



BEESPOKE

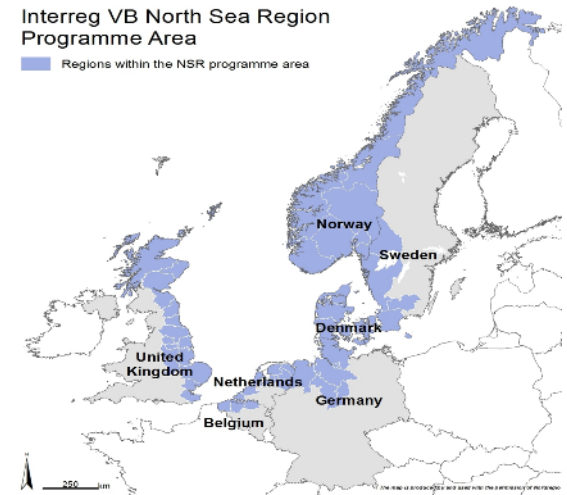
Benefiting Ecosystems through Evaluation of food Supplies for Pollination to Open up Knowledge for End users

€4.1 million, 2019-23, €2.063 million has been provided by the Interreg North Sea Region programme which is funded from European Regional Development Fund.

16 partners from 6 countries

GWCT is lead partner

Interreg VB North Sea Region Programme Area
Regions within the NSR programme area

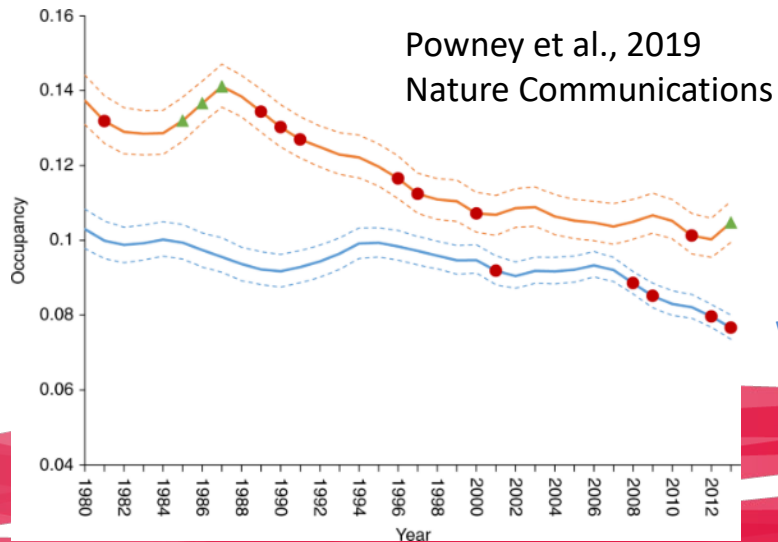




Rationale for project

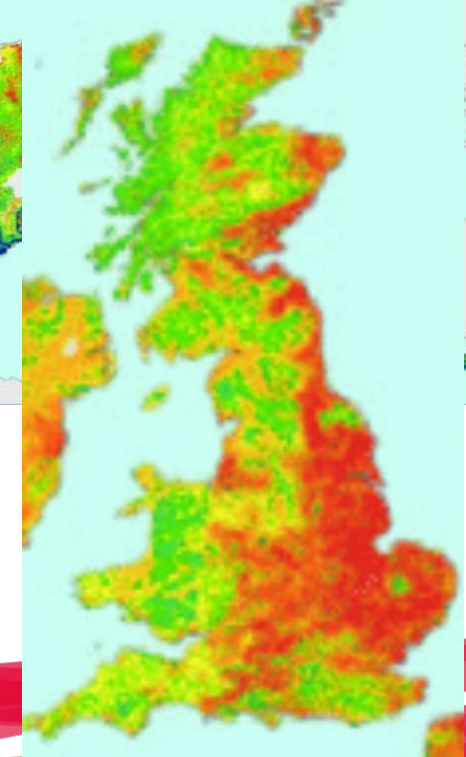
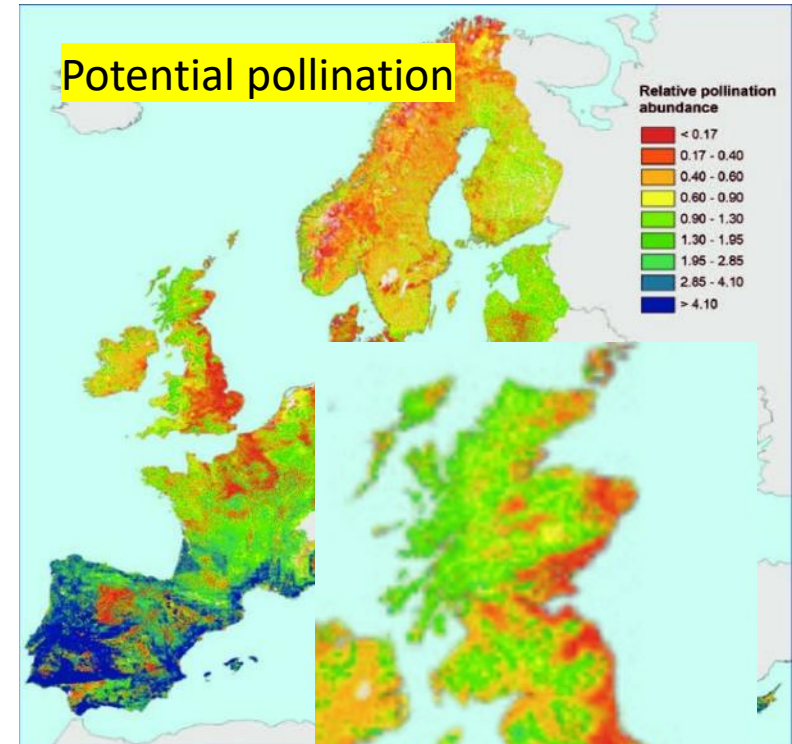


- 1/3 of wild bee & hoverfly species have reduced distribution compared to 1980
- Some common bumblebee species doing well – positive response to agri-environment
- Crop yield and quality increased by pollination – 15-30% for field beans



Hoverflies

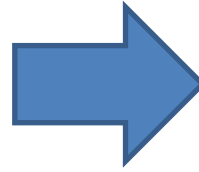
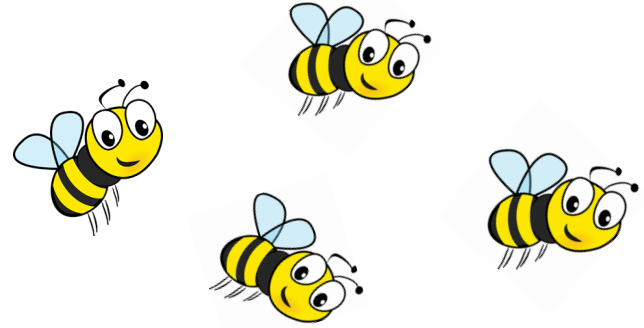
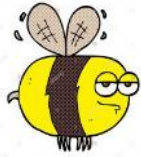
Wild bees



Zulian et al., 2013 Land



Interreg
North Sea Region
BEESPOKE
European Regional Development Fund



££

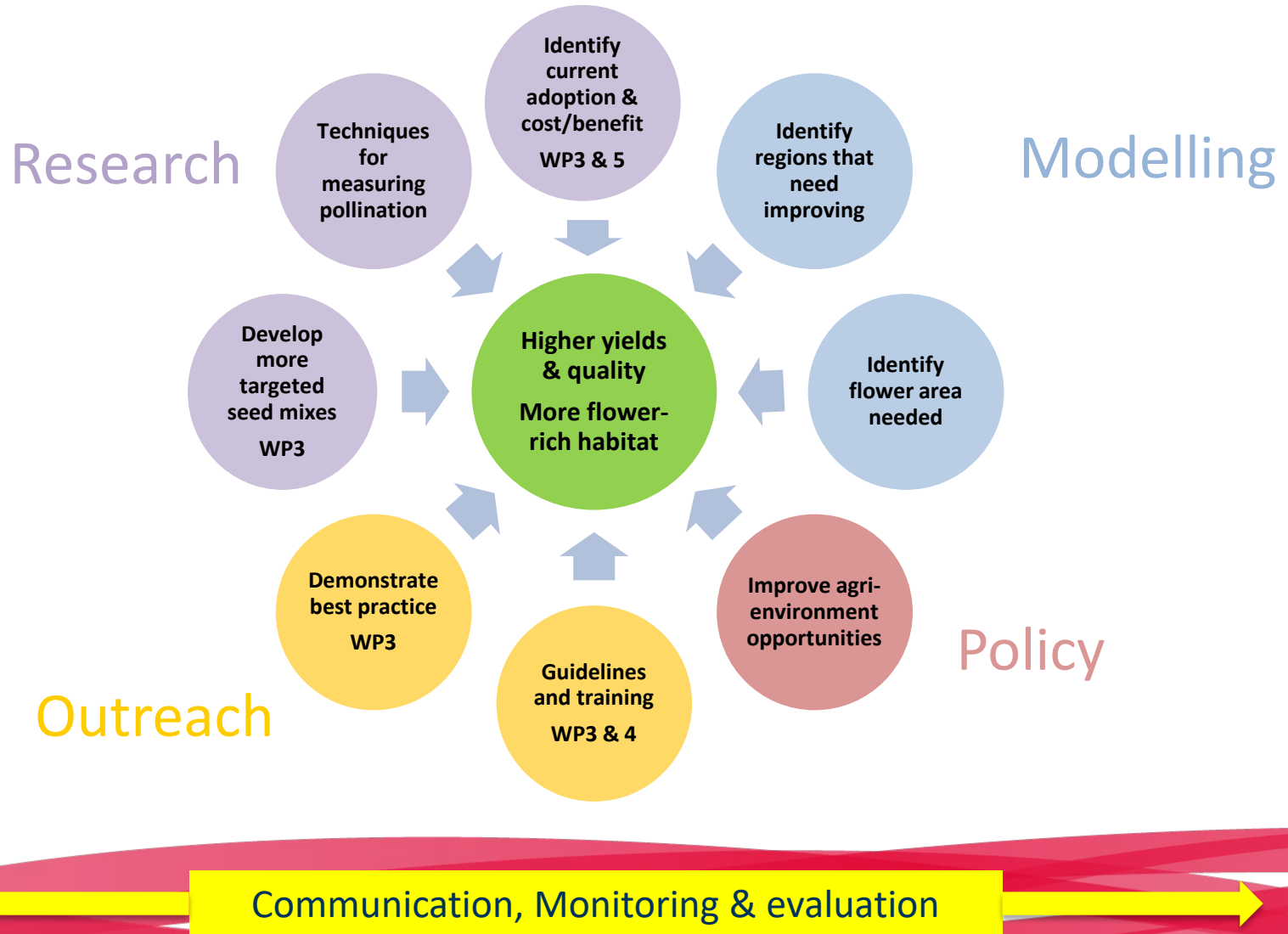


££££





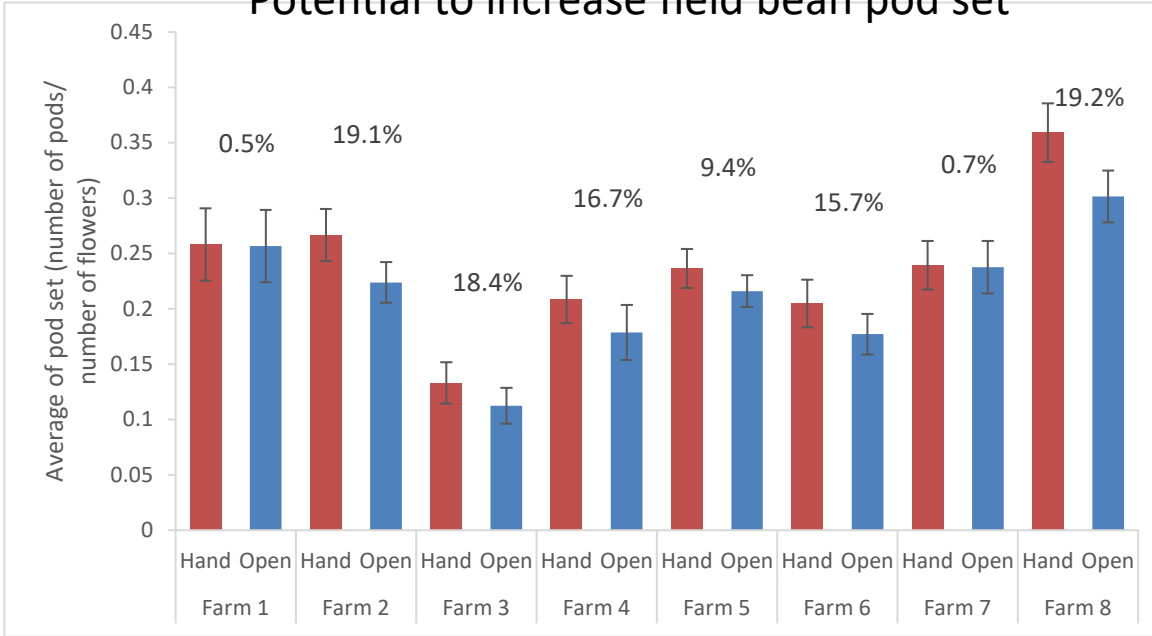
BEESPOKE approach





Some outputs..

Potential to increase field bean pod set



Pollinator identification guide and record sheet

HONEY BEES

- Top area of abdomen is often fat
- Very broad but long "golden bands"
- Nosecone, short, set on the legs
- Last legs are usually "long slow" in flight
- "Honeydew" genital pollen on last legs
- Size = 13mm, and "hairy eyes"

SOLITARY BEES

- Pollen carrying hair, but legs or under abdomen
- Often hairy but less than bumblebees
- 5 distinct colours, less than bumblebees
- Loss of genital and visible in colour and size
- Size = 13mm and smaller

HOVERFLIES

- Can be hovering above flowers
- Only one set of wings, usually held out at 90°
- Roundish head
- Round eyes covering most of the head area
- Their antennae compared to bees
- Not hairy

BUMBLEBEES

- More rounded body, very hairy & fluffy
- Usually, tail ends downwards when on flowers
- "Honeydew" genital pollen on last legs
- Clear colour bands (not all species)
- Queens = 20-25mm & Workers = 21-27mm

BEESPOKE

www.northsearegion.eu/beespoke @BeespokeNSR

www.northsearegion.eu/beespoke
Facebook: BeespokeNSR

Common Bumblebees of the UK

BUMBLEBEES

Bumblebees are medium to large, hairy bees which are important pollinators for many crops including beans and fish.

They are a social species and live in large colonies of up to 300 bees. Each colony is made up of a Queen (Q), lots of workers (W) (sterile females) which gather pollen and nectar for the colony, and males (M). Queen bumblebees lay their eggs in the nests of social bumblebees. As a result, they do not require workers to collect pollen and have only male (M) and female (F) morphs.

There are 24 species in Britain but the eight most common species make up 95% - 99% of bumblebee sightings. There are three useful steps for identifying a bumblebee:

TAIL COLOUR

Bumblebees have yellow and red tails, or no tails at all. Colours may fade as they fly.

PROBOSCIS

Most species but they have a microscopically small proboscis (male pollen baskets).

HEAD

Head shape (male pollen baskets) differs which means the underlying shiny black body can often be seen.

FLIES, WASPS AND BEES

Is it a bee or a fly?

Bees: 4 wings, Long, thin antennae, Eyes on side of the head, Hairy, Bees don't hover.

Flies: 2 wings, Short, thick antennae, Eyes in front of the head, Mostly not hairy, Flies can hover.

Is it a bee or a wasp?

Wasps can predators that hunt insects and spiders to feed their offspring or are parasitic on insects. They have long legs with spines for wrapping around prey to carry back to the nest.

Bees are wasps that evolved to feed on pollen rather than prey. As a result they are fatter with specialised hairs on the legs or abdomen for carrying pollen back to their nests. Behavioural differences can also be a useful identification tool: bees fly from flower to flower whereas wasps sit and wait for prey to fly past.

Bee Anatomy

Bees anatomy is broken down into head, thorax and abdomen. Flies tend to have yellow body hair and a scuffy appearance.

Additional sources of information:

Fah, S (2017) Field Guide to the Bees of Great Britain and Ireland. Bloomsbury Bloomsbury Wildlife Guides <https://www.fah.com/gb/9781851960907/collections/71125613118588120/>

Bumblebee Conservation Trust

www.northsearegion.eu/beespoke @BeespokeNSR

BEESPOKE

Building a Beespoke through the use of local Bees for the North Sea Region

How to Successfully Establish Perennial Wildflower Areas

SEED SELECTION

Use a native perennial mix with at least ten wildflower species (ideally maximum 20% of mix by weight) and three fine-leaved grasses (e.g. red fescue, etc) tailored to site conditions and requirements.

Choose wildflower species with a range of floral structures, colours and flowering times to support a broad suite of beneficial insects.

Tailor seed mix to your area, soil type, exposure to sun, drainage etc. Seed companies produce a range of seed mixes for different soil types, soil types, pH, and shade.

Avoid plant species known to benefit pests. Use native wild seed rather than agricultural varieties for greater habitat preservation.

PREPARATION

The aim is to prepare a firm, fine seedbed for broadcasting seed in late summer (August/September), or in spring (March/April).

For successful wildflower establishment, avoid areas that are shaded, of high soil fertility, and prone to waterlogging.

Ensure that perennial weed problems are completely controlled before sowing. This may take more than one season.

Remove dense ground cover, e.g. grasses using machinery during a dry period, or if this is not possible treat with a contact broad-spectrum herbicide. Then harrow/cultivate the soil bringing weed seeds to the surface.

Create a stable seedbed, allowing weed seeds to germinate, and then eliminate using a non-residual herbicide. Be aware that some herbicides can prevent and damage the flowering crop that follows.

SOWING

Broadcast the seed, do not drill. Use a mechanical broadcaster, drill lined deep from the ground, or broadcast by hand according to seed company recommendations.

Using the seed with sand, bulky or what small enables more even distribution when sowing by hand.

Press areas to firm the seed to soil surface, ideally just before rain is due.