component

of most artificial fertilisers used in the agricultural and forestry industries and a major diffuse source of pollution. Phosphorous can have a particularly detrimental impact on freshwater aquatic life including the eutrophication of water, reduction in invertebrates and consequentially reduced fish life. Nitrogen is of particular concern for the health of a transitional estuarine waters and coastal waters which results in excessive algal growth and acidification of salt water.

Silt traps can take many forms including offline retention ponds, in channels works, swales, wetlands, leaky dams or a combination of several of these. The objective is to significantly reduce the velocity of the water causing the fine sediment to drop out and thus prevent sediment loads being distributed all along the river course. A useful metric was developed by Canterbury university New Zealand (Febria, 2020) for the executing the design and build of an inline sediment trap which can be augmented to suit any stream (Fig.33).

Suggested sediment trap dimensions based on the width and water velocity of the waterway.

Suggested Trap Length × Depth		Average width (m)		
		<1.5	1.5-3.0	3.0-4.5
Water velocity (ms ⁻¹)	<0.2	4.0 × 0.5	7.0 × 0.75	9.0 × 1.0
	0.2-0.4	7.0 × 0.5	10.0 × 0.75	12.0 × 1.0
	0.4-0.6	10.0 × 0.5	13.0 × 0.75	15.0 × 1.0

Figure 33. Metric for the design parameter of a silt tap

Fig. 34 and 35 below, shows how such a metric might be used for the implementation of instream works.



Figure 34. In stream works with a sump to trap sediment by gradual reduction in water velocity for its length

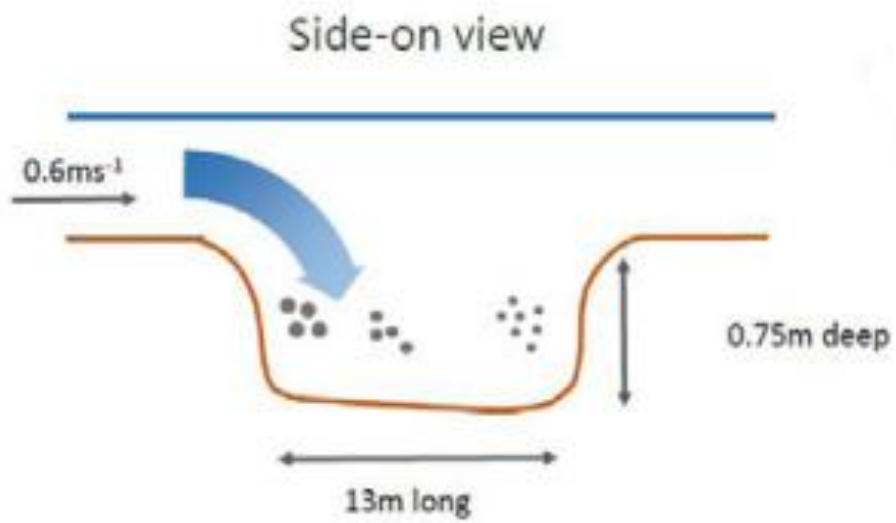


Figure 35. Sediment trap design profile

The two further examples below are offline sediment traps possibilities, one showing the addition of a wetland habitat which provides secondary filtration and aids in nutrient absorption by aquatic plant roots as well as providing additional habitat (Fig.36).

Source: *Landscapedna.org*

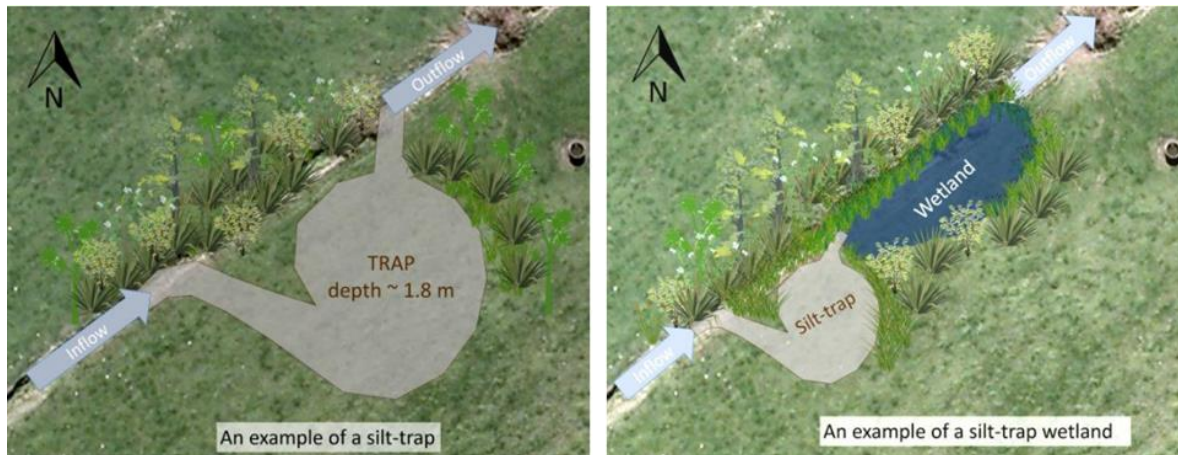


Figure 36. Silt trap examples

De silting these traps will be an ongoing maintenance requirement, the frequency of which will need to be determined over time to ensure the trap continues to function. As any silt trap developed will be connected to the water course, consent may need to be requested for their development and maintenance from the local authority, Meath or Fingal County Council, the Office of Public Works (OPW), or the Environmental Protection Agency (EPA).

Planting of riparian vegetation along the riverbanks, where significant bank erosion and bare soil is prevalent, would also be recommended. A well vegetated riparian zone by itself, provide a runoff buffer between the river channel and the surrounding lands. Fig.11 lists suitable ground flora planting for bank stabilisation and buffering from run off.

Table 11. Recommended riparian vegetation.

Latin Name	Common Name
<i>Alium ursinum</i>	Ramson (wild garlic)
<i>Angelica sylvestris</i>	Wild angelica
<i>Athyrium filix femina</i>	Lady fern
<i>Carex remota</i>	Remote sedge
<i>Chrysophlenium oppositifolium</i>	Golden saxifrage
<i>Circaea lutetiana</i>	Enchanters' night shade
<i>Filipendula ulmaria</i>	Meadow sweet
<i>Oenanthe crocata</i>	Hemlock water droplet
<i>Primula vulgaris</i>	Primrose
<i>Sceophularia nodosa</i>	Common figwort

Some trees should also be incorporated into the riparian zone, in particular willow, *Salix sp.*, and alder, *Alnus glutinosa*, to ensure bank stabilisation.

Dealing with Invasives

Although no invasive plants were recorded as determined under the third schedule of S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011, the presence of cherry laurel, *Prunus laurocerasus*, was noted in Wesley's Woods (Fig.27). Cherry laurel are non-native and possess negligible ecological value. They have invasive credentials including the ability to out compete, crowd out and displace native flora particularly herbaceous ground flora. Their evergreen large leaves cast dense shade. Its ability to spread by layering and suckering as well as by seed (Reynolds 2002), allows it to form dense monoculture stands and when allowed to proliferate can be very difficult to deal with. All the recorded plants at Wesley's Woods were small and had likely self-seeded. Some Cherry laurel also exists in the church ground. It would be prudent to also remove this as it could otherwise potentially act as a seed source to continually re-established in semi natural habitats in Kilbride.



Figure 37. Invasive Cherry laurel, Wesley's Woods

Creation and Management of Semi-Natural Grassland

The most cost-effective way to provide food for pollinators is to reduce the frequency of mowing in and allow wildflowers to grow naturally in the longer grass. Collectively, including all the grass verges, housing development greens and the church ground there is 0.75 acres of habitat with negligible biodiversity value. Additionally, the grounds of Kilbirde Graveyards had almost 0.5 acres where alternative management option should be considered. Alerting the management regime would provide immense new zones of productive habitat. However, this does not mean that these areas must be let go completely wild. The actions below suggest different ways that you can reduce mowing to make your grassland more diverse and in particular, useful for pollinators.

Action 1 - Create short-flowering Meadow.

Given the limitations of these grass areas on an individual basis, it might be more palatable to those not used to unmown grassland, to have these area managed as short meadow. Consider cutting areas of grass on a 4-6-week rotation. This will allow short crop flowers like Clover or self-heal to bloom continuously, providing food for pollinators from May to September. The primary objective here is that within a 4–6 week cycle, at least two thirds of that time, there will be plants actively

flowering and producing nectar. Grass clipping must be removed in all instances. Overseeding with an appropriate short cut floral lawn seed mix will increase the diversity significantly. This can be acquired from www.wildflowers.ie using the product code DW01- short flowering meadow. Table13. is the species List present in this mix.

Table 12.Short meadow species3mix

Common Name	Latin Name
Birdsfoot Trefoil	<i>Lotus corniculatus</i>
Black Meddick	<i>Medicago lupulina</i>
Burnet Saxifrage	<i>Pimpinella saxifrage</i>
Common Poppy	<i>Papaver rhoeas</i>
Cowslip	<i>Primula veris</i>
Cornflower	<i>Centaurea cyanus</i>
Cuckoo flower	<i>Cardemine pretensi</i>
Eye bright	<i>Euphrasia offinalis</i>
Forget-me-not, field	<i>Myosotis arvensis</i>
Hawksbit, Autumn	<i>Scorzoneroides autumnalis</i>
Hawksbit, Rough	<i>Leontodon saxatilis</i>
Hoary Plantain	<i>Plantago media</i>
Kidney Vetch	<i>Anthyllis vulneraria</i>
Lady's Bedstraw	<i>Galium verum</i>
Marjoram	<i>Origanum vulgare</i>
Meadow buttercup	<i>Ranunculus acris</i>
Oxe eye Daisy	<i>Leucanthemum vulgare</i>
Quaking Grass	<i>Briza media</i>
Red Bartsia	<i>Odontites vernus</i>
Red Clover	<i>Trifolium pratense</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Selfheal	<i>Prunella vulgaris</i>
Scentless Mayweed	<i>Matricaria chamomilla</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>

Where additional seed sowing is carried out, it is recommended to sow in the Autumn as some species require a period of cold winter weather to break dormancy. It is important also to note that some species can take several years to germinate before attaining their full potential (Fig.38).



Figure 38. short sward flowering meadow

Over time, through the continual removal of clippings, mowing operation should be reduced further and the introduction of the annual, Yellow Rattle, *Rhinanthus minor* (Fig.39), into the meadow is highly recommended as this plant has a unique ability to parasitise grasses, naturally displacing their dominance which allows other less vigorous flowering species to establish hence its common nick name, 'the Meadow Maker' (fig.40). For yellow rattle to proliferate no mowing should take place before mid-July.



Figure 39. Yellow rattle otherwise known as 'the meadow maker'

Early flowering dwarf bulb species, although non-native, can be planted in addition, including snow drops, *Galanthus nivalis* and Crocus, *Crocus vernus.*, both of which are an early source of nectar (Fig. 40). When planting these bulb species, the first mowing should not occur until May. Raising mower height will improve the diversity and resilience of the meadow further with the majority of developing flower buds remaining upcut below the mowing height.



Figure 40. Early flowering snow drops and crocus

Action 2 - 'No mow May'

A hugely beneficial strategy which asks that mowing operations be delayed until May is out. This allows for early flowering grassland plants, in particular Dandelions, which flower principally from March to May, to be available to bumble bees which are frequently active from early in the year when there is often a shortage of nectar producing flowers (Fig. 41). This strategy can be done in conjunction with Action 1. Once regular but reduce moving has begun it is important to ensure that cut material is remove and not allowed to decompose back into the sward. This ensures a gradual reduction in fertility of the soil over time which conversely assists in increasing the plant diversity of the meadow. Cutting height should never be lower than 75mm (3 in.) This ensures the ongoing survival of the maximum number of meadow species, many of which would die out if regularly cut to short.



Figure 41. Early flowering 'No Mow' dandelion meadow

Action 3 - Create a Tall-Flowering Meadow

These types of meadows are generally most suited to larger grassland areas. Kilbride graveyard would be ideal for this. The grass sward may well already possess considerable botanical diversity. It would be advisory to allow the meadow to develop the first year and to carry out a botanical study to ascertain the botanical diversity before deciding if additional supplementary seed is required. The meadow seed if required can be sourced from www.wildflowers.ie using the product Code DW03 – Tall Wildflowers. This type of long flower meadow would be cut in late September or early October and the vegetation removed. Table 14. Is the species List present in this mix.

Table 13. Tall meadow species mix.

Common Name	Latin Name
Alexanders	<i>Smyrniololus atrum</i>
Agrimony	<i>Agrimonia eupatoria</i>

Bladder Campion	<i>Silene vulgaris</i>
Burdock	<i>Arctium minus</i>
Common Vetch	<i>Vicia sativa</i>
Corncockle	<i>Agrostemma githago</i>
Cornflower	<i>Centaurea cyanus,</i>
Corn Marigold	<i>Glebionis segetum</i>
Corn Poppy	<i>Papaver rhoeas</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
Field Scabious	<i>Knautia arvensi</i>
Foxglove	<i>Digitalis purpurea</i>
Garlic Mustard	<i>Alliaria petiolata</i>
Greater Trefoil	<i>Lotus pedunculatus</i>
Lesser Knapweed	<i>Centaurea nigra</i>
Meadow Sweet	<i>Filipendula ulmaria</i>
Mugwort	<i>Artemisia vulgaris</i>
Mullein	<i>Verbascum thapsus</i>
Opium poppy	<i>Papaver somniferum</i>
Ox eye Daisy	<i>Leucanthemum vulgare</i>
Red Campion	<i>Silene dioica</i>
St. Johnswort	<i>Hypericum perforatum</i>
Scented Mayweed	<i>Matricaria chamomilla</i>
Sorrel	<i>Rumex acetosa</i>
Teasel	<i>Dipsacus fullonum</i>
Upright Hedge Parsley	<i>Torilis japonica</i>
Weld yellow weed	<i>Reseda luteola</i>
White Bedstraw	<i>Galium album</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>

Regardless of where the seed is sourced from, It is imperative to ensure that any floral additions are guaranteed to be of Irish provenance, in other words that they are not just native species, but seed sourced locally in Ireland. This ensures the preservation of our native and unique genetic diversity. Seed should be collected prior to cutting down in the Autumn and used for subsequent sowings, thus ensuring the preservation of the provenance and the possibility of expanding the use of this meadow mix to other areas.

Action 3 - Erect Informative Signage

Erecting of signage (Fig.42) should be done in conjunction with logging your achievement where any of the above actions are taking place. It is imperative to inform the wider public that these areas are being actively and decisively management for wildlife and not being abandoned or ignored. Signage templates are available free to download on <https://pollinators.ie/resources/>. Log these areas on the publicly available mapping system at <https://pollinators.biodiversityireland.ie> to let everyone know you are playing your part for protecting biodiversity.



Figure 42. Examples of signage to inform about active wildlife management

Habitat Protection

Several habitats exist in Kilbride which require minimal or no interventions to preserve their ecological integrity. These include the woodlands at the Priesttown Estate and the scrub habitat at the village centre. Additionally, there is also an old quarry site to the rear of the Church which was not assessed but evidence provided by the Kilbride Tidy Towns would suggest that it supports considerable biodiversity in its existing condition. These habitats should be largely left untouched although monitoring of any changes over time would be worth recording. Scrub habitat for instance is a transition habitat from grassland to woodland. The woodlands at Priesttown are dominated with mature trees. Monitoring would help to determine if there is a sufficient succession of new trees self-generating to replace older trees that will ultimately die. The Priesttown copse woodland for instance has a significant amount of Lime trees. Although they possess ecological benefits, lime trees are non-native and are generally not known to produce seedlings. There could therefore be a deficit in replacement trees in time to come. This could be address by carry out a tree survey for these woodlands which would determines factors for each individual tree such as approximate tree ages, tree health, likely end of life, biodiversity value etc. and a plan devised for their continual replacement.

Bat Habitat Management and Enhancements

Although no bat surveys were conducted during this assessment the presence of mature and over mature trees in the woodlands and treelines on the Priesttown estate, the treeline at Belgree and indeed the mature trees in the grounds of St. Brigids Church, would strongly support the probability of their presence. Almost all our bat species require habitat corridors in the form of linked mature hedgerows and treelines as foraging habitat and they will seldom stray from beyond their extent. Gaps in hedgerow and treelines can therefore severely restrict their movement, their territorial range and their ability to seek out new roosting sites or better foraging locations. In fact, over a wider landscape or region, lack of connection between such linear habitats can impact the genetic integrity of a species as population isolation can lead to decline and localised extinctions. Fig.43 below shows the end of the treeline at Belgree. This treeline is not connected at either end to any other linear woodland feature. This blockage to habitat connectivity could be rectified by reconnecting it with the wider hedgerow network locally through the planting of a hedgerow or treeline to reach the roadside hedgerow 150 m to the north. Replication of such an action in the wider environment could be transformative not only for the local bat population but for any species that relies heavily on a well-connected network of linear woodland habitats. Studies have found that

the provision of a continuous tree canopy favours the occurrence of most bat species, in the case of common pipistrelle, an increase by up to 94% was found (Lewanzik, et al., 2022).



Figure 43. Isolated treeline at Balgree

The Treeline at Balgree consists of several dead standing tree (Fig. 44). These are often chosen as roost locations by bats as they often possess considerably more cracks, hollows, and cavities than live trees. For this reason, it is vitally important that they remain in situ. Additionally, many of the trees here have significant ivy growth on them. Ivy has multiple ecological benefit but for bats it can also provide a dry and safe location for them to roost.

A Search on the Biodiversity Data Centre database revealed that 8 of our 9 native species of bat have been recorded in the Kilbride area. It would be a remarkable achievement if their continued presence could be reinforced through the enhancement of the somewhat fragmented hedgerow and treeline network. Conducting focused bat roost and activity surveys in Kilbride, in the most likely habitat types, would be recommended to validate evidence of their continued presence and perhaps to identify weaknesses in foraging and movement corridors.



Figure 44. Dead standing tree providing bat roost habitat.

Hedgerow Management

Much of the hedgerow network in Kilbride particularly roadside hedges are persistently and annually flailed (Fig.45). This management method has a profound impact on the biodiversity value of a hedgerow. Almost all hedgerow woody species including Hawthorn, Blackthorn, hazel, spindle, guelder rose and wild cherry flower and fruit on growth that is at least two years old. Annual flailing removes this possibility as the growth put on in a single year is entirely vegetative i.e., it does not flower or fruit. This only happens on growth that has been allowed to remain uncut for at least two years.



Figure 45. Current hedgerow management regime

Noting the requirement to keep roadside vegetation cut from a road safety perspective, likely accounts for much of this. However, the height of hedgerow or the growth on the field side could not be perceived as a road safety issue. Flailing of hedgerows along long straight sections of road or were a wide roadside margin means the hedge vegetation is well back from the road, should be examined and management options and requirement reassessed. A good example might include the rotational cutting of each aspect of the hedgerow over a 3 year cycle (Table.14).

Table 14. Suggested hedgerow maintenance method.

Aspect of Hedgerow	Year to be conducted
Road side	Year 1
Field side	Year 2
Top	Year 3

There is a growing trend to flail Internal field hedgerows now also and Kilbride is no exception. These are perhaps the practices that need even greater re-evaluation. Where woody growth is removed from a shrub or tree it is a natural biological reaction of that plant to attempt to replace that lost growth as quickly as possible. This accounts for the rapid growth in the first year following a flailing operation. Incremental growth reduces in subsequent years to a point where a hedgerow that is long term uncut may only produce new growth of a few inches annually, with most of the plants

energy now concentrating on flower and fruit production. Allowing this process to occur has obvious ecological benefits but also hedgerow management benefits in term of time, effort and financial cost. Hedgerows that only produce small incremental quantities of growth annually, can go for substantial periods of time unmanaged.

Where it is perceived, that flailing operation are still necessary, consideration should be given to implementing a new operational norm that is more sympathetic to supporting the needs of our wildlife. An example in Table.15 below allows for 3 sides of a 4 sided square field to remain ecologically productive on an ongoing basis.

Table 15. Suggested hedgerow maintenance schedule.

Management action	Year to be conducted
Cut northern hedgerow	Year 1
Cut southern hedgerow	Year 2
Cut eastern hedgerow	Year 3
Cut western hedgerow	Year 4

Herbicide use and its Impacts.

The only noted use of herbicides was in the grounds of the GAA along a bank adjacent to a hedgerow (Fig. 46). Persistent use herbicide brings with it, several environmental and ecological negatives. Herbicides do not generally prevent the return of new wildflower growth. The bare ground left once a herbicide has achieved its design goal, is an ideal seed beds for a new crop of wildflowers to take advantage of. In all cases these are the most resilient wildflowers, usually annuals, which means they proliferate rapidly and often the most reviled of our native wild. Continual usage of herbicides will perpetuate this and will require the need for ever frequent use of herbicides and the suppression of more valuable and arguably more attractive perennial wildflowers. Use of herbicide will not prevent wildflower regrowth but will significantly impact on botanical diversity and the diversity of insects and bird that can benefit from them. More than 100 herbaceous plants species can be regularly found in our hedgerow ground flora. A hedgerow base that is continually sprayed with likely have less than a dozen native plant species.



Figure 46. Use of herbicides at the GAA ground

Ivy on Trees and its Ecological Benefits

It was noted that some of the tree at Belgree showed evidence of attempts to arrest ivy growth on their trunks. Contrary to popular belief, ivy does not cause the death or decline of trees, least of all mature trees. Where a tree has reached over maturity and perhaps is in decline, ivy growth may appear to be the dominant foliage component. This is not to be confused with the ivy causing the decline of the tree. Heavy ivy growth on a declining tree with significant internal decay, may act as a sail and hasten the tree falling. This is an entirely natural process and even a fallen tree has very significant biodiversity value.

Ivy has several beneficial attributes not generally recognised. As earlier mentioned, it provides roosting habitat for bats but uniquely with Ivy, its flower late into the season, from September to perhaps as late as November when everything else has gone dormant. Their flowers are nectar abundant and are hugely beneficial to late foraging bees prior to hibernation. An equally advantageous attribute is that Ivy fruit does not mature until late December or January and will continue to provide fruit until the spring. The timing of their maturing fruit happens to coincide the almost complete depletion of other berries such as those from hawthorn. Every effort should be made to refrain from removing ivy from trees given their huge ecological contribution to supporting wildlife through the leanest time of year.

Schedule for Implementation of Actions

Identified Actions	Suggested timeframe for undertaking the actions				
	Yr1	Yr2	Yr3	Yr4	Yr5
1. Habitat Connectivity. Planting to establish connectivity between the linear woodland, the copse woodland and the hedgerow, and any areas of scrub or semi natural habitat, could be implemented over the next two winters season 2023-2024 and 2024-2025.					
2. Creation of wildflower meadows. This action can be undertaken this year as initially all that is involved to designating the relevant additional area that are to be managed as short meadow or as 'No Mow May' areas or are not to be cut at all from March to September as in the case of tall meadow. Supplementing with additional native wildflower seed can be carried out in the Autumn if needed.					
3. River enhancements and restoration. These works may take considerable time to implement as it will involve liaising with other stake holders e.g., MCC, EPA, OPW and landowners. Seeking permission from the relevant authorities, planning, and gaining assistance from MCC or others may take some time and it may ultimately involve land purchasing or the development of a public wildlife park. Liaising with landowners however, could be commence immediately to investigate the creation of riparian buffer zones to					

restore the biological and hydrological integrity of the Ward River. Investigate the use of the ACRES environmental scheme.					
5. Preservation of Habitats. This work will be on going but will not necessarily involve routine annual actions. Photographic monitoring of the woodlands, scrub and grassland habitats will help to track changes over times and give guidance on when intervention is needed to ensure a mosaic of habitats continues to exist.					
6. Erection of bat boxes. This is not an urgent action as good natural bat roosting locations exists in Kilbride. It would be beneficial however to have these artificial roost boxes built should any of the exist mature or over mature trees present in the treelines, collapse. They could be affixed to healthy trees or to buildings where they are adjoined by good foraging corridors.					
7. Tree surveys. Having an inventory of the trees present in the woodlands would heavily guide the requirements going forward, for the replacement of declining or dead trees and ensuring that good diversity continues to exist.					
8. Hedgerow network management. Liaising with landowners in the wider community regarding the questionable justification for intensive management of hedgerows, should be considered. It may take times but often it may just be a case of developing a mindset change away from 'neat and tidy' or what is considered a good hedge. This will be an ongoing action that may take some time to embed as a positive act.					
9. Dealing with invasive non-natives. These should be dealt with as soon as possible to prevent them from spreading further. Cherry laurel can be removed at any time and disposed of in a licence green waste facility.					
10. Herbicide use. The ceasing of herbicide use throughout Kilbride, should actioned immediately. Primary in achieving this is changing the mindset away from 'the eradication of weeds,' to the new understanding of 'the preservation of native wildflowers'					
11. Use of educational signage. This action is important in the education of the local community on the biodiversity that exist around them and its importance. Where new actions are undertaken it is important to highlight them with signage. E.g., creation of new wildflower 'no mow' meadows. This will be an ongoing action.					
12. On going monitoring and ecological surveying.					

Over time habitats change and the species that exist in them will change too. To be able to track the positive or potentially negative changes, it is important to carry out repeat surveys. Botanic surveys are the most important as they will often influence the presence of other biotic species. Implemented biodiversity actions should increase the overall biodiversity presence. Surveys should be carried out on a 5-year rotation.					
13. Bat Surveys. These should be carried out this season between May and September. A minimum of 2-3 surveys would be recommended, 6-8 weeks apart to try an identify roost location and primary foraging corridors.					

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