

Asian bees and their mites, parasitic flies, hunting wasps and other exotic nasties



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Vespa mandarina



Vespa velutina



Palarus latifrons



Philanthus triangulum

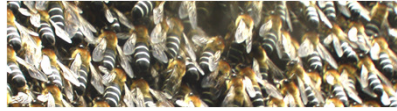
Small African Hive Beetle



- First identified 2002
- Now from South Australia to Queensland
- Huge problem
- NO ONE SAW IT COMING

What we will cover

- Asian bees and their mites



- Predatory wasps

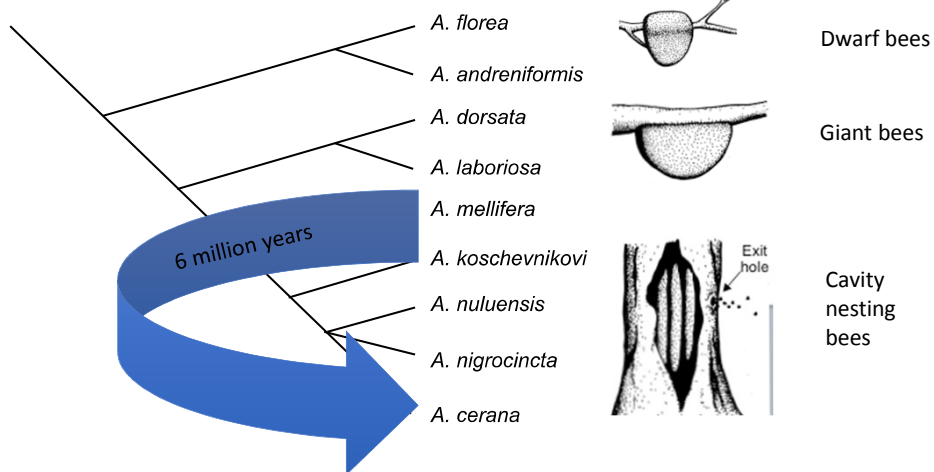


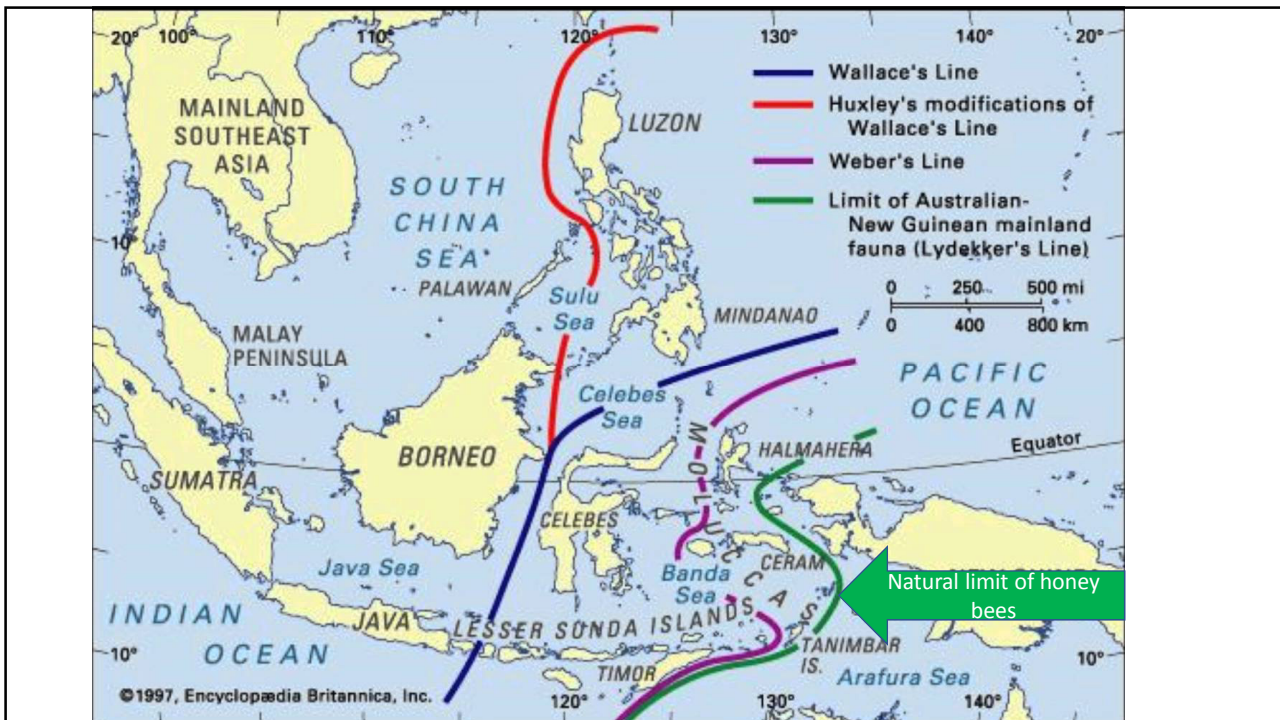
But not:

- African bees
- Parasitic flies
- Viruses
- Giant hive beetles



Honey bees of the world





Dwarf bees

Apis florea

- Red dwarf honey bee
- South east Asia, India, Middle East
- Highly invasive in north Africa



P Nanork

Apis andreniformis

- Black dwarf honey bee
- Rainforest species, SE Asia



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Threats to Australia

Apis florea

- Highly likely to form invasive populations and compete with native bees
- Fruit damage?



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Apis andreniformis

- Confined to wet tropics



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Dwarf bee mites

Apis florea

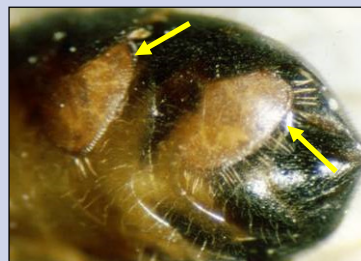
Euvarroa sinhai



M. Burgett

Apis andreniformis

Euvarroa wongsirii



L. De Guzman



Giant bees

Apis dorsata

- Pan Asian except Philippines and Sulawesi
- Heavily hunted



Apis laboriosa

- Mountains Vietnam to Nepal
- Heavily hunted



Apis breviligula

- Philippines

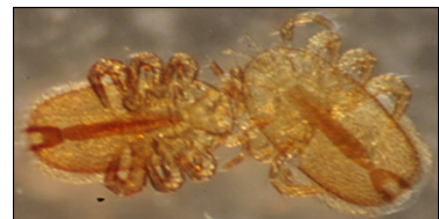


Photos: B Oldroyd

Giant bees – treats to Australia

Apis dorsata, Apis laboriosa

- *Tropilaelaps mercedesae*
- *Tropilaelaps koenigurum*
- *Tropilaelaps thaii*

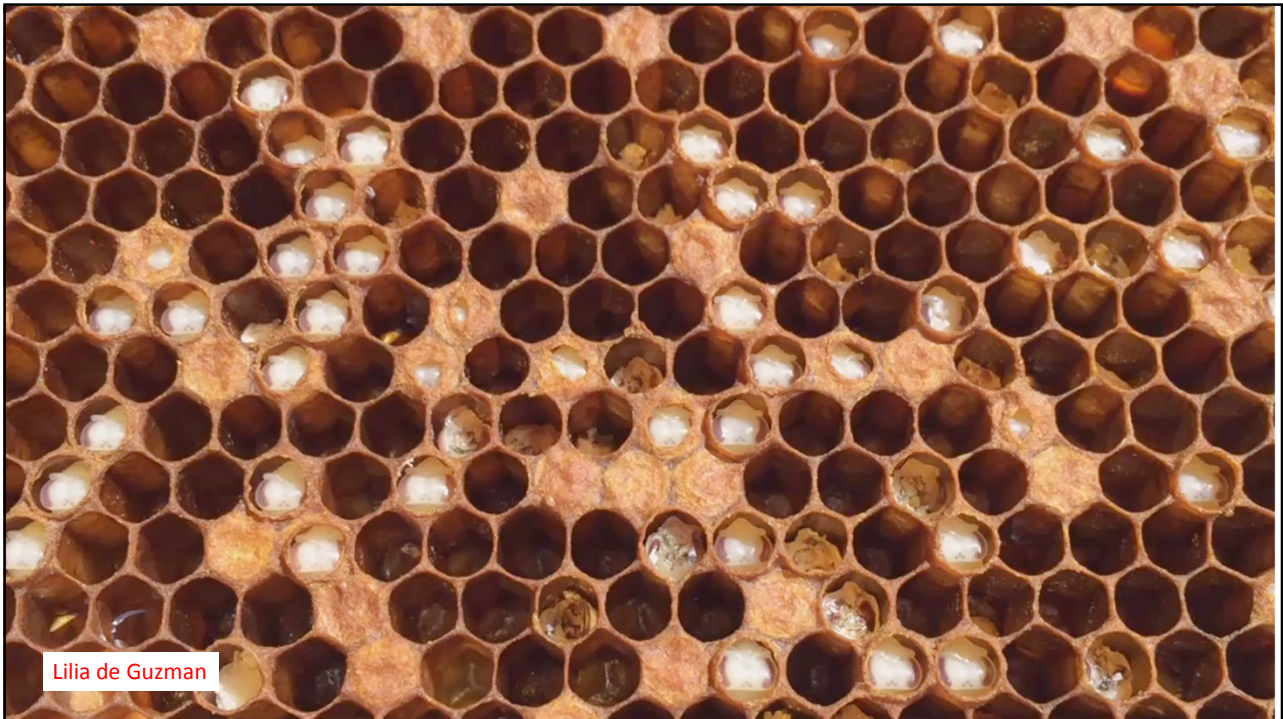


Tropilaelaps mercedesae



L de Guzman

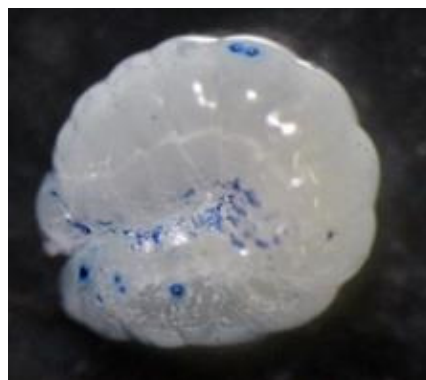
Tropilaelaps koenigurum



Lilia de Guzman

Apis breviligula (Philippines)

Tropilaelaps clarae



Lilia de Guzman

Cavity nesting bees

Apis cerana

- 'Asian hive bee'
- Pan Asian
- Kept in many places



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Apis koschevnikovi

- 'Red bee'
- Indonesia, Malay peninsular
- Rainforest



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Apis indica

- 'Plains bee'
- India



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Apis nigrocincta *Apis nuluensis*

- Mountains of Sulawesi
- Larger than *A. cerana*
- 'Mountain bee'
- Borneo mountains



G. Otis



B. Oldroyd

Cavity nesting bee mites

<i>Apis cerana</i>	<i>Apis koschevnikovi</i>	<i>Apis indica</i>	<i>Apis nigrocincta</i>	<i>Apis nuluensis</i>
<i>Varroa jacobsoni</i>	<i>Varroa rindereri</i>	Mites undescibed	<i>Varroa jacobsoni</i>	Mites undescibed
<i>Varroa destructor</i>				
<i>Varroa underwoodi</i>				

Predatory wasps



Giant Asian hornet.

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Asian hornet .

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South African Bee pirates.

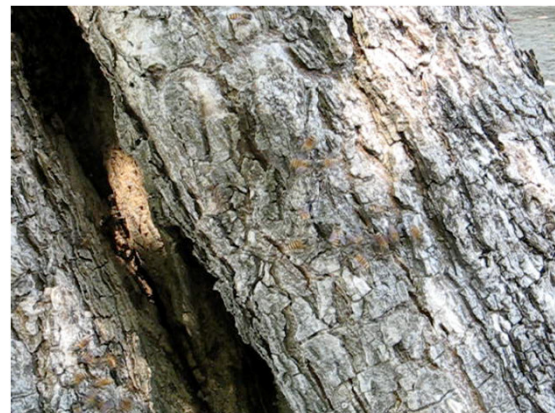
Stolen from the internet



Evolved to hunt *A. cerana*. But *A. cerana* is evolved to resist the wasp

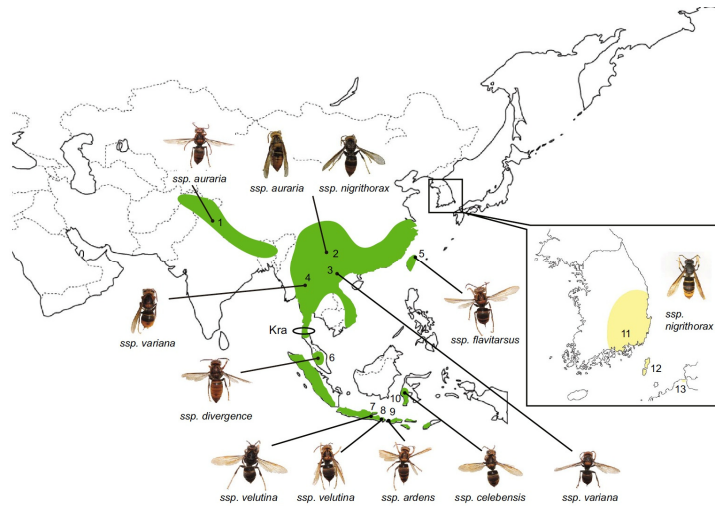


Apis mellifera (video K. Tan)



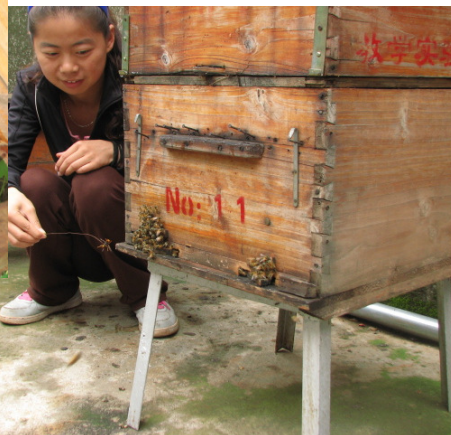
Apis cerana (video B. Oldroyd)

Vespa velutina is now endemic in Europe, Japan, Korea

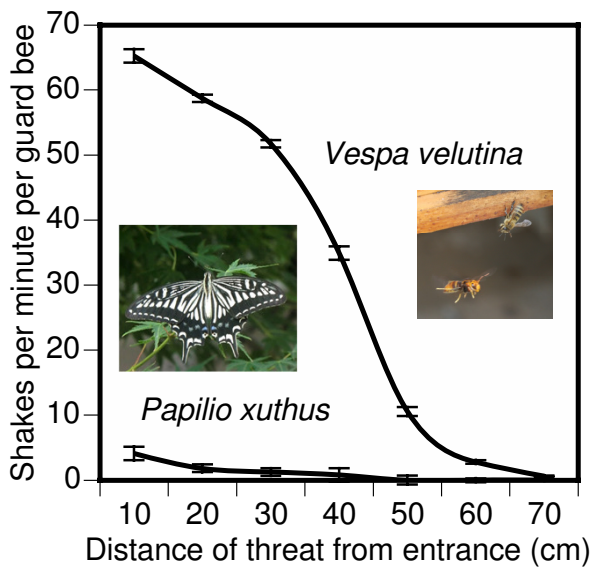


First seen

- South Korea 2003
- France 2004
- Italy, Spain, Britain 2005+
- Japan 2012-2015
- Not far away from us

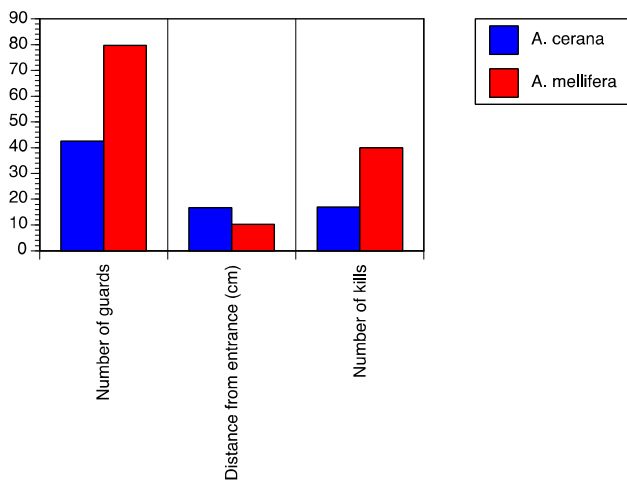


Tan, K., Z. Wang, H. Li, S. Yan, Z. Hu, G. Kastberger, and B. P. Oldroyd. 2012. An 'I see you' prey-predator signal between the Asian honeybee (*Apis cerana*) and the hornet (*Vespa velutina*). *Animal Behaviour* 83:879-882.



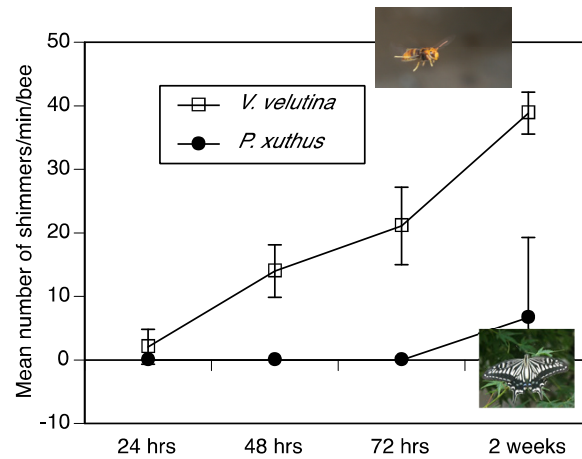
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A. mellifera evolved in the absence of *V. velutina* and never shakes



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Response of young *A. cerana* raised in the lab



Tan, K., Z. Wang, W. Chen, Z. Hu, and B. P. Oldroyd. 2013. The 'I see you' prey-predator signal of *Apis cerana* is innate. *Naturwissenschaften* **100**:245-248.

Giant Asian Hornet *Vespa mandarinia*





- *V. mandarina* trap South Korea

Bee pirates



Palarus latifrons

- Attack bees in South Africa.
- Bees refuse to forage when bee pirates are around



Philanthus triangulum



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SOCIAL INSECTS LAB

Our lab started out working predominantly on bees, not only the commercial honey bee (*Apis mellifera*) but also Asian bees (*Apis cerana*, *Apis florea*, *Apis andreniformis*, *Apis dorsata*) and Australian stingless bees (*Tetragonula*, *Austroplebeia*) ... [Learn more](#)

CONFLICT AND COOPERATION

EVOLUTION OF THE WAGGLE DANCE LANGUAGE

DECISION-MAKING IN ANTS, BEES AND SLIME MOULDS

INTRA- AND INTERGENOMIC CONFLICT AND EPIGENETICS

FOR INDUSTRY

IUSI/2014 CONFERENCE ABSTRACTS

BALLROOM BIOLOGY: RECENT INSIGHTS INTO HONEY BEE WAGGLE DANCE COMMUNICATIONS

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