

**Climate change and neotropical pollinators
– the state of knowledge, policies and
programmes in Caribbean Small Island
Developing States**



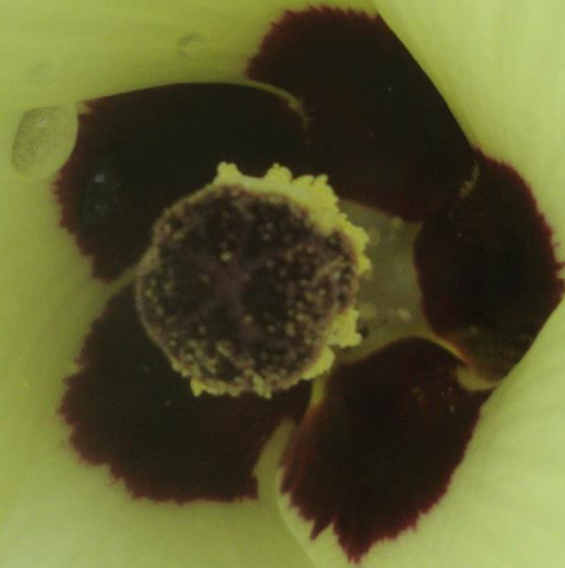
Lena Dempewolf

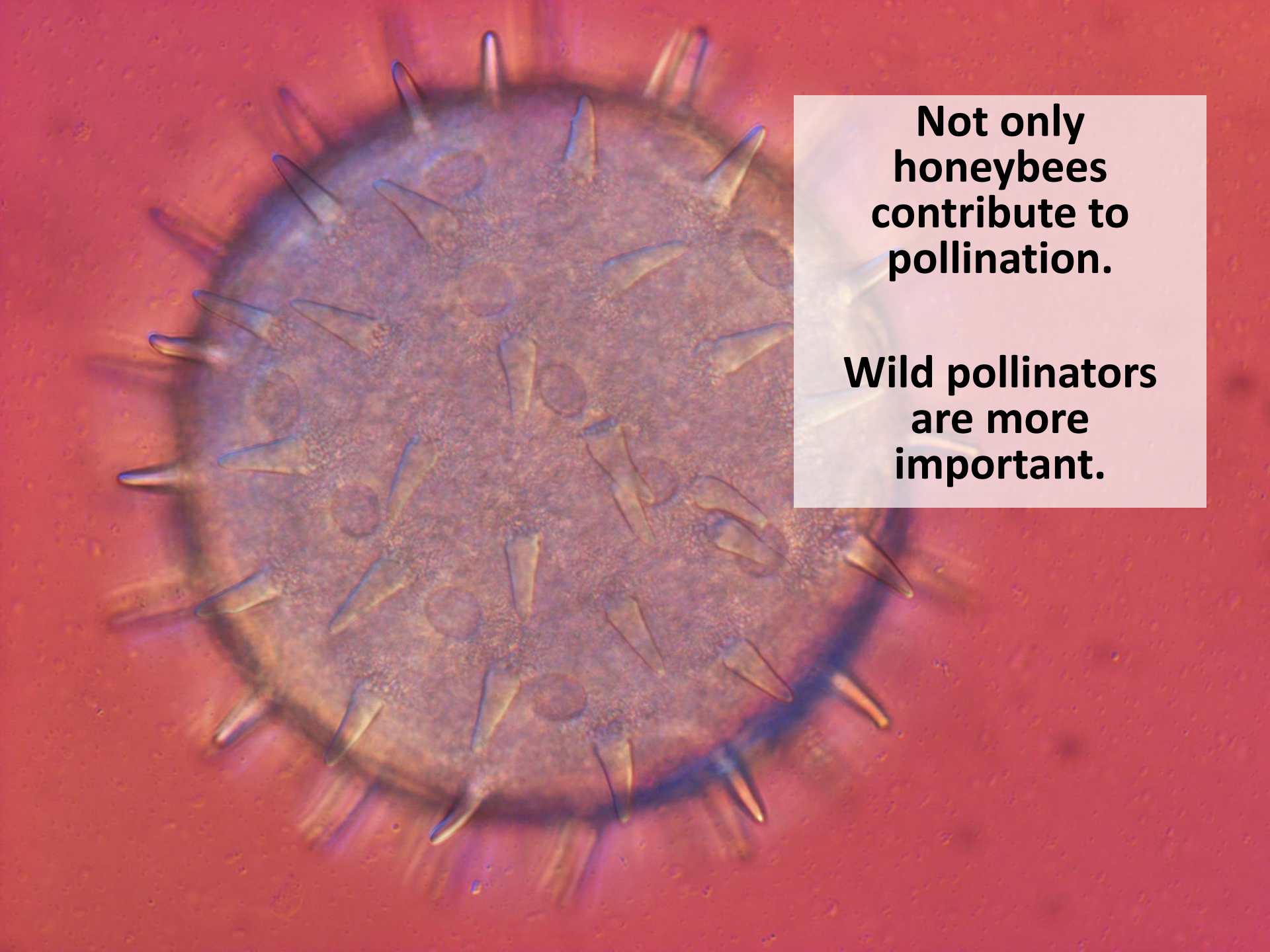
What is pollination?



Pollination on a global scale

- Value estimated at €153 billion
- >90% of 250,000 species of modern flowering plants and 65% of all plant species are pollinated by animals
- Global pollination crisis
- Pollination not accounted for and vastly undervalued regionally
- Large proportion of crop value due to pollination – but unrecognised
- Global shift to animal pollinated crops
- Nutrition shortage
- Lack of information
- Reduction in pollinators results in reduced global biodiversity





**Not only
honeybees
contribute to
pollination.**

**Wild pollinators
are more
important.**



Honeybees are not the most effective pollinators.



Not all
pollinators are
bees.



Image courtesy <http://archive.news.softpedia.com/news/A-Lizard-Like-a-Bee-52839.shtml>

What makes a good pollinator?





Not all pollinators pollinate all plant species and not all flower visitors are pollinators

What makes a good pollinator?

Physical characteristics

Body size

Presence and location of hairs

Scopa/pollen baskets

Flight distance

Behavioural characteristics

Abiotic conditions

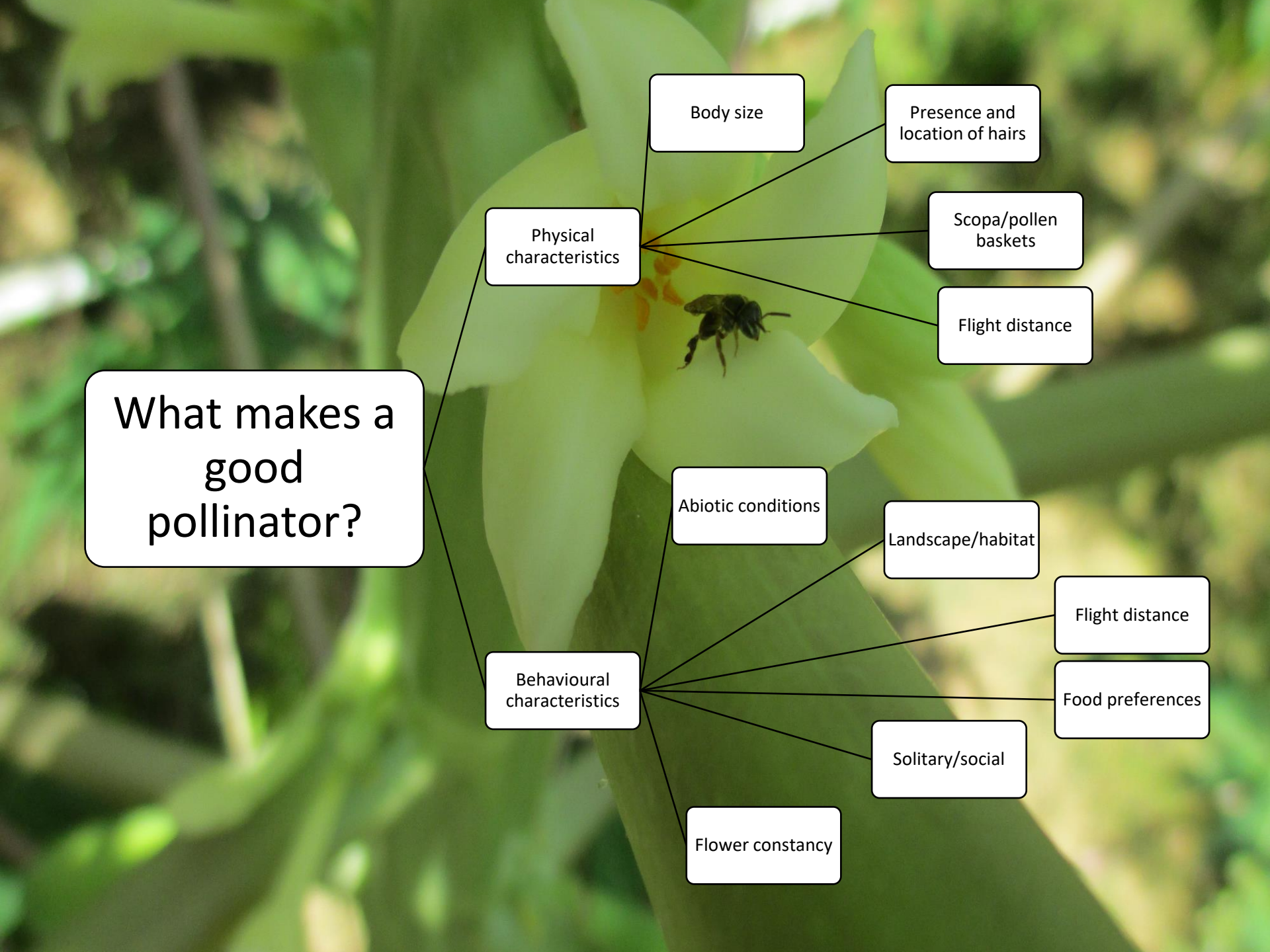
Landscape/habitat

Flight distance

Food preferences

Solitary/social

Flower constancy



What threats
do pollinators
face?

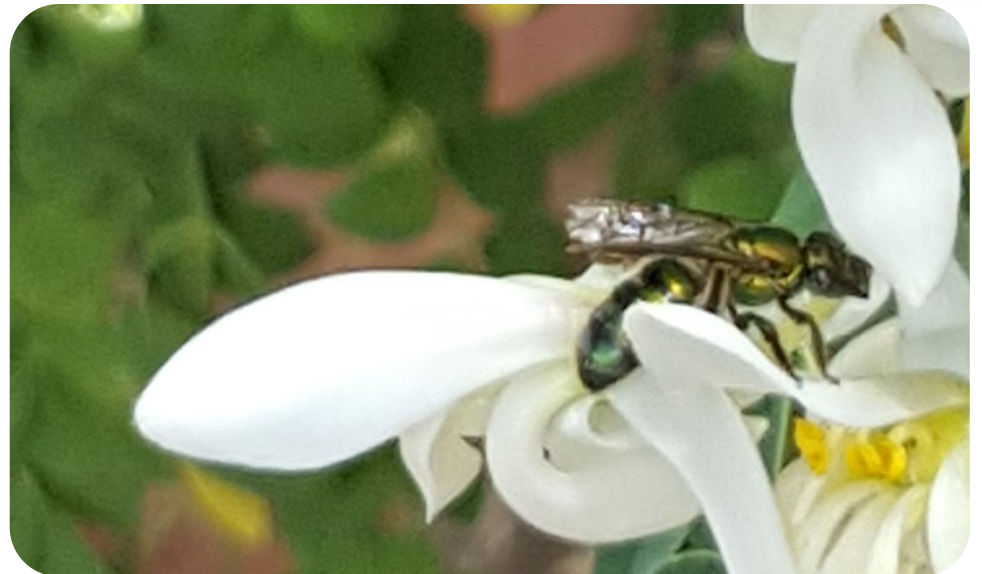


Pollinator decline

- Global pollination crisis
 - Global decline of wild pollinators
 - Increasing challenges with managed pollinators
- More pollinator-dependent crops grown
- Increasing human population increases stresses on pollinators



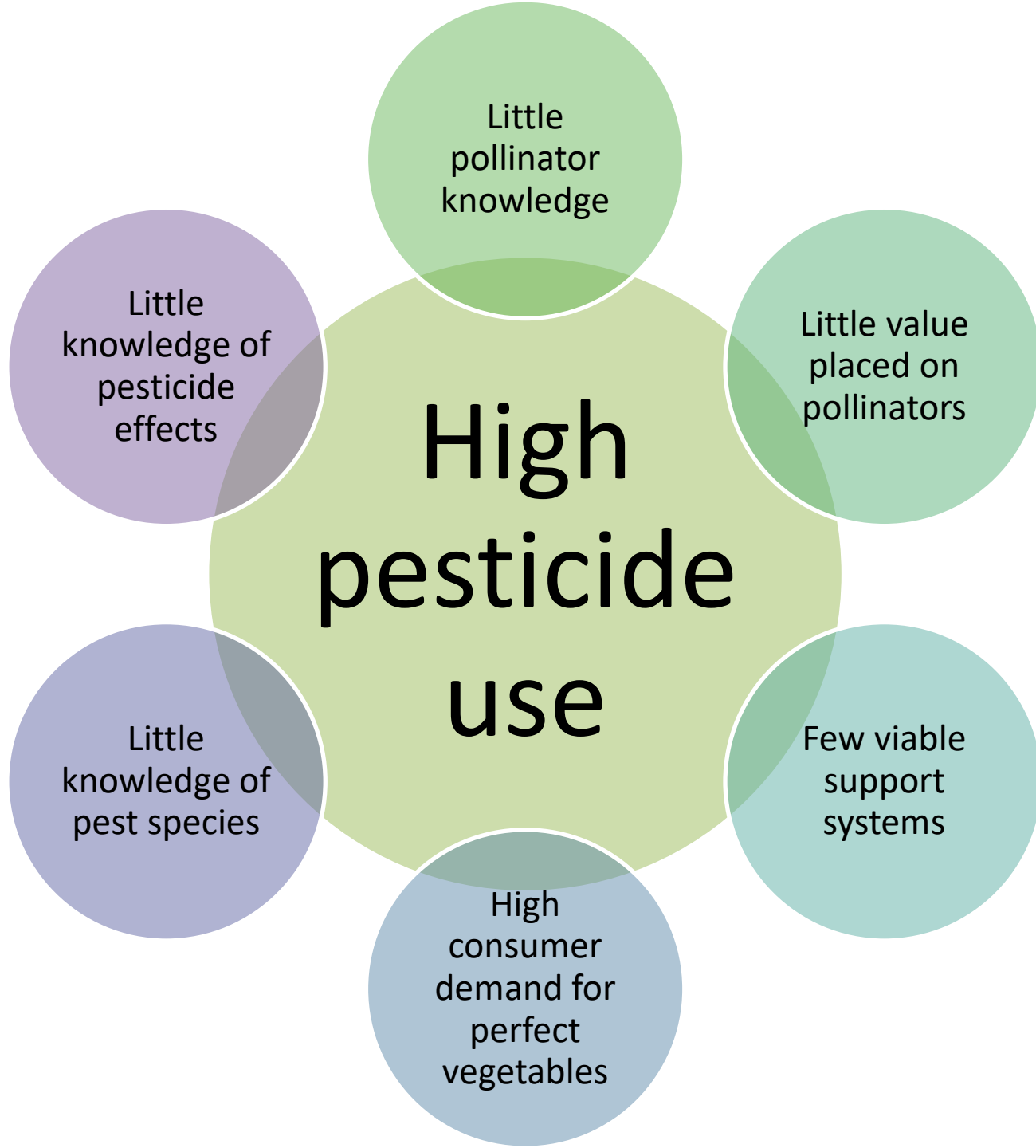
High
pollinator
biodiversity
= high
general
biodiversity



Threats to pollinators



- Pesticides/herbicides
 - No real standards set for pollinators
 - Likely similar responses to target organisms
 - No regulations
 - Large number of species, different species may respond differently
 - Difficult to protect when species are not recorded
- Habitat destruction – quarrying, logging, housing developments
- Lack of legal protection/policies/management plans
- Lack of knowledge/ data/awareness – farmers and general public
- Honeybees (*A. mellifera*) may negatively affect native pollinators and plant species
- **Climate change**





Climate change and pollinators

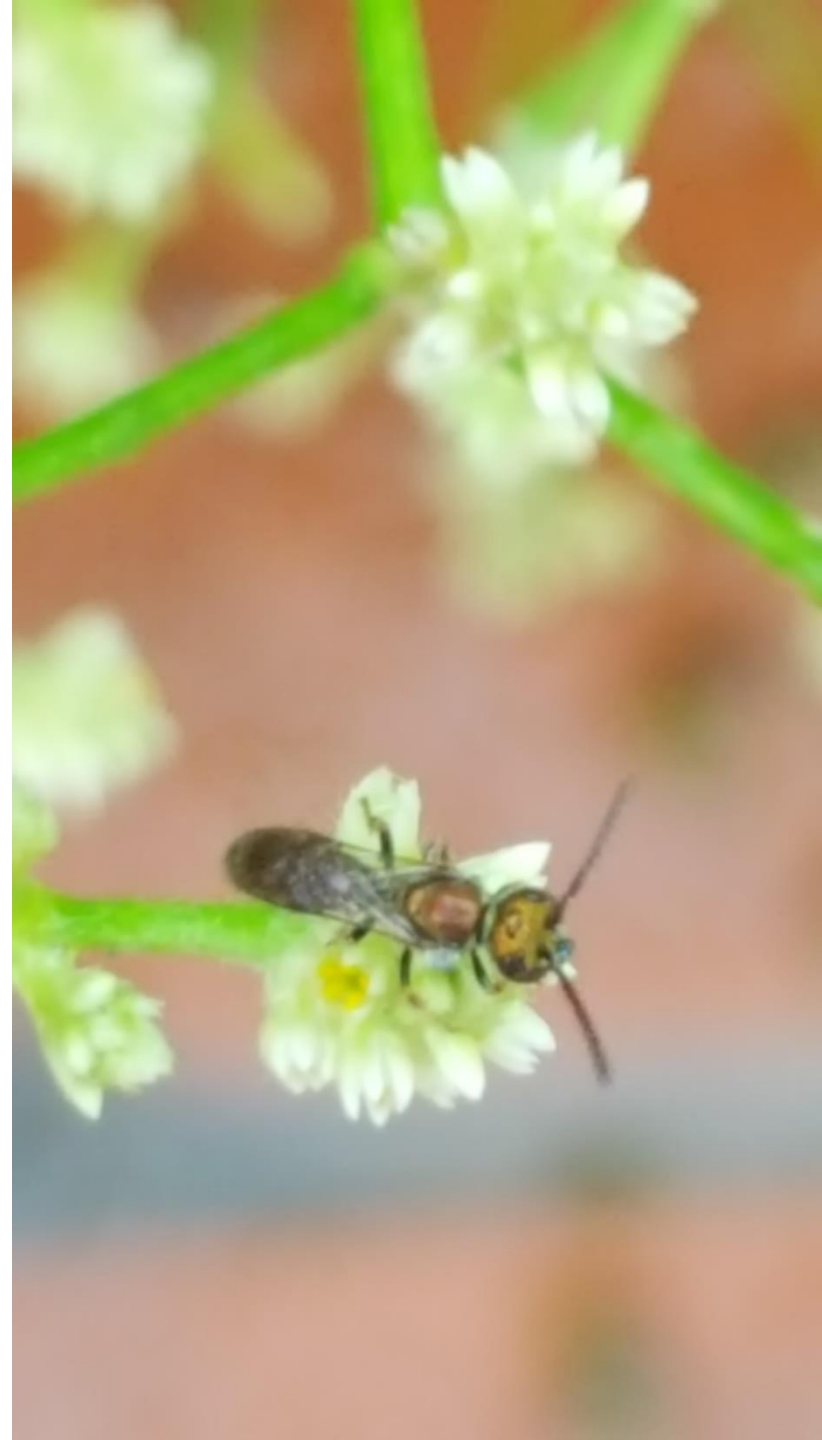
Climate change effects



- Lack of data for Caribbean/Neotropics/SIDS
- Higher temperatures
 - Reduced food sources
 - Reduced nesting habitat
- Change in weather patterns
 - Timing of pollinator activity and nectar availability/
pollen viability

Policy in the Caribbean?

- No pollinator or pollination policy
- Pollination mentioned in some national documents, for example
 - State of St/ Lucia's Biodiversity for Food and Agriculture Report (2015)
 - National Biodiversity Strategy and Action Plan (Barbados, 2002)
- Lack of data on pollination in Caribbean
- Pollination not included in climate change policies



Gaps and needs

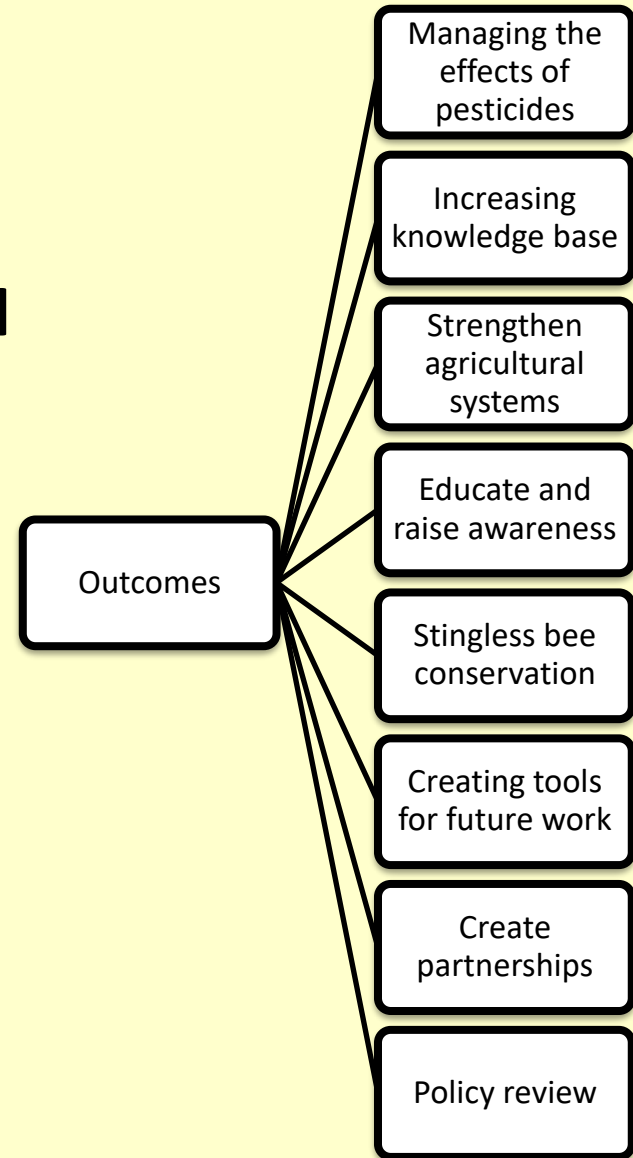


- Pollinator surveys
- Research on the effects of climate change in local species in neotropical context
- Establishment of pollination networks
- Identification of vulnerable species
- Biophysical accounts
- Natural Capital Accounting
- Policy Development

Biodiversity and Ecosystem Services Network (BES-Net)

Implementation of Component I in Trinidad and Tobago

- Pollination project to be implemented 2021-2022
- Focus on science, policy and practice



What can we do?

Private citizens



- Plant flowers
- Start kitchen gardens
- Provide pollinator habitat

Farmers



- Observe and record insects!
- Multicropping
- Plant non-crop flowers in between crops
- Spraying: low wind, high temperature, low dew conditions
- Plant hedgerows
- Provide pollinator habitat – nest boxes, bare ground, wooden stacks
- Use alternative pest control methods
- Leave portion of land unplanted

Researchers



- Pollinator surveys
- Further investigation of effects of landscape, abiotic conditions, pesticide effects on pollination provision
- Lobbying – decreasing gap between science and policy

What can you do? Become a citizen scientist!

Do you want to be a Citizen Scientist??

Pollinators (animals that help with pollination) are in a state of decline and action is needed to protect them. Help us record and identify pollinators and pests of plant species across Trinidad and Tobago. This data is needed to monitor and track useful and harmful species.

HERE IS WHAT YOU CAN DO.....

**Help Save
Our
Pollinators!!!**

1. Simply use your mobile phone to take a photo of any creature you see on a flower.
2. Upload the photo on the webpage <https://www.inaturalist.org/projects/pollinators-and-pests-of-trinidad-and-tobago>
3. Identify the date, location and time you saw the organism and if possible the plant where it was found.
4. You can use common names for the organism such as fly, bee, wasp, humming bird etc.
5. The scientist on the INaturalist website will help with the identification of your observations.

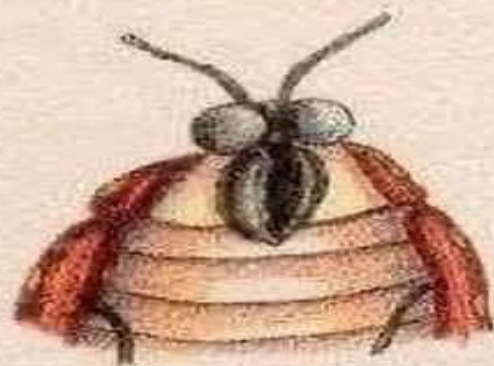
MINISTRY OF
PLANNING AND
DEVELOPMENT

ENVIRONMENTAL PRIDE
IS NATIONAL PRIDE

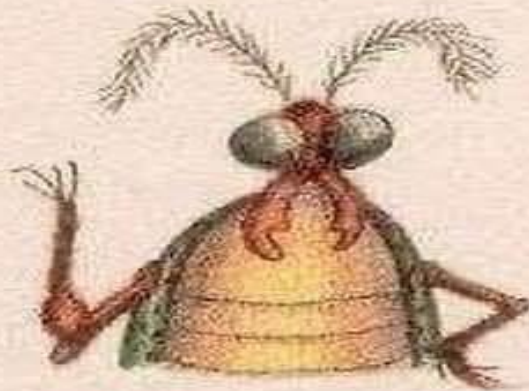
A VISION
2030
INITIATIVE



Know Your Insects



Doug



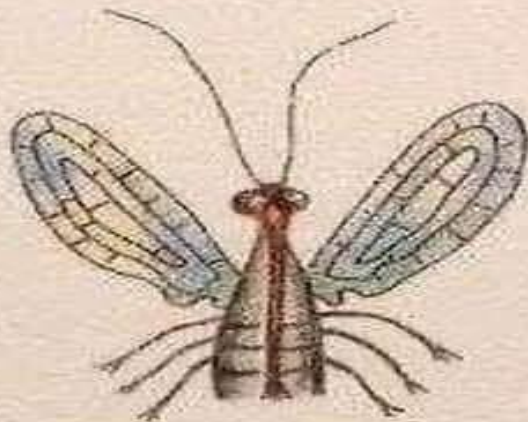
Linda



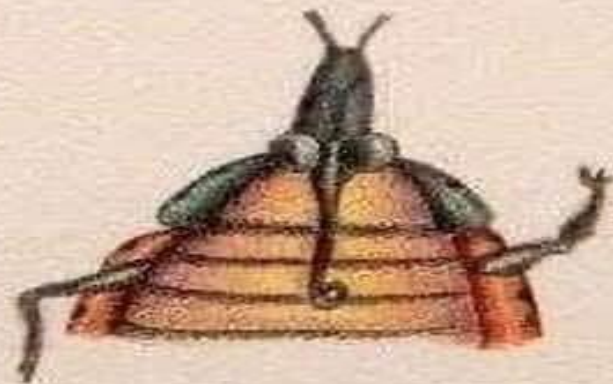
Chuck



Liz



Carl



Jerry



Thank you!