Ardara Biodiversity Report

Visitor information signage by the main car park in town

Acknowledgements

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A number of individuals and parties contributed to this report in various ways including Ardara Heritage Centre, Molly Bell, Gregory Daly, Sean Cannon-Earley, Conor Classon, Paddy Keeney, Aengus Kennedy, Natalie Lough, Jimmy McVeigh.

All photographs in this report are taken by Michael Bell except where otherwise indicated.

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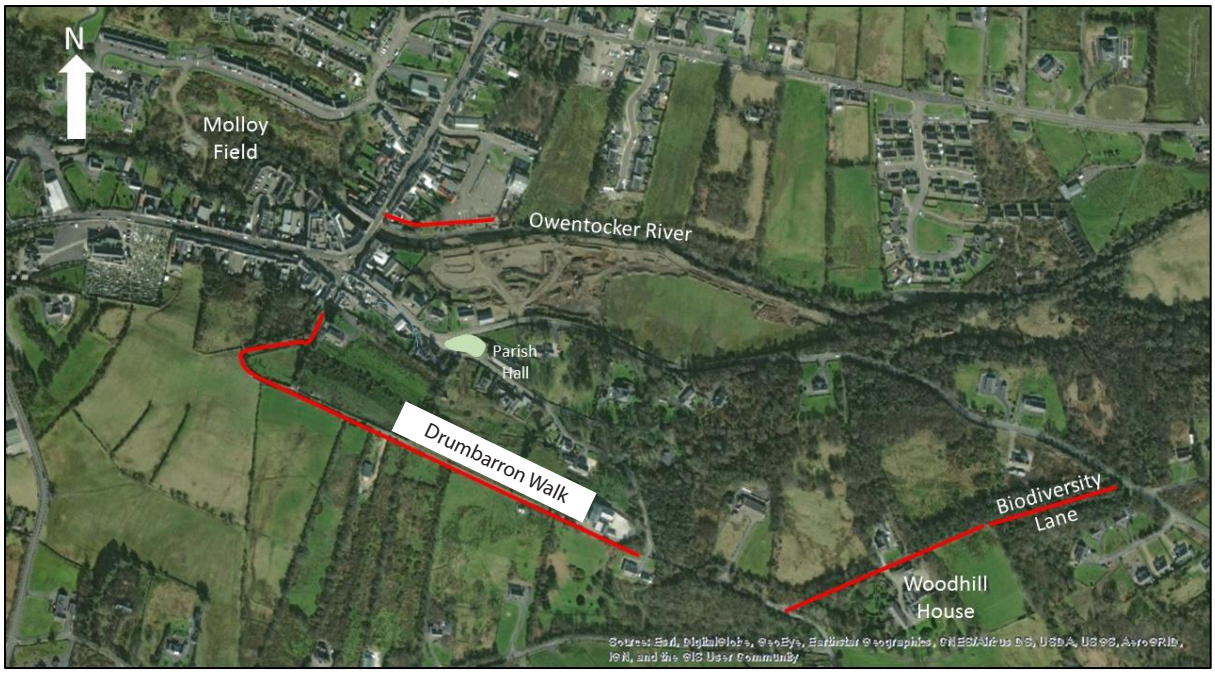
Introduction

Michael Bell of Nature Learn was contracted by Awake Tourism to carry out an ecological survey of the Ardara area, and to compile an action plan to help inform the group's activities and projects over the next few years. The surveys included recording of mammals, birds, fish, insects, other invertebrates and plants. Also included are results from a desktop survey to discover pre-existing records of species recorded in the locality. Local residents were also interviewed, and many shared their knowledge of local wildlife.



Map 1: *Map showing the main sites referred to in Report*

The area included in the survey encompasses the immediate vicinity of Ardara and was extended somewhat to the south and east to include areas of interest, in particular Biodiversity Lane, close to town. The main areas surveyed are shown on the map above and will be referred to throughout the report. Some short walking routes are highlighted in red.

The goal of the action plan is to provide information, proposals and ideas to help enrich Ardara for biodiversity, in a way which enhances the area for both humans and for wildlife. It is also intended that this report will help to raise awareness of local species and habitats, so that the community will wish to conserve them for future generations to enjoy.

Habitats and Sites of Interest

The Built Environment

View from main square looking west along the N56

Ardara is an attractive town situated along the Owentocker River nestled between Loughros Bay and green hills. The streets are well maintained and Ardara was voted the best village to live in Ireland by the Irish Times in 2012.

There are many planters throughout the town and these were very well maintained adding a lot of colour to the main streets by the main car park in town. Planters, if appropriately planned, may provide a network of suitable habitat for pollinating insects across an otherwise inhospitable environment.

Although private gardens were not included in the survey it would be good to get input from local residents of the wildlife they spot around their homes. This would undoubtedly turn up records of various mammals such as fox, hedgehog etc.

Birds typical of towns seen on the survey included house sparrows, starling, jackdaws, pied wagtails and collared doves. Other common garden birds observed included blue tits, great tits, robins, wrens,

chaffinches and blackbirds. Swallows and house martins were also seen flying over and mostly likely nest in the town and environs.

The collared dove is a recent colonizer of Ireland only arriving in the country in 1959 but is now a common sight in towns across the country.

In future a talk on wildlife in gardens, and how to encourage it would help to raise awareness and foster an appreciation for biodiversity that exists on people's doorsteps. Gardens are becoming increasingly important refuges for wildlife

Owentocker River

View of Owentocker River looking east from the N56 bridge in town. The elevated walk can be seen on the left of the photograph

The Owentocker River rises in the Blue Stack Mountains and reaches the sea to the west of Ardara town. It is a focal point of the town and the main street crosses the river at a bridge where there is a short elevated walk upstream allowing for good views of the river. The Owentocker is a spate river that rapidly rises and falls are periods of rain. The river has long been a popular destination for anglers, particularly for its run of Atlantic salmon and sea trout.

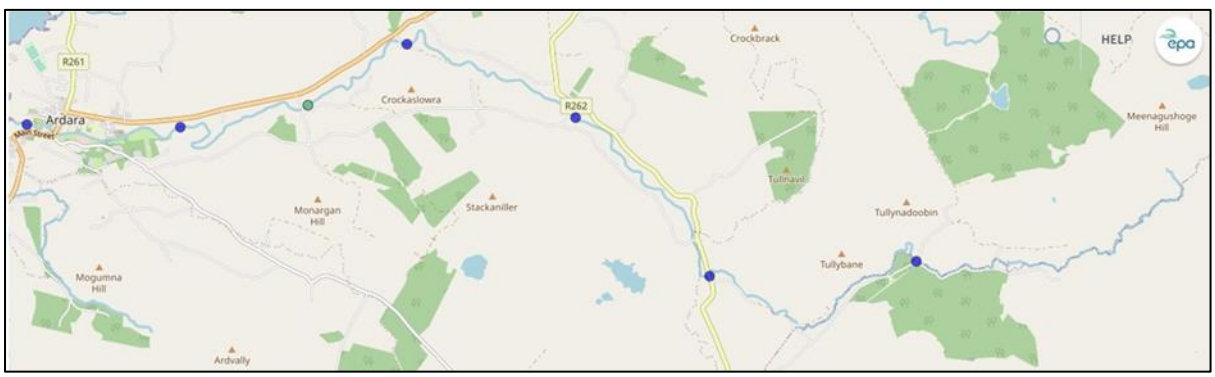
The Environmental Protection Agency host and maintain the website Catchments.ie, in collaboration with the Local Authority Waters Programme and the Department of Housing, Local Government and Heritage, that enables the public to learn about Ireland's water catchments. The website shares information on recent and historic measurements of water quality in all the country's major catchments. Water quality is measured using a system of Q values. These values are based on a method of kick sampling, whereby a scientist kicks up the gravel and sediments from the bed of the river and catches what is disturbed in a net. The catch is examined and all macroinvertebrates (primarily the young stages of insects but also including freshwater snails, worms, shrimp etc.) are sorted and identified and are then ranked according to the relative proportions of pollution sensitive to pollution tolerant species resident at the site. The ranking of these Q values is shown in Fig. 1, along with the associated colour code as used in the maps found on the Catchments.ie website.

Blackfly larva, the presence of which is an indicator of good water quality (©Molly Bell)

Colour Code	Q Value*	WFD Status	Pollution Status	Condition**
	Q5, Q4-5	High	Unpolluted	Satisfactory
	Q4	Good	Unpolluted	Satisfactory
	Q3-4	Moderate	Slightly polluted	Unsatisfactory
	Q3, Q2-3	Poor	Moderately polluted	Unsatisfactory
	Q2, Q1-2, Q1	Bad	Seriously polluted	Unsatisfactory

Fig. 1: *Q values based primarily on relative proportions of pollution sensitive to tolerant macroinvertebrates resident at the site*

As can be seen in Map 2, the most recent water quality sampling taken in 2021 show the water quality along the entire length the Owentocker to be satisfactory, with six stations recording High quality and one recording Good quality according to Water Framework Directive (WFD) standards. Maintaining this favourable water quality is of vital importance to ensuring high-quality drinking water for the local community as well as supporting biodiversity within the catchment.



Map 2: *Map of Owentocker River showing most recent Q value readings at sampling stations*

This favourable status along the river was not always the case as can be seen by looking at the historical data in Fig. 2. Conditions were recorded as poor at near the bridge in Ardara in 2000, with good status not being attained until 2009.

OWENTOCKER **38O06**

Date Surveyed (last survey year only): 15/09/21, 16/09/21

Biological Quality Rating (Q Values)

Station Code	1971	1973	1977	1980	1984	1990	1994	1997	2000	2003	2006	2009	2012	2015	2018	2021
RS38O060010							4	4-5	4-5	4	4		4			4-5
RS38O060020				5	5	5										
RS38O060050		5		5	5	5	4	4-5	4-5	4	4	4	4	3	4-5	4-5
RS38O060090						4-5										
RS38O060100			5	5	5		4-5		4-5	4	4		4			
RS38O060200				5	4-5											
RS38O060300	5	5	5	4	3-4	4	4	4	2-3	3	3-4	4	4	4	4	4-5

Most Recent Assessment:

All three sites surveyed on the Owentocker were found to be of high quality when sampled in September 2021.

Station Details

Station Code	Station Location	WFD Waterbody Code	Easting	Northing	Local Authority
RS38O060010	OWENTOCKER - Ford E Tullybane	IE_NW_38O060050	183462	389029	Donegal County Council
RS38O060020	OWENTOCKER - Bridge E. of Lough Nillan	IE_NW_38O060050	181068	388868	Donegal County Council
RS38O060050	Bridge S. of Kilrean	IE_NW_38O060050	179523	390701	Donegal County Council
RS38O060090	OWENTOCKER - Br E. of Garvegort	IE_NW_38O060300	177574	391557	Donegal County Council
RS38O060100	OWENTOCKER - Br S.E. of Garvegort	IE_NW_38O060300	176424	390861	Donegal County Council
RS38O060200	OWENTOCKER - Bridge S. of Doochill	IE_NW_38O060300	174945	390615	Donegal County Council
RS38O060300	500 m d/s Bridge in Ardara	IE_NW_38O060300	173169	390656	Donegal County Council

Fig.2: *Historical q value readings and station details for Owentocker River*

Three fish species were recorded by Inland Fisheries Ireland during fish stock surveys as part of WFD surveillance monitoring of rivers in 2011. Three electric-fishing passes were conducted midway between the N56 bridge at Ardara and where the river enters the Owenea Estuary. The species recorded were Atlantic salmon, brown trout and European eel. During the previous survey in 2008, the same species composition was recorded.

Sea trout are the anadromous (fish which migrate from sea to freshwater to spawn) form of brown trout (© Maurice Hannon)

The macroinvertebrate life in the river is an important part of the food chain, not just for fish but for other animals also. Several birds such as dippers, grey wagtails, kingfishers and grey herons feed and nest along waterways. Dippers plunge under the water to feed on caddisfly larvae and other macroinvertebrates while grey wagtails catch insects along the river shore. Both species often nest under bridges. Kingfishers, which are rarely seen despite their bright colours, feed on small fish that the river supports. Grey herons often stand motionless by the water's edge for long periods waiting to spear a passing frog or fish.

The grey wagtail, despite its name, is a colourful bird that may be regularly seen along the Owentocker River

Though not seen during the study, otters have been recorded in the past and are undoubtedly regular visitors to the river. They tend to be quite secretive and may travel along the river at night. Although not recorded, American mink are also likely present. Bats also use the river corridor at night with one species in particular being strongly associated with the river. Daubenton's Bat is able to pick insects off the water surface and has been recorded along the river near the main bridge.

The otter is undoubtedly a common traveller along the Owentocker River but rarely seen due to its mainly nocturnal habits and secretive nature (© Molly Bell)

Drumbarron Walk

View from Drumbarron Walk looking towards Sheskinmore

Drumbarron Walk is a pedestrianised lane that is easily accessed from the main square in town. The start of the walk rises up through a shady area under some mature ash trees. There are old stone walls running alongside the walk which are covered in lichens, mosses, ferns including maidenhair spleenwort and wall-rue and other plants such as herb robert and ivy-leaved toadflax. On reaching the top of the hill the walk becomes much more open with views over the town, the Owentocker River and surrounding farmland which is mainly pasture grazed by sheep and cattle. Further along there are also good views to be had of the sand dunes at Sheskinmore to the north.

Maidenhair spleenwort growing on a stonewall

Alongside the walk the flora is dominated by many plants that are often thought of as weeds, but all have an important role to play in nature. Gorse (habitat for ladybirds, shieldbugs and nesting birds), thistles (providing nectar for bees and other insects and food for goldfinches when gone to seed), nettles (essential food for the caterpillars of some of our most colourful butterflies such as small tortoiseshell and peacock) and ragwort (food for the caterpillars of the colourful cinnabar moth) are all plentiful. The walk ends after descending to the road. From here it is possible to return to town by walking to the left along Woodhill Grove. Alternatively, it is possible to make a short detour to Biodiversity Lane by turning right along Woodhill Grove and turning left along a lane running alongside Woodhill House.

Small tortoiseshell is one of several butterfly and moth species that rely on nettles as a food source for their caterpillars

Biodiversity Lane

Entrance to Biodiversity Lane off the Donegal Road.

Biodiversity Lane can be accessed after walking along the Drumbarron Walk by continuing to Woodhill House as outlined in the previous section, or from the Donegal Road just over 1km from town. The lane provides a nice woodland walk at anytime of year. Hazel, holly and willow are all dominant and there are mature sessile oak, sycamore and beech present. There is a rich ground flora with spring flowers such as primrose, wood sorrel and cow parsley common. May is the best time to see the bluebells. In late summer, enchanter's nightshade provides a delightful edge to the path. Several robust broad-leaved helleborine specimens were noted on a nature walk on 12th August 2022.

The shamrock shaped leaves of wood sorrel carpet the woodland floor in places

The woods here are home to a great diversity of birds. Many are heard but not seen due to the cover of the trees and during the visit in May, willow warblers, chiffchaffs, blackcaps, blackbirds, wrens, robins, chaffinches, blue tits, goldcrests, great tits, woodpigeons and song thrushes were all heard singing. A great spotted woodpecker has also been heard by Paddy Keeney in the area. Undoubtedly the wood is home to many mammal species including bats.

The willow warbler song is a familiar sound in the Irish countryside during summer

Most mammal visitors to the woodland are rarely seen. A rabbit was observed on 31st May in a field next to Biodiversity Lane. Evidence of other mammals included a dead Irish hare seen nearby on the road and fox scat found along the lane.

Fox scat was seen along Biodiversity Lane

It is possible to continue walking past the end of Biodiversity Lane towards Woodhill House where woods become more open in places with views over farmland. Stonewalls here provide a habitat for lichens, mosses and hart's-tongue fern and polypody ferns.

Molloy Field

Owentocker River at Molloy Field

One area well-worth exploring for wildlife is Molloy Field which lies facing Ard Aoíbhínn. The 'field' has long been abandoned making it a great refuge for wildlife. A small track leads down to a water treatment plant and to the left of this is a further track leading down to a quiet tree-lined stretch of the Owentocker, much more natural looking than the views of the river in town. Alder, ash and sycamore are all common along the riverbank.

Great Willowherb is abundant during summer along the various tracks

Pond-dipping was carried out here on 31st May and a variety of aquatic invertebrates were recorded including mayfly larva (Ecdyonurus sp.) and freshwater shrimp. The former is indicative of good water conditions while freshwater shrimp may be common in polluted and unpolluted water alike.


Mayfly larva (Ecdyonurus sp.) and freshwater shrimp (Gammarus sp.) recorded from the Owentocker River on 31st May 2022. Macro-invertebrate sampling helps to determine water quality in rivers.

Survey Results

The following records were gathered during a number of visits to the area during 2022. All records made during the visits will be logged with the National Biodiversity Data Centre (NBDC) and local residents are encouraged to submit their own sightings to the NBDC. The lists are a far from complete list of the species present and it is hoped that the lists will be added to over time by other studies and through observations documented by the local community.

Map 3: *Map of Ardara showing 1km grid*

For recording purposes, records have been made using the Irish Grid Reference system. Most records have been made at the 1km level i.e. lie within a particular 1km square. As can be seen above, most of Ardara town, including Drumbarron Walk and Molloy Field, lies withing the square G7390. Biodiversity, however, lies within square G7490

Mammals

Taxon	Species	Date	Comments
Canidae	Fox	31/05/2022	Scat
Lagamorpha	Irish Hare	12/08/2022	Roadkill
	Rabbit	31/05/2022	Near Biodiversity Lane

Fig. 3: *Records gathered as part of this study*

Taxon	Species	Date	Source	Comments
Erinaceidae	Hedgehog		Paddy Keeney	
Mustelidae	Otter		Paddy Keeney	Along Owentocker
	Badger	31/12/2011	NBDC	Badger setts of Ireland database 2011
	Pine Marten		Paddy Keeney	
Rodentia	Red Squirrel	15/07/2014	NBDC	Atlas of Mammals in Ireland 2010-2015
Chiroptera	Common Pipistrelle	25/04/2017	Aengus Kennedy	Along Drumbarron Walk
	Soprano Pipistrelle	25/04/2017	Aengus Kennedy	Along Drumbarron Walk
	Daubenton's Bat	25/04/2017	Aengus Kennedy	Along the river
	Leisler's Bat	08/05/2015	Aengus Kennedy	Along Drumbarron Walk

Fig. 4: *Records from other sources*

Aengus Kennedy of NatureNorthWest kindly provided information on two bat walks held in Ardara during 2015 and 2017. In both years multiple passes of both soprano and common pipistrelle were detected using bat detectors along Drumbarron Walk. Leisler's bat was recorded in 2015, but not 2017, also along Drumbarron Walk. Daubenton's bat, a species that regularly feeds along waterways, was recorded in both years along the river walk near teh main bridge in town.

Birds

Species	Date	Activity	Comments
Blackbird	31/05/2022	Pair seen	
Blackcap	31/05/2022	Singing Male	Several singing in woodland
Blue Tit	31/05/2022		
Chaffinch	31/05/2022	Pair seen	
Chiffchaff	31/05/2022	Singing Male	Heard singing in woodland
Collared Dove	31/05/2022	Singing Male	
Dunnock	31/05/2022	Singing Male	
Goldcrest	31/05/2022	Singing Male	Heard singing in woodland
Goldfinch	31/05/2022	Singing Male	
Great Black-backed Gull	31/05/2022	Flying Over	
Great Tit	31/05/2022	Pair seen	
Grey Wagtail	31/05/2022	Pair seen	Along river
Herring Gull	31/05/2022	Flying Over	
Hooded Crow	31/05/2022		
House Martin	12/08/2022	Flying Over	
House Sparrow	31/05/2022	Pair seen	
Jackdaw	31/05/2022		
Magpie	31/05/2022		
Mallard	31/05/2022	Pair seen	Along river
Oystercatcher	12/08/2022	Flying Over	Heard calling
Pied Wagtail	31/05/2022	Pair seen	
Robin	12/08/2022	Recently Fledged Young	
Sand Martin	31/05/2022		Feeding over the river
Song Thrush	31/05/2022	Singing Male	
Starling	31/05/2022		
Swallow	31/05/2022		Feeding over the river
Willow Warbler	31/05/2022	Singing Male	Several singing
Woodpigeon	31/05/2022	Singing Male	
Wren	12/08/2022	Adult with Young	

Fig. 5: *Records gathered as part of this study*

Ireland's smallest bird, the goldcrest, rarely stays still for long making it difficult to see

Species	Source	Comments
Coal Tit	NBDC	
Cuckoo	Sean Cannon-Earley	
Dipper	NBDC	
Great Spotted Woodpecker	Paddy Keeney	Heard in Biodiversity Lane Area
Grey Heron	Sean Cannon-Earley	
Kestrel	NBDC	
Kingfisher	NBDC	
Pheasant	NBDC	
Turtle Dove	Paddy Keeney	Visited a garden in the town several years ago.
Twite	NBDC	

Fig. 6: *Records from other sources*

The dipper has the remarkable ability to walk under fast flowing water using its wings as hydrofoils, allowing it to walk along the stream bed in search of caddisfly larvae and other macroinvertebrates

Fish

Species	Date	Source	Comments
Atlantic Salmon	17/08/2017	Inland Fisheries	Lurganboy
Brown Trout	17/08/2017	Inland Fisheries	Lurganboy
European Eel	17/08/2017	Inland Fisheries	Lurganboy

Fig. 7: *Records from other sources*

The Owentocker River is renowned for its Atlantic salmon (© Maurice Hannon)

Inland Fisheries carried out electrofishing surveys at seven sites along the Owentocker between 15th and 17th August 2017. One site at Lurganboy is within this study area and Atlantic salmon, brown trout and European eel were all recorded there on 17th August 2017.

Insects

Order	Date	Common Name	Scientific Name
Coleoptera (Beetles)	13/08/2022	A Sexton Beetle	*Nicrophorus inverstigator*
Hymenoptera (Bees, Wasps etc.)	31/05/2022	Common Carder Bee	*Bombus pascuorum*
	31/05/2022	White-tailed Bumblebee agg.	*Bombus lucorum* agg.
	31/05/2022	Honeybee	*Apis mellifera*
Lepidoptera (Butterflies, Moths)	12/08/2022	Brown House Moth	*Hofmannophila pseudospretella*
	12/08/2022	White-shouldered House Moth	*Endrosis sarcitrella*
	12/08/2022	Garden Rose Tortrix	*Acleris variegana*
	12/08/2022		*Celypha lacunana*
	12/08/2022		*Agriphila straminella*
	12/08/2022		*Agriphila tristella*
	12/08/2022	Green-veined White	*Pieris napi*
	12/08/2022	Small Tortoiseshell	*Aglais urticae*
	12/08/2022	Peacock	*Inachis io*
	12/08/2022	Speckled Wood	*Pararge aegeria*
	12/08/2022	Meadow Brown	*Maniola jurtina*
	12/08/2022	Small Phoenix	*Ecliptopera silaceata*
	12/08/2022	July Highflyer	*Hydriomena furcata*
	12/08/2022	Coxcomb Prominent	*Ptilodon capucina*
	12/08/2022	Large Yellow Underwing	*Noctua pronuba*
	12/08/2022	Lesser Yellow Underwing	*Noctua comes*
	12/08/2022	Lesser Broad-bordered Yellow Underwing	*Noctua janthe*
	12/08/2022	Dotted Clay	*Xestia baja*
Diptera (True Flies)	31/05/2022	Bog Hoverfly	*Sericomyyia silentis*
	12/08/2022		*Leucozonia glaucia*
Odonata (Dragonflies & Damselflies)	12/08/2022	Common Darter	*Sympetrum striolatum*
	12/08/2022	Common Hawker	*Aeshna juncea*
Ephemeroptera (Mayflies)	31/05/2022	*Ecdyonurus* sp.	*Ecdyonurus* sp.

Fig. 8: *Records gathered as part of this study*

The majority of moth records were made when two moth traps were put out on the evening of 12th August. The traps use a light source to attract and capture moths so they can be recorded before being safely released. One trap was placed in town close to the river and the other was at Biodiversity Lane. Several of the moths were kept to show participants of a nature walk on the morning of 13th August before release.

Coxcomb prominent, one of several attractive moths on show for the nature event on 13th august

The Bog hoverfly (Sericomyia silentis) like many hoverflies is an effective wasp mimic which helps protect it from predatory birds

Taxon	Species	Date	Source
Coleoptera (Beetles)	7-spot Ladybird (Coccinella septempunctata)	24/04/2021	Ladybirds of Ireland
	Elmis aenea	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Esolus parallelepipedus	14/08/2012	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Gyrinidae	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Hydraenidae	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Limnius volckmari	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Nicrophorus vespilloides	10/05/1894	Carrion Beetles of Ireland
Trichoptera (Caddisflies)	Agrypnia obsoleta	31/12/1910	Caddisflies (Trichoptera) of Ireland
	Agrypnia pagetana	31/12/1910	Caddisflies (Trichoptera) of Ireland
	Agrypnia varia	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Athripsodes commutatus	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Chimarra marginata	31/12/1910	Caddisflies (Trichoptera) of Ireland
	Cyrnus flavidus	31/12/1910	Caddisflies (Trichoptera) of Ireland
	Cyrnus trimaculatus	31/12/1910	Caddisflies (Trichoptera) of Ireland
	Glossosomatidae	21/07/2009	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Hydropsyche	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Hydropsyche siltalai	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Limnephilus lunatus	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Mystacides azurea	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Philopotamus montanus	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Polycentropus	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Rhyacophila	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Rhyacophila dorsalis	31/12/2015	Caddisflies (Trichoptera) of Ireland
	Silo pallipes	31/12/2015	Caddisflies (Trichoptera) of Ireland

Ephemeroptera (Mayflies)	Alainites muticus	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Baetis	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Baetis rhodani	21/07/2009	River Biologists' Database (EPA)
	Caenis rivulorum	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Heptagenia	13/08/2015	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Rhithrogena	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Serratella ignita	13/08/2015	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
Plecoptera (Stoneflies)	Leuctra	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
Diptera (True Flies)	Ceratopogonidae	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Chironomidae	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Dicranota	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Simuliidae	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)

Fig. 9: *Records from other sources*

Other Invertebrates

Taxon	Date	Species	Scientific Name	Comments
Myriapoda (centepedes, millipedes etc.)	12/08/2022	White-legged Snake Millipede	*Tachypodoiulus niger*	
Annelids (worms, leeches etc.)	31/05/2022	Common Earthworm	*Lumbricus terrestris*	
Crustaceans (Woodlice, shrimp etc.)	31/05/2022	Gammarus *sp.*	*Gammarus* sp.	Likely *Gammarus pulex*

Fig. 10: *Records gathered as part of this study*

Taxon	Species	Date	Source
Arachnids (spiders, ticks, mites etc.)	Acari	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
Annelids (worms, leeches etc.)	Erpobdella	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Lumbriculidae	07/09/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Tubificidae	13/08/2015	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
Crustaceans (woodliice, shrimp etc.)	Asellus	21/07/2009	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
	Gammarus duebeni	21/07/2009	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
Turbellaria (Flatworms)	*Arthurdendyus triangulatus*	31/12/0002	New Zealand Flatworm (Arthurdendyus triangulates) Database
Mollusc	*Ancylus fluviatilis*	21/07/2009	NBDC
	Jenkins' Spire Snail (*Potamopyrgus antipodarum*)	13/08/2015	NBDC
	Wandering Snail (*Radix balthica*)	02/08/2006	NBDC

Fig. 11: *Records from other sources*

Plants

Species	Date Recorded	Comments
Alder	31/05/2022	
Ash	31/05/2022	
Beech	31/05/2022	
Bluebell	31/05/2022	
Bramble	31/05/2022	
Broad-leaved Dock	31/05/2022	
Broad-leaved Helleborine	12/08/2022	Biodiversity Lane
Bugle	31/05/2022	
Bush Vetch	31/05/2022	
Butterbur	18/06/2022	
Butterfly Bush	18/06/2022	
Cleavers	31/05/2022	
Columbine	31/05/2022	
Common Centaury	12/08/2022	Molloy's Field
Common Figwort	18/06/2022	
Common Nettle	31/05/2022	
Common Ragwort	12/08/2022	
Common Valerian	18/06/2022	
Cow Parsley	31/05/2022	
Creeping Buttercup	31/05/2022	
Daisy	31/05/2022	
Dandelion	31/05/2022	
Elder	31/05/2022	
Enchanter's Nightshade	12/08/2022	Biodiversity Lane
Foxglove	31/05/2022	
Fuchsia magellanica	22/06/2022	
Germander Speedwell	31/05/2022	
Giant Hogweed	18/06/2022	
Gorse	31/05/2022	
Great Willowherb	18/06/2022	
Greater Stitchwort	31/05/2022	
Ground Elder	22/06/2022	
Gunnera sp.	18/06/2022	Brazillian Giant Rhubarb is on NBDC database
Hart's-tongue Fern	31/05/2022	
Hawthron	31/05/2022	
Hazel	31/05/2022	
Herb Bennet	31/05/2022	
Herb Robert	31/05/2022	
Hogweed	31/05/2022	
Holly	31/05/2022	
Honeysuckle	31/05/2022	

Horse Chestnut	31/05/2022	
Ivy	31/05/2022	
Ivy-leaved Toadflax	31/05/2022	
Lady's Mantle	31/05/2022	
Maidenhair Spleenwort	31/05/2022	
Male Fern	12/08/2022	
Mare's-tail	31/05/2022	
Marsh Ragwort	18/06/2022	
Marsh Thistle	18/06/2022	
Meadow Buttercup	31/05/2022	
Meadow Vetchling	12/08/2022	
Montbretia	31/05/2022	
Nipplewort	18/06/2022	
Ox-eye Daisy	31/05/2022	
Pedunculate Oak	31/05/2022	
Pignut	31/05/2022	
Polypody Fern	31/05/2022	
Prickly Sow Thsitle	31/05/2022	
Primrose	31/05/2022	
Red Campion	31/05/2022	
Red Clover	31/05/2022	
Red Dead-nettle	12/08/2022	
Redshank	18/06/2022	
Rhododendron	31/05/2022	
Ribwort Plantain	31/05/2022	
Rosebay Willowherb	18/06/2022	
Rowan	31/05/2022	
Self-heal	18/06/2022	
Sessile Oak	31/05/2022	
Snowberry	31/05/2022	
Sycamore	31/05/2022	
Tutsan	12/08/2022	
Wall-rue	22/06/2022	
White Clover	31/05/2022	
Wild Angelica	18/06/2022	
Wild Garlic	31/05/2022	
Willow sp.	31/05/2022	
Winter Heliotrope	12/08/2022	
Wood Sorrell	31/05/2022	
Yellow Iris	31/05/2022	

Fig. 12: *Records gathered as part of this study*

Species	Date	Source
Greater Water-moss	21/07/2009	NBDC database
Monkeyflower	31/07/2020	NBDC database
Snap Dragon	04/07/2020	NBDC database
Wych Elm	20/09/2011	NBDC database

Fig. 13: *Records from other sources*

Pollinator Action Plan

The following report will highlight some of the on-going work already being done in Ardara as well as suggest further direct actions that will help pollinators. The Action Plan will reference the range of 24 low/no-cost pollinator friendly actions as laid out in the Local Communities: Actions to help Pollinators All Ireland Pollinator Plan 2015-2020 (Appendix 2). It must be remembered that to truly help pollinators and to leave more environmentally friendly communities for future generations actions will need to be on-going.

See the Local Communities: Actions to help Pollinators All Ireland Pollinator Plan 2015-2020 (Appendix 2) for general information on the following list of actions. In time you may wish to include other actions in your plan though it will be good to refer back to the original action plan to ensure long-term success in your goal to help pollinators in your community.

Identify and protect existing areas that are good for pollinators

Action 1: There are many mature hedgerows on the approach roads to town. Such hedgerows containing hawthorn, blackthorn etc. along with the roadside verges are important habitats for pollinators and should be mananged accordingly. The wildflower areas at Molloy Field are an important habitat that should be protected.

Reduce the frequency of mowing of grassy areas

Action 2: The area in front of the old Parish Hall has a small patch of meadow that will continue to improve for wildflowers over time if managed correctly i.e. cut in autumn and the cuttings removed to decrease soil fertility.

Action 3, 4: Let the dandelions bloom! Dandelions are a vital food source for bees in spring. Many of the verges along approach roads and in town should be left uncut until late April/early May giving dandelions a chance to flower. Temporary signage can be put in place if desired to help create awareness. Some areas can also be cut less frequently i.e. every 6 to 8 weeks to allow other pollinator friendly plants such as clover and bird's-foot trefoil to bloom. Where needed the grass can be kept short for walkers or in areas where children play.

Pollinator friendly planting

Action 7-9: There are many flower planters around town with pollinator friendly plants which help to create a patchwork of feeding stations for pollinators throughout the village. Bear in mind when choosing replacement plants as required to have plants that flower at different seasons at each location so that there will be a continuous food source throughout the year.

Provide wild pollinator nesting habitat: hedgerows, earth banks and hotels

Action 12: The hedgerows referred to in Action 1 are all important sites for pollinators. These areas should be protected and any necessary hedge trimming done in a sensitive manner (note it is currently illegal to cut hedges from March to September). The base of the hedgerows is also an important habitat and should not be sprayed and any cutting kept to a minimum to give wildflowers the chance to bloom and provide nesting sites for bumblebees.

Action 13: A small section of southerly facing earth bank could be identified as a potential nest site for solitary bees. The bank should be cleared of overhanging vegetation and monitored from May to September for nesting bees. There are stone walls near the start of the Drumbollan Walk that could also provide nesting sites and if solitary bees are present overhanging vegetation should be prevented from encroaching on nest sites.

Action 14: A simple way to create nesting sites for some solitary bees is to drill holes (variuos diameters between 4-8mm and about 10cm deep) in existing wooden fence posts. The holes should be facing between south and east and at least 1.5m high.

Action 15: Perhaps a local handyman could be enlisted to build some small bee hotels. See the How-to-guide for creating wild pollinator nesting habitat on the NBDC website for instructions. The bee hotels could be distributed to local schools.

Reduce the use of pesticides

Action 16, 17: Avoid the use of pesticides where possible. If pesticides are deemed absolutely necessary spot treatment is much preferable to blanket spraying especially where pollinators are likely to be close by. Also avoid spraying during windy conditions or during the day when pollinators are active.

Raise public awareness of pollinators within the local area

Action 19: Walks open to the public are good ways to raise awareness of pollinators and their needs. A walk was held on 13th August 2022 and during this walk the importance of wild plants was highlighted e.g. nettles being a food source for the caterpiullars of certain butterflies and dandelions, ragwort and thsitles all providing nectar for bees and other pollinating insects.

Tracking progress and recognition for efforts

Action 24: Actions can be logged on the NBDC mapping project for pollinators.

Public Awareness, Education & Recommendations

Holding public nature events is a great way to raise local awareness of biodiversity and how the public can become involved in various projects as citizen scientists. A nature walk was held on 13th August 2022 and there are plans to hold a bat walk later in the year and a dawn chorus walk in spring of 2023.

Two nature information panels are to be erected in town which will help to raise awareness of local wildlife. One sign will focus on the wildlife of the Owentocker while the other will feature flora and fauna of local walks.

Education in schools is key to ensuring children foster and awareness and appreciation for the biodiversity which surrounds them and that they will maintain a healthy respect for local natural heritage as they grow. Michael Bell is a wildlife expert with the Heritage Council's Heritage in Schools Scheme and it is planned that he will visit up to six local National Schools to teach the children about the Ardara Biodiversity Study and encourage them to explore their local school surroundings. These visits will be funded by Awake Tourism.

A small patch of 'waste' ground has been identified in front of the Parish Hall that would make an ideal wildlife garden. The area is already rich in flora and much of the site could easily be managed as a wildflower meadow. It is suggested the meadow would be cut once a year (around September) with the grass left on the ground for two or three days to allow insects and other invertebrates to escape. It is essential that the cuttings are then removed to decrease soil fertility over-time which will result in an increasing wildflower coverage. The meadow can have a neat border and have one or two meandering paths cut through it which both creates an edge habitat and invites the public in to explore the meadow. Other features at the site could include a minibeast hotel, a bee hotel, a small number of fruit trees and a few bee friendly shrubs. Refer to Local Communities: Actions to help Pollinators in Appendix 2 for advice on suitable trees and shrubs to plant.

References

Fiona L. Kelly, Ronan Matson, Lynda Connor, Rory Feeney, Emma Morrissey, Ciara Wogerbauer and Kieran Rocks **Inland Fisheries Ireland, Swords Business Campus, Swords, Co. Dublin Water Framework Directive Fish Stock Survey of Rivers in the North Western International River Basin District.**

Matson, R., Delanty, K., Gordon, P., O'Briain, R., Garland, D., Cierpal, D., Connor, L., Corcoran, W., Coyne, J., McLoone, P., Morrisey-McCaffrey, E., Brett, T., Ní Dhonnabhain, L. and Kelly, F.L., (2018) **Sampling Fish in Rivers 2017 – Owentocker, Factsheet No. 31. National Research Survey Programme. Inland Fisheries Ireland.**

Appendices

Appendix 1:

Information from the National Biodiversity Data Centre downloaded from Biodiversity Maps on 10th August 2022.

Species list for G7390

Species group	Species name	Date of last record
acarine (Acari)	Acari	07/09/2018
annelid	Erpobdella	07/09/2018
annelid	Lumbricidae	21/07/2009
annelid	Lumbriculidae	07/09/2018
annelid	Tubificidae	13/08/2015
crustacean	Asellus	21/07/2009
crustacean	Gammarus	07/09/2018
crustacean	Gammarus duebeni	21/07/2009
fern	Maidenhair Spleenwort (Asplenium trichomanes)	22/07/2019
Flatworm (Turbellaria)	Arthurdendyus triangulatus	31/12/0002
flowering plant	Ash (Fraxinus excelsior)	21/07/2009
flowering plant	Brazilian Giant-rhubarb (Gunnera manicata)	27/08/2015
flowering plant	Butterfly-bush (Buddleja davidii)	19/07/2021
flowering plant	Common Valerian (Valeriana officinalis)	04/07/2020
flowering plant	Foxglove (Digitalis purpurea)	04/07/2020
flowering plant	Fuchsia magellanica	20/07/2019
flowering plant	Great Willowherb (Epilobium hirsutum)	20/07/2019
flowering plant	Ivy-leaved Toadflax (Cymbalaria muralis)	30/07/2020
flowering plant	Marsh Ragwort (Senecio aquaticus)	19/07/2021
flowering plant	Monkeyflower (Mimulus guttatus)	31/07/2020
flowering plant	Montbretia (Crocosmia pottsii x aurea = C. x crocosmiiflora)	27/08/2015
flowering plant	Redshank (Persicaria maculosa)	22/07/2019
flowering plant	Rosebay Willowherb (Chamerion angustifolium)	16/07/2019
flowering plant	Snapdragon (Antirrhinum majus)	04/07/2020
flowering plant	Sycamore (Acer pseudoplatanus)	21/07/2009
flowering plant	Wych Elm (Ulmus glabra)	20/09/2011
insect - beetle (Coleoptera)	7-spot Ladybird (Coccinella septempunctata)	24/04/2021
insect - beetle (Coleoptera)	Elmis aenea	07/09/2018
insect - beetle (Coleoptera)	Esolus parallelepipedus	14/08/2012

insect - beetle (Coleoptera)	Gyrinidae	07/09/2018
insect - beetle (Coleoptera)	Hydraenidae	07/09/2018
insect - beetle (Coleoptera)	Limnius volckmari	07/09/2018
insect - beetle (Coleoptera)	Nicrophorus investigator	31/08/1892
insect - beetle (Coleoptera)	Nicrophorus vespilloides	10/05/1894
insect - caddis fly (Trichoptera)	Agrypnia obsoleta	31/12/1910
insect - caddis fly (Trichoptera)	Agrypnia pagetana	31/12/1910
insect - caddis fly (Trichoptera)	Agrypnia varia	31/12/2015
insect - caddis fly (Trichoptera)	Athripsodes commutatus	31/12/2015
insect - caddis fly (Trichoptera)	Chimarra marginata	31/12/1910
insect - caddis fly (Trichoptera)	Cyrnus flavidus	31/12/1910
insect - caddis fly (Trichoptera)	Cyrnus trimaculatus	31/12/1910
insect - caddis fly (Trichoptera)	Glossosomatidae	21/07/2009
insect - caddis fly (Trichoptera)	Hydropsyche	07/09/2018
insect - caddis fly (Trichoptera)	Hydropsyche siltalai	31/12/2015
insect - caddis fly (Trichoptera)	Limnephilus lunatus	31/12/2015
insect - caddis fly (Trichoptera)	Mystacides azurea	31/12/2015
insect - caddis fly (Trichoptera)	Philopotamus montanus	31/12/2015
insect - caddis fly (Trichoptera)	Polycentropus	07/09/2018
insect - caddis fly (Trichoptera)	Rhyacophila	07/09/2018
insect - caddis fly (Trichoptera)	Rhyacophila dorsalis	31/12/2015
insect - caddis fly (Trichoptera)	Silo pallipes	31/12/2015
insect - dragonfly (Odonata)	Common Darter (Sympetrum striolatum)	19/10/1900
insect - hymenopteran	Common Carder Bee (Bombus (Thoracombus) pascuorum)	24/04/2021
insect - mayfly (Ephemeroptera)	Alainites muticus	07/09/2018
insect - mayfly (Ephemeroptera)	Baetis	07/09/2018

insect - mayfly (Ephemeroptera)	Baetis rhodani	21/07/2009
insect - mayfly (Ephemeroptera)	Caenis rivulorum	07/09/2018
insect - mayfly (Ephemeroptera)	Ecdyonurus	07/09/2018
insect - mayfly (Ephemeroptera)	Heptagenia	13/08/2015
insect - mayfly (Ephemeroptera)	Rhithrogena	07/09/2018
insect - mayfly (Ephemeroptera)	Serratella ignita	13/08/2015
insect - stonefly (Plecoptera)	Leuctra	07/09/2018
insect - true fly (Diptera)	Ceratopogonidae	07/09/2018
insect - true fly (Diptera)	Chironomidae	07/09/2018
insect - true fly (Diptera)	Dicranota	07/09/2018
insect - true fly (Diptera)	Simuliidae	07/09/2018
mollusc	Ancylus fluviatilis	21/07/2009
mollusc	Jenkins' Spire Snail (Potamopyrgus antipodarum)	13/08/2015
mollusc	Wandering Snail (Radix balthica)	02/08/2006
moss	Greater Water-moss (Fontinalis antipyretica)	21/07/2009
terrestrial mammal	Eurasian Badger (Meles meles)	31/12/2011
terrestrial mammal	Eurasian Red Squirrel (Sciurus vulgaris)	15/07/2014
terrestrial mammal	Lesser Noctule (Nyctalus leisleri)	22/09/2009

Species list for G7490

Species group	Species name	Date of last record
flowering plant	Montbretia (Crocosmia pottsii x aurea = C. x crocosmiiflora)	27/08/2015
terrestrial mammal	Eurasian Badger (Meles meles)	31/12/2011
terrestrial mammal	Eurasian Red Squirrel (Sciurus vulgaris)	02/04/2014

Appendix 2: Local Communites: Actions to help pollinators

Local Community projects can play a leading role in implementing the Pollinator Plan

Most people appreciate the beauty wildflowers bring to our landscape, they want the option to grow their own fruits and vegetables, and they want to buy affordable Irish apples or strawberries in our shops. This can only happen in a landscape that supports pollinators and provides them with nesting areas and a diverse diet from spring to autumn. If we choose to manage our local communities in a highly manicured way, it is at the expense of pollinators who cannot survive there. Local communities can lead the way in driving a better and more sustainable balance and bringing more natural, flower-rich pockets back into our landscape.

These guidelines are aimed at all those groups who are interested in making their local community more pollinator friendly e.g., Tidy Towns, Keep Northern Ireland Beautiful, Entente Florale, Green Communities, youth groups, local wildlife/environmental groups, PURE mile groups, community gardens, historic graveyard groups, college campuses, residents associations.

Suggested citation: Local Communities: actions to help pollinators. All-Ireland Pollinator Plan. Guidelines 1. National Biodiversity Data Centre Series No.4, Waterford. April, 2016.

Acknowledgements:

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An Chomhairle Oidhreachta
The Heritage Council

Bord Bia
Irish Food Board

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

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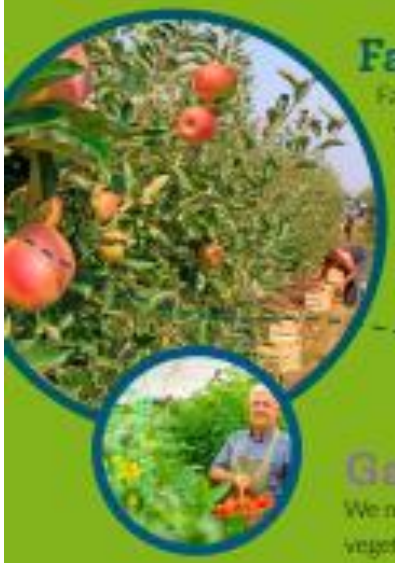
Why Do We Need To Help Our Pollinators?



Farmers

Farmers who grow pollinator dependent crops like apples, strawberries or oil seed rape need pollinators to ensure reliable yields of high quality produce. Without them the livelihoods of farmers will be impacted. For consumers, this means it would be more difficult to buy local produce at an affordable price.

The value of pollinators to apples in Northern Ireland is worth £7 million pounds per year

Gardeners

We need a wide range of pollinator dependent fruit and vegetables to have a healthy diet. Until now we have had the option of growing our own fruits and vegetables to feed ourselves and our families if we wish. Without pollinators this ability could be lost to us and future generations.

Environment

Pollinators play a key role in our natural environment. 78% of our wild plants require insect pollination. Without these wildflowers, the landscape, cherished by us and crucial to our tourism sector, would be a less beautiful and colourful place. These plants provide food and shelter for our birds and mammals, as well as habitats for other animal populations, including many beneficial insects that attack crop pests.

Who Are The Pollinators In Ireland?

While other insects play a role, most pollination of crops and wild plants on the island of Ireland is carried out by bees.

There are 98 different species (types) of bees in Ireland. We have one honeybee, 20 different bumblebees and 77 different solitary bees. Bumblebees and solitary bees are known as wild pollinators. Research tells us that if we want our crops and wild plants to be pollinated we need an abundance and diversity of wild pollinators as well as healthy honeybees.

Unless you threaten them, bees will not attack humans. They are only interested in gathering nectar and pollen to feed themselves and their families. If a bee comes close to you just sit still and it will fly off when it realises you're not a flower!

20 + 77 = 97 Wild bee species

Only 1 Honeybee species

Bumblebee species

Solitary bee species

Solitary bees can be very efficient pollinators. One Red Mason solitary bee can do the work of between 120-160 honeybees.

Honeybee

Honeybees live in hives and are looked after by beekeepers. Beekeepers make sure the honeybees are healthy and have enough to eat, especially over the winter months. Honeybees are the only type of bees in Ireland who make honey.

Bumblebees

Bumblebees have fat, furry bodies. They are very important pollinators of crops like strawberries and tomatoes. Bumblebees make their nests on the ground, hidden in long grass or other vegetation. Like honeybees, bumblebees live in a colony with a queen, female workers and males. Queen bumblebees hibernate over winter and emerge in spring to begin their colony. To survive, it is vital that bumblebees have food from spring through to autumn. In late summer-autumn mated new queens need to fatten up before going into hibernation, while all the other bumblebees, including the old queen, die off.

Solitary bees

Solitary bees nest in tiny burrows that they make in bare soil or in cavities like holes in wood or hollow stems. Solitary bees exist as a single male and female. They emerge from hibernation in spring and make a nest. After mating, the female lays fertilised eggs and leaves a food supply of pollen beside each one. When this job is done the females and males die. The eggs hatch and the larvae eat the food supply left by the parent before overwintering in a cocoon to emerge the following spring.

Most solitary bees in Ireland are mining bees who nest in south or east facing slopes of bare earth (soil, sand, clay, peat)

Solitary bee bank © Una Fitzpatrick

Solitary bee © Sharon Tuft

Pollinator Declines

One third of our 97 wild bee species are threatened with extinction in Ireland. We are also seeing declines in honeybee numbers. Bees are declining because we've drastically reduced the areas where they can nest and the amount of food our landscape provides for them. We've also inadvertently introduced pests and diseases that negatively impact their health, and we subject them to levels of pesticides that make it difficult for them to complete their life cycles.

What Can We Do To Help Our Pollinators?

If we want pollinators to be available to pollinate our crops and wild plants for future generations we need to manage the landscape in a more sustainable way and create a joined-up network of diverse and flower-rich habitats. It requires all of us to help from farmers to local authorities, to schools, gardeners and local businesses. These guidelines explain how local communities can lead the way in making Ireland more pollinator friendly.

All-Ireland Pollinator Plan 2015-2020

The All-Ireland Pollinator Plan 2015-2020 is supported by 68 governmental and non-governmental organisations who have pledged to deliver 81 actions to make the island of Ireland more pollinator friendly. At its core it is about making the landscape a place where pollinators can survive and thrive. The actions that are suggested through the Pollinator Plan will have a positive impact on biodiversity in general.

www.biodiversityireland.ie/pollinator-plan

Local communities: actions to help pollinators

Providing food, shelter and safety

To help pollinators we need to ensure that they have food, shelter and safety from chemicals. The actions suggested will provide this in your local community. The more of these actions you can take the better.

Many pollinator friendly actions simply require us to manage the land in a different way than we have become used to. It is not about letting the landscape go wild, but about managing it in a more sustainable way so that pollinators can survive and continue to provide us with their vital service.

We have suggested actions that are not costly and in some instances may lead to cost savings. Multiple actions are suggested so that you can consider your own local community and decide which actions would work best and at which location. In all cases, public health and safety should be the key consideration.

"Protect pollinators so that you can grow your own fruit and vegetables, shop for local produce and have flowers and wildlife in your local landscape"

A Identify and protect existing areas that are good for pollinators

Food and shelter

Most local communities will already have some areas that are very good for pollinators and are acting as refuges in an otherwise inhospitable landscape. The most important thing you can do is to recognise and protect these.

Action 1:

Protect existing sources of food and shelter for pollinators

Where these exist, you should protect them in your local area: flowering hedgerows (food), patches of wildflowers on waste ground (food), small wild areas with bramble/ivy (food), existing earth banks (shelter), dry stone walls (shelter).

- Signage can be used to identify to the public areas within the local community that are important for pollinators.

B Reduce the frequency of mowing of grassy areas

Food

If you have areas of grass, reducing the frequency of mowing allows common wildflowers such as Clovers, Knapweed and Bird's-foot-trefoil to naturally grow amongst the long grass. This is the most cost-effective way to provide food for pollinators and other insects.

The following suggested actions (2-4) can be carried out side-by-side, transforming a large expanse of green grass to a mosaic of flowering areas of different heights. If the original grassed area is used for sports or picnicking, identify which parts are used in this way and retain these as short grass, framing them with the pollinator areas.

Info Box:

the use of fertilisers encourages grass growth and should be avoided if you want to gradually create a flower rich meadow

Note: there will be areas in your local community where it is not appropriate to have long grass due to health and safety concerns about littering or dog fouling. You should also avoid having long grass on verges that the public use for walking or running.

Info Box:

School groups, community groups or Men's Sheds groups could get involved in making signage

Areas where these actions might apply in a local community are: parks, roadside verges, pavement verges, greenways, roundabouts, off-road walking/cycle routes, waterway towpaths, housing estates, school grounds, hospital grounds, old graveyards. In some cases it might involve working with local authorities or relevant NGOs.

Action 2:

Reduce mowing and aim to create a wildflower meadow

Meadows managed in the following way will allow wildflowers to bloom throughout the pollinator season. A further benefit is that bumblebees are provided with an undisturbed area for nesting. Over a number of years, the area will become more and more flower-rich with local species that are adapted to the site's conditions – all without spending money on wildflower seed!

1. Identify areas in the local community where it may be possible to allow a grassy meadow to grow
2. Wait until April to do the first grass cut – this allows the first flush of Dandelions
3. During the summer, let the grass grow long, perhaps cutting paths through the middle or keeping a short border at its edge to make it look tidier and allow the public to enjoy the resource
4. Cut again in early September. However if the grass growth is very strong and the vegetation is falling over under its own weight, cut sooner e.g. July and again in September. After a few years as soil fertility is lowered, this earlier cut will no longer be necessary and one cut at the end of the summer will be enough
5. The grass cuttings should be removed after each cut to reduce soil fertility over time. If the area is large and accessible to a tractor it can be baled for hay or haylage. Otherwise rake it off the meadow area and compost it or use it as mulch or dispose of it as green waste
6. Optional extra: collect wildflower seed locally and sow in trays and grow-on as small plants (plugs) which can be added to the meadow in spring and autumn

Info Box:

Grassy meadows (Action 2) can be made more flower-rich at little cost by adding locally collected wildflower seed (ex Knapweed or Scabious). This seed can be grown in little pots and added as plugs to the grassy meadow in spring or autumn. Collecting and growing pollinator-friendly wildflower seed might be something local schools or wildlife groups could get involved in.

See website: How-to-guide on collecting and using pollinator friendly wildflower seed.

Action 3:

Create a short flowering '6-week meadow'

Identify areas of grass that could be cut on a 6-weekly rotation to allow Clovers and Bird's-foot-trefoil to flower. This will provide food for pollinators where shortly mown grass does not. Such areas could be beside areas of shortly mown grass, a path or a meadow.

Action 4:

Let the Dandelions bloom!

Identify areas that will be mown under existing regimes, but aim to carry out the first grass cut of the year in April after the first flush of Dandelions, but before they set seed. Dandelions are a vital food source for bees in spring.

Pollinator friendly planting

C

Food

Traditionally, a lot of deliberate planting in public spaces has been with annuals such as Begonia, Primula or Busy Lizzie. Unfortunately these are not good sources of pollen or nectar (as they have been bred to be very "showy") and do not provide food for bees and other insects. There are many other plants that can look similarly attractive but will also support our pollinators.

Areas where these actions might apply in a local community are: community gardens, roundabouts, road verges, parks or squares, housing estates, areas surrounding sports pitches, schools, car parks, shopping centres etc.

Action 5:

Clover lawn

Identify small areas where grass could be entirely replaced with a permanent clover mix. Red and white clovers will provide colour, and are a very important food source for bees.

Action 6:

Flowering trees and shrubs

Incorporate a mix of pollinator friendly trees and shrubs into the local community that will flower throughout the season [list in appendix]. An orchard can be a wonderful addition for pollinators and the community.

Action 7:

Perennial flowers for pollinators

Incorporate pollinator friendly perennial plants into the local community to provide food for pollinators from spring through to autumn [list in appendix].

Action 8:

Annual flowers for pollinators

Work with local authorities to ensure a component of annual planting in parks is with pollinator friendly annual plants - single rather than double flowered varieties [list in appendix].

Action 9:

Pollinator friendly urban planters

Identify some urban planters or hanging baskets where the standard annual bedding mix could be replaced by perennial pollinator friendly plants [list in appendix].

Action 10:

Pollinator friendly roundabouts

Work with local authorities to identify some roundabouts that could be planted in a pollinator friendly way e.g., bulbs (Crocus, Alliums) or pollinator friendly perennial plants in centre.

Action 11:

Plant a native wildflower meadow

Identify areas where it may be possible to create a native wildflower meadow using commercially purchased seed. This would be more flower-rich than the meadow in Action 2 but it is also more costly and requires careful planning and management. Please be aware that **most sites will be unsuited to the immediate creation of a wildflower meadow** due to high soil fertility, making it difficult to maintain after year 1 (and therefore very poor value for money). If you do have a suitable site, it is very important to buy a **pollinator friendly seed mix** that has been **grown in Ireland from native wildflowers** and is suitable for your soil type. See website: How-to-guide on creating and managing a native wildflower meadow.

Info Box:

At the Newry/Portadown branch of the Inland Waterways Association of Ireland, volunteers regenerated an area beside Moneypenny's Lock (Co. Armagh) for best at very little cost by growing their own pollinator friendly plants from seeds, cuttings and root divisions.

D Provide wild pollinator nesting habitat: hedgerows, earth banks and hotels

Shelter

Nesting habitat for wild bees (bumblebees and solitary bees) is unobtrusive and easy to create. Wild bees live in small colonies and are entirely focussed on finding enough pollen and nectar to feed themselves and their offspring. They are not aggressive, have no interest in interacting with humans, and do not present any risk to the public.

Most solitary bees in Ireland are mining bees who nest in south or east facing slopes of bare earth (soil, sand, clay, peat)

Bumblebees nest in long grass, often at the base of a hedgerow. We have 62 species (types) of solitary bees who are mining bees. They nest by burrowing into bare ground or south/east facing banks of bare earth (soil, sand, clay, peat). The remaining 15 solitary bee species are cavity nesting bees who nest in south/east facing stone walls, masonry, wooden structures or commercially available bee nest boxes.

Areas where these actions might apply in a local community are: existing hedgerows, roadsides, verges, community buildings, housing estates, riverbanks, any free common land where bee hotels could be kept (avoid popular areas that may be prone to vandalism).

Action 12

Hedgerows for pollinators

Flowering hedgerows that contain Hazel, Willow, Blackthorn and Hawthorn provide food in spring when wild bees come out of hibernation. Bramble is a good source of food in summer, and Ivy in the autumn. Bumblebees often nest in long grass at the base of hedgerows.

Where hedgerows exist:

1. Cut hedgerows every three years (outside the bird breeding season) to encourage flowering for pollinators and fruiting for birds. Avoid having all the hedges cut the same year, so that there is always some that will bloom and fruit in the area every year or cut one third of the hedge annually.
2. Make sure the base of hedgerows are not sprayed. This will allow flowering plants like Clovers, Vetches and Knapweed to provide additional food throughout the season and ensures nesting bees are safe.

3 Keep vegetation sparse on any sandy earth, or earth and stone banks e.g. by strimming, weeding, cutting, to provide nest sites for mining solitary bees.
4 If vegetation beside and under hedgerows needs to be cut, do so between September and March to allow bumblebees to nest during the summer.
5 For additional information see website: How-to-guide for creating and managing hedgerows

Action 13:

Earthbanks and drystone walls for pollinators

Where earth banks and drystone walls exist, visit them on sunny evenings in May–September to see if they are being used by nesting solitary bees. You will see small bees returning laden with yellow pollen. If you are lucky enough to find such nesting areas, protect these. Make sure no chemical sprays are used. Mark the area on maps and consider identifying the site as special and under protection from sprays for bees with a small sign or plaque.

Using just a spade, you can create and maintain earth banks for mining solitary bees where natural ridges/banks occur. This the best and most cost effective way to create nesting habitat for solitary bees. Once established, they should be maintained by manual scraping back to bare soil on an annual basis. See website: How-to-guide for creating wild pollinator nesting habitat.

Action 14:

Holes in wood for pollinators

Where wooden fencing exists in public areas, consider drilling small south or east facing holes for cavity nesting solitary bees. These holes should be 10cm in depth and 4-8mm diameter. A range of different diameters is best. They are added once, ideally at a height of 1.5-2m (or as high as possible). See website: How-to-guide for creating wild pollinator nesting habitat.

Action 15:

Bee hotels for pollinators

Incorporate small numbers of solitary bee nest boxes into the local community for cavity nesting solitary bees. Bee hotels can be useful and are a good awareness raising tool, but actions 13 and 14 are preferable ways to create nest sites. A number of small hotels is better than one large one in terms of minimising the risks of disease and predators killing the bees. See website: How-to-guide for creating wild pollinator nesting habitat.

E

Safety

Reduce the use of pesticides

In some cases, the use of pesticides (insecticides, fungicides, herbicides) is necessary e.g., the use of herbicides along railway tracks to ensure the health and safety of train passengers. In other cases, we have fallen into a pattern of using them as a way of tidying or sanitising our local areas. To minimise negative impacts on pollinators it is important that pesticides are used sustainably. This means they should ***only be used when necessary****, and efforts should be made to minimise their impact on non-target species like bees. Pesticides should always be applied* ***exactly*** *according to manufacturer guidelines*

Action 16

Eliminate the use of pesticides

Identify some areas where the use of pesticides could be eliminated. This could be streets/areas where your group is willing to take responsibility for manual weed control. Most herbicide use is along edging or tree bases that mowers can't access. Identify areas of south facing edging that could not be sprayed to provide solitary bee nesting habitat.

Action 17

Ensure best practise where the use of pesticides cannot be avoided

Identify areas that could be spot treated rather than with the use of blanket sprays. Spray in dry conditions with low wind speed to prevent drifting. Spray after sunset to avoid direct contact of pollinators with chemicals.

F Raise public awareness of pollinators within the local area

For the All-Ireland Pollinator Plan 2015-2020 to be successful we need to raise public awareness so that people know the importance of pollinators and understand why we all need to take action. Local communities can play a vital role in this regard.

Action 18:

Promote the Junior Pollinator Plan

Promote the junior version of the All-Ireland Pollinator Plan 2015-2020 to local schools and youth groups. This can be downloaded from the website **www.biodiversityireland.ie/pollinator-plan**

Action 19:

Raise awareness within local businesses

Promote the All-Ireland Pollinator Plan to local businesses and encourage them to make their outdoor spaces pollinator friendly or to sponsor local pollinator friendly actions.

Action 20:

Put up signage

Put up signage explaining the importance of pollinators and what is being done locally to support the All-Ireland Pollinator Plan. Templates that can be used to create signage can be downloaded from the website.

Action 21:

Facilitate or deliver training

Facilitate or deliver training programmes locally on pollinators and how to take action to protect them. Resources will be available to allow interested parties to deliver training on: creating nest sites for wild pollinators; identification of common pollinator species; how to participate in the All-Ireland Bumblebee Monitoring Scheme; collection, storage and use of local wildflower seed to improve areas that are being managed as small grassy meadows in parks, schools, along greenways etc.

G Tracking progress and recognition for efforts

Progress in the implementation of the All-Ireland Pollinator Plan 2015-2020 will be carefully tracked. Success is not measured in having the Plan, but by knowing that it is working. A publicly available online mapping system will track pollinator friendly actions taken across the island and provide recognition to those who are helping.

The All-Ireland Bumblebee Monitoring Scheme is a citizen science initiative managed by the National Biodiversity Data Centre. It will be used to track changes in wild pollinators as the Plan is implemented.

Action 22

Log your 'Actions for Pollinators' on the mapping system

A publicly available online mapping system (Actions for Pollinators) will allow all those who take pollinator friendly actions to log their location and the action(s) taken. This will track the build-up of food, shelter and safety for pollinators in the landscape. It is hoped local communities will use the system to log what they are doing and show the creation of pollinator resources in their area. Once established, the system will help coordinate efforts locally between community groups, Local Authorities, Schools etc.

www.biodiversityireland.ie/pollinator-plan

Action 23

Take part in the Bumblebee Monitoring Scheme

Identify interested people and set up at least one bumblebee monitoring scheme walk within your local community. In this scheme volunteers walk a fixed 1-2km route once a month between March and October and record the diversity and abundance of bumblebees that they see. The scheme is run by the National Biodiversity Data Centre who provide full support and training. The scheme is vital in tracking what is happening with wild pollinators in the landscape, and can be used to assess the effectiveness of any pollinator friendly actions that are being taken locally. If interested in taking part contact: info@biodiversityireland.ie

Action 24

Enter the Tidy Towns Pollinator award

If you are in the Republic of Ireland, make specific mention in your annual submission to the Tidy Towns competition (and your 3/5 year Tidy Towns Plan) that you are supporting the All-Ireland Pollinator Plan. Enter the Local Authority Pollinator Award in the national Tidy Towns competition.

SuperValu TidyTowns

Appendix

What plants are good for our pollinators?

Experts agree that inadequate nutrition is a major cause of pollinator declines. We want bees to be there when we need them, but our landscape doesn't provide the abundance and diversity of flowering plants that they need to survive throughout their life cycle. To have a healthy balanced diet, bees need to be able to feed on pollen and nectar from a range of different flowers from early spring to autumn. In local areas this can be a mixture of native and deliberately planted species.

Native plants

It is very important that we increase the amount of native plants in our local areas to provide food for bees and other insects. Often we can do this by managing the land in a slightly different way than we have become used to:

* Brackets denote the flowering period of the plant

- ✓ Plant more pollinator friendly native trees and shrubs: Hazel (Feb-Apr), Willow (Mar-May), Blackthorn (Mar-May), Hawthorn (Apr-Jun), Whitebeam (May-Jun), Rowan (May-Jun), Crab apple (Jun), Ivy (Sept-Nov). **You should source stock of local provenance where possible.**
- ✓ Maintain hedgerows and grassy banks or verges to encourage pollinator friendly native plants: Hawthorn (Apr-Jun), Bramble (May-Sept), Wild Carrot (Jun-Sept), Hogweed (Jun-Sept), Goldenrod (Jul-Sept), Rosebay Willowherb (Jun-Sept), Woundworts (Jul-Sept), Ivy (Sept-Nov).
- ✓ Have grassy meadows or areas of long grass to encourage pollinator friendly native plants: Dandelion (Mar-Oct), Vetch (Apr-Oct), Vetchling (May-Aug), Clovers (May-Oct), Bird's foot trefoil (Jun-Sept), Knapweed (Jun-Oct), Scabious (Jun-Oct), Self-heal (Jun-Aug), Yarrow (Jun-Oct), Thistle (Jun-Oct), Wild marjoram (Jul-Sept).
- ✓ Leave pavements, tracks or grassy edges unsprayed to encourage pollinator friendly native plants: Dead-nettle (Mar-Nov), Veronica (Mar-Sept), Forget-me-not (Apr-Sept), Geranium (Apr-Oct), Hawksbeard (Jun-Oct).
- ✓ Allow small areas to grow wild. Depending on where you are, you will encourage these pollinator friendly native plants: Butterbur (Mar-May), Coltsfoot (Mar-Apr), Bluebell (Apr-May), Brassicas (Apr-Aug), Red Bartsia (Jun-Sept), Foxglove (Jun-Sept), Fleabane (Jul-Sept).

These lists are **not** exhaustive, they simply provide examples of common pollinator friendly native plants that can be encouraged. The more native plants there are in our landscape the better, as they provide bees with a balanced diet.

Info Box:

Willow is a vital food source for bees in spring. In March-April collect up Willows in your local area and note which are favoured by bumblebees and honeybees. Use these plants for hardwood cuttings next winter, creating a new willow plantation at little cost.

Examples of pollinator friendly plants are provided below.

Please note that these are not exhaustive lists. There are lots of other species that are also pollinator friendly. By observing bees in parks, gardens or even garden centres you can often see yourself which species they prefer.

Trees/shrubs:

Berberis (April-May)
Broom (March-April)
Ceanothus (April-Sept)
Cotoneaster (May-Aug)
Deutzia (June-July)
Firethorn (May-June)
Forsythia (March-April)
Hebe (June-Oct)
Horse chestnut (May-June)
Lime (June-July)
Mahonia (Dec-May)
Sycamore (April-June)
Tetrodium (Aug-Oct)
Viburnum (April-May)
Non-native Willows (Feb-March)
e.g. *Salix aegyptica*, *Salix hastata* 'Wehrhahnii'

Herbs:

Basil (July-Sept)
Borage (April-Oct)
Lavender (June-Aug)
Oregano (June-Aug)
Rosemary (April-June)
Sage (June-Aug)
Thyme (May-Aug)

Fruit trees/bushes:

Apple (April-May)
Cherry (April-May)
Currants (April-May)
Plum (April-May)
Raspberry (June-Aug)

Lavender, Clara Stanley

Perennial plants:

Perennial plants are generally better sources of pollen and nectar than annuals. They are also cost effective as they grow and flourish over the following years.

Perennial plants:

Helleborus (Feb-March)
e.g., *Helleborus orientalis*
Comfrey (March-June)
Pulmonaria (March-May)
Calamint (May-Sept)
e.g., *Calamintha nepeta spp nepeta*
Catmint (May-Sept)
e.g., Nepeta 'Six Hills Giant', 'Walkers Low'
Lamium (May-July)
e.g., *Lamium* 'Pink Chablis', *Lamium mac.* 'Album', *Lamium galeobdolon*
Poppy (May-Oct)
Rock rose (May-July)
Allium (June-Aug) e.g., *Allium aflatunense*, *Allium christophii*, *Allium giganteum*
Bellflower (June-Sept)
Delphinium (June-July)
Gaillardia (June-Sept)
Helenium (June-Aug) e.g., Helenium 'Moerheim Beauty'
Salvia (June-Sept)
e.g., *Salvia nemorosa* 'Caradonna', 'May Night', 'East Friesland'
Scabious (June-Sept)
e.g., *Scabious atropurpurea* varieties
Stachys (June-Sept)
e.g., *Stachys officinalis* 'Hummelo'
Viper's bugloss (June-July)
Aster (July-Oct) e.g., *Aster ageratoides* 'Asran', *Aster* × *frikartii* 'Mönch'
Coneflower (July-Oct)
Globe thistle (July-Aug)
Liatris (July-October) e.g., *Liatris spicata*
Perovskia (July-Oct) e.g., *Perovskia* 'Blue Spire'
Stonecrop (July-Sept) e.g., *Sedum* 'Autumn Joy'
Verbena (July-Oct) e.g., *Verbena bonariensis*
Eupatorium (Aug-Sept) e.g., *Eupatorium atropurpureum*
Heathers (Aug-Sept)
Perovskia (Aug-Sept)

In some cases particularly appropriate varieties are listed, otherwise any species/ variety of these plants will be good for pollinators.

Origanum, Peter Caldbeck

Info Box:

Bumblebees are particularly attracted to pollen and/or nectar rich plants in the blue-purple colour range

Annual plants:

Annuals can be useful sources of pollen and nectar for pollinating insects. If you are using annuals you should try to plant single rather than double flowered varieties. Good hardy annuals are:

Annual plants:

Californian Poppy
Cerinthe major 'purpurascens'
Cornflower
Cosmos
Lavatera
Limnanthes douglasii
Annual poppy
Scabious
Night scented stock
Single sunflowers

Bulbs:

Snowdrop (Jan-Feb) e.g., *Galanthus nivalis, Galanthus elwesii*
Crocus (Feb-March)
Muscari armeniacum (March-May)
Allium (June-July)
Single flowered Dahlia, especially Bishop series (July-November)
Colchium (September-October)

Info Box:

Daffodils or Tulips are not a good source of food for Pollinators. Bees will only use Daffodils if there are no other food sources available.

Hanging Baskets

Some hanging baskets could be planted to be more pollinator friendly. To minimise any public concerns, it is suggested that these are not those at head height along pedestrian areas. To make a hanging basket more pollinator friendly it is suggested that conventional trailing plants are mixed with some of these:

- Ageratum
- Alyssum 'Sweet White'
- Heliotrope 'Dwarf Marine'
- Verbena 'Blue Lagoon', 'Desert Jewels Mixed'

Green manure

One of the most under-used methods of soil improvement is the use of green manures (or 'cover crops'). These are plants grown specifically to be dug back into the soil to improve it. If you have an area of poor soil, particularly in urban areas this can be a good approach. Buckwheat and Phacelia are an excellent green manure. Phacelia in particular is fast growing (average 7 weeks from sowing) and provides a great food source for pollinators. After flowering, they can be dug back in to improve the soil in anticipation of perennial planting.

Green manure with Phacelia, Peter Cubbon

Winter Bedding

Winter bedding can provide an important food source in late autumn and early spring. Wallflowers are an excellent insect friendly plant at this time of year.

Wild flower seed

Please consider these important points before buying wildflower seed:

1. Wildflower meadows can be created naturally by reducing mowing regimes (Action 2). Overtime this will gradually lead to a flower rich meadow and avoids the need to purchase wild flower seed. This is the recommended option.
2. If you do decide to deliberately plant a wildflower meadow with commercially bought seed, it is important to use native species collected and grown on the island of Ireland. Please be aware that not all wildflower seed mixes will be pollinator friendly. Often wildflower seed bought commercially in supermarkets will not be native and may not contain pollinator friendly plants. Creating and managing a wildflower meadow from seed can be costly and requires careful planning and management to have any chance of success. See website for a how-to guide.
3. If you are considering "seed bombing" as a quick way of introducing wildflower seed please be aware that it is unlikely to be successful and is not recommended by the All-Ireland Pollinator Plan other than for awareness raising. If you do use seed bombs please try to ensure they are made up of native pollinator friendly species collected in Ireland.

Other useful sources of information:

www.heritagecouncil.ie/fileadmin/user_upload/Publications/Wildlife/wildlife.pdf

http://beekind.bumblebeeconservation.org/

Perennial plant, Lavender © Andrea McDonnell

National Biodiversity Data Centre

About the National Biodiversity Data Centre

The National Biodiversity Data Centre is a national organisation that collects and manages data to document Ireland's wildlife resource, and to track how it is changing.

Find out what biodiversity has already been recorded in your local area: **maps.biodiversityireland.ie**

Help us to build up the knowledge of biodiversity in your local area by submitting sightings to **records.biodiversityireland.ie**

Northern Ireland Environment Agency
Wexford County Council
An Chomhairle Oidhreachta The Heritage Council
Bord Bia Irish Food Board
Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

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www.biodiversityireland.ie/pollinator-plan