The Role of Urban Gardens in Supporting Pollinators

Ethical Property Webinar, 27/04/2022

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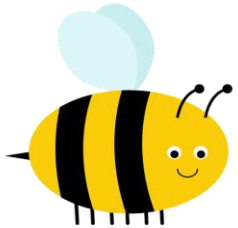
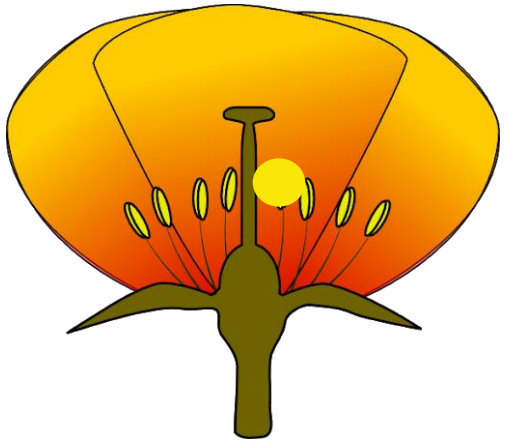
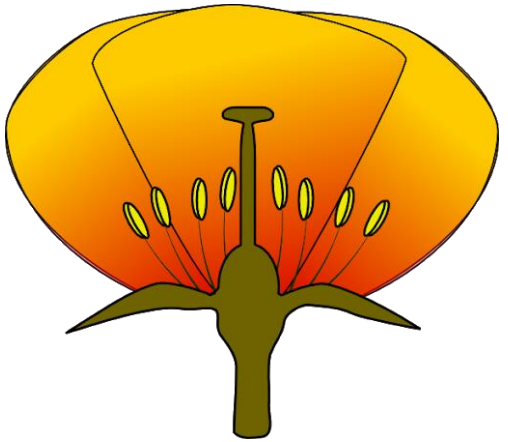
Talk outline

1. What are pollinators and why do they matter?
2. Which animals pollinate?
3. Why are pollinators declining?
4. What makes gardens so good?
5. What can you do to help?

What are pollinators and why do they matter?







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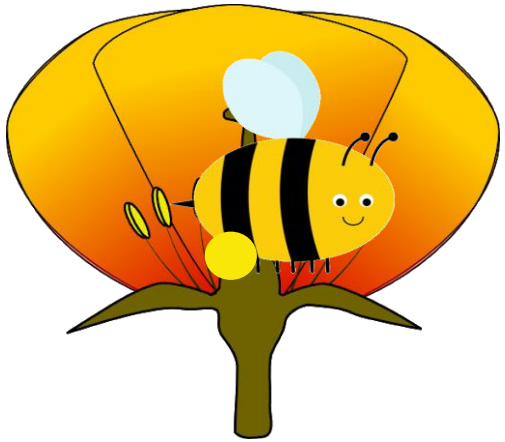

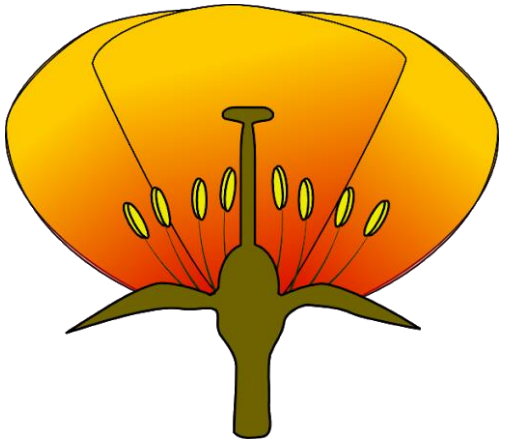

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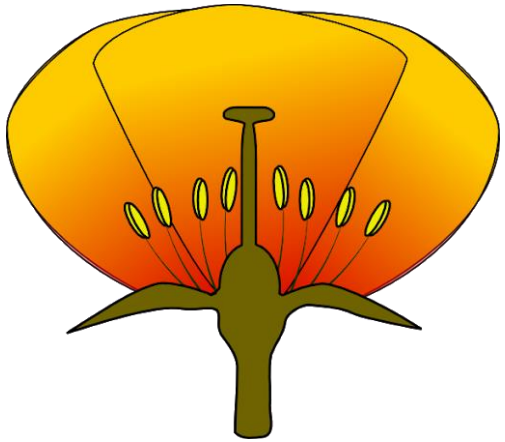

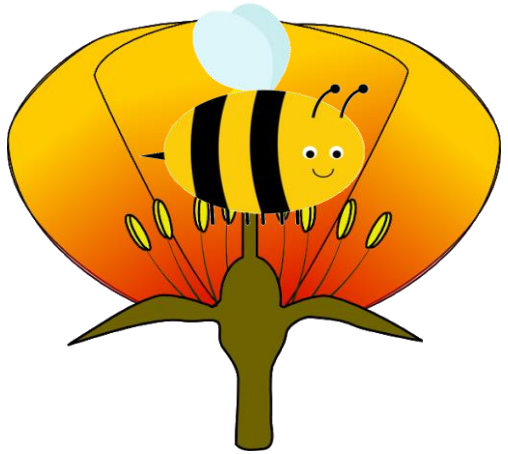

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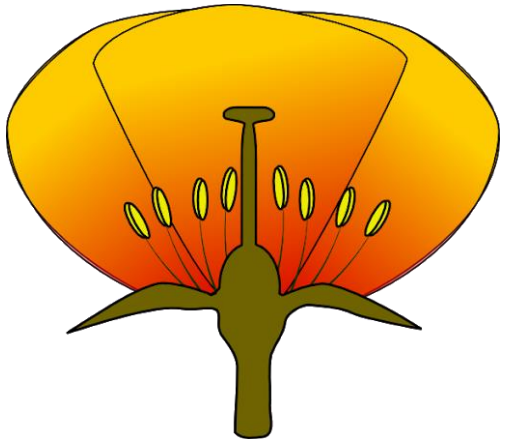

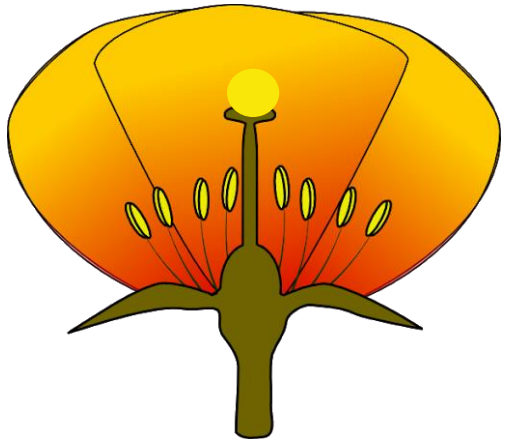

Poll 1

What are pollinators and why do they matter?

- 88% of flowering plants (76% of food crops) depend on pollinators

Essential (>90%)

Great (40-90%)

Modest (10-40%)

Little (<10%)

Sources: Ollerton et al. 2011; Klein et al. 2007

What are pollinators and why do they matter?

- 88% of flowering plants (76% of food crops) depend on pollinators (to some degree)

Essential (>90%)

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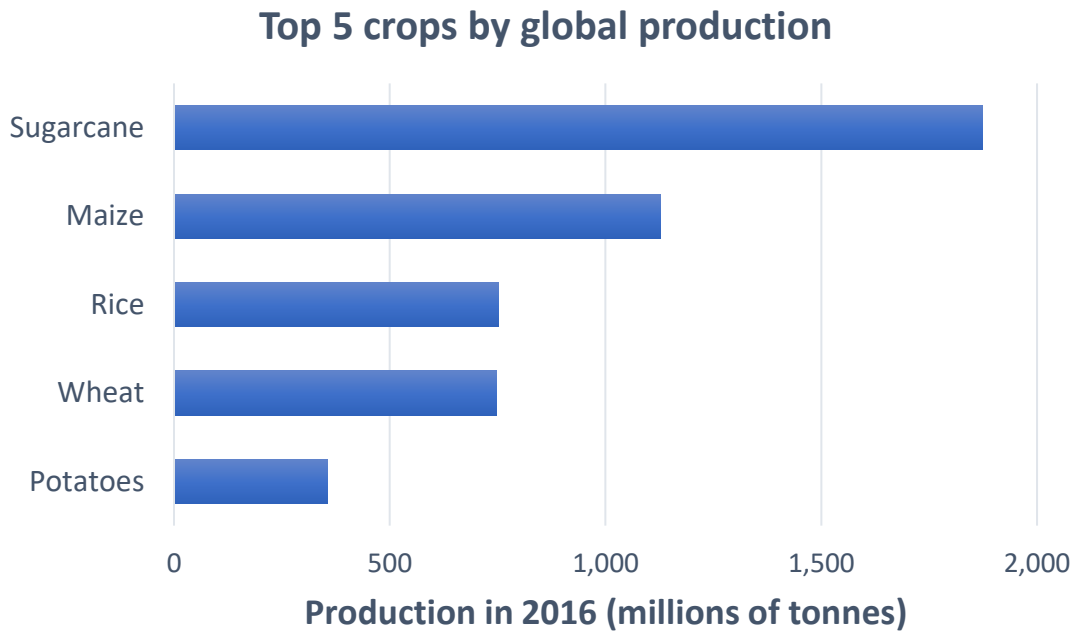
What are pollinators and why do they matter?

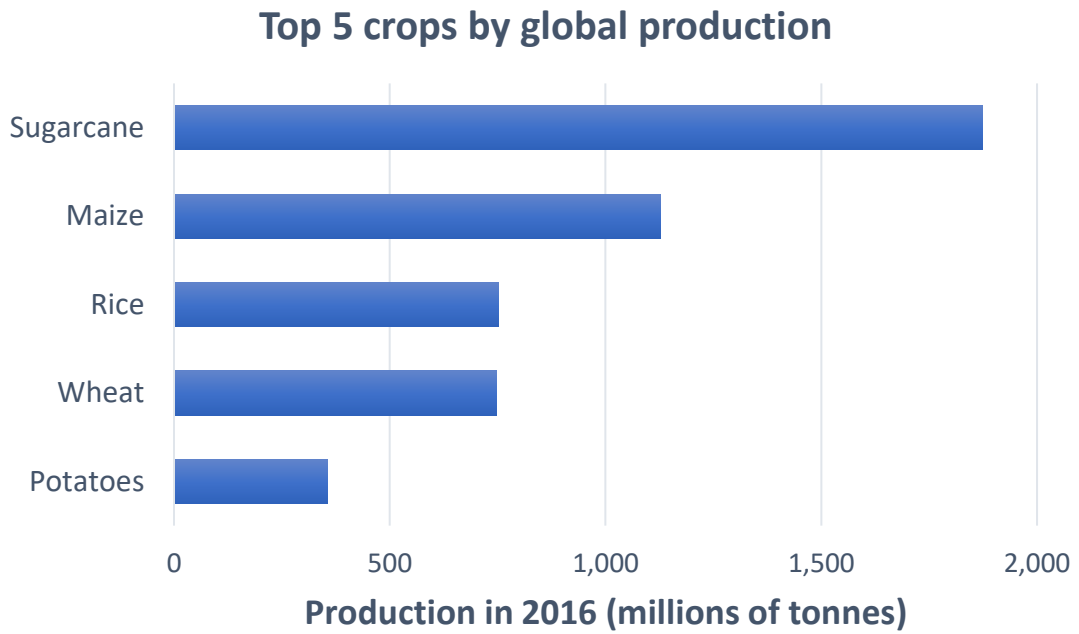
- Myth 1: We need pollinators directly for all/most of our food



Source: United Nations FAOStat

What are pollinators and why do they matter?

- We need pollinators for a diverse and nutritious diet (+ a lot else)



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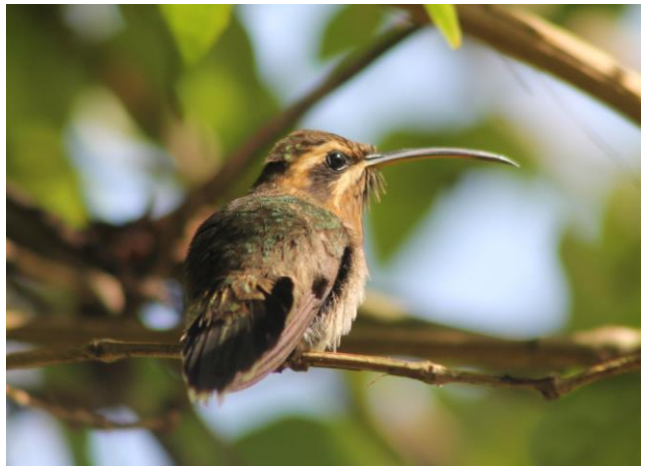
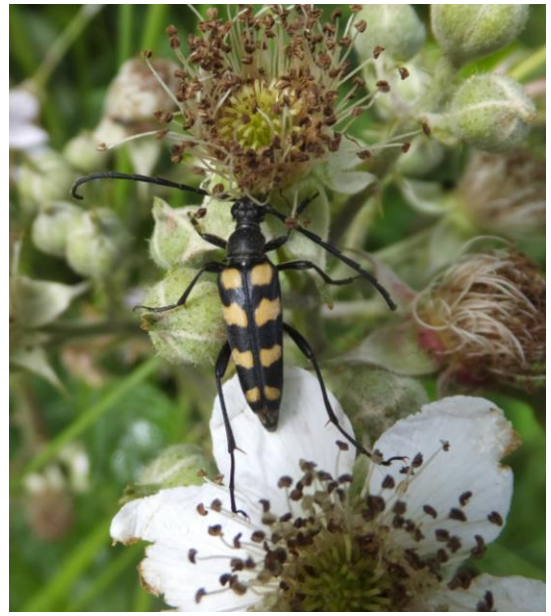
Which animals pollinate?





Which animals pollinate?

- 99% of ~350,000 pollinators species belong to four insect groups

142k moths/butterflies

77k beetles

70k bees/wasps

55k flies

Source: Ollerton et al. 2017

Which animals pollinate?

- 99% of ~350,000 pollinators species belong to four insect groups

142k moths/butterflies

77k beetles

70k bees/wasps

55k flies

Poll 2

Source: Ollerton et al. 2017

Which animals pollinate?

- Myth 2: Bees (or even honeybees) are the only pollinators

142k moths/butterflies

77k beetles

70k bees/wasps

55k flies

Source: Ollerton et al. 2017

Which animals pollinate?

- Bees are disproportionally important, but are ~5% of pollinator species

142k moths/butterflies

77k beetles

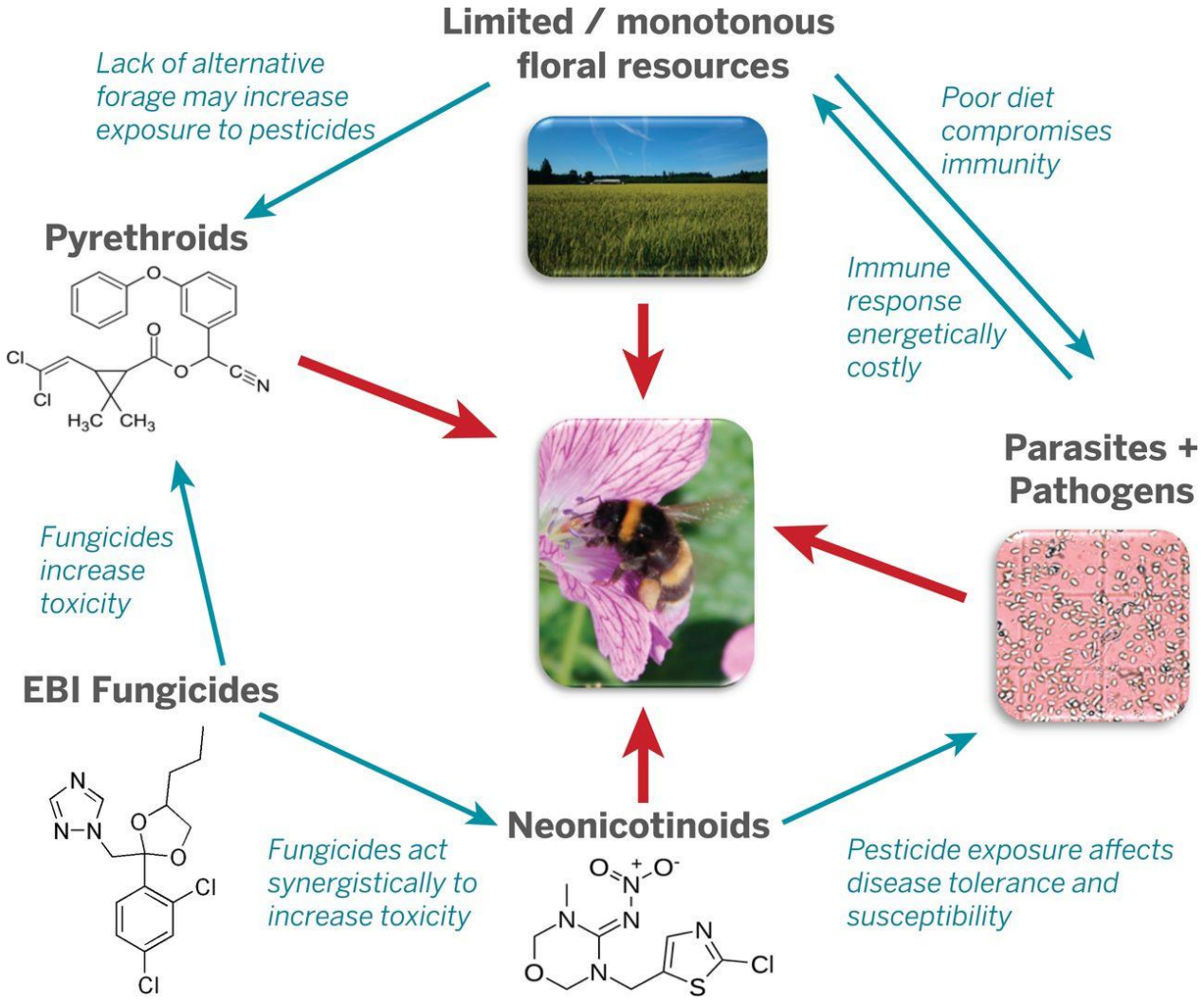
70k bees/wasps

55k flies

Source: Ollerton et al. 2017

Why are pollinators declining?

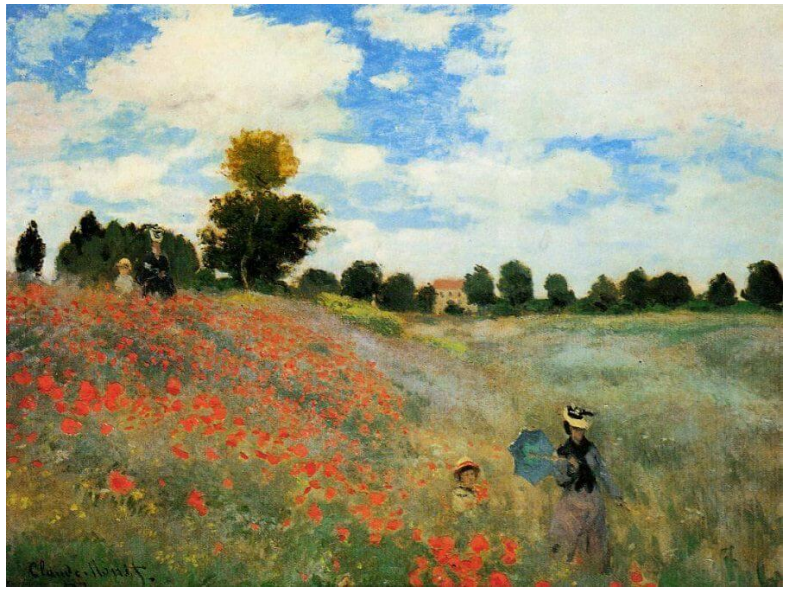
- Loss of food
- Parasites/diseases
- Pesticides
- Climate change



Source: Goulson et al. 2015

Why are pollinators declining?

- Loss of food (flowers) due to intensive agriculture



Why are pollinators declining?

- Loss of food (flowers) due to intensive agriculture

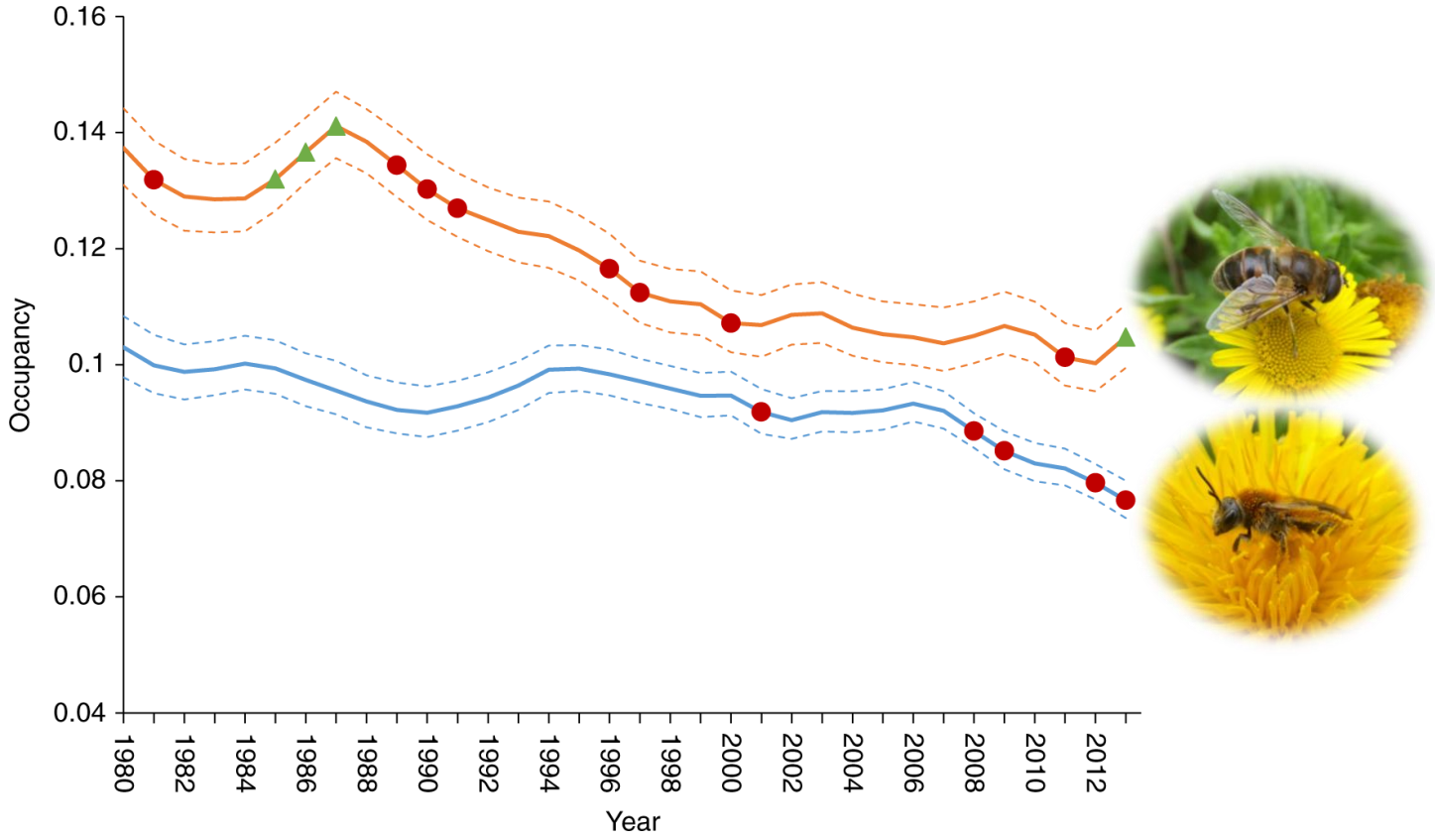
Ryegrass pasture,
Gloucestershire

Wheat field,
Wiltshire

Brecon Beacons National Park,
South Wales

Why are pollinators declining?

- Many pollinators are still declining,

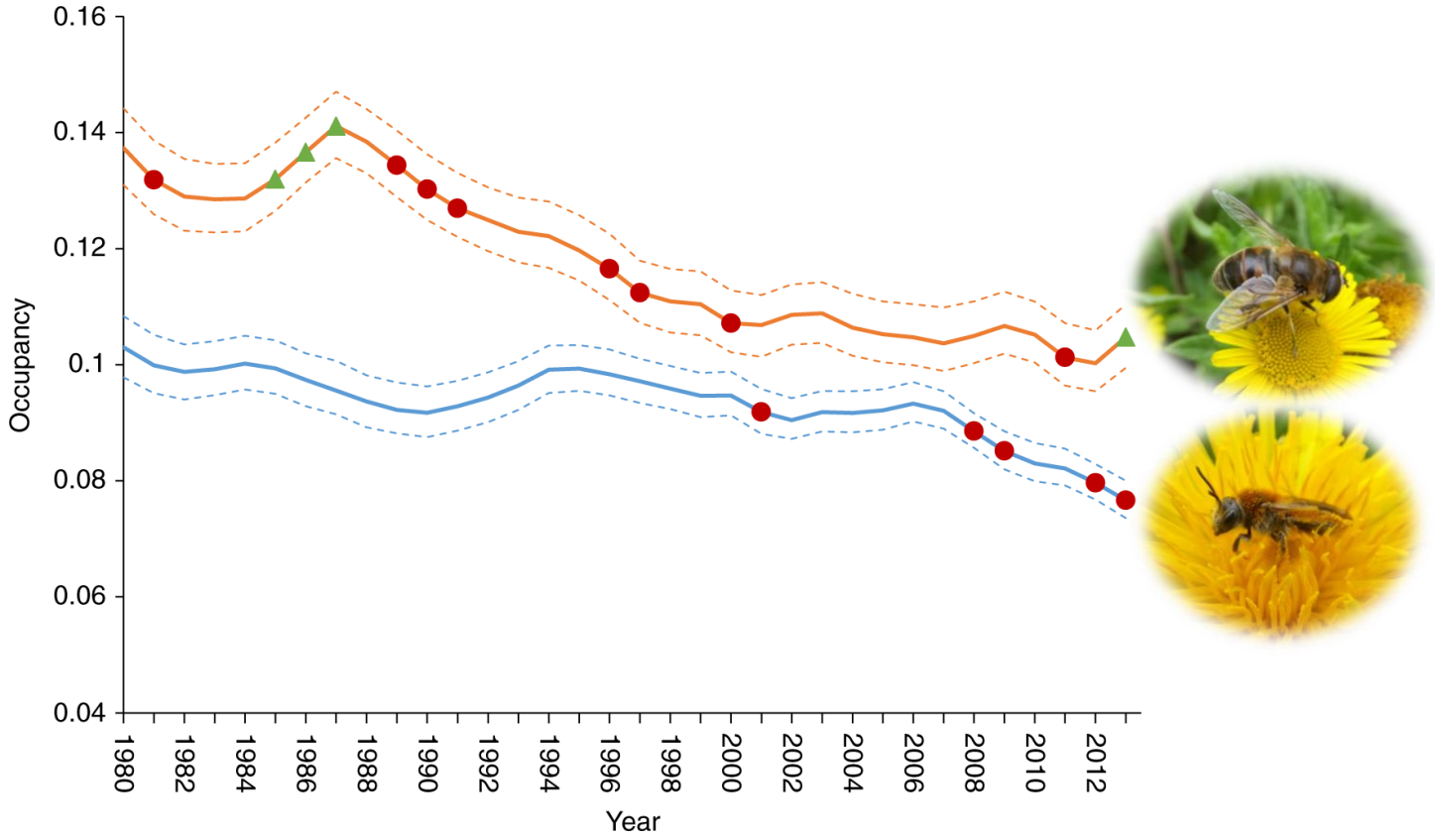


New arrival: tree bumblebee

Source: Powney et al. 2019

Why are pollinators declining?

- Many pollinators are still declining, but some are doing very well



New arrival: tree bumblebee

Source: Powney et al. 2019

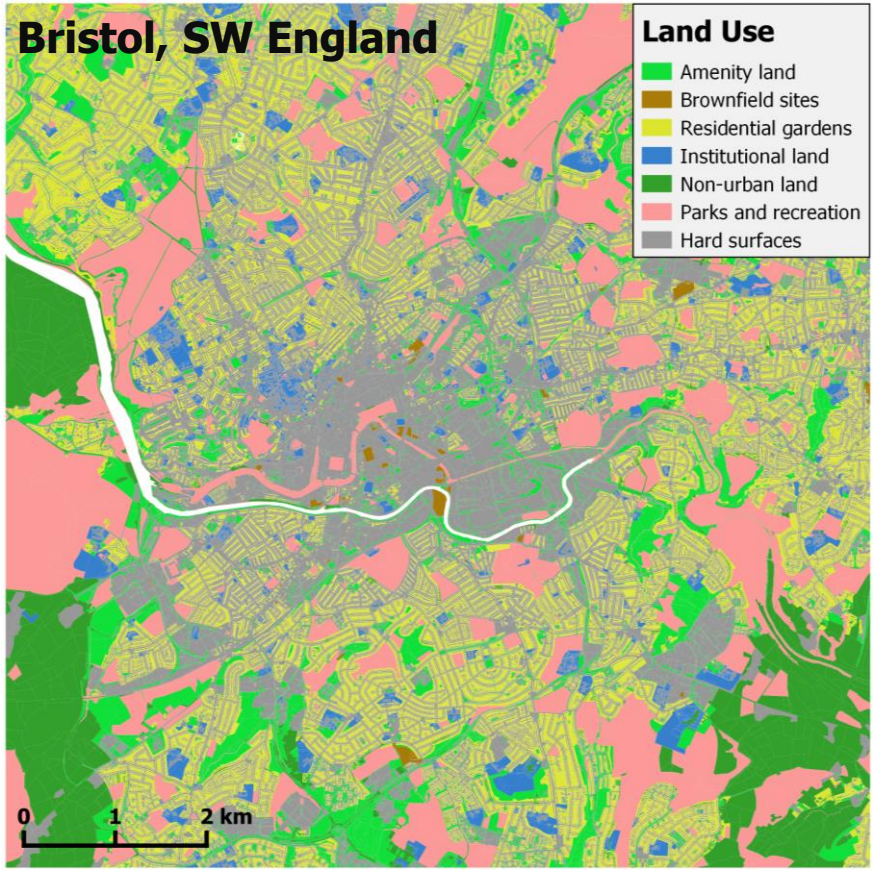
Why are gardens so good?

1. Area and arrangement
2. Nectar and pollen production
3. The diversity of flowers
4. The timing of food production
5. Nest sites and microhabitats

Why are gardens so good? – Area

Residential gardens cover:

- 30% of UK urban areas
- 450,000 ha in England (3.5%)
- More land than broadleaf woodlands
- Five times the area of NNRs



Source: Office for National Statistics

Why are gardens so good? – Area

Residential gardens cover:

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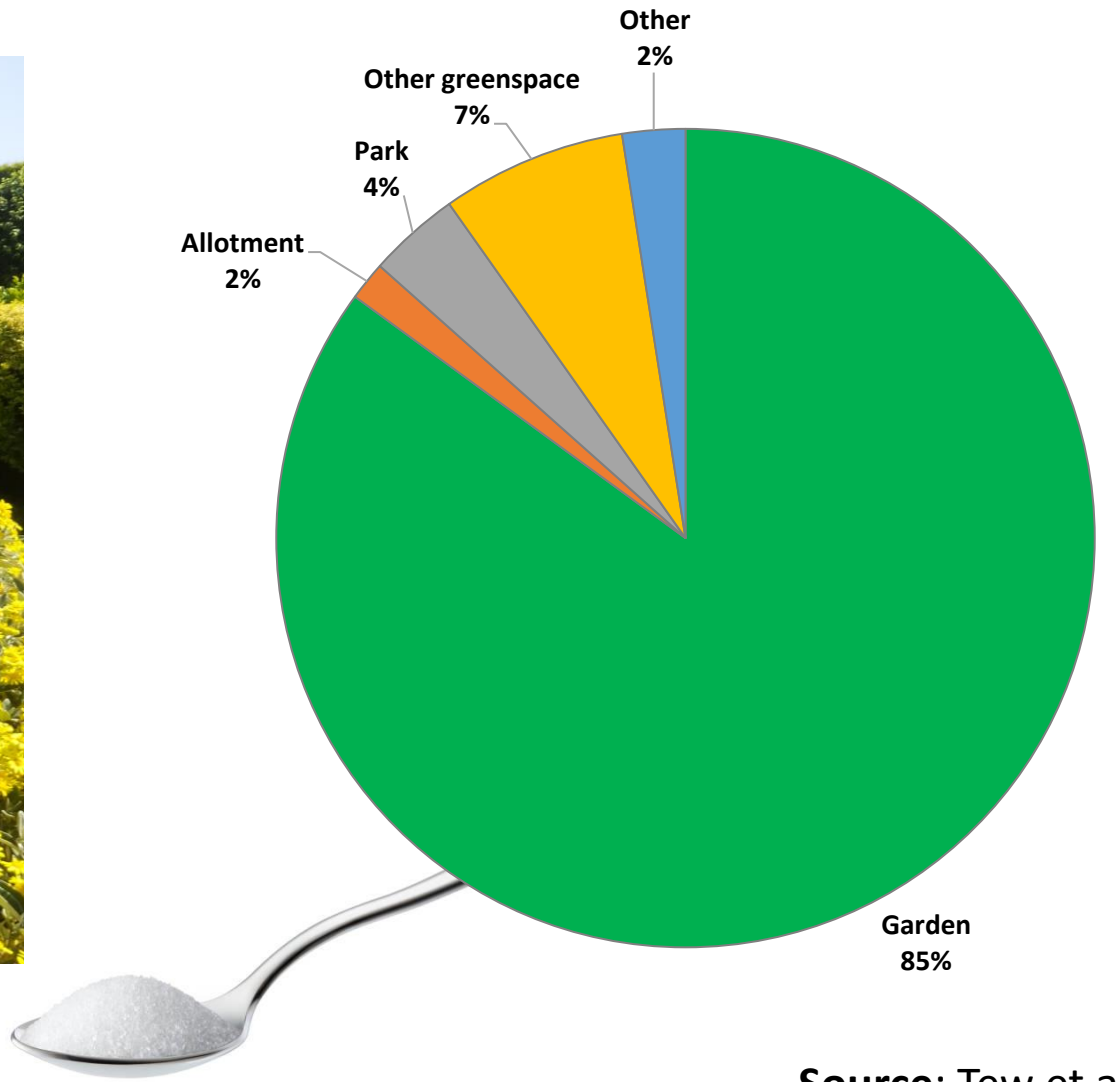
Why are gardens so good? – Nectar and pollen



Source: Tew et al. 2021

Why are gardens so good? – Diversity of flowers

In 59 Bristol gardens I found:

- 636 plant species
- Just 3% in at least half of gardens
- 32% in just a single garden

Source: Tew et al. 2022

Why are gardens so good? – Diversity of flowers

In 59 Bristol gardens I found:

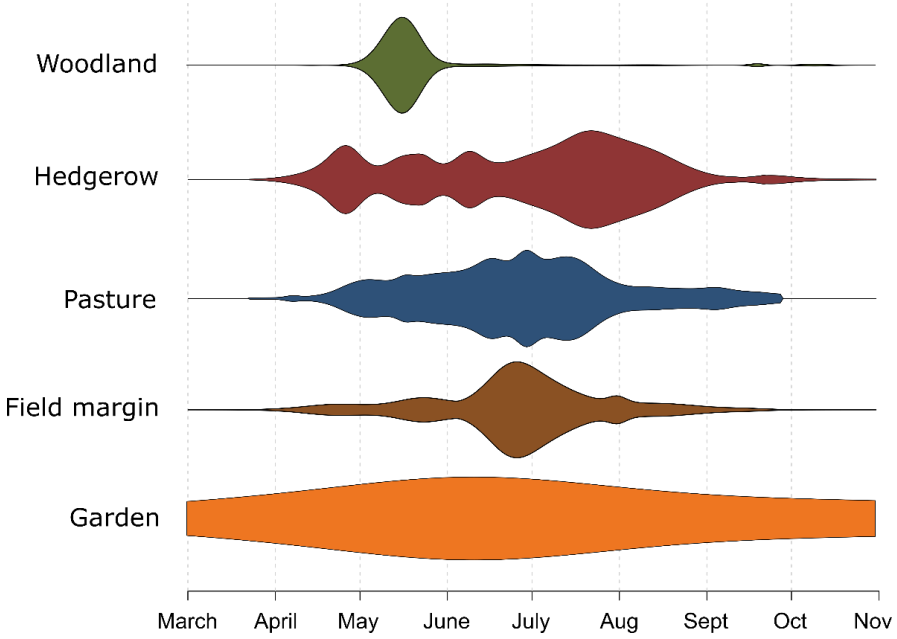
- 636 plant species
- Just 3% in at least half of gardens
- 32% in just a single garden

59 Bristol gardens: 636 species in <1 ha

Gordano Valley NNR: 130 species in 126 ha

Why are gardens so good? – Timing of food

- Pollinators need food from March to October
- Countryside habitats have boom & bust cycles
- Gardens (together) provide a stable and continuous supply



Buff-tailed bumblebee 23-Dec

Why are gardens so good? – Nest sites

What can you do to help?

1. Maximise the number of flowers
2. Plant a diversity of pollinator-friendly species
3. Aim for year-round flowering
4. Mow the lawn less often (or scrap it altogether!)
5. Avoid pesticides, fungicides and weedkillers
6. Create microhabitat diversity for nesting and larvae

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Poll 3

What can you do to help?

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- Myth 3: Getting a bee hive will help stop wild pollinators from declining

What can you do to help?

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- The Western honeybee is one domesticated species of ‘livestock’.
  It pollinates wild/crop plants, but we don’t keep chickens to ‘save’ birds.

What can you do to help? – Number of flowers

- Are you maximising your space? – Add pots and flowering shrubs

What can you do to help? – Pollinator-friendly

- Choose pollinator-friendly species – see RHS PfP list and labels
- Avoid ‘double petal’ cultivars – choose open, accessible flowers
- Fruits, herbs and ‘cottage garden’ plants are a great bet

RHS PLANTS FOR POLLINATORS

What can you do to help? – Pollinator-friendly

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RHS PLANTS FOR POLLINATORS

Poll 4

What can you do to help? – Pollinator-friendly

- Choose pollinator-friendly species – see RHS PfP list and labels
- Avoid ‘double petal’ cultivars – choose open, accessible flowers
- Fruits, herbs and ‘cottage garden’ plants are a great bet

- Myth 4: You need to plant native species

What can you do to help? – Pollinator-friendly

- Choose pollinator-friendly species – see RHS PfP list and labels)
- Avoid ‘double petal’ cultivars – choose open, accessible flowers
- Fruits, herbs and ‘cottage garden’ plants are a great bet

- Some pollinators prefer natives, but many do not care

What can you do to help? – Year-round flowers

Spring	Summer	Autumn	Winter
Flowering currant	Campanula	Ivy	Japanese mahonia
Grape hyacinth	Geranium (hardy)	Oregano	Sweet box
Pieris	Lavender	Echinaceae	Winter honesuckle
Willow	Honeysuckle	Sedum	Strawberry tree
Cherries	Firethorn	Verbena	Crocus
Pulmonaria	Thyme	Salvia	Hellebore

What can you do to help? – Lawns

- Do you need a short-mown lawn (especially in the front garden)?

What can you do to help? – Lawns

- How you mow your lawn makes a big difference

What can you do to help? – Lawns

- Wildflower ‘meadows’ can be a nice addition (mow around)

What can you do to help? – Toxic chemicals

- Give ladybirds and wasps a chance to get to work
- Do you need a ‘perfect’ lawn or spotless roses?
- Killing caterpillars kills butterflies and moths (important pollinators)
- Gardens are functioning ecosystems with herbivores and predators
- ‘Weeds’ provide important flowers and food for caterpillars

What can you do to help? – Toxic chemicals

- Dandelions are a lifeline for many bees in April/May

What can you do to help? – Toxic chemicals

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Poll 5

What can you do to help? – Toxic chemicals

- Dandelions are a lifeline for many bees in April/May

- Myth 5: Bees all live nests or hives with a queen and workers

What can you do to help? – Toxic chemicals

- Dandelions are a lifeline for many bees in April/May

- Just 26 of the UK's ~275 bee species are social – the rest are solitary

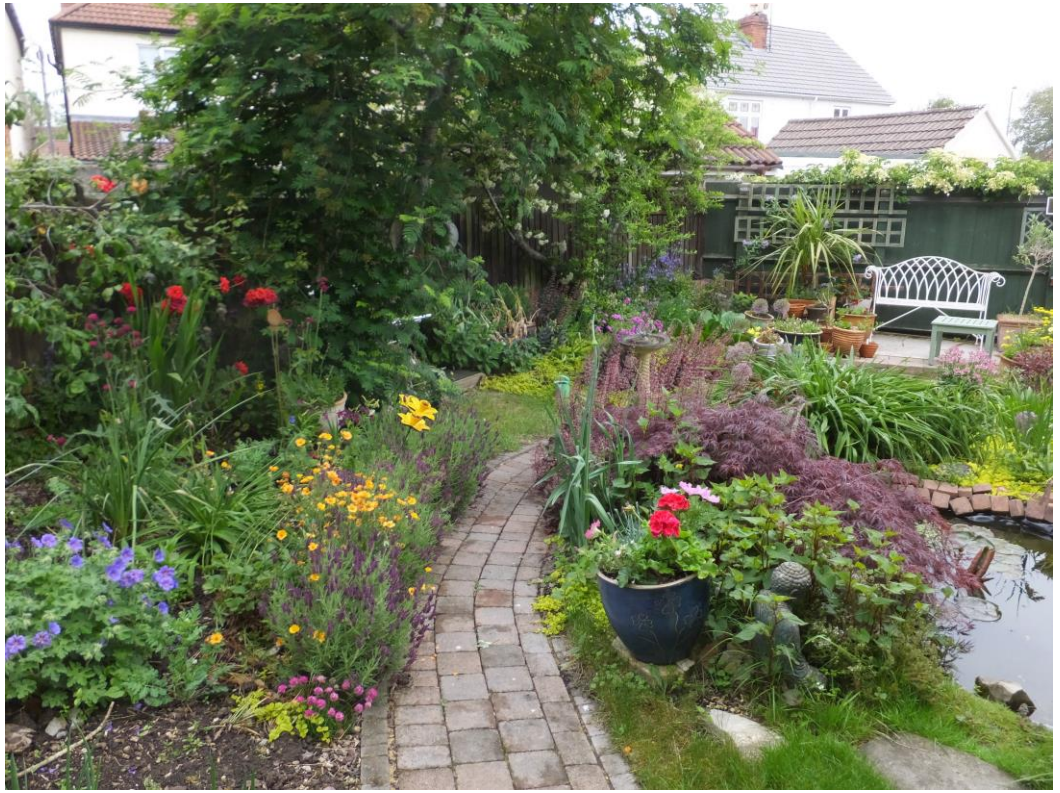
What can you do to help? – Microhabitats

Some pollinators need (as larvae or adults):

- Places to nest and shelter – often hedges, tree holes, bare soil, walls
- Food plants for larvae – often ‘weeds’ or native trees/shrubs
- Aphids or honeydew – e.g. some hoverfly larvae eat aphids
- Ponds – e.g. ‘rat-tailed maggot’ hoverfly larvae
- Dead wood and fungi – keep tree stumps and make log piles
- Rotting fruit – e.g. apples for wasps

What can you do to help? – Microhabitats

Try to include as many microhabitats as you can: wildlife loves variety



Thanks

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- Stephanie Bird (RHS)

Field assistant

- Jo Morten

Bristol homeowners and Botanic Gardens

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