Online edition: ISSN 2009-6852
Print edition: ISSN 2009-6844

National Biodiversity Data Series No. 18

Pollinator-friendly management of Golf Courses

All-Ireland Pollinator Plan
www.pollinators.ie

Implementation coordinated by the National Biodiversity Data Centre

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF IRELAND

National Biodiversity Data Centre
A Heritage Council Programme

pollinators.ie
Guidelines 8

WHO are our pollinators?

In Ireland, some plants are pollinated by the wind, but many are pollinated by insects. Most insect pollination is carried out by bees. On the island of Ireland, we have one managed pollinator, the honeybee, and over 100 different types of wild bee. 20% of them are bumblebees and 80% are solitary bees.
If we want to protect pollination service, we need healthy honeybees, but we also need to have an abundance and diversity of wild bees, as well as other insects like flies and moths.

WHAT do our pollinators need to survive?

Like us, pollinators need food and a safe place to live. It is lack of food (hunger) that is the main cause of declines. Bees rely solely on pollen and nectar from flowers for food. Wild bees don't make honey so they have no way of storing food. This means that they are never more than a few days away from starvation – so it's very important that there is a continual supply of flowers for them to feed on. To have a healthy balanced diet, pollinators need to be able to forage from a range of different flowers from MARCH right through to OCTOBER. Spring is when they are most at risk of starvation.

Pollinators also need plenty of safe nesting habitats. Bumblebees nest in long grass (often at the base of hedgerows). Most solitary bees nest by making little tunnels in bare soil, while a small number nest in existing cavities in dry stone walls, masonry or wood.

It is important that we protect pollinators from chemicals that can be harmful to them. Insecticides harm them directly, but equally importantly, the use of herbicides greatly reduces the wildflowers that pollinators depend on for food, making it hard for them to survive.

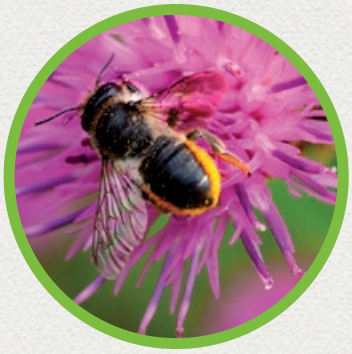
Large Carder bumblebee

Cutting, mowing and spraying so that the countryside looks tidy - to us - means that we are squeezing nature out and risk losing its important free services, like pollination.

There are over 100 different types of bee in Ireland:

Honeybee

Bumblebees



Solitary bees

WHY do we need to help our pollinators?

Pollinators are important to farmers who grow pollinator-dependent crops and to those of us who want to grow our own fruits and vegetables. **Even if we don't currently grow these crops, we should aim to retain the ability to do so for future generations.** We know that three quarters of our wildflowers also benefit from being pollinated by insects – without bees we will lose the colourful and distinct natural beauty of our landscape, which makes it a pleasant place to live, an attractive destination for tourists, and a selling point for our agricultural produce abroad.

All-Ireland Pollinator Plan

Unfortunately our pollinators are in decline, and the problem is serious. **One third of our bee species are threatened with extinction from the island of Ireland**. If we want them to be there to pollinate crops and wild plants for future generations, we need to manage the landscape in a more pollinator-friendly way.

The All-Ireland Pollinator Plan is supported by over 100 governmental and non-governmental organisations who have pledged to deliver actions to achieve this goal and make the island of Ireland more pollinator friendly. It is a shared plan of action.

"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"

Everyone, from farmers to councils, local communities, businesses, schools, gardens and transport authorities have a role to play in the Pollinator Plan. See **www.pollinators.ie** for how each sector can help through evidence-based actions.

Golf Courses

With over 300 locations across the island, golf courses can play a vital role if they were managed in a pollinator-friendly way. It would create an entire network of safe places for bees and other insects across the landscape. The positive impact this could have is enormous.

This guide is aimed at those who have responsibility for managing golf courses and their surroundings. It was developed in collaboration with the Golf Course Superintendent Association of Ireland (GCSAI). It explains **5 actions** you can take to help pollinators. All these actions are evidence-based, i.e. scientific studies show these actions have a positive impact on pollinators.

Pollinators need food, shelter and safety and fortunately many of the actions we can take to help provide this are simple. They are also often 'do-not' actions rather than 'do', so that nature itself does the hard work.

*"We are committed to the promotion of golf in Ireland, the advancement of our members and the **protection of the environment of the golf clubs** which we represent" -*

Golf Course Superintendent Association of Ireland mission statement.

"GCSAI are delighted to support the All-Ireland Pollinator Plan and this Guide for Pollinator-friendly Golf Courses. Through this fantastic initiative we hope awareness will be raised and practical actions taken to improve pollinator friendly practices and biodiversity on Irish Golf Courses"

Damian Mc Laverty, GM Golf Course Superintendents Association of Ireland.

Royal Portrush © golf international

5 ways to make Golf Courses pollinator-friendly:

1 Manage meadow areas for pollinators

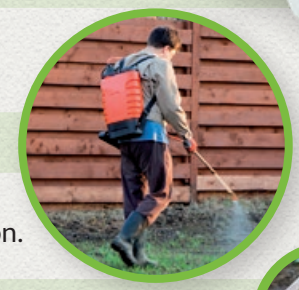
Following a pollinator-friendly grass management plan can create natural meadow areas. Reducing the frequency of mowing allows common wildflowers such as Clovers, Knapweed and Bird's-foot-trefoil to naturally grow amongst the long grass. This is the most cost-effective way to provide food for pollinators and other insects.

2 Plant pollinator-friendly trees & bulbs

Planting additional pollinator-friendly trees and bulbs provides vital sources of food, particularly in Spring.

3 Make the area around the Clubhouse & Pro-shop pollinator-friendly

Create pollinator-friendly flower beds, hanging baskets and containers.



4 Reduce use of herbicides

Adopt a pollinator-friendly pesticide code. Reducing use of herbicides will mean more wildflowers for pollinators to feed on.

5 Provide nesting places for wild bees

Wild pollinators need safe places where they can nest and breed in peace; such as hedgerows, mud banks, drilled wood blocks and bee hotels.

The following pages provide more details on these five actions

Semi-natural habitats

Species-rich sand dunes, heather-rich upland areas, native woodland and features like natural ponds are extremely important general biodiversity habitats. Where Golf Courses exist around these habitats, they should be always be maintained as a priority.

Ballycastle, Co. Antrim © Matt Woodhouse

You can log what your golf course has done at:
pollinators.biodiversityireland.ie

POLLINATOR ACTION 1

Manage meadow areas for pollinators

On areas of rough grass, changing the frequency of mowing allows common wildflowers such as Clovers, Knapweed and Bird's-foot-trefoil to naturally grow amongst the longer grass. This is the most cost-effective way to provide food for pollinators and other insects. This is not a reduction in management effort, but a reallocation to provide additional benefits.

A Create long-flowering meadows

Identify areas of grass that could be left uncut until September - one cut and lift per year. Consulting with the golfers and keeping them informed of plans can allay fears that changed mowing regimes are due to lack of management. Signage can also be used to identify areas as deliberate.

Meadows managed in this way will allow wildflowers to bloom throughout the pollinator season and provide undisturbed areas for nesting. The annual cut in September should be removed to reduce soil fertility over time. Over a number of years, the meadow will naturally become more flower-rich with local species that are adapted to the site's conditions – all without spending money on wildflower seed. Cutting paths through the middle or keeping a short border at the edge will demonstrate that these meadows are being managed and allow the golfer to enjoy the resource.

Download our signage template and put up at your golf course to show that it is a pollinator-friendly zone. Printable sign templates from **www.pollinators.ie/resources**

B Create a short-flowering meadow

Identify areas of grass that could be cut on a 6-weekly rotation to allow Clovers and Bird's-foot-trefoil to flower. Don't mow until 15th April and then cut on a 4-6-weekly rotation (around 5 cut and lifts per year). Cuttings should be lifted. These areas could be combined with pollinator-friendly spring flowering bulb planting (e.g. Snowdrop, Crocus, Allium).

This regime keeps grass at a manageable level while increasing the growth of wildflowers as a food source for pollinators. Such areas could be beside areas of shortly mown grass, a path or a meadow. Signage can be used to identify these areas as deliberate.

Recommended short flowering meadow management – 5 cut and lifts per year

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

If necessary, this can be increased or decreased depending on the use of the area, but grass should not be cut from the beginning of March until mid-April (Dandelion peak) or from the end of May until mid-July (Clover peak).

short-flowering meadow

Note:
Fertilisers promote grass and weed growth. Do not use them on a site where you want wildflowers to grow! Bear in mind that your site may be experiencing fertilizer run off from adjacent areas.

C Don't sow, let it grow

Be careful with wildflower seed mixes

Commercially available wildflower seed mixes and 'seed bomb' type products can be detrimental to local biodiversity.

Many of these mixes contain non-native species, and can inadvertently introduce invasive species. If you do decide to sow wildflower seed mixes, keep them to containers and avoid sowing them in the wider landscape. Alternatively, you could collect and sow seeds from local wildflowers.

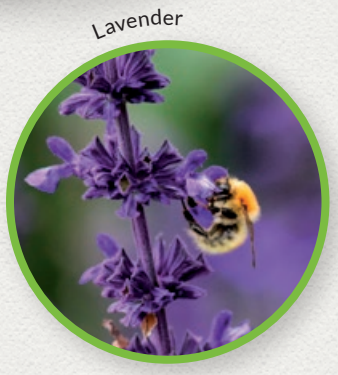
Planting Yellow Rattle in meadows reduces grass growth and encourages other wildflowers

Note:
Never plant wildflower seed or ornamental plants in natural or semi-natural habitats

Pollinator-friendly planting

Limnanthes douglasii Poached egg plant

In order to survive, pollinators need flowers that produce lots of nectar (for energy) and pollen (for protein). Traditionally, a lot of deliberate planting has been with annuals such as Begonia, Primula or Busy Lizzie; or with bulbs such as Daffodil or Tulip. 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.



Lavender

If you want to make your golf course pollinator-friendly, the key is to avoid 'hunger gaps,' or times when there are no nectar or pollen-rich flowers in bloom. There are a huge variety of flowering plants to choose from that are colourful, attractive, and can provide pollinators with the food they need.

Note:
The suggested planting lists in this section are NOT exhaustive; many other plants are also good for pollinators.

POLLINATOR ACTION 2

Plant pollinator-friendly trees & bulbs

Trees

Plant pollinator-friendly trees and shrubs throughout the course grounds.

Willow

Planting additional pollinator-friendly trees provides a vital source of food, particularly in spring, and are low maintenance once planted. Willow is a very important food source in early spring when bumblebee queens emerge from hibernation. Having Grey/Goat Willow, or other native species like Blackthorn, Whitethorn, Rowan, Crab apple or Wild Cherry as individual mature trees around the course will provide important food for pollinators.

Crocus

Some non-native trees/shrubs are also good sources of pollen and nectar. Sycamore and Horse Chestnut will provide food but are large trees that require space. Some easy to maintain low-growing options are: Dwarf Crab Apple, Damson Plum, American currant, Laurustinus, Orange ball tree, Weeping cotoneaster, Weeping willow, Juneberry Tree, Oregon grape, Hebe, Darwin's barberry, Firethorn. These can be cut after flowering if necessary, without specialised equipment.

Note: Native flowering hedgerows are fantastic for pollinators.
Pollinator-friendly native hedgerows are low maintenance and will provide vital pollen and nectar. If you have hedgerows on your course, they should be managed so that as much as possible is allowed to flower each year – cutting annually stops the hedgerow flowering and fruiting. If not on a roadside, consider cutting on 3- or 5-year cycle. Hedgerows should be as high as possible and trimmed in an A-shape rather than in a box-shape. Having a 1.5-2m grass border at the base that is not sprayed will allow wildflowers to grow and provide additional food. This long grass will also provide nesting habitat for bumblebees.

Allium

Bulbs

Tulips and Daffodils are not a good food source for pollinators. Where used, it is recommended they be combined with more pollinator-friendly bulb planting. Bulbs can be planted around the base of trees and/or in long grass areas. The following bulbs are pollinator-friendly:

- 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)

POLLINATOR ACTION 3

Make the area around the Clubhouse & Pro-shop pollinator-friendly

Pollinator-friendly flower beds/window boxes/hanging baskets/patio pots

Perennial flower beds placed around the clubhouse and course grow back year after year and provide a vital pollinator food source.

Incorporating some pollinator-friendly plants in window boxes, hanging baskets or other containers can be very colourful and brighten up any clubhouse. Below are examples of pollinator-friendly plants.

Containers

- Ageratum
- Alyssum 'Sweet White'
- Bidens
- Bacopa
- Verbena 'Blue Lagoon',' Desert Jewels Mixed

Annuals

- Annual poppy
- Scabious
- Cosmos
- Cornflower
- Night scented stock
- Poached egg plant

Perennials

- Comfrey
- Wallflower
- Bellflower
- Lavender
- Salvia
- Calamint

Pollinator-friendly planter

Perennial flowerbed

More extensive bee-friendly planting list available in the Guide "Pollinator Friendly Planting Code" in the resources section of www.pollinators.ie

POLLINATOR ACTION 4

Reduce use of herbicides

Insecticides can harm pollinators directly, killing them outright or affecting their behaviour and ability to complete their life cycle. Fungicides and herbicides harm pollinators indirectly: herbicides can greatly reduce the wildflowers that pollinators depend on for food, while fungicides can increase the toxicity of some insecticides.

Herbicides: minimum target for pollinators

- Avoid spraying close to the base of hedgerows. If necessary, these areas should be strimmed/mowed instead.
- Avoid spraying non-mowed areas where wildflowers are or could grow.
- Where weed control is necessary, pull or use selective spot treatment where possible.
- Avoid spraying pollinator nesting sites such as soil banks or stone walls

Herbicides play a role on many golf courses but can be used sustainably under the relevant policies across the island of Ireland. Even if you do use herbicides, there may be small actions that could be taken to reduce their use and help pollinators.

Provide nesting places for wild bees

POLLINATOR ACTION 5

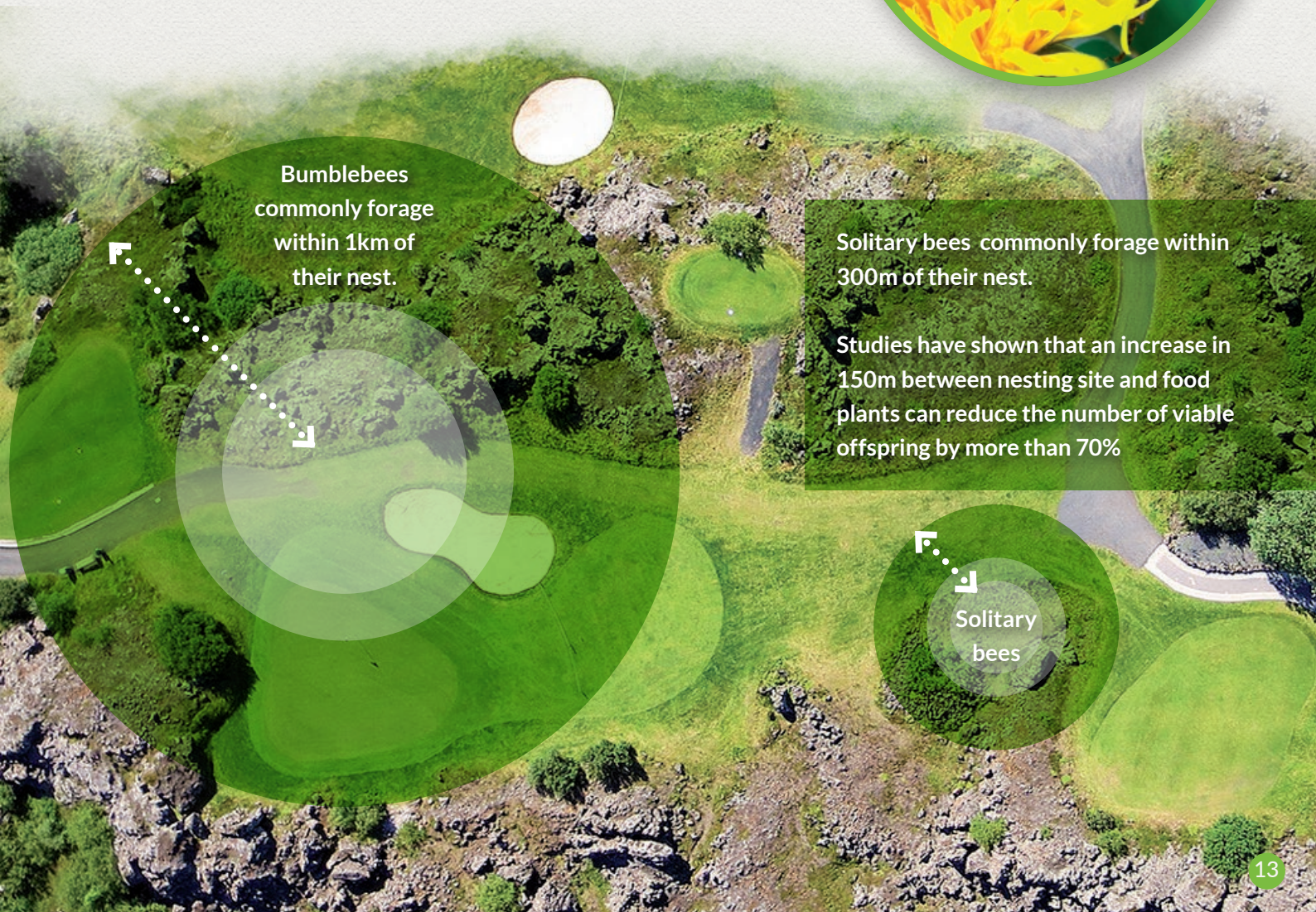
Creating good nesting habitats is simple and inexpensive. It is also completely safe: wild bees do not live in large colonies that need to be defended as honeybees do. Wild bees have no interest in humans, are not aggressive and pose no threat.

A How to provide nests for Bumblebees

Bumblebees nest in long or tussocky grass.

- Leave long grass along the base of hedgerows, or in other meadow areas, uncut from March until October.
- Bumblebee colonies die off in October/November (while mated queens go into hibernation for winter) so it is okay to cut or manage these areas in late autumn/winter.


Garden bumblebee



B How to provide nests for Mining Solitary bees

About 85% of our solitary bees are mining bees. They nest by making tiny burrows in bare earth (soil, sand, clay and peat). They will nest in flat well-drained areas, but generally prefer south/ east-facing sheltered banks.

- Where there is south or east-facing exposed bare earth allow these areas to remain.
- In winter, create new earth banks elsewhere by scraping away top layer of soil – they just need to be stable and free draining. Avoid creating these areas anywhere that is vulnerable to soil erosion.

C How to provide nests for Cavity-nesting Solitary bees

About 15% of our solitary bees are cavity-nesting bees. They make their nests in existing cavities in south-facing stone walls, masonry, wooden structures or commercially available bee nest boxes.

Megachile

- Drill small south or east-facing holes in wooden fences or concrete structures.
- Alternatively, create your own bee box by drilling holes in untreated wooden blocks and attaching them to an outdoor structure. Installing a number of small boxes is better than one large one because it minimises the risk of disease and predation.
- Holes should be 10cm in depth and 4-8mm in diameter at a height of at least 1.5-2m. It is important to have holes of different sizes for different bees.

Examples

Ballycastle Golf Course, Co. Antrim

Taken from: Glens Great Grassland Trail

Ballycastle Golf Club is on a coastal site. The native meadows were created with several practical golfing purposes in mind. The management regime that creates the best 'rough' areas is also the same one that supports natural wildflower meadow habitat. The meadows look great in summer, are full of wildlife and are free to maintain as a local farmer takes the species rich grass to feed to his cattle. The sandy, nutrient poor soils on the course create ideal conditions for many wildflowers and have allowed the meadows to develop quickly. There are wonderful displays of wildflowers throughout the season from the early dandelions to the late flowering Devil's-Bit Scabious (larval food plant of the Marsh Fritillary, Ireland's only designated butterfly species), Eyebright and Harebell.

Rathfarnham Golf Club, Co. Dublin

Course Superintendent: Eddie Walsh

Various actions have been taken on the 94-acre course to support pollinators:

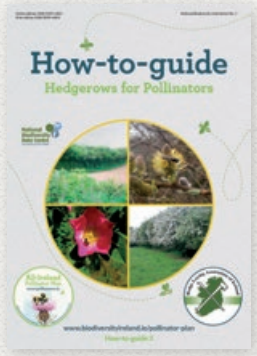
- ✓ Installed 24 nesting boxes around the course.
- ✓ Reduced herbicide use.
- ✓ Introduced wild flower areas throughout the course by allowing natural regeneration to occur by applying the pollinator-friendly meadow management plan.

Naas Golf Club, Co. Kildare

Course Superintendent: David Behan

Rough areas designated on the course as wild-flower meadows and planted with wildflower annual and perennial seeds. These areas were cut less frequently as per the pollinator-friendly management plan for meadow areas.

This booklet is one of a series of Guidelines produced to help different sectors take actions under the All-Ireland Pollinator Plan. For more information and other useful resources, please see **www.pollinators.ie**



National Biodiversity Data Centre
A Heritage Council Programme

Some funding to assist implementation of the All-Ireland Pollinator Plan 2015-2020 has been provided by Bord Bía & The Heritage Council. Funding for design of this guide has been provided by the Department of Agriculture, Food and the Marine.

Thanks to the following who donated photographs: Alan Mahon, Andrea McDonagh, Brian Gaynor, Bryan Pinchen, Dara Stanley, David Behan, David Brennan, Donna Rainey, Golf International, Leon van der Noll, Liam Lysaght, Mark Bryson, Matt Woodhouse, Michael Keating, Peter Cuthbert, Réamaí Mathers, Steven Falk, Tom Cuffe, Úna FitzPatrick and Wikimedia Commons.

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**

Text: Gemma Hughes & Úna FitzPatrick (National Biodiversity Data Centre). Thanks to Damien Mc Laverty (GCSAI) for input, Eddie Wash, Alan Mahon and David Behan for the case studies. **Design:** Vitamin Creative, Waterford.

Suggested citation: Pollinator-friendly management of: Golf Courses. All-Ireland Pollinator Plan, Guidelines 8. National Biodiversity Data Centre Series No. 18, Waterford. April, 2019. Updated October 2022.

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF IRELAND

Origin Green IRELAND
An initiative by Bord Bía Irish Food Board

An Chomhairle Oidhreachta The Heritage Council

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