ALL-IRELAND POLLINATOR PLAN

National Biodiversity Data Centre
Documenting Ireland's Wildlife

Dr Úna FitzPatrick
Steering Group Chair; Project co-ordinator

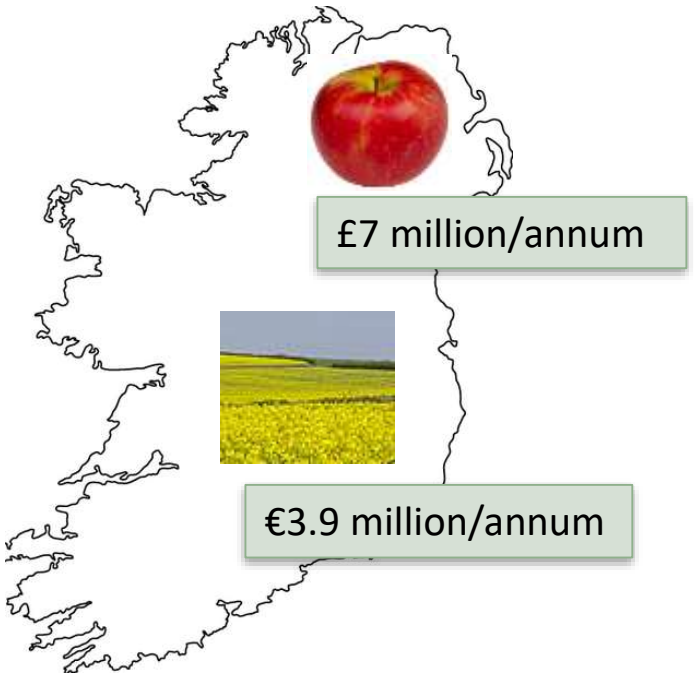
Juanita Browne
Project officer

WHY IS POLLINATION IMPORTANT?

Economy & Wealth

Health & Wellbeing

Wildlife & Landscape



Free service they provide is worth:

€53million/year

In Ireland within the last ten years the value of soft fruit, field vegetable, and apple production has increased by 17, 21 and 24% respectively

Economy & Wealth

Health & Wellbeing

Wildlife & Landscape

100 crops provide

90% of the world's food

71 are pollinated by bees

Without pollinators it would be extremely difficult to have a healthy balanced diet

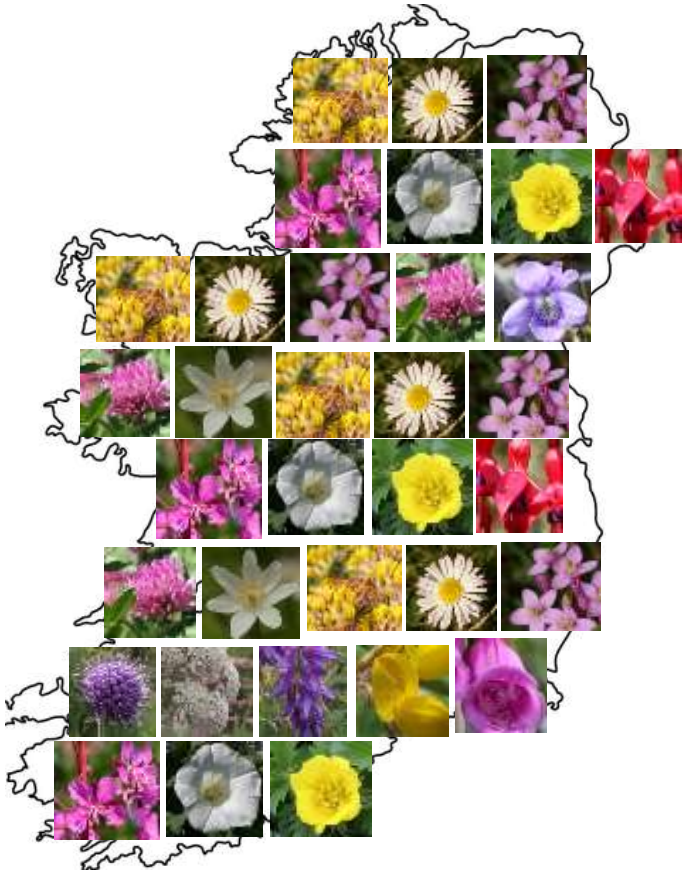
We need pollinators if we want to grow our own fruit and vegetables

Jan Feb March April May June July Aug Sept Oct Nov Dec

Economy & Wealth

Health & Wellbeing

Wildlife & Landscape

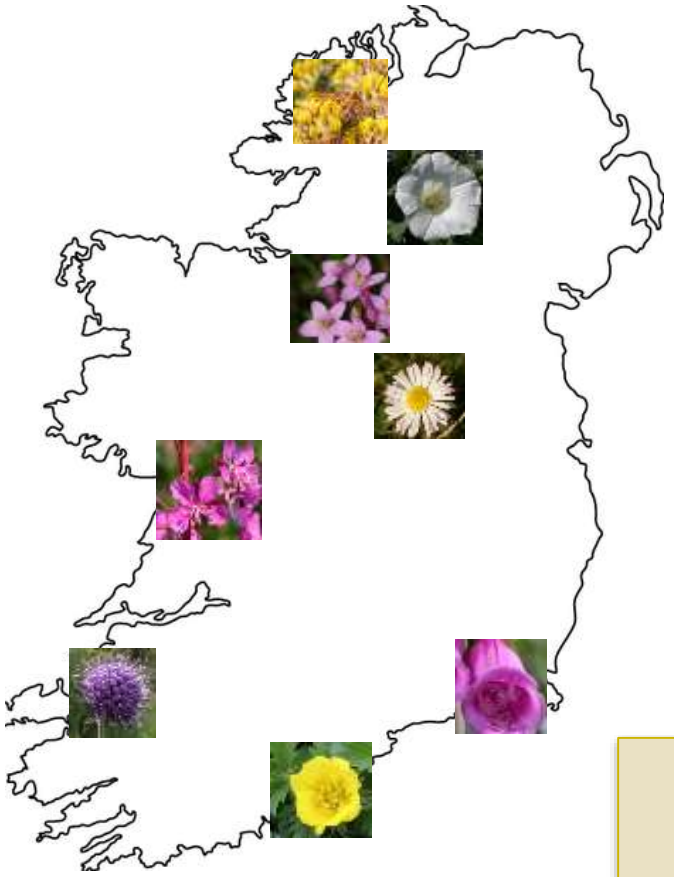


78% of our wild plants benefit from being pollinated by insects

Economy & Wealth

Health & Wellbeing

Wildlife & Landscape






Protecting pollinators protects the whole environment

- ✓ Benefits tourism
- ✓ Helps create our ‘green image’ which is a point of differentiation across international markets for our exports

Bees provide a simple vehicle that can be used to sell a wider biodiversity message

Without pollinators we'd have less diversity on our dinner plates and less colour in the countryside

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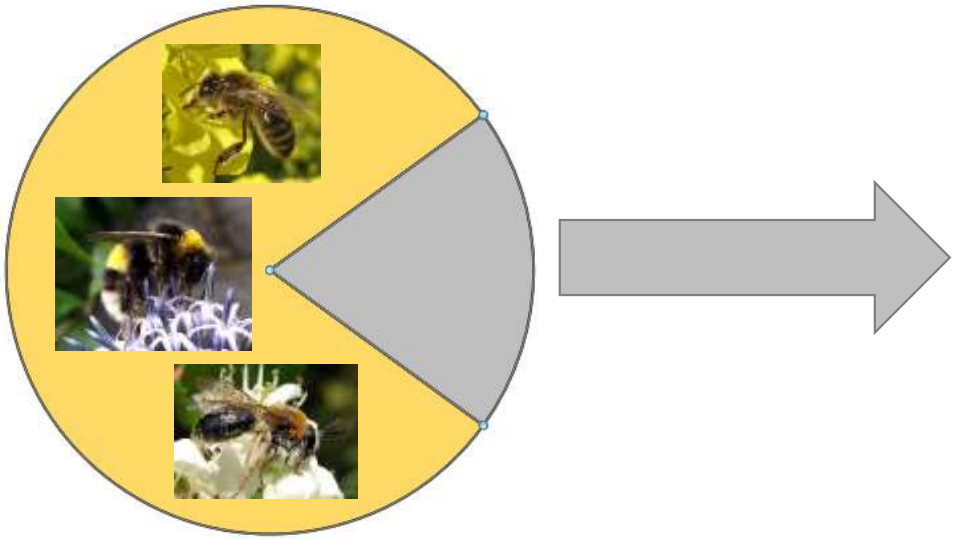
WHO ARE THE POLLINATORS IN IRELAND?



Most pollination of crops and wild plants is carried out by bees

The rest is provided by various other flower visiting insects, particularly flies

BEES IN IRELAND

National Biodiversity Data Centre
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Ireland has **99** bee species:

Honeybee

Bumblebees

Solitary bees

WILD POLLINATORS

POLLINATION SERVICE CANNOT BE PROVIDED BY HONEYBEES ALONE

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UK - if all honeybee hives were used for crop pollination, they could only provide about **one third** of the service required by crops. The rest is provided free of charge by wild pollinators.

The economic contribution of pollination by wild bees was recently assessed as £1,800 or €2,400 per hectare.

To maintain pollination you need healthy honeybees in combination with a diversity and abundance of wild bees and other insect pollinators

BUMBLEBEES – 21 DIFFERENT TYPES IN IRELAND

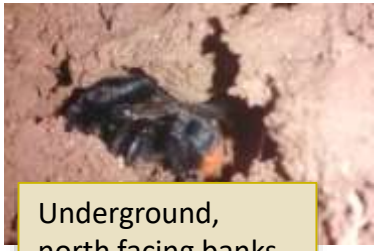
Images © Steven Falk, with thanks for use

Number 21!

Tree Bumblebee – first recorded in Ireland in Sept 2017

Unlike all our other bumblebees who make their nest at ground level this one nests above ground in tree holes and other suitable structures including empty bird boxes

BUMBLEBEES - LIFECYCLE



Underground, north facing banks

Food source

Nest site

Long grass, hedgerows

Feeds & finds a nest

Queen emerges from hibernation in early spring

Prepares a pollen loaf and a nectar pot and starts laying eggs fertilised with sperm stored from previous year

Hibernation site

Female workers emerge and take over nest duties

Mated new queen feeds to build up reserves before hibernation. Workers, males and old queen die

Queen remains in the nest laying eggs

Food source

New queens and males leave the nest to find mates

In mid-late summer the queen lays unfertilised eggs which will become males. She also allows some new queens to develop

Food source

BUMBLEBEES NEED FOOD SOURCES THROUGHOUT THE YEAR

EARLY SPRING: queens are establishing nests

In the early days of the nest it is estimated that a *Bombus terrestris* queen may have to visit as many as 6000 flowers/day to get enough nectar to maintain the heat needed to brood her eggs



SPRING – SUMMER: nests are growing, workers are active






AUTUMN: queens are fattening up ready for hibernation

Bombus terrestris queens need to weigh at least 0.6 g to successfully hibernate and emerge next spring.


SOLITARY BEES – 77 DIFFERENT TYPES IN IRELAND

Images © Steven Falk, with thanks for use

SOLITARY BEES - LIFECYCLE



National Biodiversity Data Centre
Documenting Ireland's Wildlife

Nest site

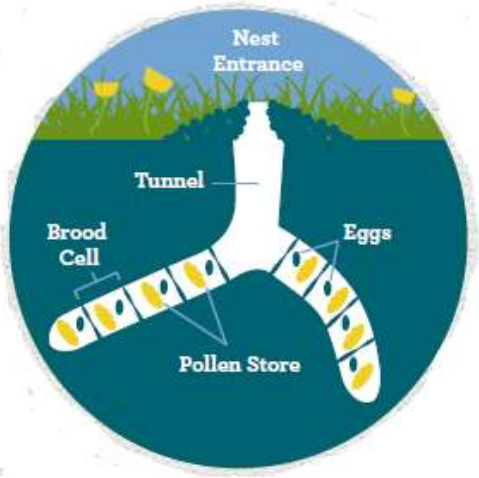
Mate

Females and males emerge in spring

Female prepares a nest

Food source

Female lays eggs and leaves a food supply of pollen



Males and females die

The larvae overwinter

WHAT DO SOLITARY BEES NEED?

National Biodiversity Data Centre

62 species (**80%**) are mining bees who nest in bare ground or south/east facing banks of bare earth (soil, sand, clay, peat)











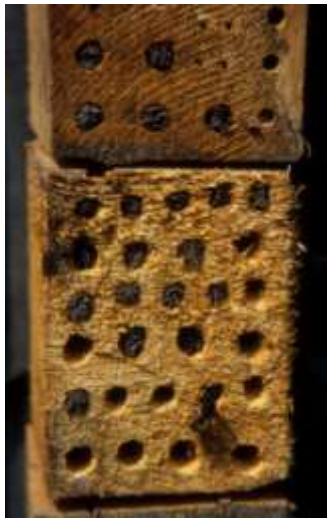

WHERE DO SOLITARY BEES NEST?

National Biodiversity Data Centre
Documenting Ireland's Wildlife

15 species are cavity nesting bees who nest in south facing stone walls, masonry wooden structures or commercially available nest boxes







BIG IS NOT BETTER!

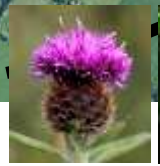
HOW FAR DO WILD BEES FLY TO FORAGE?

Bumblebees can travel up to 5km but commonly forage within 1-2km of their nest

Solitary bees can travel up to 1km but commonly forage within 100-200m of their nest








Jan Feb March April May June July Aug Sept Oct Nov Dec

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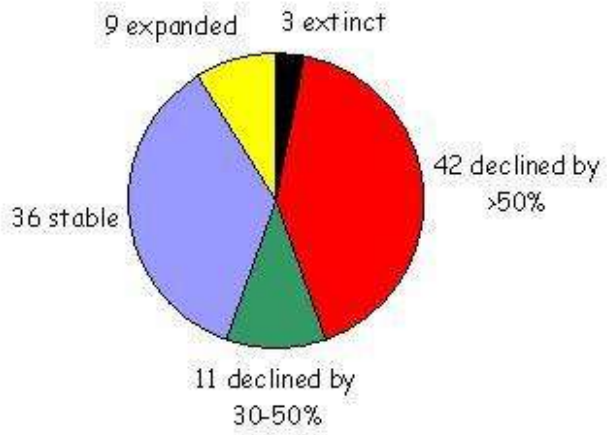
Documenting Ireland's Wildlife

To ensure pollination of Irish crops and wild plants we need:

Healthy honeybee colonies in combination with high abundance and species richness in wild bee populations, as well as other wild pollinators

ARE POLLINATORS DECLINING IN IRELAND?

National Biodiversity Data Centre
Documenting Ireland's Wildlife



More than half of Ireland's bee species have undergone substantial declines in their numbers since 1980.

Two species have become extinct

One third of our 98 wild bee species are threatened with extinction from Ireland

6 species are critically endangered,
10 endangered
14 vulnerable

IUCN RED LIST

The **Great Yellow Bumblebee** is our most threatened bumblebee – it has recently been 'adopted' by Mayo County Council

WHY ARE POLLINATORS DECLINING?

National Biodiversity Data Centre
Documenting Ireland's Wildlife

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.

HABITAT LOSS: **HOMELESSNESS**

GENERAL DECLINE IN WILDFLOWERS: **HUNGER**

PESTS AND DISEASE: **SICKNESS**

PESTICIDES: **POISONING**

CLIMATE CHANGE**: CHANGING ENVIRONMENT**




WHAT CAN WE DO?

HABITAT LOSS: **HOMELESSNESS**

GENERAL DECLINE IN WILDFLOWERS: **HUNGER**

PESTS AND DISEASE: **SICKNESS**

AGROCHEMICALS: **POISONING**

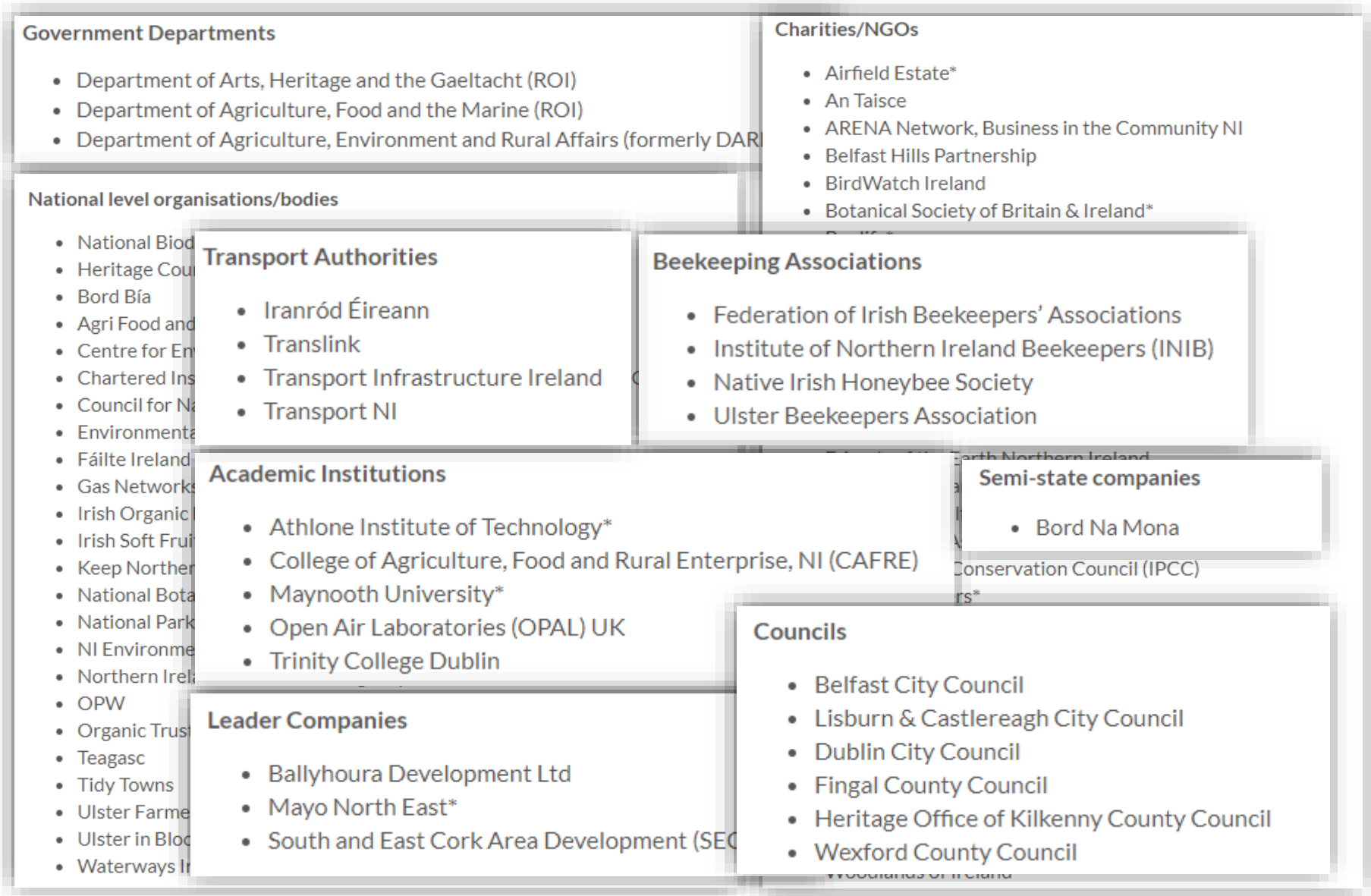
CLIMATE CHANGE**: CHANGING ENVIRONMENT**

1. Accept that pollination is important
2. Recognise there is a problem
3. Start to build a framework for positive action

- Published September 2015
- Developed by a 15 member steering group
- Included a consultation phase which involved both public & stakeholder engagement
- **80+** governmental and non-governmental organisations have agreed the shared Plan
- Identifies **81** actions to make Ireland pollinator friendly
- Developed without funding

www.pollinators.ie

80+ governmental and non-governmental organisations have agreed the shared Plan



All-Ireland Pollinator Plan 2015-2020

Creating an Ireland where pollinators can survive and thrive

National Biodiversity Data Centre

Raising awareness of pollinators and how to protect them

11

Managed pollinators – supporting beekeepers & growers

7

MAKING IRELAND POLLINATOR FRIENDLY

Provide food and shelter across all types of land so that our pollinators can survive and thrive

Farmland
Public land
Private land

42

Expanding our knowledge on pollinators and pollination service

11

Collecting evidence to track change and measure success

6

+ 4 general actions

Steering group oversees the implementation which is coordinated by the National Biodiversity Data Centre

Both jurisdictions are working together to share knowledge, experience and resources to address the problem

Steering Group 2018

1. Úna FitzPatrick (chair) – Data Centre
2. Jane Stout (deputy chair) – TCD
3. Tomás Murray – Data Centre
4. Jerome Walsh – DAFM
5. Catherine Keena – Teagasc
6. Archie Murchie – Agri Food & Biosciences Institute
7. Ken Bradley – DAERA, policy
8. Melina Quinn – DAERA, NIEA
9. Brian Nelson – NPWS
10. Sarah Jane Phelan - Transport Infrastructure Ireland
11. Gerry Clabby - Local Authorities
12. Susie Hill - Ulster Beekeepers Association
13. Mary Montaut – Federation Irish Beekeepers
14. Damian McFerran - CEDaR
15. Veronica Santorum – Limerick's Buzzing
16. Catherine Bertrand - Butterfly Conservation

National Biodiversity Data Centre

If you want to help implement the All-Ireland Pollinator Plan it is important to think about how your site can provide **food, shelter & safety** for pollinators

Your site could be any piece of land you have responsibility for e.g., park, roadside verge, local area, farm, school, campus, allotment, business property, OPW historic property, National Trust property, golf course, church, garden….

How your site can provide **food, shelter & safety** for pollinators

Shelter

Bumblebees (20 species)


Long grass, base of hedgerow

Mining solitary bees (62 species)


Bare ground, south/east facing banks

Cavity nesting solitary bees (15 species)


Hollow stems, holes in wood, bee nest boxes

Safety

Eliminate or reduce the use of pesticides





Food

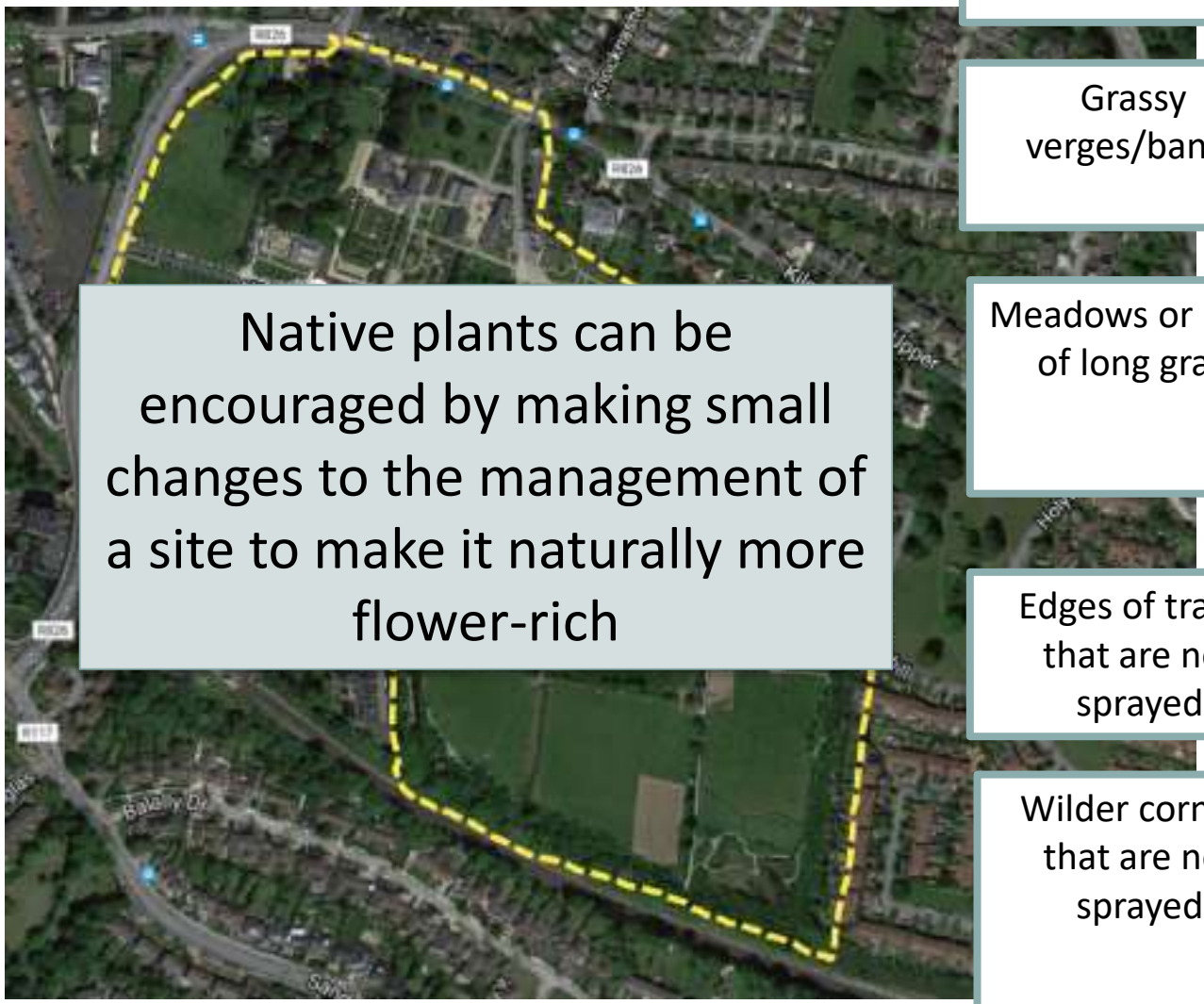
Hawthorn (5-6)
Ivy (9-11)
Bird's foot trefoil (6-9)
Knapweed (6-9)
Scabious (7-8)
Senecio (6-9)
Thistle (7-9)
Vetch (5-9)
Achillea (7-9)
Bluebell (4-6)
Brassica (4-8)
Butterbur (3-5)
Charlock (4-7)
Coltsfoot (3-4)
Daucus carota (6-8)
Dead-nettle (2-11)
Fleabane (7-8)
Forget-me-not (4-9)
Foxglove (6-9)
Geranium sp (5-9)
Goldenrod (7-10)
Hawksbeard (6-9)
Heathers (8-9)
Hogweed (6-9)
Melilotus (6-9)
Mignonette (5-9)
Mustard (5-9)
Radish (6-7)
Rape (4-6)
Red bartsia (6-9)
Rosebay willowherb (7-9)
Stachys (7-9)
Turnip (5-8)
Veronica (3-9)
Vetchling (5-8)
Wild marjoram (7-9)

- Food from spring through to autumn
- A range of plants – balanced diet

Brackets denote main flowering months

Horse chestnut (4-6)
Lime (6-7)
Sycamore (4-6)
Apple (4-5)
Plum (4-5)
Currant (4-5)
Cherry (4-5)
Raspberry (6-8)
Firethorn (5-6)
Berberis (4-5)
Borage (4-10)
Rosemary (4-6)
Thyme (5-8)
Lavender (6-8)
Sage (6-8)
Basil (7-9)
Oregano (6-8)
Aster (7-10)
Allium (6-8)
Comfrey (3-6)
Crocus (2-3)
Bellflower (6-9)
Calamint (5-9)
Catmint (5-9)
Coneflower (7-10)
Delphinium (6-7)
Gaillardia (6-9)
Globe thistle (7-8)
Heathers (8-9)
Phacelia (4-12)
Poppy (5-10)
Pulmonaria (3-5)
Rock rose (5-7)
Salvia (6-9)
Stonecrop (7-9)
Sunflower (8-10)
Verbena (7-10)
Viper's bugloss (6-7)

Native plants are best



Native plants can be encouraged by making small changes to the management of a site to make it naturally more flower-rich

Flowering hedgerows

Hawthorn
Willow
Wild Cherry
Crab Apple
Bramble
Ivy

Grassy verges/banks

Wild Carrot
Goldenrod
Hogweed
Mignonette
Rosebay willowherb
Stachys

Meadows or areas of long grass

Bird's foot trefoil
Knapweed
Scabious
Senecio
Thistle
Vetch
Achillea
Wild marjoram
Vetchling

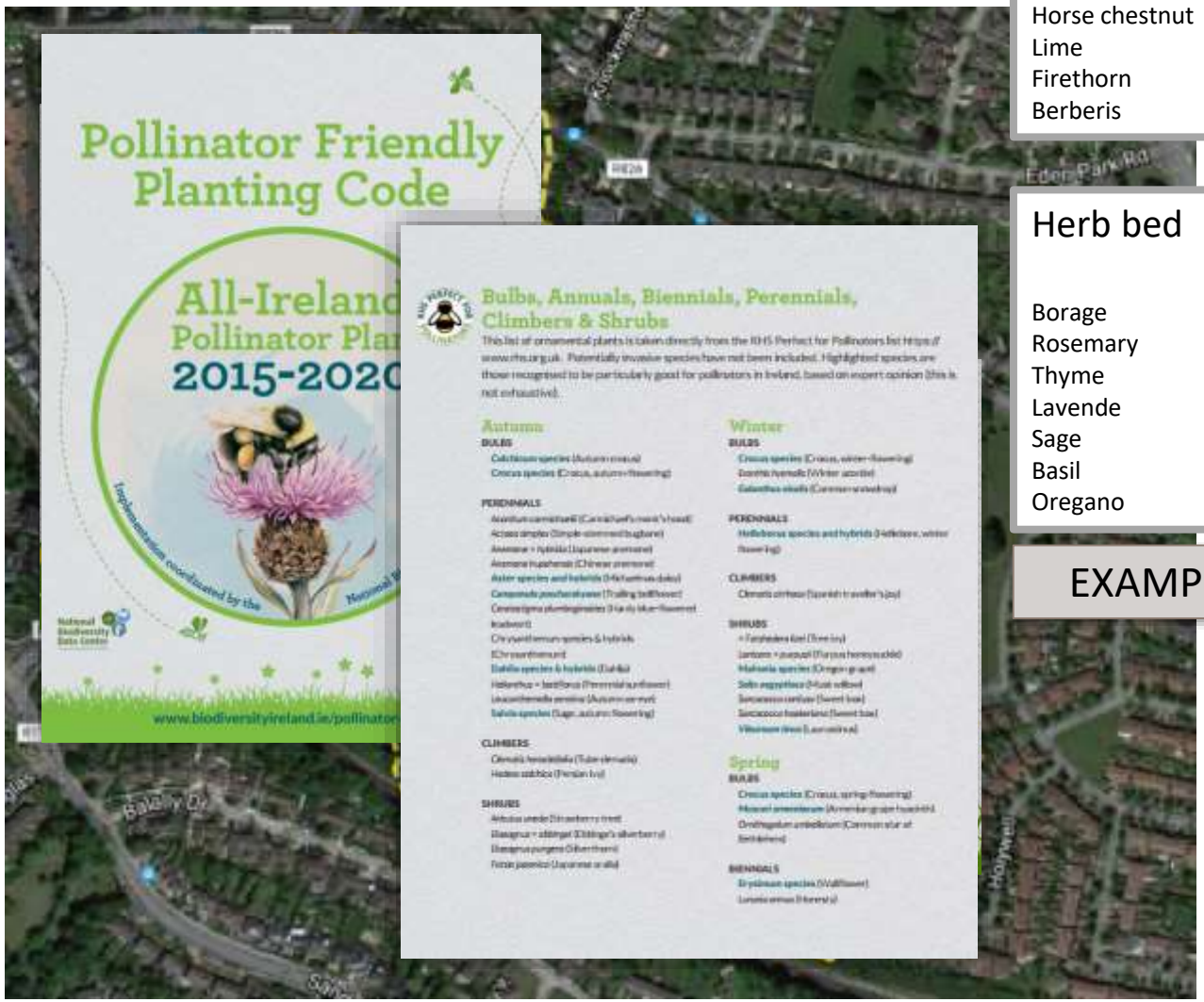
Edges of tracks that are not sprayed

Dead-nettle
Forget-me-not
Geranium sp
Hawksbeard
Veronica

Wilder corners that are not sprayed

Bluebell
Brassica
Butterbur
Coltsfoot
Foxglove
Radish
Turnip
Fleabane
Red bartsia

Deliberate planting



Trees/shrubs

Horse chestnut
Lime
Firethorn
Berberis

Fruit trees/bushes

Apple
Plum
Currant
Cherry
Raspberry

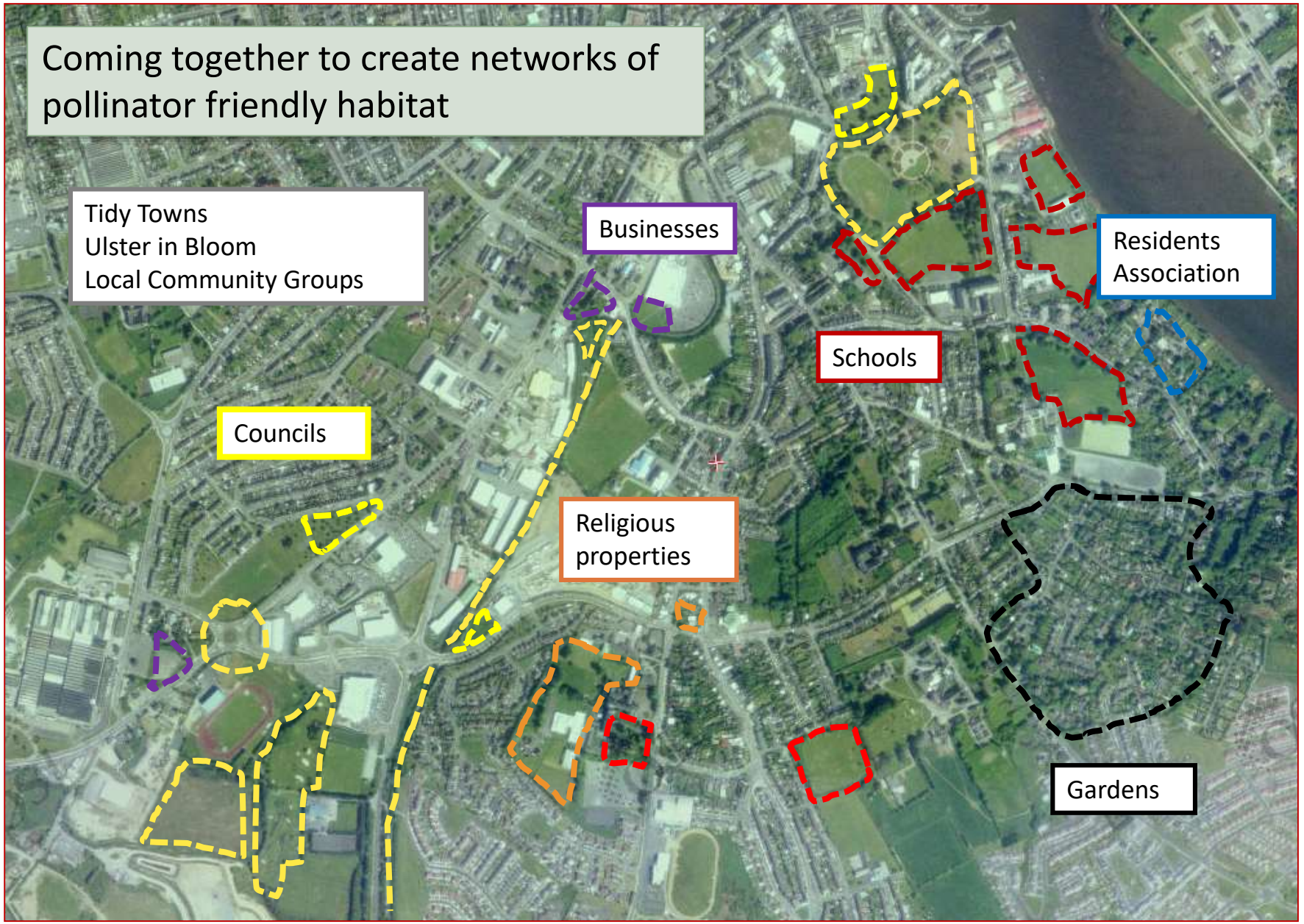
Herb bed

Borage
Rosemary
Thyme
Lavende
Sage
Basil
Oregano

EXAMPLES

Planted beds – perennial is best

Aster
Allium
Comfrey
Crocus
Bellflower
Calamint
Catmint
Coneflower
Delphinium
Gaillardia
Globe thistle
Heathers
Phacelia
Poppy
Pulmonaria
Rock rose
Salvia
Stonecrop
Sunflower
Verbena
Viper's bugloss



example map using Waterford City

By providing more food, shelter and safety in our towns and villages, along our transport routes and in farmland we can create an Ireland where pollinators can survive and thrive

example map

Publishing evidence based actions on how you can help

*How to provide **food, shelter and safety** for pollinators*

- ✓ **Actions are all evidence based**
- ✓ **Relevant sectors feed into development**
- ✓ **Communication is tailored each time**

<u>In preparation</u>:

- ✓ Horticulture
- ✓ Transport Authorities
- ✓ Religious Properties

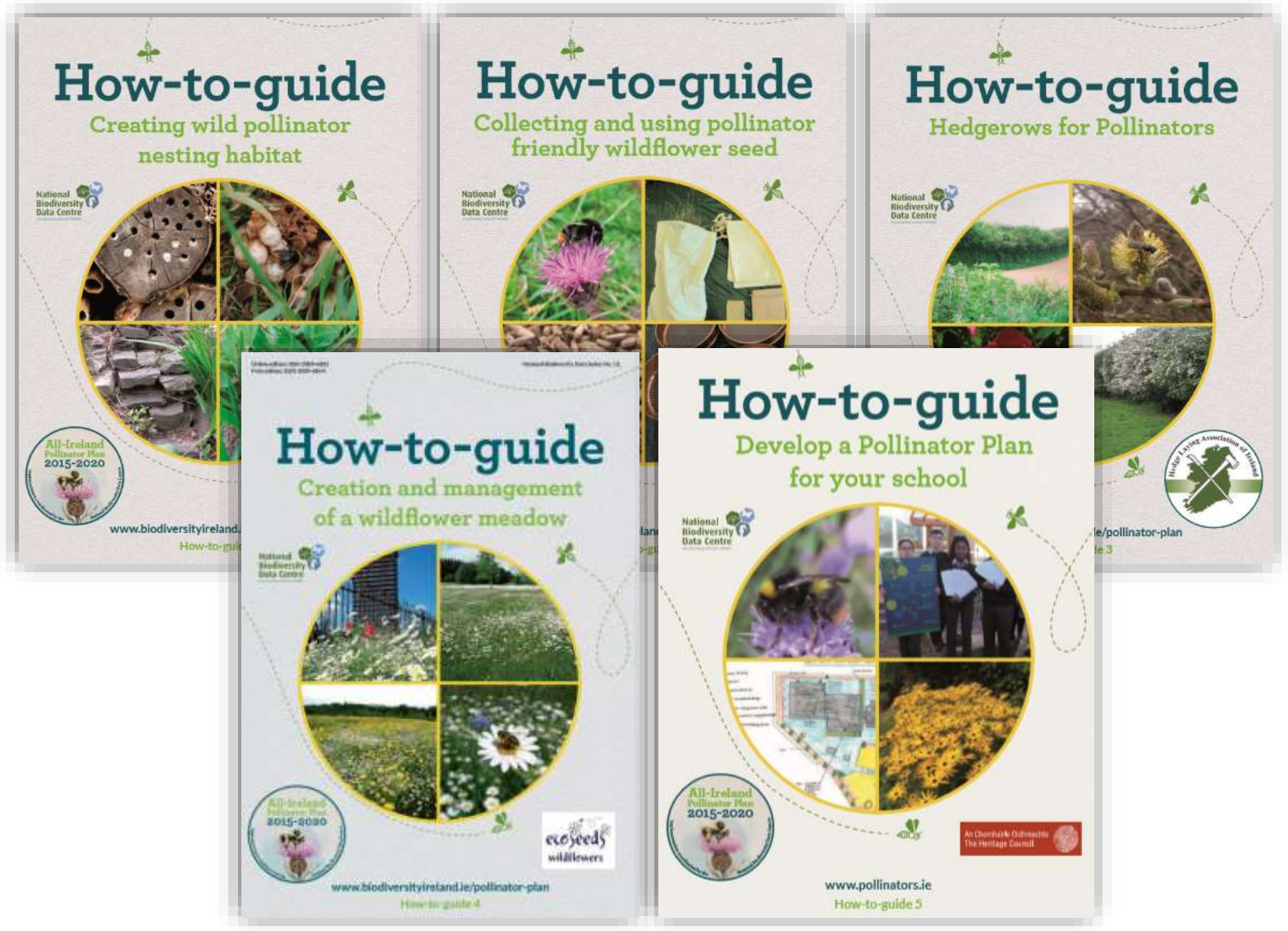
We have started work on a new short guideline series for pollinator-friendly management of: Pump Houses, Solar Farms, Wind Farms, Golf Courses, Country Hotels, Stud Farms, Quarries

www.pollinators.ie

- ✓ Pollinator friendly actions, each very clearly explained
- ✓ Lots of **options**
- ✓ All actions are pragmatic & low cost

www.pollinators.ie

A separate **How-to-guide series** provides additional information on more complex actions – developed in partnership with relevant organisations



Using **existing networks/partnerships** to encourage implementation and roll out within the sector

- Efficient
- Cost effective
- Beds down the actions within existing structures

2018 Funding: Bord Bía and the Heritage Council have provided funding for a project officer. DAFM have provided a small budget to develop resources. There is no project budget.

We use **existing networks/partnerships** to encourage implementation and roll out within the sector – efficient, cost effective, beds down the actions within existing structures.

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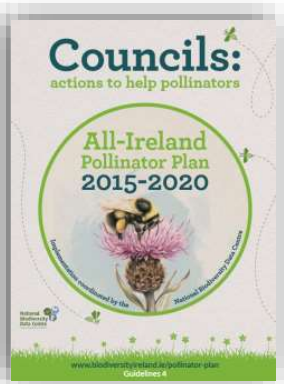
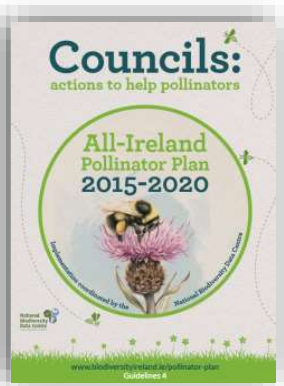


Plans to engage specifically with certain types of business:
Garden Centre, Golf Courses, Quarries, Country Hotels etc.

We use **existing networks/partnerships** to encourage implementation and roll out within the sector – efficient, cost effective, beds down the actions within existing structures.



Department of Agriculture, Environment and Rural Affairs

cafre
College of Agriculture, Food & Rural Enterprise

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

Ulster Farmers' Union

Origin Green
Ireland

An initiative by Bord Bia
Irish Food Board

eagasc
Agriculture and Food Development Authority

Approved Organic Standard
IOFGA

afbi
Agri-Food and Biosciences Institute

Organic Trust

We use **existing networks/partnerships** to encourage implementation and roll out within the sector – efficient, cost effective, beds down the actions within existing structures.

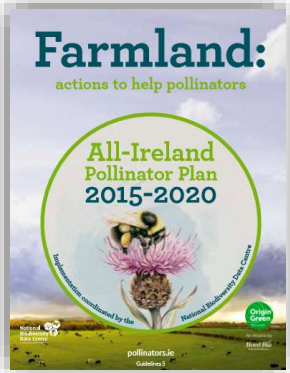
SuperValu TidyTowns

Tidy Towns Local Authority Pollinator Award

70 entries in 2017

Regional + overall winners

We use **existing networks/partnerships** to encourage implementation and roll out within the sector – efficient, cost effective, beds down the actions within existing structures.



Engagement through the Heritage & Biodiversity Officer network

Training workshops with Council staff

Special pollinator award in the ROI Green Flag for parks competition

All resources are freely available to download online

www.pollinators.ie

Pollinator Plan Resources

The All-Ireland Pollinator Plan 2015-2020 can be downloaded here:

All Ireland Pollinator Plan 2015-2020 (18MB)

All Ireland Pollinator Plan 2015-2020 (Black & White - 13MB)

To support the All-Ireland Pollinator Plan 2015-2020 we have published two acc
documents: Guidelines for different sectors and How-to-Guides for key pollinato

Sectoral Guidelines

How-to-Gui

The documents published to date are linked to below, along with some additiona
documents will be added to each series throughout 2017 to facilitate the implem
Pollinator Plan. You can see what is planned and provisional delivery dates here:
developed in 2016/17

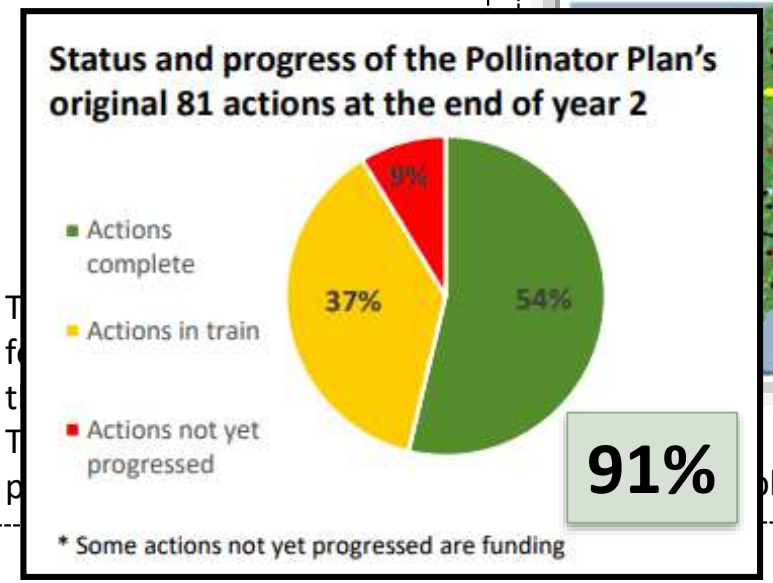
"Note" **Actions for Pollinators**, our publicly available online mapping system, is now available. Find instructions in the menu below for logging your pollinator friendly actions, and visit the site here: https://pollinators.biodiversityireland.ie/

- All-Ireland Pollinator Plan
- Junior All-Ireland Pollinator Plan (English)
- Junior All-Ireland Pollinator Plan (Irish)
- Guideline documents
- How-to-guides
- Actions for Pollinators Reso
- Signage templates
- Presentations for use
- Tracking progress
- Other
- Events/Conferences

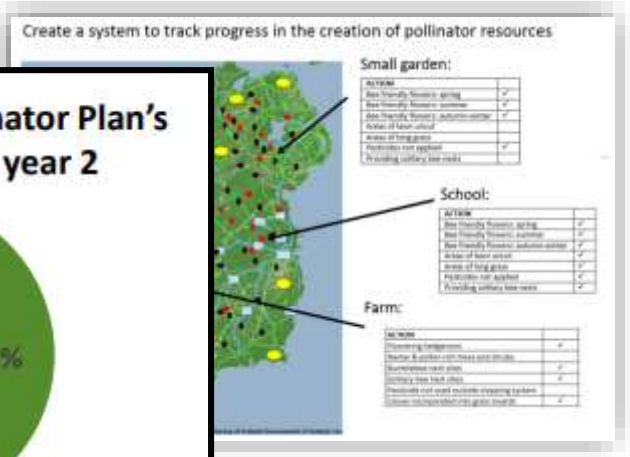
TRACKING CHANGE & MEASURING SUCCESS

The publication of the All-Ireland Pollinator Plan isn't a box-ticking exercise – measuring success is a crucial part of the Plan

1. Track implementation of the 81 actions in the Plan



2. Track creation of pollinator habitat/resources



ble online mapping system

3. Track changes in pollinators within the landscape

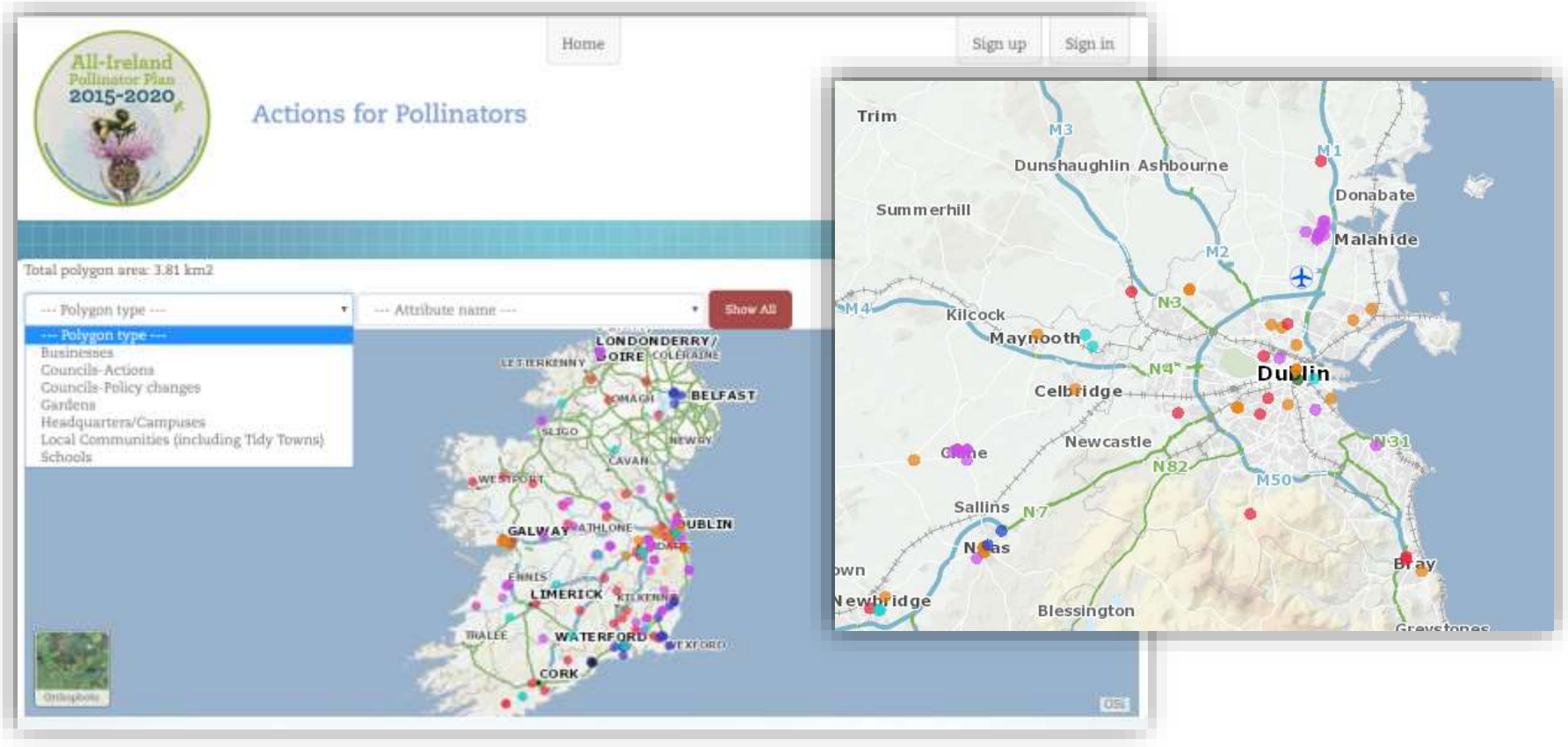
National Biodiversity Data Centre
Documenting Ireland's Wildlife

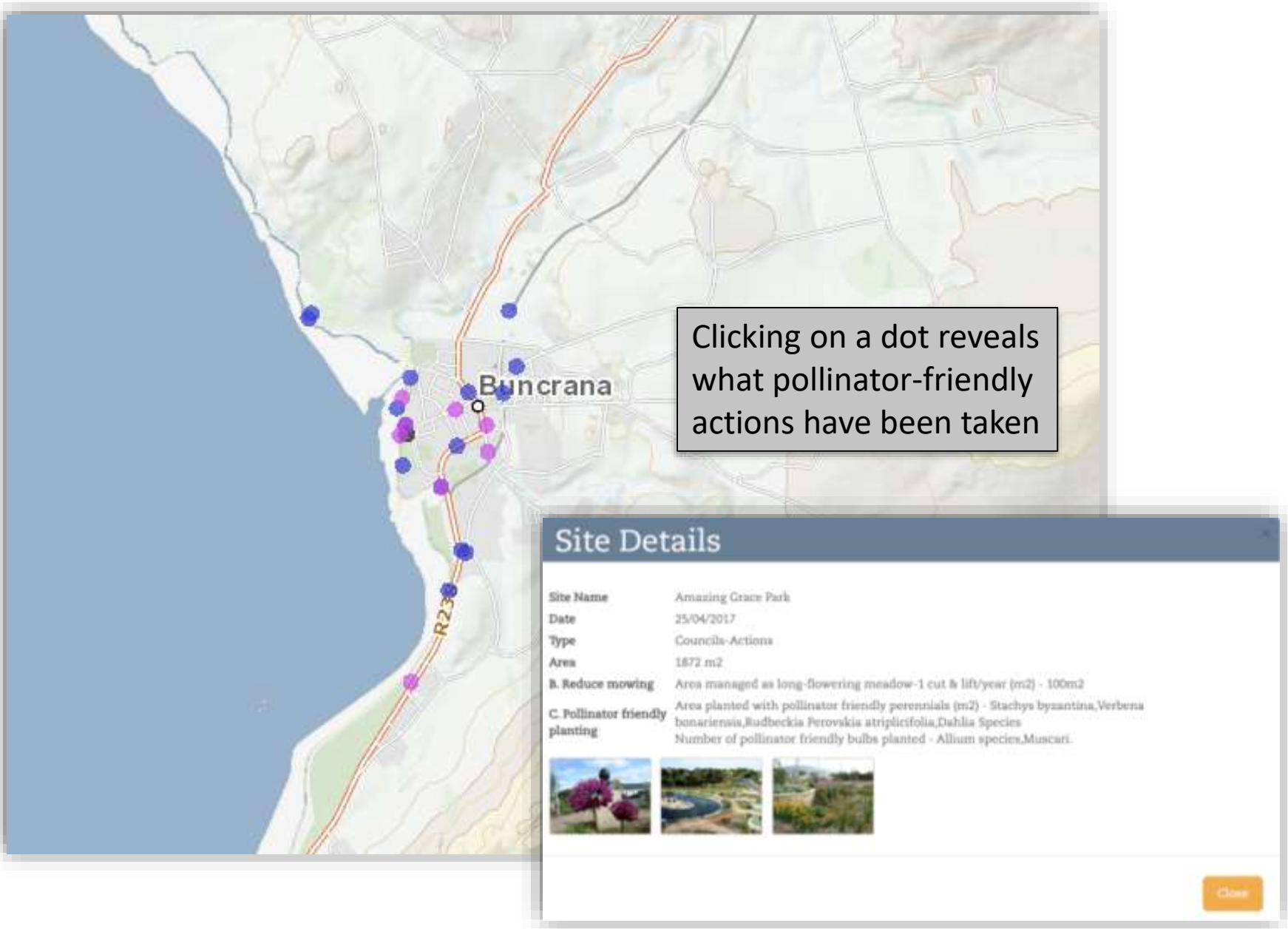
2. Track resources going into the landscape - publicly available online mapping system

‘Actions for Pollinators’

Provides recognition and also facilitates local coordination

pollinators.biodiversityireland.ie




Buncrana
R238
Clicking on a dot reveals what pollinator-friendly actions have been taken
Site Details
Site Name
Amazing Grace Park
Date
25/04/2017
Type
Councils-Actions
Area
1872 m2
B. Reduce mowing
Area managed as long-flowering meadow-1 cut & lift/year (m2) - 100m2
C. Pollinator friendly planting
Area planted with pollinator friendly perennials (m2) - Stachys byzantina,Verbena bonariensis,Rudbeckia Perovskia atriplicifolia,Dahlia Species
Number of pollinator friendly bulbs planted - Allium species,Muscari.
Close

Manage my sites

Add Site

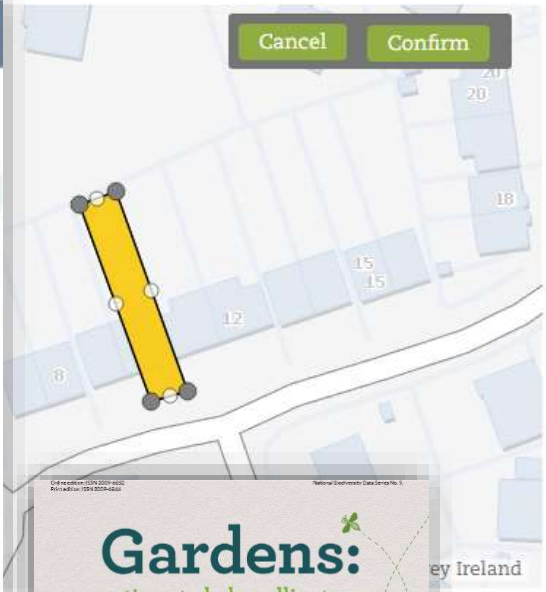
To add a site you simply draw a polygon around it – it can be large or small

When you select 'type' options will appear in line with the relevant guideline document

Edit site

Site Information

Site Name	Maypark Garden		
Type	Gardens		
Date	09/02/2017		
A. Protect existing pollinator habitats	Length of existing flowering hedgerow protected (m)		
	Area of existing earth banks or bare soil protected (m2)		
	Length of existing dry stone walls protected (m)		
	Other pollinator friendly habitats protected	type	
B. Reduce mowing	Area where Dandelions are allowed to bloom- first grass cut delayed till mid-April (m2)	✓	30
	Area mown every 6 weeks to allow Clover to bloom (m2)	✓	30
	Area managed as long-flowering meadow-1 grass cut & lift/year (m2)	✓	5
C. Pollinator friendly planting	SPRING-flowering pollinator friendly plants/trees/shrubs	✓ main species	Berberis, Broom, Crocus,
	SUMMER-flowering pollinator friendly plants/trees/shrubs	✓ main species	Catmint, Lavender, Wallf
	AUTUMN-flowering pollinator friendly plants/trees/shrubs	✓ main species	Ivy
D. Provide nesting habitats	Area of earth bank or bare soil created for mining bees (m2)	✓	0.5
	Plant stems left standing (type)	✓	Raspberry
	Number of holes drilled in wood	✓	5
	Number of bee hotels installed		



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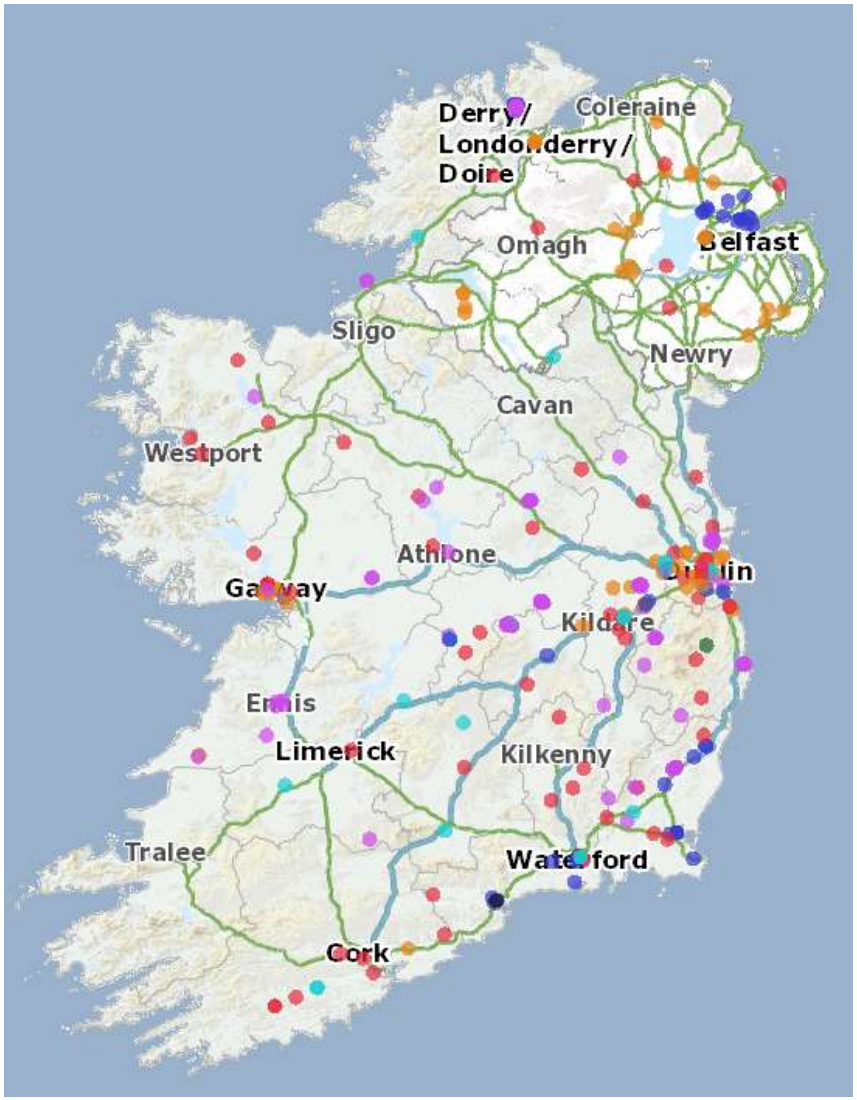


- ✓ If used it can clearly capture progress

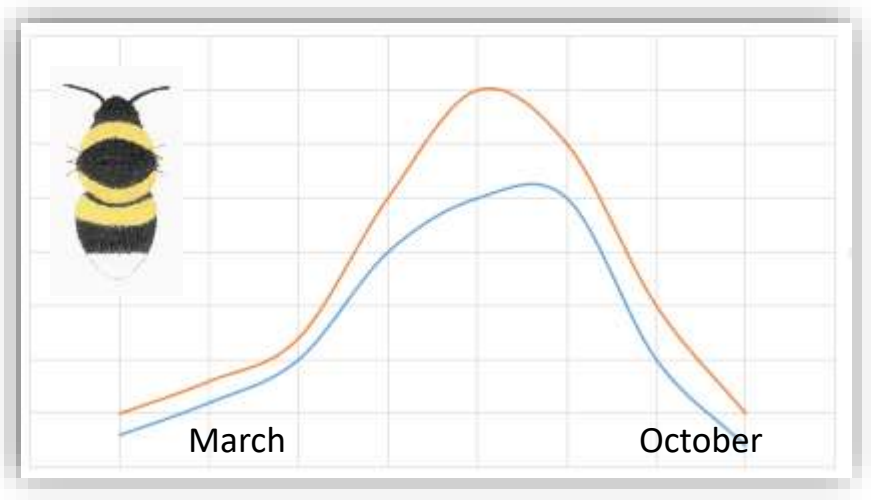
We do need people to use it

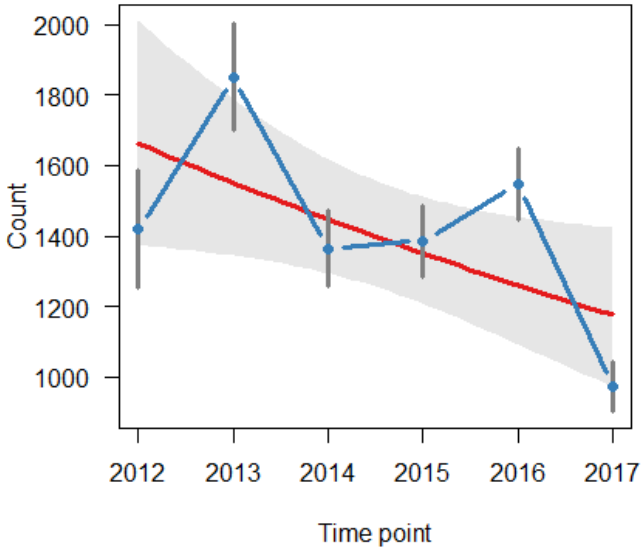
These are the only gardens logged so far, yet we know many, many more people are taking action to help

3. Tracking changes in the pollinators themselves

National Biodiversity Data Centre
Documenting Ireland's Wildlife

All-Ireland Bumblebee Monitoring Scheme





More volunteers required!

Contact project coordinator: Dr Tomas Murray tmurray@biodiversityireland.ie

How can you help?

CITY OR COUNTY COUNCIL

BUSINESS IN THE COMMUNITY IRELAND

MAKING IRELAND POLLINATOR FRIENDLY

Provide food and shelter across all types of land so that our pollinators can survive and thrive

- **Farmland**
- **Public land**
- **Private land**

- **Raising awareness of pollinators and how to protect them**
- **Managed pollinators – supporting beekeepers**
- **Expanding our knowledge on pollinators**
- **Collecting evidence to track change and measure success**

We want to express our enormous thanks to the many people across all sectors who have been championing the All-Ireland Pollinator Plan

CALL TO ACTION

National Biodiversity Data Centre
Documenting Ireland's Wildlife

www.pollinators.ie



pollinators@biodiversityireland.ie

Thank You

An Chomhairle Oidhreachta
The Heritage Council

Origin Green
An initiative by Bord Bia
Irish Food Board

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

Many thanks to all those who have donated images to the All-Ireland Pollinator Plan