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

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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.



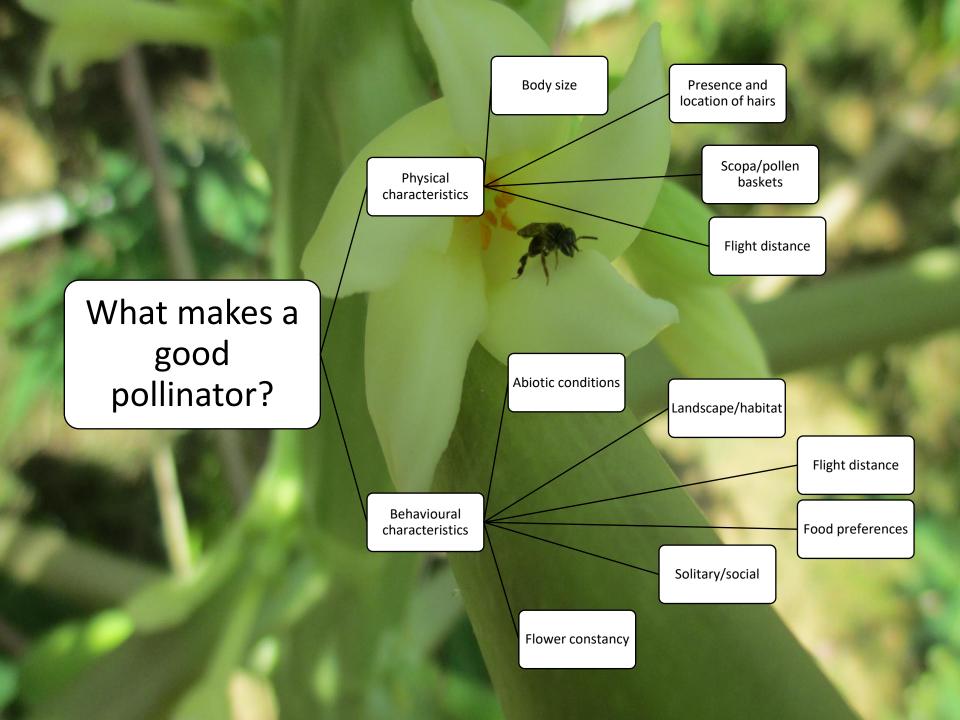
Image courtesy http://archive.news.softpedia.com/news/A-Lizard-Like-a-Bee-52839.shtml

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What makes a good pollinator?



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



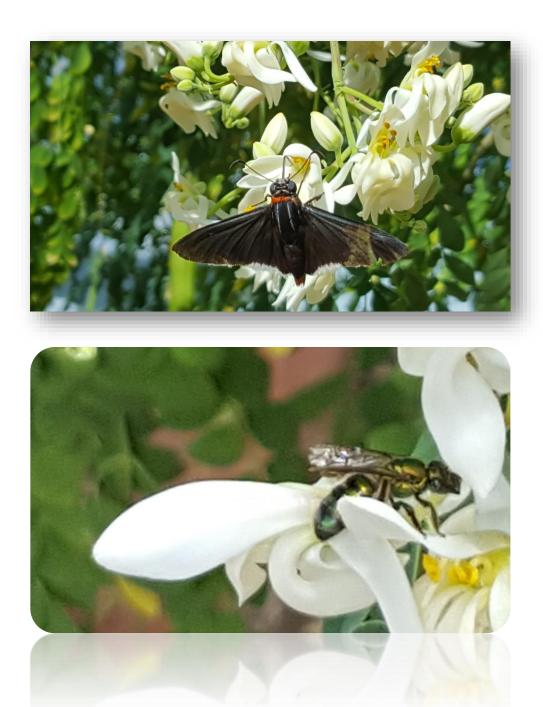
What threats do pollinators face?

Pollinator decline

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



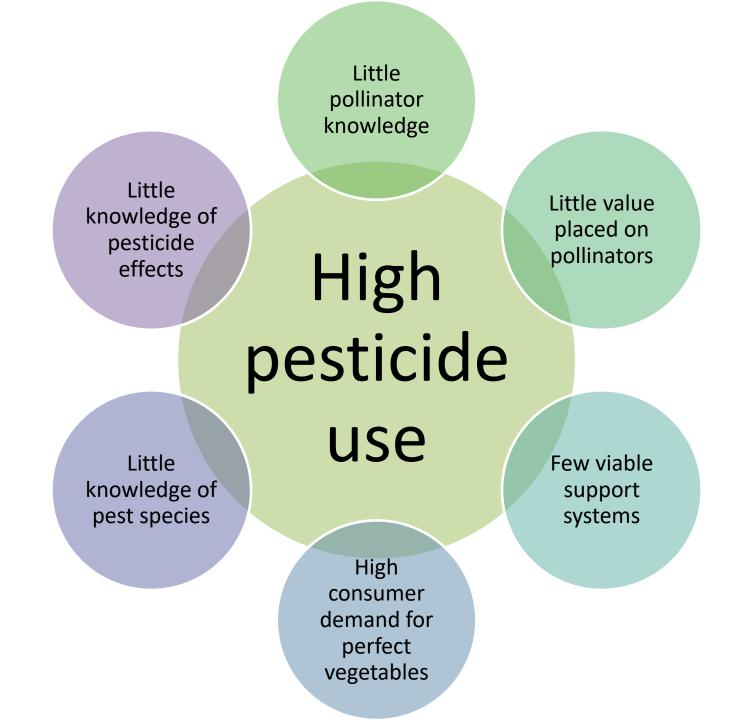
High pollinator biodiversity = high general biodiversity



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

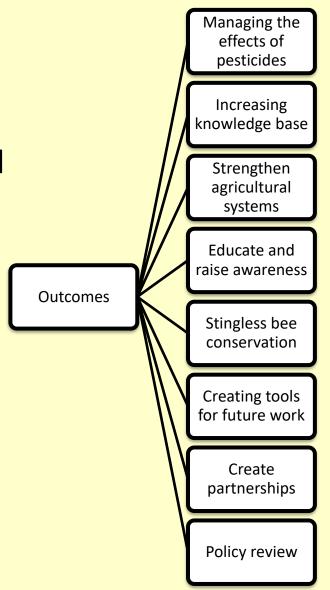


Gaps and needs

- 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









Federal Ministry for the Environment, Nature Conservation and Nuclear Safety



What can we do?

Private citizens Farmers

Researchers

Plant flowers	Observe and record insects!	Pollinator surveys		
 Start kitchen gardens Provide pollinator habitat 	 Multicropping Plant non-crop flowers in between crops Spraying: low wind, high temperature, low dew conditions 	 Further investigation of effects of landscape, abiotic conditions, pesticide effects on pollination provision Lobbying – decreasing gap between science and policy 		
	Plant hedgerows			
	Provide pollinator habitat – nest boxes, bare ground, wooden stacks Use alternative pest control			
	methods			
	Leave portion of land unplanted			

What can you do? Become a citizen scientist!



Know Your Insects

Linda

Carl



Chuck

Jerry

Liz

Doug

Thank you!