



## Protecting rare pollinators:

# Great Yellow Bumblebee

All-Ireland  
Pollinator Plan  
[www.pollinators.ie](http://www.pollinators.ie)



**National  
Biodiversity  
Data Centre**  
A Heritage Council Programme



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How-to-guide 6



# About the Great Yellow Bumblebee

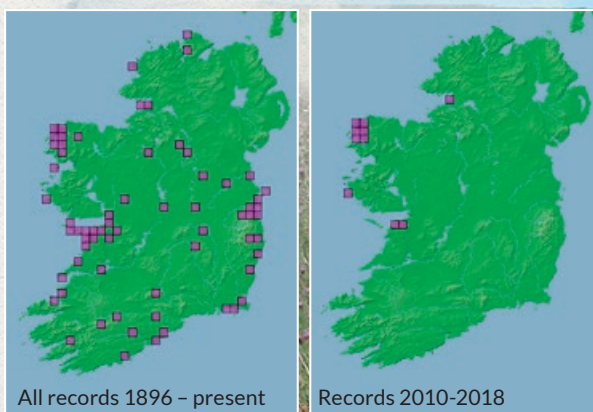
The Great Yellow Bumblebee (*Bombus distinguendus*) is in decline across Europe, with populations falling by more than 30% over the past 10 years. It is now regionally extinct in Switzerland. In Britain it has undergone an 80% loss of range since 1970, and is now restricted to parts of north and west Scotland.

In Ireland, the Great Yellow Bumblebee was never common, but it was found across the island prior to 1960. With the large-scale replacement of hay meadows by silage, the flower-rich areas this bee needs have largely disappeared from the Irish landscape. It is now found only on the west coast, primarily on floral-rich coastal grasslands, such as machair. It is listed as *Endangered* in the Irish Regional Red List of Bees (2006) and as *Vulnerable* in the European Red List of Bees (2014).

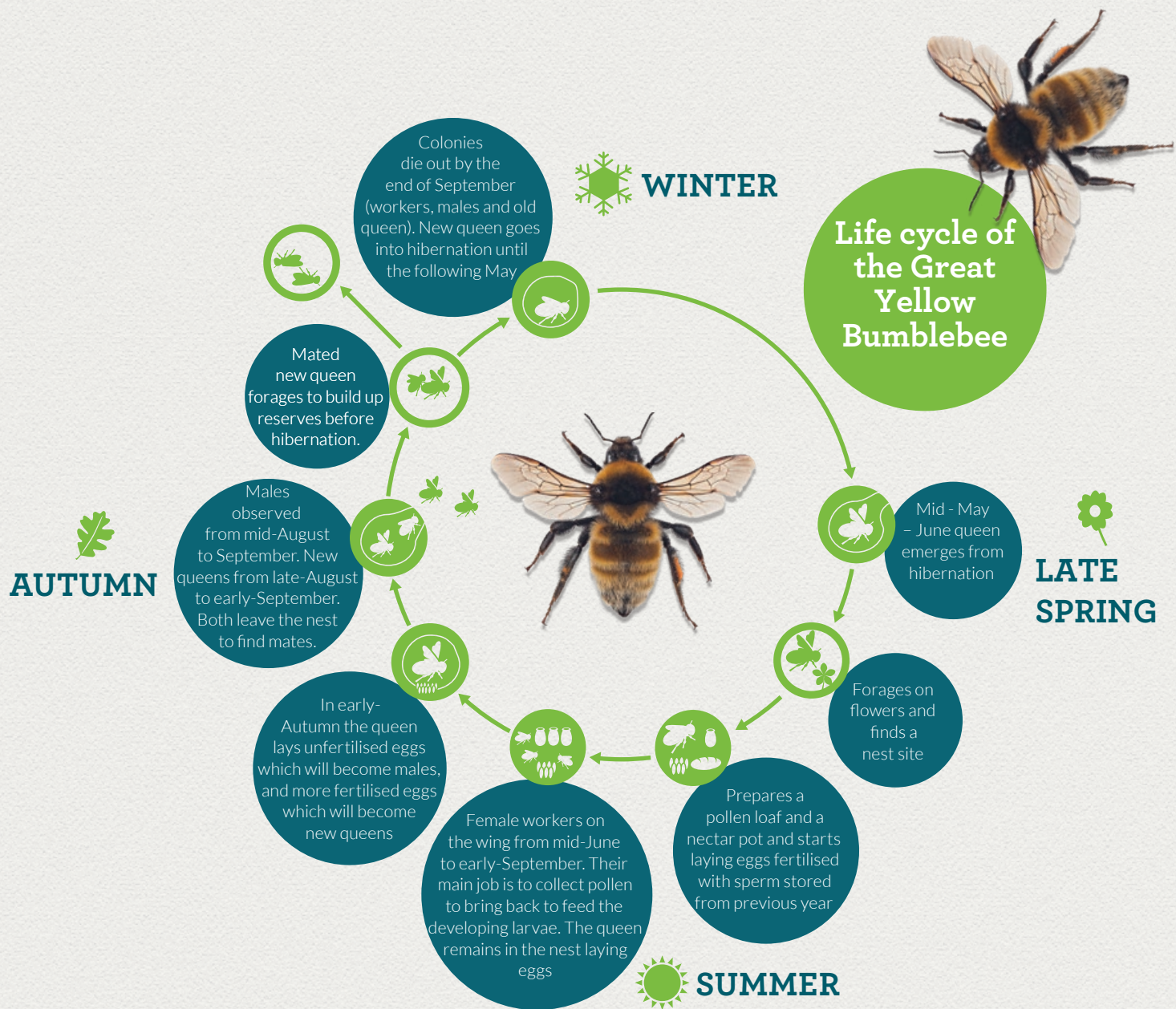
Currently, healthy populations are known only from the Mullet peninsula in County Mayo. Although, within the last decade, it has been seen occasionally in north Clare, south-west Donegal and Connemara, suggesting that it still exists at extremely low densities in these areas.

## How to recognise the Great Yellow Bumblebee

The Great Yellow Bumblebee is one of our largest bumblebees. Queens can be up to 2cm in length. It is entirely covered in bright yellow hairs (becoming pale mustard-yellow as the summer progresses) with a distinctive band of black hairs on the thorax. Queens, workers and males all have this banding pattern.







## How does its lifecycle differ from other more common bumblebees in Ireland?

**Small nest size:** The Great Yellow Bumblebee has a relatively small nest size of around 40 workers at any one time, with an estimated 100 over the course of the annual lifecycle.

**Later emergence:** The Great Yellow Bumblebee is strongly associated with flower-rich grassland habitats. It emerges

from hibernation later than other bumblebee species to coincide with when this food source will be available. Late emergence means the bees have a shorter timeframe in which to complete their lifecycle and are exposed to a greater risk of failing to produce sufficient offspring if floral resources are absent.



# What it needs

## A Suitable nest sites

The Great Yellow Bumblebee generally nests underground using warm, sheltered areas with small mammal burrows, typically in tussocky grasslands and vegetated sand dunes. Winter-grazed or unmanaged grass that has a tussocky structure is ideal. The sides of the tussocks exposed to the sun are the most attractive for nesting. Nests can also be found in earthen stone walls.



## B A supply of pollen and nectar throughout the season

The Great Yellow Bumblebee's foraging habitat is extensive flower-rich grassland, characterised by an abundance of Red Clover, Bird's-foot trefoil, White Clover and

other legumes in June, followed by Common Knapweed in later summer and autumn.

Current estimates are that the workers bees typically fly ca. 0.4 – 1 km from their nest to forage. Therefore, establishing swards with suitable flowers within 1 km of habitat that will support nests throughout their lifecycle should be a priority.

## C Suitable hibernation sites

Overall, very little is known about hibernation sites for the Great Yellow Bumblebee, but it is thought to include loose soils under grass tussocks or deep within the plant litter. As with many other bumblebee species, undisturbed north-facing banks of loose soil may also be used.



Extensive Red Clover at BirdWatch Ireland  
Termoncarragh Meadow Reserve, Mullet Peninsula



# Native plants that provide food for the Great Yellow Bumblebee

Emerging queens	May	June	July	August	September
Workers					
Males					
New queens					
Red Clover ★★					
Yellow-rattle ★					
Kidney Vetch ★					
Ragwort					
Meadow Vetchling					
White Clover ★					
Bird's-foot-trefoil ★					
Bramble ★					
Common Knapweed ★★					
Hedge Woundwort					
Tufted Vetch ★					
Marsh Thistle					
Self-heal					
Spear Thistle ★					
Autumn Hawkbit ★					

★★ Most important forage plants based on experiences in Ireland  
 ★ Important forage plants



Red Clover ★★



Yellow-rattle ★



Kidney Vetch ★



Ragwort



Meadow Vetchling



White Clover ★



Bird's-foot-trefoil ★



Bramble



Common Knapweed ★★



Hedge Woundwort



Tufted Vetch ★



Marsh Thistle



Self-heal



Spear Thistle ★



Autumn Hawkbit ★



# Management in Ireland

This section has been written to consider ongoing management practices and research in Scotland. However, it is primarily based on studies and observations of Great Yellow Bumblebee populations from the BirdWatch Ireland reserves on the Mullet Peninsula over recent decades. The Mullet Peninsula in Co. Mayo is the only location on the island of Ireland where healthy populations are known to remain.

**Manage existing flower-rich areas.** Ideally, allow the flower-rich grassland to develop over the summer months, with delayed mowing or grazing until late September. This will maximise both the number of flowers available for foraging during the summer and for queens to feed on prior to hibernation. It will also allow for the plants to seed to ensure flowers for following years. If grazing during the summer, ideally use cattle at low grazing levels as this will provide the greatest diversity of sward structure and heights, in contrast

to other grazing animals such as sheep. If required, use organic or inorganic fertilisers at low levels (although do not use fertilisers on previously unimproved grasslands). Do not use insecticides, fungicides or herbicides.

**Maximise the amount of nesting and winter hibernation habitat within 1 km of flower-rich areas.** During mowing, leave field margins or areas uncut to provide grassy tussocks throughout the winter and the following summer. Or, if grazing, preferably use cattle at low stocking levels to maximise the amount of tussocky grassland available. Retain any field boundaries that are constructed of earthen walls (stone walls covered in soil and vegetated) and avoid compaction of sandy soils and dunes. Eliminate the use of insecticides, fungicides or herbicides.





*Other habitats and species will also benefit from land management for the Great Yellow Bumblebee*



**Create small patches of flower-rich habitat in new areas.** In areas where field-scale restoration of flower-rich habitat is not currently possible, create small patches of flower-rich habitat along areas such as field margins by either using the green hay technique (spreading freshly cut seeding flower-rich grass from nearby) or by broadcasting specific native wildflower seed mixes, especially those that contain important foraging plants such as Red Clover. These establish better when the identified areas are a mix of short vegetation height and bare soil. Flower-rich habitats can also be created by low-level winter cattle grazing; however, research has found that direct habitat creation

is more effective than grazing alone. During establishment, exclude grazing animals from March to mid-September. Eliminate the use of organic or inorganic fertilisers, pesticides or herbicides on these patches. Ideally aim for these patches to cover at least 2% or more of the field (2ha created per 1 km<sup>2</sup>) and prioritise areas within 1 km of nesting and existing flower-rich habitats.

**Minimise the exposure of wild bees to diseases transferred from apiaries.** Support local beekeepers in implementing best practice disease management; avoid inward or outward movement of hives within 10 km of existing flower-rich areas.





# Other Benefits

Land management for the Great Yellow Bumblebee will potentially benefit various other threatened species, some of these are listed below:

Group	Common name	Species name	Conservation status
Birds	Corncrake	<i>Crex crex</i>	High concern* 
	Meadow Pipit	<i>Anthus pratensis</i>	High concern* 
	Skylark	<i>Alauda arvensis</i>	Medium concern* 
Bees	Red-shanked Carder Bee	<i>Bombus ruderarius</i>	Vulnerable 
	Large Carder Bee	<i>Bombus muscorum</i>	Near threatened 
	Field Cuckoo Bee	<i>Bombus campestris</i>	Vulnerable 
	Red-tailed Cuckoo Bee	<i>Bombus rupestris</i>	Endangered 
	Shrill Carder Bee	<i>Bombus sylvarum</i>	Vulnerable 
	Northern Colletes	<i>Colletes floralis</i>	Vulnerable 
	Grey-banded Mining Bee	<i>Andrena denticulata</i>	Vulnerable 
	Small Scabious Mining Bee	<i>Andrena marginata</i>	Critically endangered 
	Silver-sided Nomad Bee	<i>Nomada argentata</i>	Critically endangered 
	Dull-headed Blood Bee	<i>Sphecodes ferruginatus</i>	Vulnerable 
	Furry-bellied Blood Bee	<i>Sphecodes hyalinatus</i>	Vulnerable 
	Buff-tailed Mining Bee	<i>Andrena humilis</i>	Critically endangered 
Butterflies	Marsh Fritillary	<i>Euphydryas aurinia</i>	Vulnerable 
	Dark Green Fritillary	<i>Argynnis aglaja</i>	Vulnerable 
Moths	Portland Moth	<i>Actebia praecox</i>	Critically endangered 
	Light Feathered Rustic	<i>Agrotis cinerea</i>	Critically endangered 
	Forester	<i>Adscita statices</i>	Endangered 
	Sandhill Rustic	<i>Luperina nickerlii</i>	Endangered 
	Narrow-Bordered Five-spot Burnet	<i>Zygaena lonicerae</i>	Vulnerable 

\* Birds of Conservation Concern Ireland; other conservation status from respective IUCN Red Lists for Ireland



# Actions

## Overarching objectives:

- 1 Maintain key populations on current sites
- 2 Make our landscape friendlier for the Great Yellow Bumblebee
- 3 Raise awareness of the Great Yellow Bumblebee
- 4 Increase our knowledge of the Great Yellow Bumblebee

### POLLINATOR ACTION 1

## Maintain key populations on current sites

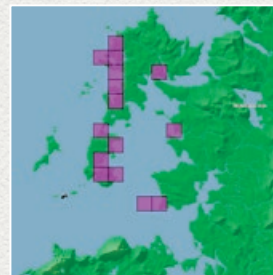
### ACTION

- A Maintain as many existing populations as possible

### What is required

- Where known populations occur, this guideline document should be provided to site managers
- Establishment of regular monitoring of the species on known sites, with data submitted to the National Biodiversity Data Centre

Known GYB sites since 2010



Rosstown, last recorded 2011

Across the Mullet Peninsula, last recorded 2019; Bunawillin, 2017; Kinrovar, 2014

Aillebrack, last recorded 2013

Fanore More, last recorded 2010; Termoncarragh, 2014; Poulane Hill, 2013

Maps generated from <https://maps.biodiversityireland.ie/>



# Make our landscape friendlier for the Great Yellow Bumblebee



ACTION	What is required
<p><b>A</b> Encourage farmers to adopt positive land management for the GYB</p>	<ul style="list-style-type: none"> <li>• Awareness raising campaign through local farming organisations in areas where the species remains</li> <li>• Funding for harvesting and dissemination of green hay and seed mixes (e.g., Red Clover) for forage habitat creation on farmland within appropriate areas</li> </ul>
<p><b>B</b> Adoption of positive land management for the GYB across Natura 2000 designated land in priority areas</p>	<ul style="list-style-type: none"> <li>• Integration of appropriate measures within Conservation Objectives for Natura sites</li> </ul>
<p><b>C</b> Adoption of positive land management for the GYB across BirdWatch Ireland Reserves in priority areas</p>	<ul style="list-style-type: none"> <li>• Identification of all relevant reserves</li> <li>• Integration of appropriate measures within conservation management plans</li> </ul>
<p><b>D</b> Creation of new meadows for the GYB on public land</p>	<ul style="list-style-type: none"> <li>• Potential sites identified by Local Authorities &amp; local communities (e.g. Tidy Towns). Establishment prioritised by proximity to existing habitat</li> <li>• Integration within development or biodiversity plans</li> <li>• Suitable locations promoted as reference sites illustrating best practice</li> </ul>
<p><b>E</b> Adoption of pollinator highways along roads and walking trails in priority areas</p>	<ul style="list-style-type: none"> <li>• Drawing on experience from the 'Don't Mow Let it Grow' scheme in Northern Ireland, appropriate areas along roadsides identified for wildflower habitat creation and incorporated into relevant management plans</li> </ul>
<p><b>F</b> Pollinator-friendly management of educational properties in priority areas</p>	<ul style="list-style-type: none"> <li>• Schools and other educational bodies in priority areas to take pollinator-friendly actions</li> </ul>
<p><b>G</b> Encourage the public in priority areas to take voluntary actions to make their gardens and rural lanes more pollinator-friendly</p>	<ul style="list-style-type: none"> <li>• Local promotion of existing All-Ireland Pollinator Plan garden guidelines</li> </ul>
<p><b>H</b> Encourage business properties in priority areas to make their outdoor spaces more pollinator-friendly</p>	<ul style="list-style-type: none"> <li>• Local promotion of existing All-Ireland Pollinator Plan business guidelines</li> <li>• Targeted engagement with businesses who have premises adjacent to existing flower-rich and nesting habitats</li> </ul>
<p><b>I</b> Encourage all those who create GYB habitat to log their activities on the mapping system 'Actions for Pollinators' <a href="https://pollinators.biodiversityireland.ie/">https://pollinators.biodiversityireland.ie/</a></p>	<ul style="list-style-type: none"> <li>• All actions logged on 'Actions for Pollinators' to facilitate coordination at local levels</li> </ul>
<p><b>J</b> Support the collection and use of local wildflower seed in small-scale habitat restorations</p>	<ul style="list-style-type: none"> <li>• Promote the AIPP How-to-guide: Collecting and using pollinator friendly wildflower seed.</li> <li>• Seed collecting workshops in priority areas</li> </ul>





**Raise  
awareness  
of the Great  
Yellow  
Bumblebee**



ACTION	What is required
<p><b>A</b> Develop and promote an area as a GYB reference site to illustrate best practice and as an educational resource</p>	<ul style="list-style-type: none"> <li>Identify a suitable existing site that could be promoted in this context</li> </ul>
<p><b>B</b> Produce awareness-raising flyers and widely distribute this How-to-guide</p>	<ul style="list-style-type: none"> <li>Develop flyers and disseminate this guide</li> </ul>
<p><b>C</b> Participatory map recording local knowledge of previous status of fields and areas, potential opportunities for habitat creation and other relevant thoughts, memories or feelings about places</p>	<ul style="list-style-type: none"> <li>Identify funding and roll out a mechanism for a participatory map to record local biodiversity knowledge</li> </ul>
<p><b>D</b> Deliver a series of talks targeting stakeholders: local government, farmers, hospitality sector, beekeepers, general public</p>	<ul style="list-style-type: none"> <li>Creation of a freely available talk that can be downloaded from <a href="http://www.pollinators.ie">www.pollinators.ie</a> and delivered by local experts</li> </ul>
<p><b>E</b> Deliver identification courses for bumblebees targeting i) children; ii) adults</p>	<ul style="list-style-type: none"> <li>Adult and child orientated workshops delivered each year</li> </ul>
<p><b>F</b> Develop and deliver a recording scheme for the general public/schools in priority areas to photograph bumblebees in the last week of August/first week in September</p>	<ul style="list-style-type: none"> <li>Funding for National Biodiversity Data Centre to deliver this scheme</li> </ul>
<p><b>G</b> GYB signage templates and information board templates developed for use in priority areas</p>	<ul style="list-style-type: none"> <li>These developed and made available on <a href="http://www.pollinators.ie">www.pollinators.ie</a></li> </ul>

*In Ireland the Great Yellow Bumblebee has a strong preference for Red Clover and Knapweed*







**Increase our  
knowledge  
of the Great  
Yellow  
Bumblebee**



ACTION	What is required
<p><b>A</b> Commission a survey of the current distribution of the GYB</p>	<ul style="list-style-type: none"> <li>• Funding to survey suitable habitat nationally at the broad-scale 10km level</li> <li>• Funding for surveys at the 1km scale within 10km of known sites</li> </ul>
<p><b>B</b> Encourage the submission of casual GYB records and identify specific areas annually for targeted surveying by volunteers ('GYB hunt')</p>	<ul style="list-style-type: none"> <li>• Establish a mechanism for submission of positive (presence) and negative (absence) records to the National Biodiversity Data Centre</li> </ul>
<p><b>C</b> Expand a monitoring programme on known sites</p>	<ul style="list-style-type: none"> <li>• Expand upon current sites being monitored to establish as many existing GYB sites as possible within the All-Ireland Bumblebee Monitoring Scheme.</li> <li>• Funded surveys may be required to complement this</li> </ul>
<p><b>D</b> Develop a spatial strategy for conservation of the species</p>	<ul style="list-style-type: none"> <li>• Using information on current distributions as well as existing land cover and land-use maps, identify areas for habitat creation as corridors for dispersal or stepping stone habitats. Make this publicly accessible to facilitate local efforts.</li> </ul>
<p><b>E</b> Undertake detailed studies on the ecology of the species in an Irish context</p>	<ul style="list-style-type: none"> <li>• Detailed study of forage preferences for pollen and nectar across castes and colony cycle</li> <li>• Identification of hibernation and nesting microhabitats</li> </ul>
<p><b>F</b> Identify complementary management practices beneficial to multiple priority species in machair and flower-rich grasslands</p>	<ul style="list-style-type: none"> <li>• Adoption of updated actions within existing habitat conservation plans</li> <li>• Production of novel multispecies habitat conservation plans</li> </ul>

## 6. Key References

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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](http://www.pollinators.ie)



## About the National Biodiversity Data Centre

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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](http://maps.biodiversityireland.ie)

Help us to build up the knowledge of biodiversity in your local area by submitting sightings to [records.biodiversityireland.ie](http://records.biodiversityireland.ie)

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