

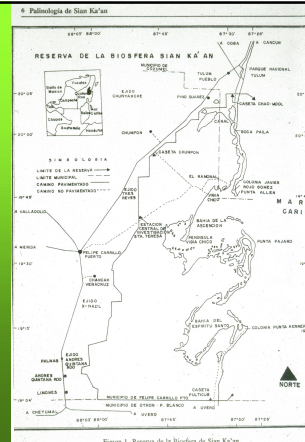
POLLEN SOURCES OF LONG - TONGUED SOLITARY BEES (Megachilidae) IN THE BIOSPHERE OF QUINTANA ROO, MEXICO

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Sian Ka'an Biosphere Reserve



Previous Studies in the Region

- Roldán – Ramos (1984)
- Roubik et al. (1990)
- Villanueva - Gutiérrez (1994)
- Villanueva - Gutiérrez (2002)
- Villanueva – Gutiérrez and Roubik (in press)

Sian Ka'an Biosphere Reserve



Selva Mediana Subperennifolia (medium stature sub-evergreen forest)



Selva Mediana Subcaducifolia (medium stature sub-deciduous forest)



Secondary vegetation in different successional stages



Selva Baja Subcaducifolia (low stature sub-deciduous forest)



Wooden trapnest blocks



Selva Baja Inundable (low stature flooded forest)



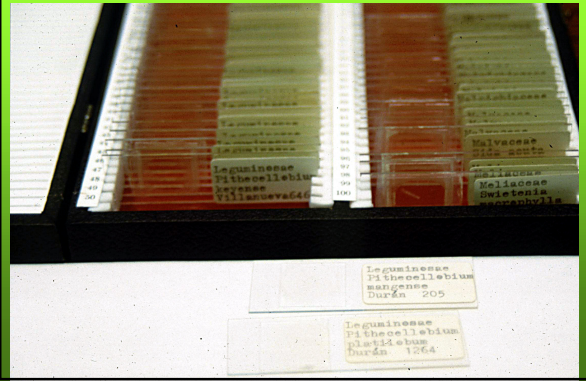
Plastic tubes were glued over the entrance of each nest hole



Acetolysis process



Pollen reference collection of Sian ka'an reserve



Pollen bibliographic references were consulted: Palacios *et al.* (1991), Roubik and Moreno (1991), Martínez – Hernández *et al.* (1993).



Megachilidae species identified in the wooden traps:

<i>Megachile zaptlana</i>	48%
<i>Megachile quadridentata</i>	18
<i>Megachile pseudocentron</i>	16
<i>Megachile</i> sp.	11
<i>Anthodiocetes</i> sp.	7

Gymnopodium floribundum



Metopium brownei



Metopium brownei

Viguiera dentata

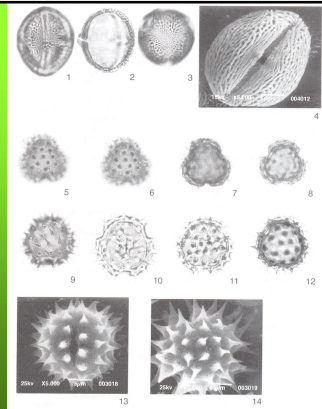
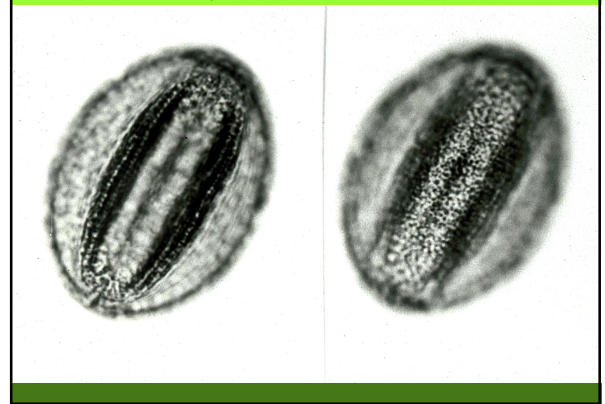


Fig. 4. In SEM (scale bar): Anacardiaceae: (1) to (4) *Metopium brownei*: 1, rostrum; 2, longitudinal ridges and transverse ridges; 3, outer mandible and incisors; 4, epigynum. 5, *Anthodiocetes* sp. 6, *Megachile* sp. 7, *Megachile* sp. 8, *Megachile* sp. 9, *Megachile* sp. 10, *Megachile* sp. 11, *Megachile* sp. 12, *Megachile* sp. 13, *Megachile* sp. 14, *Megachile* sp.

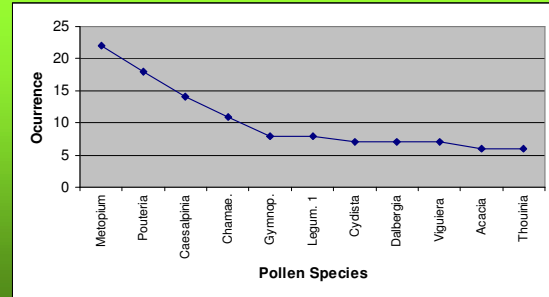
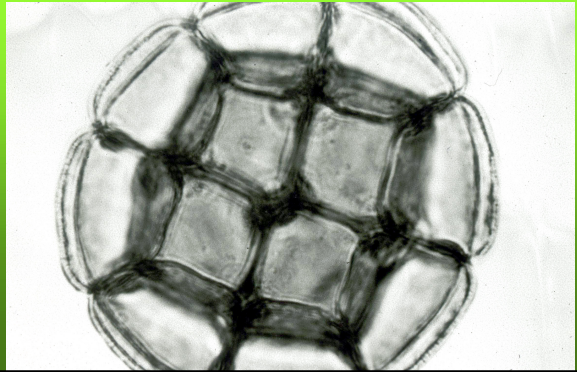
Viguiera dentata



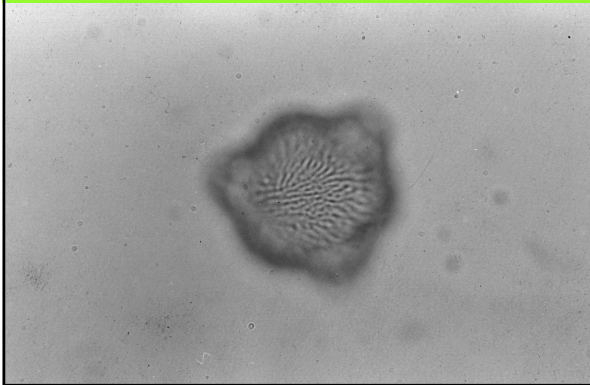
Gymnopodium floribundum



Acasia sp.



Bursera simaruba



Conclusions

- The total number of species found in the nest pollen sample probably represent around 4 % of the total Angiospermae present in the study area.
- Only 50 pollen species were identified from the pollen samples, which belong to 18 different plant families.
- The most important pollen sources were *Metopium brownei*, *Pouteria sp.*, Leguminosae 1, *Dalbergia sp.*, *Centrosema sp.*, *Chamaesyce sp.*, *Laetia thamnia*, *Euphorbia sp.*
- Among the five species of megachilids there was a high reliance on only a few pollen sources. The five most abundant could comprise 100% of the pollen diet of the brood in the trap nest blocks.
- Families that contributed with largest number of pollen species were Leguminosae, Malpighiaceae, Sapotaceae, Myrtaceae, Euphorbiaceae and Sapotaceae.
- It appears that more extensive sampling will reveal more pollen species utilized by megachilids in such tropical forest.
- During the wet period we found almost no Megachilidae nesting in the wooden raps.

Most Abundant Pollen Species

- Metopium brownei* - Anacardiaceae (tree)
- Pouteria sp.* - Sapotaceae (tree)
- Leguminosae 1 - Leguminosae
- Dalbergia sp.* - Leguminosae (tree or shrub)
- Centrosema sp.* - Leguminosae (shrub)
- Chamaesyce sp.* - Euphorbiaceae (herb)
- Laetia thamnia* - Flacourtiaceae (tree)
- Euphorbia sp. 2* - Euphorbiaceae (shrub)
- Bursera simaruba* - Burceraceae (tree)
- Coccoloba sp.* - Polygonaceae (tree)