



الجمعية العربية لتربية النحل
Arab Beekeeping Association



Let me tell you 'bout the Bees!



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Pollinator Diversity and Conservation in Asia

مؤتمر الجمعية العربية لتربية النحل الأول
5 - 6 فبراير 2018م
مركز أبوظبي الوطني للمعارض - دولة الإمارات العربية المتحدة



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Pollinators

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Food



At least 1/3 of the world's agricultural crops depends
upon **pollination** provided by **insects and other animals**





Cross pollination

- wind
- water
- Mammals
- birds



World Situation

- Pollinator decline in North America and parts of Europe
- 87 out of 115 global primary food crops require some level of animal pollination.





Values of Pollinators and Pollination

- regulates ecosystem services
- 87.5% (308,000 species) flowering wild plants depend on animal pollination
- 94% in the tropics; 78% in temperate
- $\frac{3}{4}$ of food crops benefit from animal pollination





BAT POLLINATION



Butterfly Pollination





BEETLE POLLINATION



Elaeidobius kamerunicus, the African oil palm weevil

SOLITARY BEES





SOCIAL BEES



Species of Honey Bees in the World

courtesy of Dr. Niko Koeniger





Apis laboriosa



Apis kochevnikovi





Apis nigrocincta



Apis florea





Apis nuluensis



Apis cerana





Apis andreniformis



Apis florea



Apis breviligula





Species of wild pollinators *

- Colletidae (Genus *Hylaeus*, 15 species)
- Halictidae (Genus *Halictus* 44 species;
Genus *Sphcodes* 7 species)
- Genus *Nomiodes* 7 species; Genus *Nomia*
25 species)



Wild Pollinators

Melittidae (*Ctenoplectra* 1 species, *C. vagans*),

Megachilidae (Genus *Lithuge* , 1 species *L. scabrosus*; Genus *Dianthidium* 1 species, *D. minutissimum*; Genus *Stelis* 1 species, *Stelis* sp., Genus *Parevaspis* 3 species, Genus *Heriades* 2 species, Genus *Megachile* 29 species, Genus *Coelioxys* 10 species)





Wild Pollinators

Anthoporidae

(Genus *Nomada* 11 species,

Genus *Anthophora* 9 species,

Genus *Thyreus* 9 species)

Subfamily Xylocopinae (Genus *Allodape* 8 species, Genus *Ceratina* 15 species; Genus *Xylocopa*, 49 species)



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STINGLESS BEES

Rasmussen and Cameron
(2010)

60 genera ; 600 species

honey bee has 11 known species of Genus Apis



**Stingless bees used in large
scale mango plantation**



Major Problems for native bees

- Pests and diseases
- Pesticide poisoning
- Deforestation /excessive hunting
- Competition

Human activities



Threats to pollinator diversity

- Chemicals, especially agricultural products
- Habitat loss and fragmentation
- Pest and Diseases
- Climate change
- Natural calamities
- Introduced pollinator species





Conservation Strategy

- Use agricultural inputs wisely
- When necessary, do not spray at anthesis (morning hours) where pollinators are most abundant
- Do not overhunt wild colonies
- Protect habitat
- Develop bee pasture
- Go for native bees



Acknowledgment

- ADFCA-GFIA
- University of the Philippines Los Banos

