

Bees and humans surviving together in a crisis



Jane Medwell



Things I'm going to talk about

1

Bees and their importance

2

Our reliance on bees (and other pollenators)

3

Bees reliance on us - the crisis

4

What we can do

5

Questions



Bees - of all types

- 20,000 species of bee worldwide.
- 24/25 species of bumblebee in Britain.
- 250 UK species of solitary bee.
- Pollinators include other insects, birds, bats and animals. Bees do around 80% of food pollination.





Honeybees: *apis mellifera*

- Originated in Asia around 300,000 years ago and spread across Europe and Africa.
- Have been “kept” by humans for 9000 years, but they are not “domesticated”.
- Live in large colonies of up to 60,000
- Make a honey surplus and wax





Bees' crisis is our crisis

- Today the value of bees is largely recognized in their value as pollinators
- Pollination is the transfer of pollen between the male and female parts of flowers to enable fertilization and reproduction.
- A video made for World Bee Day 2020 by the Food and Agriculture organisation of the United Nations. It picks out the value of and threat to bees.



fao.org



Do our agricultural habitats support bees?

Wheat, Rape, Barley, Soya, Sugarbeet, Maize, Permanent Pasture, Cider Orchards & Eating Apple Orchards all visible from one drone shot today. Got to love Herefordshire. 🍷😊



9:45 PM · May 5, 2020 · [Twitter for Android](#)

- This farmer tweeted a beautiful photo
- Monocrops favour honeybees - but not for long!

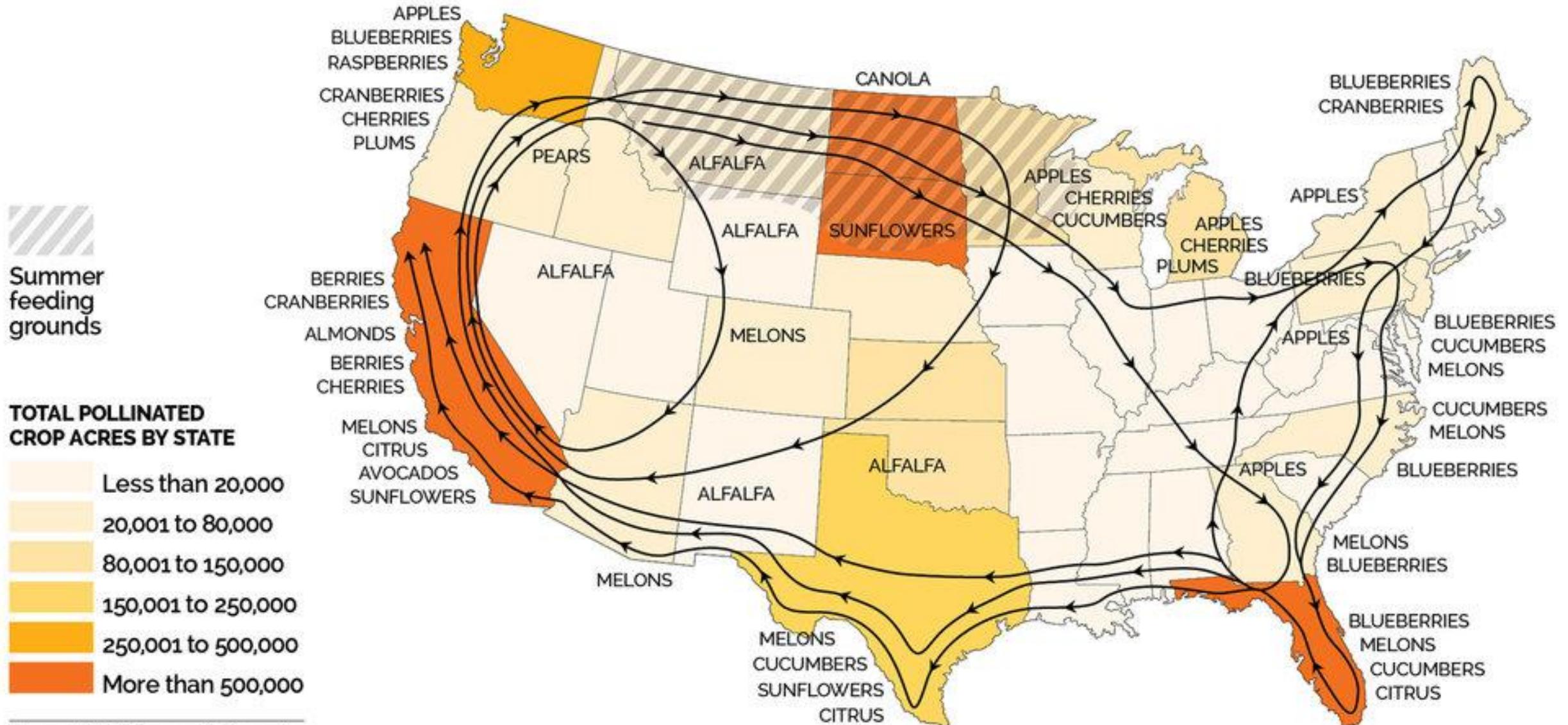
Intensive agriculture=intensive pollination

- Loss of insects (species and number) means farmers import honeybees to pollenate.
- Beekeepers move bees to specific places for pollination
- The news report that follows this slide laments the deaths of millions of bees during migratory pollination of almonds.
- <https://www.dailymotion.com/video/x5cfv1u>





Pollinator Movements in the United States



Source: USDA Economic Research Service, 2014

Moving bees moves pests and diseases

- Last 20 years has seen a massive increase in bee disease.
- These includes viruses, bacterial and fungal diseases and pests.
- Both managed honeybees and wild pollinators have been affected.
- Beekeeping practices and the habitats we create are implicated.



A bumblebee infested with mites, 7 May 2013. Photograph: Phil Gates, Guardian

Bee disease - controlled and uncontrolled

- Brood diseases, such as the foulbroods, affects the hive stage of the bee lifecycle (notifiable in the UK)
- Viruses- affect all stages of the bee life. There is currently a lot of CBPV. Viruses are usually associated with larger pests.



Invasive pests - where did they come from?



Diseases spread- a familiar crisis

- Bees drift between colonies in apiaries
- Bees rob other colonies
- Beekeepers move bee colonies
- Beekeepers spread disease on equipment (practice barrier hygiene)





Dennis Arp stands for a portrait near a colony of honeybees outside Rye, Arizona. Photograph: Caitlin O'Hara/The Guardian

So why are bees dying in the USA?

- Major diseases are endemic in the USA
- “Evening up colonies” means commercial beekeepers share pathogens between colonies
- They then use antibiotics routinely
- Forage crops are treated heavily with pesticides and fungicides
- Bees are spatially aware- they have the equivalent of GPS



We must consider the forage available

- Cities and suburbs provide a good deal of forage
- In some cities it may not be enough- and may out-complete natural pollinators
- Disease cannot be contained easily in rooftop locations and seems to spread fast in cities.

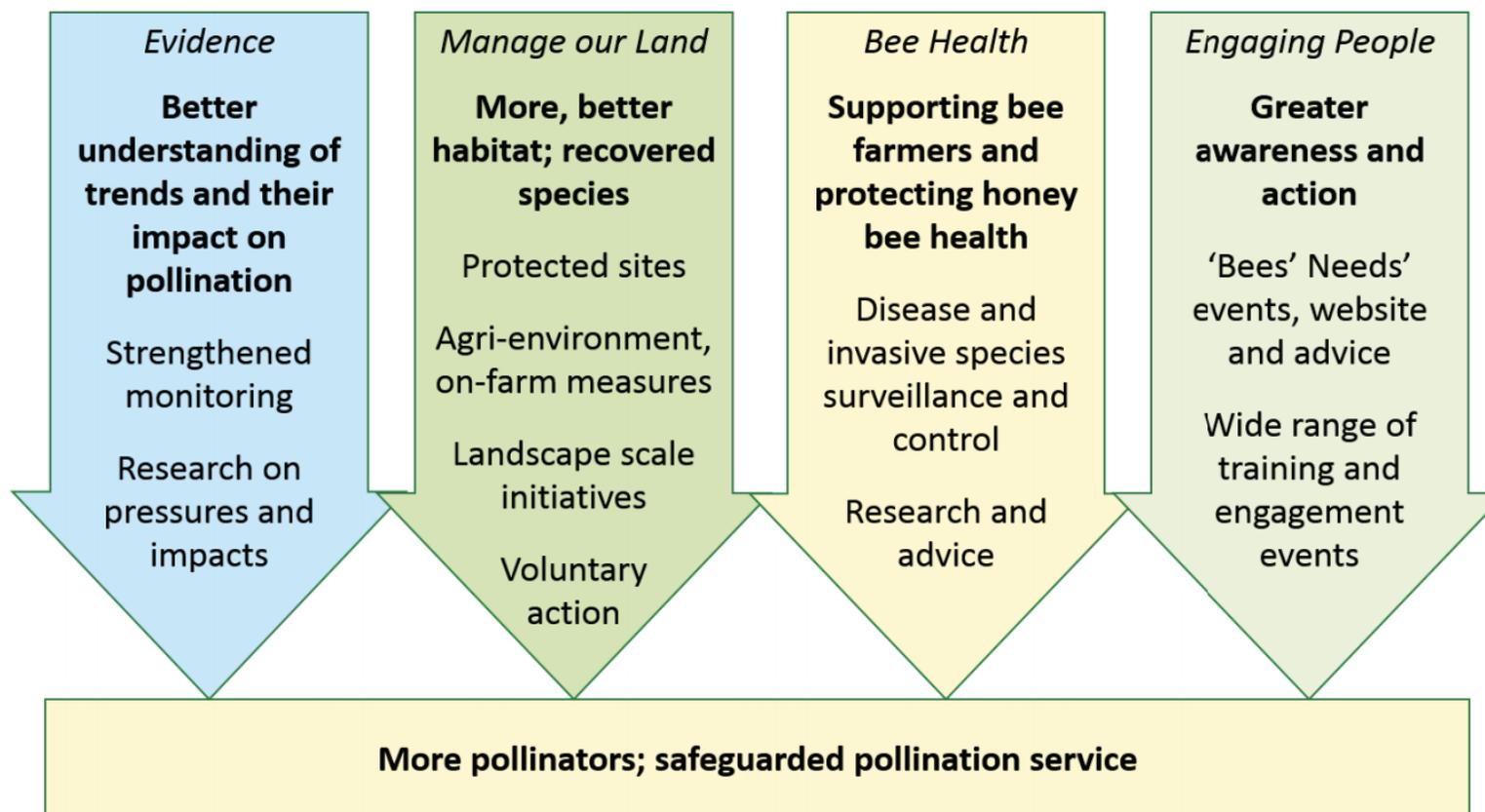


Globalization, pests and disease

- “The world is getting smaller”
- Pests and diseases of honeybees spread across countries and species
- Buying and selling queens/bees internationally is problematic
- Time to stoppit!



National Pollinator Strategy: Implementation Plan, 2018-2021



Support your local bees

- Step away from the lawnmower
- Ditch the garden sprays
- Stop your council cutting verges
- Buy local honey
- Get a bee hotel (or pile of sticks)

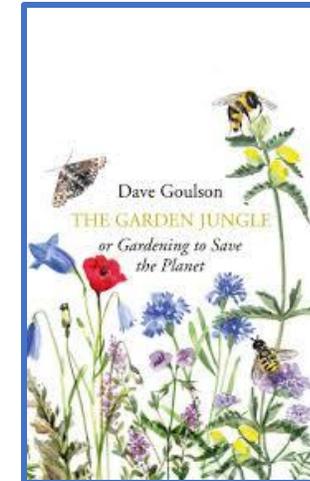
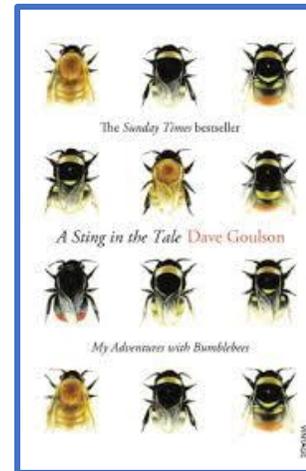
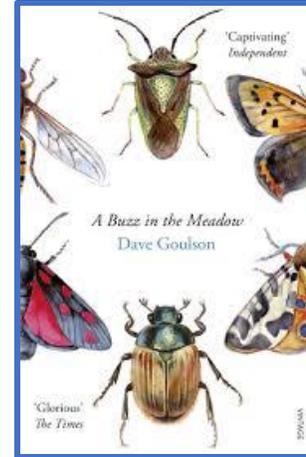


Help others support bees

- Support pollinator initiatives- beewalks, citizen science etc
- Write to your MP
- Support the British Beekeepers Association



Read about bees and nature..... A real entomologist: Prof Dave Goulson

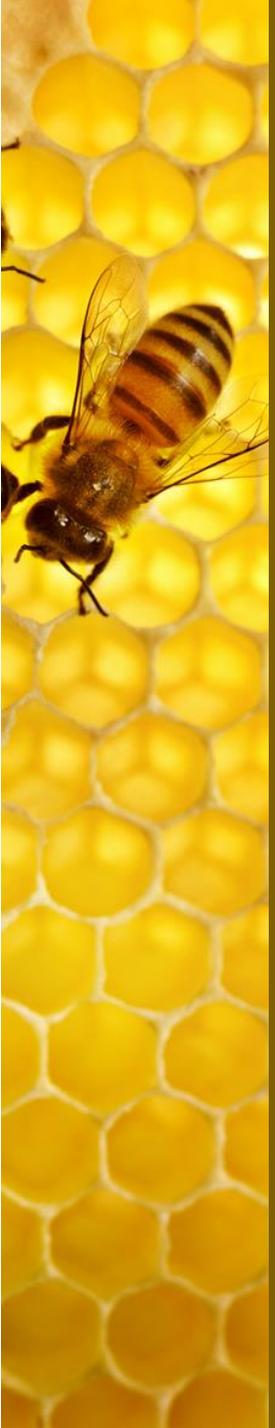


Do beekeeping (or host an apiary)....Prof David Evans gives the best advice.

- David Evans (a virologist) is a beekeeper's beekeeper. His advice is simply the best:

<https://theapiarist.org/>





Watch some great films...

- **Pollinators:** https://www.youtube.com/watch?v=rac_D_v-nrc The Pollinators is a cinematic journey around the United States following migratory beekeepers and their truckloads of honey bees as they pollinate the flowers that become the fruits, nuts and vegetables we all eat. The many challenges the beekeepers and their bees face en route reveal flaws to our simplified chemically dependent agriculture system. We talk to farmers, scientists, chefs and academics along the way to give a broad perspective about the threats to honey bees, what it means to our food security and how we can improve it.
- [Food and Agriculture Organization of the United Nations](https://www.youtube.com/watch?v=p6CvwhsDwPQ) produced **Talking Bees: FOA Hosts a discussion on the importance of bees for World Bee Day 2020**
<https://www.youtube.com/watch?v=p6CvwhsDwPQ>
- [*Honeyland*](#), one of 15 feature documentaries shortlisted for the Academy Awards, is about Hatidze Muratova, a woman from a remote section of North Macedonia. There she lives a humble existence cultivating honey from wild bees and tending to her very old and infirm mother in the rudimentary hut they call home.