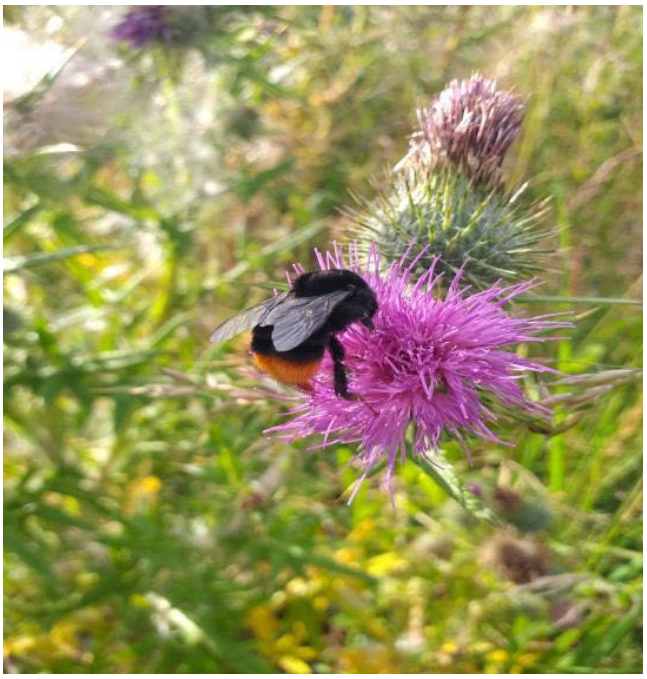
Fermoy Town Pollinator Plan



An Roinn Tithíochta,
Rialtas Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Cork
County Council
Comhairle Contae Chorcaí

Prepared by Tony Nagle on behalf of Cork County Council

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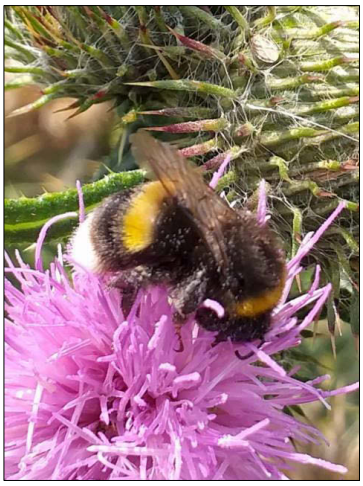
November 2020

Contents

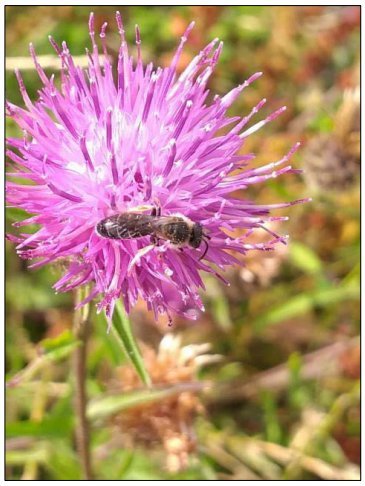
Introduction

What Are Pollinating Insects?

Pollinating insects (bees, butterflies, moths, hoverflies and other insects) play a vital role in the natural process of pollination. Pollination is essential for many of our food crops, trees, fruit trees, flowers and wildflowers. Insect pollinators fly from plant to plant in search of pollen and nectar and by doing so they transfer pollen from one plant to another thereby facilitating the fertilisation and reproduction of these plants. Pollination by bees is essential for the production of one third of the food crops we eat and the majority of our wildflowers benefit from being pollinated by insects.

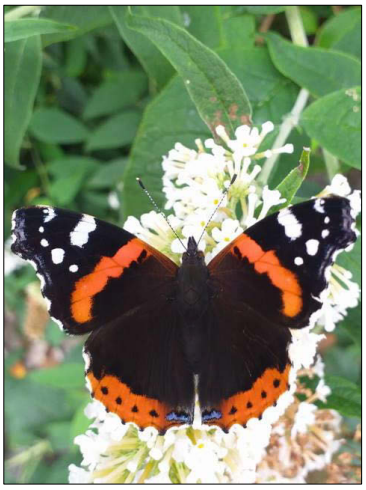


White-tailed Bumblebee



Solitary Bee
(Halictus rubicundus)

Honeybee



Red Admiral Butterfly

Emperor Moth

Hoverfly
(Sphaerophoria spp)

Pollinators are among the most familiar and colourful of Ireland's insects. In Ireland there are 20 species of bumblebee, 77 species of solitary bee and a single species of managed bee (the Honey Bee), 36 species of butterfly, more than 1400 species of moth and 180 species of hoverfly. They all play a

role in pollinating our trees, wildflowers and crops but bees are the most important group and it is estimated that they account for a large proportion of pollination in Ireland.

Pollinators require suitable breeding conditions to build nests in the case of bees; butterflies and moths depend on larval food plants and hoverflies need suitable nesting habitat varying from dead wood to ponds and puddles. It is essential for the success of any pollinator plan to provide adequate nesting/breeding conditions for a range of pollinators as well as providing a broad and seasonal range of pollinator-friendly plants for foraging. Some pollinator plans have focused almost exclusively on the provision of foraging plants while neglecting to retain or provide adequate breeding habitats or larval food plants. Failure to address the breeding requirements of pollinators will reduce the effectiveness of a pollinator plan. Particular attention should be given to the retention of 'wild' habitats such as woodland, hedgerows, 'rough ground', ponds, puddles and man-made features such as stone walls. In the absence of such habitats, artificial nesting conditions can be provided in the form of 'bee scapes', 'bee hotels', dead wood, wet areas and by planting important food plants such as Birdsfoot Trefoil, Nettle and a range of native trees ranging from Hawthorn to Oak.

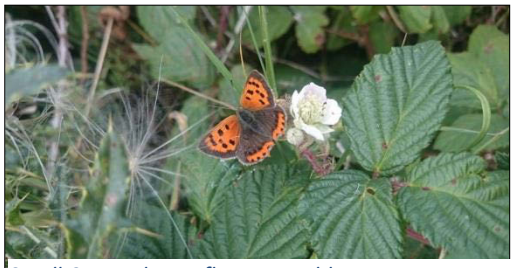
Why Are Pollinators in Trouble?

Unfortunately, many of Ireland's pollinating insects have undergone serious declines in recent decades and the rate of decline is accelerating. Bumblebees are declining at a rate of 3.7% annually compared to the global average figure of 1%. One third of our 97 native bee species are threatened with extinction within the next 10 years. Butterflies are declining at an average of 2.6% per year and this is considerably higher than the global average figure of 1.8%. The reasons behind these worrying declines are varied but they include agricultural intensification, afforestation and urbanisation, all of which result in habitat loss. The widespread use of insecticides and herbicides has had a serious impact on pollinators and wildlife in general.

The Purpose of This Plan

Studies in Britain have shown that the six commonest bumblebees in Britain (Buff-tailed, Red-tailed, Garden, Early, Common Carder and White-tailed Bumblebees) now often have higher population densities in urban areas than in the surrounding countryside and the situation is likely to be similar in the more intensively farmed areas of Ireland. Therefore, managing public spaces in urban areas can have a very positive impact for pollinators. This plan has been prepared as part of Cork County Councils effort to provide suitable habitat for pollinators in the public spaces it manages. It includes proposals for the management of public spaces in the town of Fermoy with a view to increasing food and shelter opportunities for pollinator insects. The plan identifies areas which are already of high value for pollinators where minimal intervention is required. It also includes recommendations for more wildlife friendly management of areas which are traditionally more intensively managed. This includes roadside verges, parklands and amenity areas. The principles of the proposed approach follow those set out in the All-Ireland Pollinator Plan Sectoral Guidelines for Councils and include, in brief:

1. **Identify and protect any existing suitable pollinator foraging habitat**



Small Copper butterfly on Bramble

In some ways, protecting existing pollinator resources is perhaps the easiest and most important measure that can be undertaken in each town. Existing habitat can include areas of rough grassland or infrequently-mown grassland, hedgerows, riverbanks, small wild

areas with bramble, nettle or ivy, stone walls, allotments and flowerbeds that have already been planted with pollinator-friendly flowers.

2. Adjust mowing practices on grassland areas

Altering the frequency of mowing can facilitate the transformation of grassland areas into habitats that are more suitable for pollinating insects. Frequent mowing on a weekly or fortnightly basis inhibits the growth of wildflowers and deprives pollinating insects of a potentially widespread food resource. Reducing the frequency of mowing regimes can greatly improve the abundance of wildflowers. On Council land many grassy areas receive up to 22 cuts per year from mid-February onwards and the cut grass is often mulched back in to the lawn. This may look tidy to us but it creates a sterile grassy desert for pollinators. A cost equivalent action would be to change some areas to a pollinator friendly mowing regime where the grass-cuttings are removed (vital to reduce nutrient levels for many wildflower species) and composted. Depending on the site, mowing can be

- reduced to three or four week cuts, producing what is known as a flowering lawn;
- reduced to six-week cuts, creating a temporary 6-week meadow;
- reduced to a single cut at the end of each season, (ideally mid to late September) thereby creating a wildflower meadow.

A pollinator-friendly mowing regime could adapt the following timetable:

- First cut and lift after the 15th April (Dandelions are a vital early food source for pollinators in spring)
- Second cut at the end of May
- Third cut in mid/late July (maximises the growth of Clovers and other wildflowers)
- Fourth cut at the end August
- Fifth cut after mid-October

Reducing the frequency of mowing will result in a financial saving.

If necessary, additional wildflower species (e.g. Yellow Rattle) that will enhance the biodiversity value of the site can be added by seeding or plug planting over time. It is possible to create a wildflower meadow by completely reseeding the site with wildflower seeds but this is a time-consuming and expensive undertaking that often involves the use of herbicides to clear the site of grasses and other vegetation. It is vitally important to remove grass cuttings for composting as decaying grass fertilises the soil and perpetuates the cycle of grass dominance at the expense of wildflowers.

3. Planting pollinator friendly flower beds and trees

Flowerbeds can be very effective pollinator foraging habitats provided the right plants are in place. Many existing urban flower beds contain flowers that are appealing to human eyes but are of no value to pollinating insects. Traditional annual bedding plants such as Geraniums, Begonias, Busy Lizzy, Petunias, Polyanthus or Salivia splendens have virtually no pollen or nectar and are of little value to pollinators. The substitution of non-pollinator friendly flowers

with varieties that are attractive to pollinators (and the public!) can greatly increase foraging habitat for pollinators in urban and suburban areas.

When choosing a selection of pollinator-friendly plants it is very important to recognise that not all pollinator plants suit every pollinator. Differences in anatomical structure mean that some flowers that are suitable for larger species may not be suitable for smaller species. Bumblebees for instance, are divided into long-tongued and short-tongued species and their preferences vary accordingly. It is also very important to choose a mixture of plants that will provide nectar and pollen throughout the spring and summer months to cater for species that are active early in the year as well as species that are active later in the year. A suggested list of plants is provided in Appendix 1 and this chart outlines the typical growing season and the types of pollinators likely to be attracted. A more extensive list of suitable plants is available in the All-Ireland Pollinator plan in Councils – Actions to Help Pollinators guidance prepared by the National Biodiversity Data Centre.

Planting pollinator-friendly trees (especially some of our native species) provides additional foraging habitat for pollinators in urban landscapes. Scrub or transitional woodland is an important habitat for many bee species. Early flowering trees such as Goat Willow are used by virtually all spring-flying bees. Trees provide hollow twigs and dead wood for various aerial nesters. Trees also create windbreaks providing shelter and allowing some parts of a site to attain higher temperatures than the surrounds. It is very important to prioritise the management and restoration of native plants over ornamental varieties wherever possible. Many ornamental tree species are of little or no value as foraging habitat for pollinators.

Native trees are also used as larval food plants by many of our moths and some of our butterflies and their autumn fruits provide a valuable food resource for a variety of bird and mammal species. The Alder Buckthorn (pictured left) has a very restricted range in Ireland (and is rarely included in planting schemes) but it is one of only two larval food plants for the Brimstone Butterfly. Its flowers are also used by many pollinating insects including bees and hoverflies and it is unusual in that it continues to flower long after the first berries have formed.

4. Provide pollinator nesting habitat

The provision of suitable pollinator nesting habitats is vital to the success of any pollinator plan. Pollinating insects need a variety of different nesting habitats. Some species of bumblebee nest on or just below the surface whereas others build their nests underground accessed by tunnels that can vary in length from a few centimetres to more than a metre. Most bumblebee species will use the old burrows of small mammals (mice and voles). Solitary bees build their nests in places such as south-facing earthen banks, old walls and dead wood.

A '**Bee scrape'** (pictured below) is one of the best ways to provide nesting habitats for a variety of solitary or mining bees of which there are 62 species in Ireland. Exposing small areas of soil (1 metre x 1 metre) on well-drained south-facing locations can provide suitable nesting habitat for many species of solitary or mining bee. Ideally, locations varying from vertical scrapes in banks to flat areas on well-drained soils should be chosen to create nesting habitats for different solitary bee species. Bee scrapes need to be maintained throughout the breeding season (March-September) by ensuring that the scrapes are kept clear from encroaching vegetation during the summer months. Care should be taken to avoid disturbance (e.g. trampling) to the scrapes once they have been created.

Artificial nest sites (commonly known as **'bee hotels'**) can be provided for some of the 15 species of cavity-nesting solitary bees in or close to suitable foraging areas by placing sawn logs (pictured left) on east or southeast-facing locations ideally within 100 metres of foraging sites. The logs can be placed individually or in small housing structures. Holes varying in diameter from 4-10 mm should be drilled into the sawn side of the log at a depth of 15 cm to attract different species of bees. Drill the holes at a slight upward angle to prevent water-logging. If a housing structure is being used, lengths of bamboo or reeds can be placed in the gaps between the logs as these provide additional nesting habitats for other cavity-nesting species. Bee hotels should ideally be placed at a height of 1 to 1.5 metres above the ground.

Butterflies and moths tend to lay their eggs on various native grasses, herbs and trees that are subsequently used as food plants by the emerging caterpillars. The Common Nettle (pictured left) is used by 5 of Ireland's butterfly species: Red Admiral, Painted Lady, Small Tortoiseshell, Peacock and Comma. Other important larval food plants include Birdsfoot Trefoil, native Violet species and a range of wild grass species including Cock's-foot and Couch Grass. Preserving corner areas containing a mixture of these species will provide vital egg-laying habitat for a variety of butterfly and moth species. Many of these plant species will also thrive in 'wildflower' meadows (see Appendix 2).

180 species of hoverfly have been recorded in Ireland and different species require a variety of different nesting habitats. Adult hoverflies feed largely on nectar and pollen but the larvae of hoverflies (depending on the species) feed on aphids, ant larvae, living plant tissue and decaying plant tissue so their nesting requirements are varied but include leaves of trees, wet mud, ponds and puddles.

5. Reduce the use of pesticides

Pesticides are known to be extremely harmful to pollinating insects. Herbicides eliminate wildflowers and nesting vegetation whereas insecticides are fatally harmful to pollinators.

Fungicides are harmful to some species of hoverfly. Pesticides should only be used when absolutely necessary and great care should be applied in their use.

How the Plan Was Prepared

A meeting was held in September 2020 with Council staff and a number of suggested sites in and around Fermoy were visited. Proposed management of these areas and possible constraints were discussed. The sites were revisited and surveyed for existing flora and potential pollinator nesting areas in September and October and a draft proposal describing the sites, proposed measures and details regarding implementation was prepared. The plan was finalised following consultations with staff of Cork County Council including the Council Ecologist and also involved liaison with Fermoy Tidy Towns Group.

What the Plan Contains

The plan includes recommendations for management of public spaces including public parks, roadside verges, roundabouts, riverside banks and housing states managed by Cork County Council. Not all publicly-owned land is included in the current plan but it is hoped that the number of such areas will be expanded over the coming years.

The plan does not include proposals for management of privately owned land or residential estates that are not managed by Cork County Council, however, it is hoped that the management of open areas on privately owned land will be influenced by the measures adopted in this plan. The plan has been prepared by taking account of the needs of the people of the town as well as the local pollinators and public lands that are currently used for sports, general amenity purposes and recreation will not be adversely affected by any of the measures in the plan.

Certain alterations to grass-mowing regimes will occur in some areas but public access will not be impacted by any of these measures and indeed it is hoped that the public will explore and enjoy the results of these measures as they become apparent over time.

Safety concerns are fully acknowledged and respected in the plan and none of the recommended measures will result in any obstruction to traffic or walkways at any location within the town.

How the Plan Will Be Implemented

The plan will be implemented by Cork County Council staff and members of Fermoy Tidy Towns Group.

Management Recommendations

A number of areas within Fermoy Town which are within the management control of Cork County Council have been proposed to be incorporated into this plan. These sites were identified through field survey and consultation with local staff of Cork County Council. The areas are described and management recommendations for each of these sites are set out below. The sites are shown on Figure 1 below. Ideally, additional sites can be added each year based on the same suggested guidelines.

Figure 1. Pollinator Plan sites in Fermoy.

1. Fitzgerald Memorial Green, Courthouse Road.

Site Description

This green area in front of the Courthouse is maintained as a regularly mown lawn with two flowerbeds either side of the monument. The flowers chosen include some pollinator-friendly plants including Fuchsia and Aubretia but other flowers such as Petunias have virtually no pollen and nectar and are of little value to pollinators.

Management Recommendation

Use pollinator friendly plants for flowerbeds. It is important to ensure that plants suitable for pollinators are available throughout the season (March to October). A chart containing a variety of suitable plants for different seasons can be seen in Appendix 1 and a wider selection of suggested species is available on the All-Ireland Pollinator Plan website.

2. Market Place Public Car-Park

Site Description

This car-park is located on the north side of Courthouse Road. A narrow strip on the south side of the car-park has been set aside for pollinators and several excellent pollinator plants including Red Clover, Cornflower, Oxeye Daisy and Wild Carrot were apparent during the October visit.

Management Recommendation

(a)This site would benefit from a cut and lift in September or October.

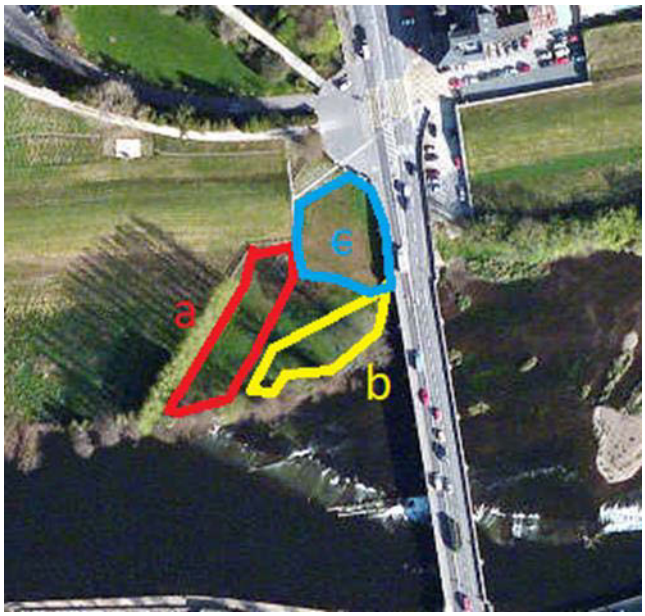
(b) A review of the species in use next spring and summer would also be useful to ensure that a variety of pollinator-friendly plants are in place for the entire season (March to September).

(c) The site is shaded to some extent by a wall on the southern boundary. A 1m x 1m bee scrape could be created on the eastern strip that protrudes northwards and may be exposed to more sunshine than the main area.

3. Triangular Field on north side of the river.

Site Description

This site is part of the alluvial floodplain of the River Blackwater and it is currently maintained as a regularly mown lawn area.



Management Recommendation

This site is large enough to accommodate three different types of grassland management that would be beneficial to pollinating insects.

(a) This site could be managed as a wildflower meadow with a single cut and lift in September or October.

(b) This part of the field could be managed as a 6-week meadow with mowing restricted to 6-week intervals and ideally no more than four cut and lifts each year.

(c) This section could be managed as a 3 or 4-week flowering lawn. Delaying cuts to 3 or 4 week intervals would enable the growth of beneficial flowers such as Clovers and Dandelions.

*Note: this site is within the Blackwater River SAC. Any proposals for re seeding or planting should be assessed by an ecologist.

4. Town Park – South end ('the Avenue')

Site Description

This site contains a substantial area of regularly mown grass on the north side of the road. The lawn area is bounded on the north side by a belt of non-native trees and shrubs. A line of Rowan trees has recently been planted close to the road but these too are of a non-native, yellow-berried variety.

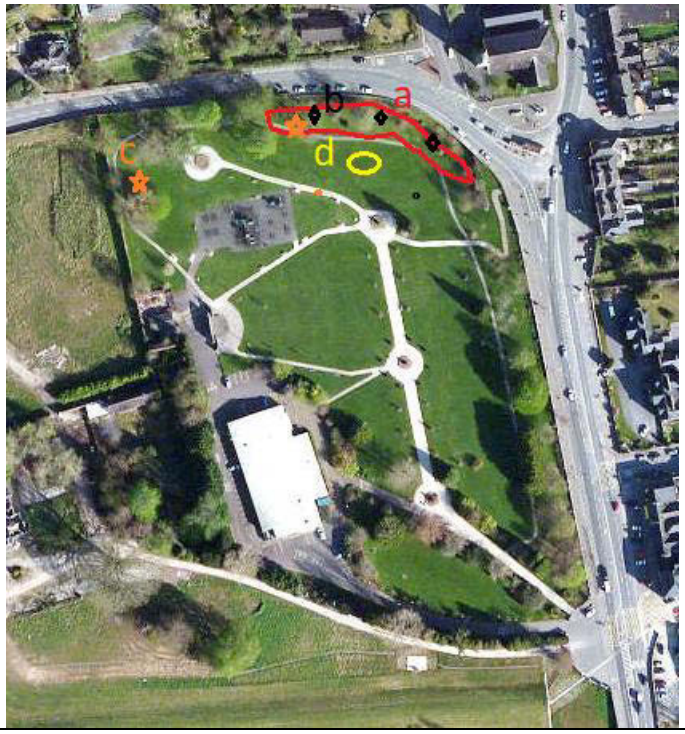
Management Recommendation

The centre of this could be managed as a wildflower area for pollinators by reducing mowing to a single cut and lift each September to encourage the local flora. The outer 1m perimeter along the road side could be mowed on a regular basis.

5. Town Park – North end

Site Description

Most of this park is currently being managed as a regularly cut lawn, there are no flowerbeds and the majority of the trees in the park are non-native species including Beech, Horse Chestnut and Lime (the latter two are of some use to pollinators).



Management Recommendations

(a) A strip bordering the northeast corner and the Mallow Road could be developed as a wildflower meadow by restricting mowing to a single cut and lift in mid to late September and this would substantially improve the site as a habitat for pollinators.

(b) Two or three bare-earth scrapes on a south-facing aspect (1m x 1m) would provide suitable nesting habitat for solitary bees.

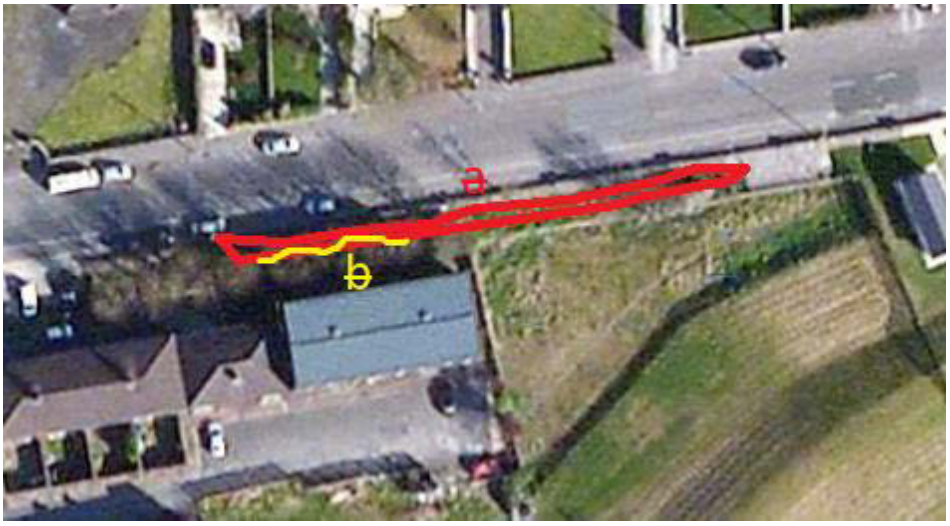
(c) Three or four mini bee hotels could be erected on separate trees inside the proposed wildflower meadow strip at a minimum height of 1.5m creating nesting habitat for cavity-nesting solitary bees.

(d) Consider planting pollinator-friendly native small trees including Goat Willow, Hawthorn, Blackthorn, Crab Apple, Wild Cherry, Bird Cherry, Dogwood, Buckthorn and Holly (2 or 3 of each) in the centre to provide additional nectar and pollen resources for pollinating insects early in spring and this measure would also provide larval food plants for a variety of moths and butterflies.

6. Grass Verge on the south side of Rathealy Road

Site Description

This site consists of a narrow verge adjacent to a footpath on the south side of the road beneath a line of Sycamores. The west side is dominated by Creeping Buttercup and Dandelion (this plant is beneficial to pollinators), Broad-leaved Dock, Greater Plantain and Sowthistle. The invasive plant, Winter Heliotrope (ironically introduced as a source of nectar for bees in the winter) is well established in at least two areas and is spreading. The eastern side is dominated by grasses.



Management Recommendations

(a) Winter Heliotrope should be controlled and eliminated (with careful spot-spraying of herbicide) to prevent further spread. Eradication will require ongoing treatment for two to three years.

(b) It is recommended that mowing at this site be increased to a three or four-week cut and lift approach enabling the development of a flowering lawn that would become a useful resource for pollinating insects. Great care must be taken to carefully dispose of cuttings to prevent further spread of Winter Heliotrope.

7. St Bernard's Place Embankment

Site Description

This site is dominated by grasses and Winter Heliotrope. Common Nettle (a vital larval food plant for five of Ireland's butterfly species) also occurs here and it is important to retain this species where possible. Herbicide is currently used to control vegetation on the roadside.

Management Recommendations

(a) Winter Heliotrope should be eradicated as it will continue to spread at the expense of native plants beneficial to pollinators.

(b) This site could be managed as a six-week meadow by mowing or strimming and removing the cuttings every six weeks. Great care must be taken to carefully dispose of cuttings to prevent further spread of Winter Heliotrope.

8. Waterloo Lane

Site Description

This is a small park close to the river but surrounded by walls and buildings. Three medium sized Lime trees shade much of the site during the spring and summer.

Management Recommendations

The restricted confines of the site together with the heavy shade effect from the Lime trees mean that options for improving the site for pollinators are limited. Planting a small flowerbed in the southern end using shade tolerant flowers such as native Bluebells, Jacob's Ladder, Bee Balm, Hosta, Columbine, Hellebores, Bellflowers and Mint species.

9. Barnane Walk

Site Description

This is a popular walk along a tarmac path on the south bank of the River Blackwater. There is a narrow (1m) grass verge on the south side of the path shaded by a wall and trees and a wider (3-4m) verge on the river side of the path. The grass verges are regularly mown and are of minimal value to pollinators.

Management Recommendations

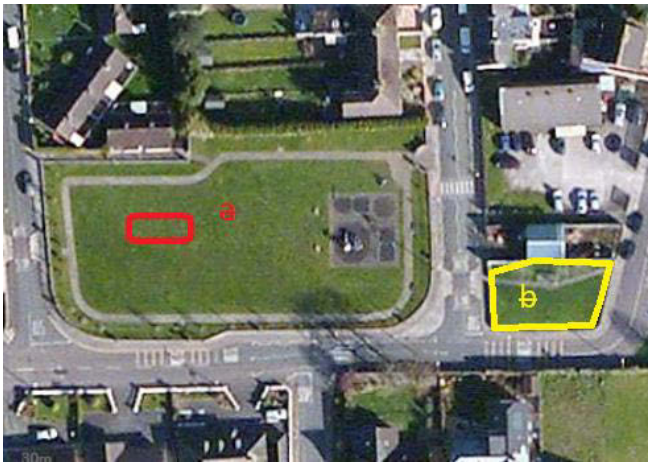
Both sides of the path could continue to be mowed on a regular basis but on the outer two metres closest to the river, mowing could be reduced to a three or four week cut and lift approach enabling the development of a flowering lawn that would become a useful resource for pollinating insects.

*Note: this site is within the Blackwater River SAC. Any proposals for re seeding or planting should be assessed by an ecologist.

10. Clancy St Park and Playground

Site Description

This site is currently being managed as a regularly cut lawn and is of minimal value to pollinators. The residents currently favour a neat approach to grass management and consequently pollinator improvement options are limited. There is a smaller lawn area with seating across the road to the southeast.



Management Recommendations

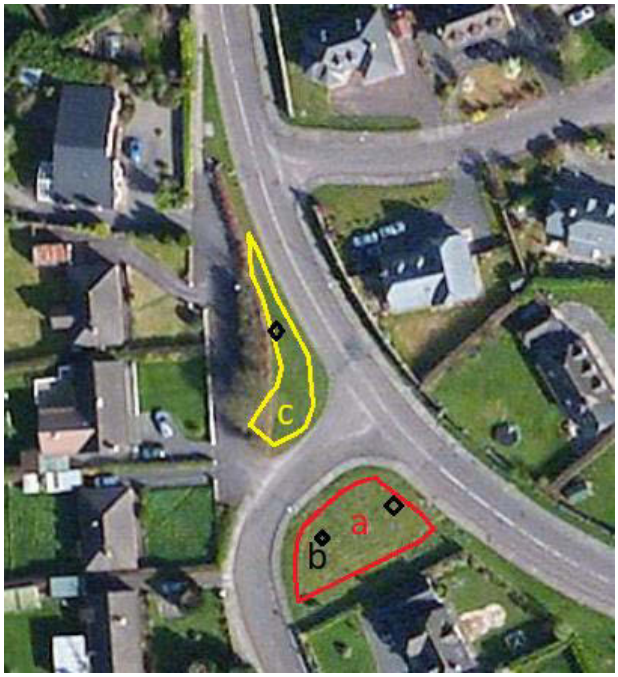
(a) A flowerbed using pollinator-friendly plants (see Appendix 1) could be created in the main park.

(b) Mowing could be reduced to a three or four week cycle in the smaller park and this would produce a flowering lawn that would be useful to pollinators.

11. Barry's Boreen

Site Description

This site consist of two regularly cut lawn areas on either side of the junction where Barry's Boreen joins the Dun Eala Road. Both sections are currently of minimal use to pollinators.



Management Recommendations

(a) The southern section could be managed as a wildflower meadow with mowing reduced to a single cut and lift in mid to late September. The perimeter of the verge could be mowed on a weekly or fortnightly basis to a maximum width of 1m to maintain a 'managed' appearance.

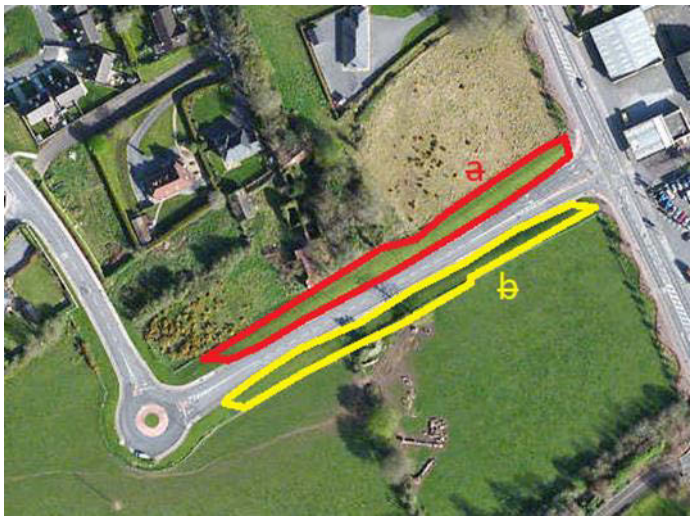
(b) A 1m x 1m bee scrape could be created in the centre of the meadow to provide suitable nesting habitat for solitary/mining bees.

(c) The north section could be managed as a flowering meadow by reducing mowing to three or four week cycles.

12. Relief Road Grass Banks

Site Description

This site is located on the southern approach to Fermoy and consists of two substantial grass bank verges on either side of the road. The north bank adjoins an area of rough grassland and scrub and the south bank is bordered to the south by farmland with hedgerows. Both banks are regularly mown and are of minimal value to pollinators.



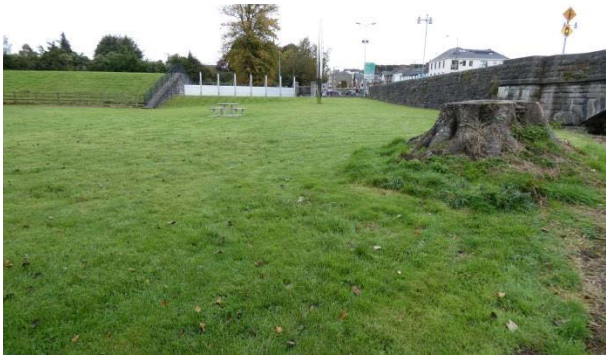
Management Recommendations

(a) The north section could be managed as a wildflower meadow with mowing reduced to a single cut and lift in mid to late September. The perimeter next to the road could be mowed on a weekly or fortnightly basis to a maximum width of 1m to maintain a 'managed' appearance.

(b) The south section could be managed as a flowering lawn by restricting mowing and lifting to three or four week cycles.

1(a) Fitzgerald Memorial Green

2(a,b) Market Place Wildflower Garden



3(a) Triangular Field

3(b) Triangular Field

4 The Avenue

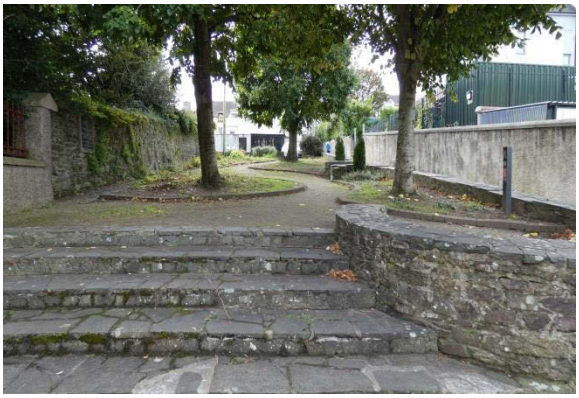
5(a) Town Park – North End

5(b,c) Town Park – North End

6(a) Rathealy Road – Winter Heliotrope

6(b) Rathealy Road: Grass verge

7(a,b) St Bernard's Place Embankment



8 Waterloo Lane

9 Barnane Walk

10(a) Clancy Park (main park)

10(b) Clancy Park (small park)

11(a,b) Barry's Boreen South

11(c) Barry's Boreen North

12(a) Relief Road North

12(b) Relief Road South

Table 1 Summary of sites and proposed measures.

Site No.	Site Name	Site Description	Area m^2	Target	Management Recommendations
1	Fitzgerald Memorial Green	Flowerbeds.		Pollinator-friendly.	Plant a selection of flowers that provide pollen and nectar for pollinators throughout the season (March-September).
2a	Market Place Car-park	Wildflower garden.		Wildflower garden that caters for pollinators throughout the season (March-September).	A single cut and lift each September.
2b	Market Place Car-park	Wildflower garden.		Assess flower species to ensure seasonal continuity.	Planting of selected wildflowers (if needed) to ensure that the garden caters for pollinators throughout the season (see Appendix 1).
2c	Market Place Car-park	Wildflower garden (shaded by wall).		Provide nesting habitat for solitary/mining bees.	Create a 1m x 1m bee scrape in the northeast section of the garden.
3a	Triangular field	Regularly cut lawn.		Wildflower meadow, 6-week meadow and flowering lawn.	A single cut and lift each September.
3b	Triangular field	Regularly cut lawn.		6-week meadow.	Cut and lift every 6 weeks to allow a variety of flower species to grow and seed.
3c	Triangular field	Regularly cut lawn.		Flowering lawn.	Cut and lift every three or four weeks to allow small flower species e.g. White Clover to grow.
4	Town Park – South End (the 'Avenue')	Regularly cut lawn.		Mini wildflower meadow.	A single cut and lift each September. Mow perimeter next to road on a regular basis.
5a	Town Park-North End	Regularly cut lawn with mature trees.		Miniature wildflower meadow	A single cut and lift each September.
5b	Town Park-North End	Regularly cut lawn with mature trees.		Provide nesting habitat for solitary/mining bees.	Create two 1m x 1m bee scrapes in the northeast and north of the park.
5c	Town Park-North End	Regularly cut lawn with		Provide nesting habitat for cavity-nesting bees.	Erect three mini bee hotels at a height of 1.5-2m on south-facing side of trees in

Site No.	Site Name	Site Description	Area m^2	Target	Management Recommendations
		non-native trees.			the wildflower meadow section.
5d	Town Park-North End	Regularly cut lawn with mature trees.		Plant a grove of native trees.	Plant a selection of native trees including Goat Willow, Hawthorn, Blackthorn, Crab Apple, Wild Cherry, Bird Cherry, Dogwood, Buckthorn and Holly (2 or 3 of each).
6a	Grass verge-Rathealy Road.	Overgrown verge with Winter Heliotrope.		Eradicate Winter Heliotrope.	Carefully treat Winter Heliotrope with herbicide. This will be an ongoing process for 2-3 years.
6b	Grass verge-Rathealy Road.	Overgrown verge.		Flowering lawn.	Cut and lift every three or four weeks. Ensure that cuttings are disposed of carefully to prevent the spread of Winter Heliotrope.
7a	St Bernard's Place embankment	Overgrown bank.		Eradicate Winter Heliotrope.	Carefully treat Winter Heliotrope with herbicide. This will be an ongoing process for 2-3 years.
7b	St Bernard's Place embankment	Overgrown bank.		6-week meadow	Cut and lift every 6 weeks. Ensure that cuttings are disposed of carefully to prevent the spread of Winter Heliotrope.
8	Waterloo Lane	Small shaded park.		Pollinator-friendly flowerbed	Plant a selection of shade-tolerant pollinator-friendly flowers e.g. native Bluebell, Jacob's Ladder, Bee Balm, Hosta, Columbine, Hellebores, Bellflowers and Mint species.
9	Barnane Walk	Riverside walk with regularly mown verges.		Flowering lawn.	2 metre strip closest to river could be mowed every 3- 4 weeks to allow small flowers e.g. White Clover to develop.
10a	Clancy Park (main park)	Regularly mown lawn of minimal use to pollinators.		Pollinator-friendly flowerbed.	Plant a selection of pollinator-friendly flowers (see Appendix 1).
10b	Clancy Park (smaller park)	Regularly mown lawn of minimal use to pollinators.		Flowering lawn.	Cut and lift every three or four weeks to allow small flower species e.g. White Clover to grow.

Site No.	Site Name	Site Description	Area m^2	Target	Management Recommendations
11a	Barry's Boreen (south section)	Regularly mown lawn of minimal use to pollinators.		Mini wildflower meadow.	A single cut and lift each September. Mow perimeter next to road on a regular basis.
11b	Barry's Boreen (south section)	Regularly mown lawn of minimal use to pollinators.		Provide nesting habitat for solitary/mining bees.	Create a 1m x 1m bee scrape in well-drained soil within the wildflower meadow.
11c	Barry's Boreen (north section)	Regularly mown lawn of minimal use to pollinators.		Flowering lawn.	Cut and lift every three or four weeks to allow small flower species e.g. White Clover to grow.
12a	Relief Road Grass Banks	Regularly mown bank of minimal use to pollinators.		Linear wildflower meadow.	A single cut and lift each September. Mow perimeter next to road on a regular basis.
12b	Relief Road Grass Banks	Regularly mown bank of minimal use to pollinators.		Flowering lawn.	Cut and lift every three or four weeks to allow small flower species e.g. White Clover to grow.

Other Recommendations

Raising Awareness

It is important to inform the public about the rationale behind the pollinator plan. The conversion of tightly-mown lawns into wildflower meadows can be seen initially to some as untidy management or neglect but if the reasons for the new approach are clearly explained to the public widespread acceptance, approval and support usually follows. Public acceptance can be achieved through the provision of signs that explain the importance of pollinators and their habitats, meetings with community groups, school visits and social media.

Monitoring Progress

The success of the plan can be monitored in a number of ways. Ideally, a small group of people (consisting of County Council staff and members of the Tidy Towns Committee) could meet twice a year outlining proposed actions (based on recommendations in the town pollinator plan) early in the year and a second meeting outlining actions that have been implemented. Informing the public of the reasons behind the measures undertaken is vital to the success of the plan but criticisms and positive suggestions should be noted. It is important to monitor the success of each of the measures but wildflower meadows will need particular attention, especially in the early years as the succession to wildflower meadow status is a gradual process and the benefits may not be apparent for some years after the process has begun. Invasive species are a problem at some sites (especially Winter Heliotrope but also Japanese Knotweed) and these will require ongoing attention until they are finally eradicated.

Monitoring of pollinator use of the sites is important and this can be done on a casual basis by noting the numbers of bees, bumblebees, hoverflies and butterflies using the sites (always choose a sunny, calm day if possible). The National Biodiversity Data Centre host a number of monitoring schemes and it would be a good idea to join at least one of these schemes e.g. the Bumblebee Monitoring Scheme (advice and identification assistance is provided for beginners) or the Butterfly Monitoring Scheme. It would be a good idea to record the species and numbers using the sites and to note sites that appear to be more successful than others and to identify reasons why this may be the case (it could be related to the varieties and numbers of plants present or perhaps because there is not enough suitable nesting habitat available nearby).

Pollinator plan measures will need to be monitored throughout the year to ensure that adequate numbers of foraging plants are in place at critical times of the year. Grassland management measures will need to be assessed to measure the development of pollinator-friendly wildflowers.

A suggested monitoring programme could involve the following steps:

Measure	Timing	Recording Pollinator Plants	Recording Pollinator Activity
Assess early pollinator activity	Mid-February to mid-April (One or two visits over this period)	Record presence or absence of early flowering plants such as Willows, Bluebells Note plants with greatest levels of pollinator use. Record plants with lowest or zero level of pollinator use.	Record presence or absence of pollinator groups: bees, bumblebees, hoverflies, butterflies. Record numbers. Record to species level where confident of identification.
Assess late spring activity	Late April to May (One or two visits over this period)	Record presence or absence of pollinator-friendly plants. Note plants with greatest levels of pollinator use. Record plants with lowest or zero level of pollinator use.	Record presence or absence of pollinator groups: bees, bumblebees, hoverflies, butterflies. Record numbers. Record to species level where confident.
Assess early summer activity	June (One visit in this period)	Record presence or absence of pollinator-friendly plants. Note plants with greatest levels of pollinator use. Record plants with lowest or zero level of pollinator use.	Record presence or absence of pollinator groups: bees, bumblebees, hoverflies, butterflies. Record numbers. Record to species level where confident.
Assess late summer activity	July to August (One or two visits over this period)	Record presence or absence of pollinator-friendly plants. Note plants with greatest levels of pollinator use. Record plants with lowest or zero level of pollinator use.	Record presence or absence of pollinator groups: bees, bumblebees, hoverflies, butterflies. Record numbers. Record to species level where confident.
Assess early autumn activity (prior to mowing)	September (One visit in this period)	Record presence or absence of pollinator-friendly plants. Note plants with greatest levels of pollinator use. Record plants with lowest or zero level of pollinator use.	Record presence or absence of pollinator groups: bees, bumblebees, hoverflies, butterflies. Record numbers. Record to species level where confident.

The Cost of Implementing the Plan

Pollinator plans can be implemented at minimal cost and with relatively limited effort by adopting a number of alterations to existing maintenance and planting policies. Most of the grassland management recommendations for example require significantly reduced mowing effort and this should result in an automatic reduction in the costs associated with mowing and strimming practices. Planting regimes may need to be adjusted (minimally in some cases) by making changes to the range of plants chosen for public spaces to a selection of equally colourful and attractive pollinator-friendly annual and perennial plants. Perennial plants tend to be much better sources of pollen and nectar for pollinators and if managed properly, a perennial mix will not need re-sowing.

Tree-planting (where required) should ideally be focussed on using native trees and shrubs and a number of useful contact details are provided in Appendix 1. Local plant suppliers should be informed of the new requirements associated with the pollinator plan (many garden centres and landscape

professionals are already aware of the need to stock pollinator-friendly flowers, shrubs and trees) but again, it is always best practice to plant native trees and shrubs of Irish provenance wherever possible.

A number of grants are available for some of the measures particularly in relation to native tree planting and these include the Public Woodland Scheme, Neighbourwood Scheme and the Native Woodland Scheme.

- The Public Woodland Scheme is a new initiative from the Department of Agriculture specifically designed to "encourage Public Bodies to establish new native woodlands on suitable bare land." This scheme provides 100% funding for planting and maintenance for the first four years. Funding is also available for trails, signage and a woodland playground.
- The Neighbourwood Scheme run by the Department of Agriculture, Food and the Marine provides up to 85% funding for the establishment of new woodland, the enhancement of existing woodland and/or the provision of recreational facilities in woodland sites of between 0.1 ha to a maximum area of 12 ha.
- The Native Woodland Scheme is designed to protect and expand native woodland in Ireland. Grants are available for the conservation of existing woodland and the establishment of new woodland.

The Importance of Choosing Native Trees and Shrubs of Irish Provenance

Many species of pollinating insects depend on native trees and shrubs for nectar and pollen sources particularly in spring (especially bees and hoverflies). Native trees and shrubs are also extremely important for the larval stage of many of our moth and butterfly species. Native trees and shrubs have adapted to Irish conditions and so too have many of our insects and birds. A Hawthorn tree imported from continental Europe for example may come into flower a number of weeks later than a Hawthorn of Irish provenance. Many Irish insects (and some bird species e.g. Blue Tit) time their breeding cycles to coincide with the period when native trees and shrubs come into flower and leaf. Any alteration to these established natural cycles could potentially negative impacts on the breeding cycles of at least some native species. Imported trees also carry the risk of disease introduction (Ash Dieback, currently spreading throughout the country resulted from imported Ash) and invasive species such as the Oak Processionary Moth (which devastates oak trees) has recently been recorded in Ireland and may well have arrived on imported oak trees.

Yellow Rattle and its Biodiversity Significance

Yellow Rattle is a native annual species that was formerly widespread and common in Ireland. It still occurs widely but is now largely confined to rough grassland areas and meadows. Yellow Rattle is favoured by many pollinators but its most significant value relates to its ability to improve conditions for wildflowers by parasitizing the roots of grasses. Grasses often out-compete wildflowers, especially in the first few years of establishment when nutrient levels are still relatively high. Most wildflower species prefer low nutrient levels in the soil and this is why it is very important to remove cuttings after mowing and never apply fertilisers to the meadow. Yellow Rattle is perhaps the single most important species in many wildflower meadows and should be considered for use in any single cut and lift grassland site.

Dealing with Invasive Species

Invasive plant species are mostly plants that were originally introduced for a specific purpose, usually ornamental. Many introduced plant species do not spread and therefore do not pose a threat to our natural flora. A number of introduced species however have adapted to Irish conditions and several of these have become highly invasive and pose a threat to large areas of the Irish landscape. Invasive species generally have no natural enemies and often thrive in Ireland's mild and moist climate. Rhododendron ponticum is one of the best known invasive plant species and it now poses a serious threat to large areas of native woodland and other habitats in Ireland. Several invasive species have been encountered during survey work for the current pollinator plans. Japanese Knotweed and especially Winter Heliotrope appear to be widespread in many towns.

Japanese Knotweed is a highly invasive plant that can impede water flow by obstructing waterways. It can also damage built structures and it out-competes native flora. Japanese Knotweed is difficult to eradicate and usually needs specialist treatment. It is very important that the plant is not disturbed prior to treatment as it can regenerate from rhizome fragments and stem sections.
Winter Heliotrope has been the most frequently encountered invasive species and it can dominate large areas by out-competing native flora. Winter Heliotrope was ironically introduced as a winter food plant for bees. It can be controlled by using an application of a glyphosate-based herbicide after flowering in February to March or spraying in midsummer or later but before the foliage begins to die back. Repeated treatments may be necessary over a number of years.

Wildflower Seeds

It is very important to ensure that when creating a wildflower meadow it is always best to allow nature take its course for the first few years. Given the correct management many species will colonise naturally. Wildflower seed mixes are not necessary at most sites but if results continue to be slow (in terms of species variety) it is vitally important that only locally sourced native wildflower seeds (of Irish provenance) are used. Garden plants should only be planted in designated flower beds and should never be introduced to natural habitats such as wildflower meadows.

This plan only relates to public lands managed by Cork County Council. Advice can of course be given to individuals, resident associations and private companies but all advice should be based on the measures recommended in the All-Ireland Pollinator Plan (and strictly adhered to in this plan).

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Useful Links

All-Ireland Pollinator Plan

Bumblebee Conservation Trust

Councils: actions to help pollinators

Communities: actions to help pollinators

Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads. Transport Infrastructure Ireland (formerly National Roads Authority)

Appendix 1

Suggested pollinator-friendly flowers and shrubs that could be planted in a flowerbed or (in some cases) flower pots/boxes based on their suitability for bumblebees (long and short-tongued), solitary bees, hoverflies and butterflies for a flowerbed. A variety of plants have been chosen to ensure seasonal availability of pollen and nectar. A wider range of plants is available on the All-Ireland Pollinator Plan website here.

English Name	Latin Name	Flowering	Native (N) or Non-Native (A)	Perennial Biennial Annual Tree or Shrub	Bumblebee Long-tongued	Bumblebee Short-tongued	Solitary Bees	Hoverflies	Butterflies
Crocus	Crocus species	Feb-Mar	A	P					
Arabis (Rock-cress)	Arabis alpina	Mar-May	A	P					
Grape Hyacinth	Muscari species	Mar-May	N/A	P					
Aubretia	Aubretia deltoidea	Apr-May	A	P					
Barberry	Berberis darwinii	Apr-May	A	P					
Borage	Borago officinalis	Apr-Oct	A	A					
Honesty	Lunaria annua	Apr-Jun	A	B					
Meadow-foam	Limnanthes douglasii	Apr-Sep	A	A					
Phacelia	Phacelia tanacetifolia	Apr-Dec	A	A					
Rosemary	Rosmarinus officinalis	Apr-Jun	A	Shrub					
Wallflower	Erysumum species	Apr-Jun	A	P					
Catmint	Nepeta species	May-Sep	A	P					
Hebe	Hebe species	May-July	A	Shrub					
Lily-of-the-valley	Convallaria majalis	May-Jun	A	P					
Lupin	Lupinus species	May-July	A	A/P					

English Name	Latin Name	Flowering	Native (N) or Non-Native (A)	Perennial Biennial Annual Tree or Shrub	Bumblebee Long-tongued	Bumblebee Short-tongued	Solitary Bees	Hoverflies	Butterflies
Mignonette	Reseda odorata	May-Sep	A	A/B					
Mustard, White	Sinapsis alba	May-Sep	A	A					
Thyme	Thymus species	May-Aug	N/A	Shrub					
Allium (Garden)	Allium giganteum	June-Aug	A	P					
Anchusa	Anchusa azurea	June-Sep	A	P					
Anise hyssop	Agastache foeniculum	June-Oct	A	P					
Arnica	Arnica montana	June-Aug	A	P					
Bellflower	Campanula species	June-Sep	A	P					
Chicory	Chicorium intybus	June-Oct	A	P					
Gaillardia	Gaillardia species	June-Sep	A	A/P					
Hound's Tongue	Cynoglossum species	June-Aug	A	A/P					
Hyssop	Hyssopus officinalis	June-Oct	A	Shrub					
Jacob's Ladder	Polemonium caeruleum	June-Aug	A	P					
Lavender	Lavandula angustifolia	June-Aug	A	Shrub					
Lucerne	Medicago sativa	June-July	A	P					
Nemophila	Nemophila species	June-Oct	A	A					
Peony	Paeonia species	June-July	A	P					
Sage	Salvia officinalis	June-Aug	A	Shrub					
Salvia (May Night)	Salvia x sylvestris	June-Sep	A	P					
Sneezeweed	Helenium species	June-Oct	A	P					

English Name	Latin Name	Flowering	Native (N) or Non-Native (A)	Perennial Biennial Annual Tree or Shrub	Bumblebee Long-tongued	Bumblebee Short-tongued	Solitary Bees	Hoverflies	Butterflies
Viper's bugloss	Echium vulgare	June-July	N/A	B					
Aster	Aster species	July-Oct	A	P					
Basil	Ocimum species	July-Sep	A	A/P					
Coneflower	Rudbeckia species	July-Oct	A	A/P					
Dahlia	Dahlia species	July-Sep	A	P					
Heuchera	Heuchera species	July-Sep	A	P					
Nasturtium	Tropaeolum majus	July-Sep	A	A					
Snapdragon	Antirrhinum majus	July-Sep	A	P					
Verbena	Verbena species	July-Nov	A	P					

Appendix 2

Native or long-established pollinator-friendly flowers and shrubs that are highly beneficial to pollinators (especially bees).

English Name	Latin Name	Flowering	Native (N) or Non-Native (A)	Perennial Biennial Annual Tree or Shrub	Bumblebee Long-tongued	Bumblebee Short-tongued	Solitary Bees	Hoverflies	Butterflies
Primrose	Primula vulgaris	Dec-May	N	P					
Blackthorn	Prunus spinosa	Feb-May	N	Tree					
Gorse	Ulex europaeus	Feb-June	N	Shrub					
Marsh Marigold	Catha palustris	Feb-June	N	P					
Willow species	Salix species	Feb-May	N/A	Tree					
Butterbur	Petasites hybridus	Mar-May	N	P					
Cherry (Wild)	Prunus avium	Mar-May	N	Tree					
Coltsfoot	Tussilago farfara	Mar-Apr	N	P					
Comfrey (Common)	Symphytum officinale	Mar-June	N	P					
Dandelion	Taraxacum officinale	Mar-Oct	N	P					
Red Dead-nettle	Lamium purpureum	Mar-Oct	N	A					
Veronica species	Veronica species	Mar-Sep	N	A/P					
Bilberry	Vaccinium myrtillus	Apr-June	N	P					
Bluebell	Hyacinthoides non-scripta	Apr-June	N	P					
Charlock	Sinapsis arvensis	Apr-July	N	A					
Crab Apple	Malus Sylvestris	Apr-May	N	Tree					
Cuckoo flower	Cardamine pratensis	Apr-June	N	P					
Forget-me-nots	Myosotis species	Apr-Sep	N	A/P					
Bird Cherry	Prunus Padus	May-June	N	Tree					
Blackberry	Rubus Fruticosus	May-Sep	N	P					
Broom	Cytisus scoparius	May-June	N	P					
Buckthorn	Rhamnus cathartica	May	N	P					

English Name	Latin Name	Flowering	Native (N) or Non-Native (A)	Perennial Biennial Annual Tree or Shrub	Bumblebee Long-tongued	Bumblebee Short-tongued	Solitary Bees	Hoverflies	Butterflies
Bugle	Ajuga reptans	May-July	N	P					
Cranesbill	Cranesbill species	May-Sep	N	P					
Hawkweed	Hieracium species	May-Nov	N	P					
Hawthorn	Crataegus monogyna	May-June	N	Tree					
Holly	Ilex aquifolium	May-June	N	Tree					
Mint species	Mentha species	May-Oct	N/A	P					
Poppy species	Papaver species	May-Oct	N/A	A/P					
St John's wort	Hypericum species	May-Aug	N	P					
Red Clover	Trifolium pratense	May-Sep	N	P					
Thrift	Armeria maritima	May-July	N	P					
Vetch species	Vicia species	May-Sep	N	A/P					
Yellow Rattle	Rhinanthus minor	May-Aug	N	P					
Agrimony	Agrimonia eupatoria	June-July	N	P					
Autumn Hawkbit	S. autumnalis	June-Oct	N	P					
Bird's-foot trefoil	Lotus corniculatus	June-Sep	N	P					
Carrot, Wild	Daucus carota	June-Aug	N	B					
Catsear	Hypochaeris radicata	June-Sep	N	P					
Figwort species	Scrophularia species	June-Sep	N	P					
Foxglove	Digitalis purpurea	June-Sep	N	B/P					
Heather, Bell	Erica cinerea	June-Oct	N	Shrub					
Heath cross-leaved	Erica tetralix	June-Sep	N	Shrub					
Knapweed	Centaurea nigra	June-Sep	N	P					
Hogweed	Heracleum sphondylium	June-Sep	N	B/P					
Mallow species	Malva species	June-Sep	N/A	P/Shrub					
Meadowsweet	Filipendula ulmaria	June-Aug	N	P					

English Name	Latin Name	Flowering	Native (N) or Non-Native (A)	Perennial Biennial Annual Tree or Shrub	Bumblebee Long-tongued	Bumblebee Short-tongued	Solitary Bees	Hoverflies	Butterflies
Mullein	Verbascum species	June-Aug	N/A	B					
Oxeye Daisy	Leucanthemum vulgare	June-Aug	N	P					
Purple Loosestrife	Lythrum salicaria	June-Aug	N	P					
Radish, Wild	Raphanus species	June-July	A	A/P					
Ragwort	Senecio jacobea	June-Oct	N	B/P					
Raspberry	Rubus idaeus	June-Aug	N	B/P					
Red Bartsia	Odontites vernus	June-Sep	N	A					
Rose species	Rosa species	June-July	N/A	Shrub					
White Clover	Trifolium repens	June-Sep	N	P					
Fleabane	Pulicaria dysenterica	July-Sep	N	P					
Goldenrod	Solidago virgaurea	July-Oct	N	P					
Hemp-nettle	Galeopsis tetrahit	July-Sep	N	A					
Nipplewort	Lapsana communis	July-Oct	N	A/P					
Rosebay Willowherb	Chamerion angustifolium	July-Sep	N	P					
Scabious species	Scabiosa, Knautia, Succia	July-Aug	N	P					
Woundworts	Stachys species	July-Sep	N	A/P					
Stonecrop	Sedum species	July-Sep	N	P					
Teasel	Dipsacus species	July-Aug	N/A	B					
Thistle species	Cirsium & Carduus	July-Sep	N	A/P					
Wood sage	Teucrium scorodonia	July-Aug	N	P					
Heather (Ling)	Calluna vulgaris	Aug-Sep	N	Shrub					
Ivy	Hedera helix	Sep-Nov	N	Climber					