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

Ben Oldroyd

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Vespa mandarina

Vespa velutina

Palarus latifrons

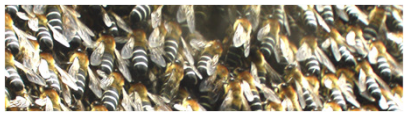
Philanthus triangulum

Small African Hive Beetle

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

What we will cover

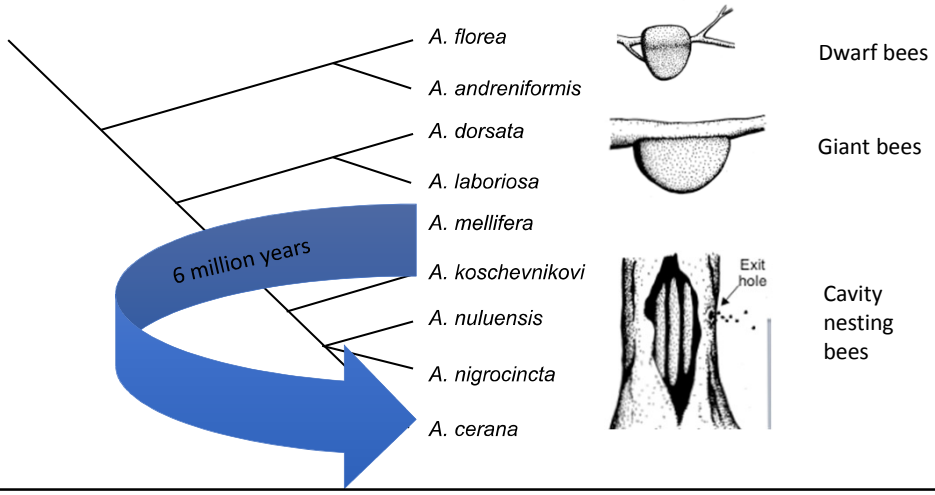
- Asian bees and their mites

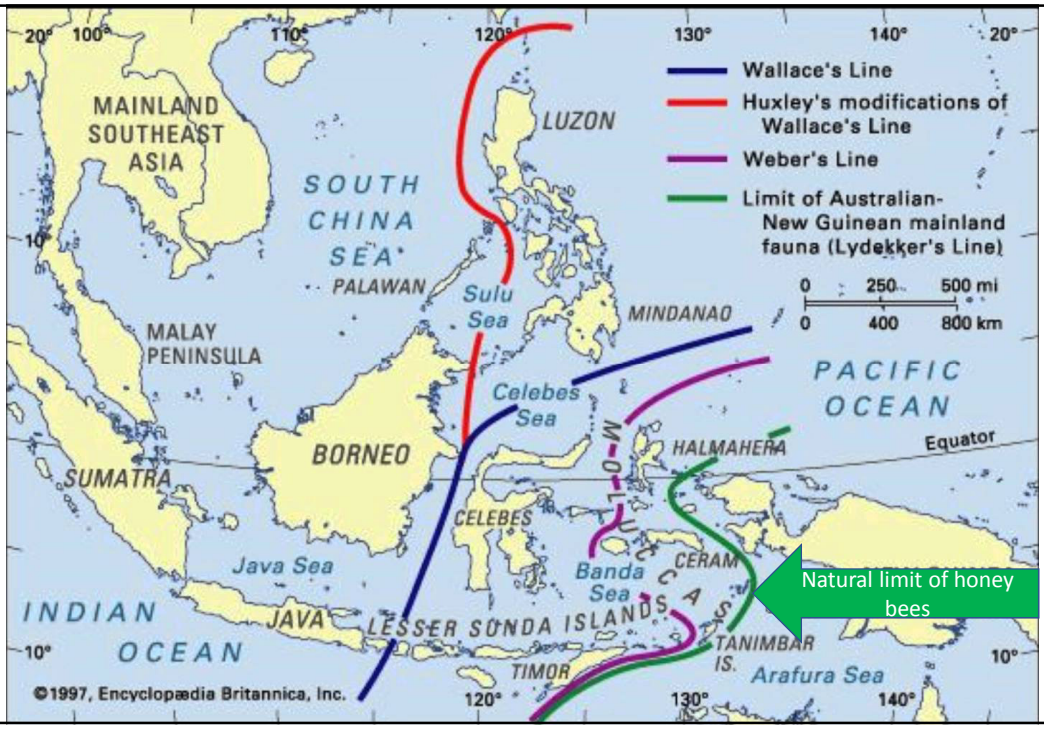


- Predatory wasps

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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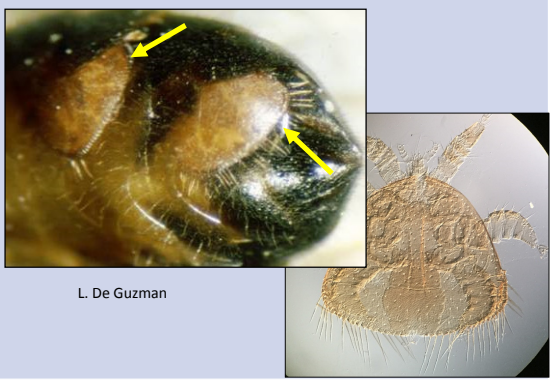
Dwarf bee mites

Apis florea	***Apis andreniformis***
Euvarroa sinhai	*Euvarroa wongsirii*

M. Burgett



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

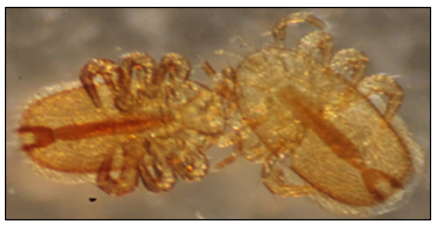
- Philippines

Photos: B Oldroyd

Giant bees – treats to Australia

Apis dorsata, Apis laboriosa

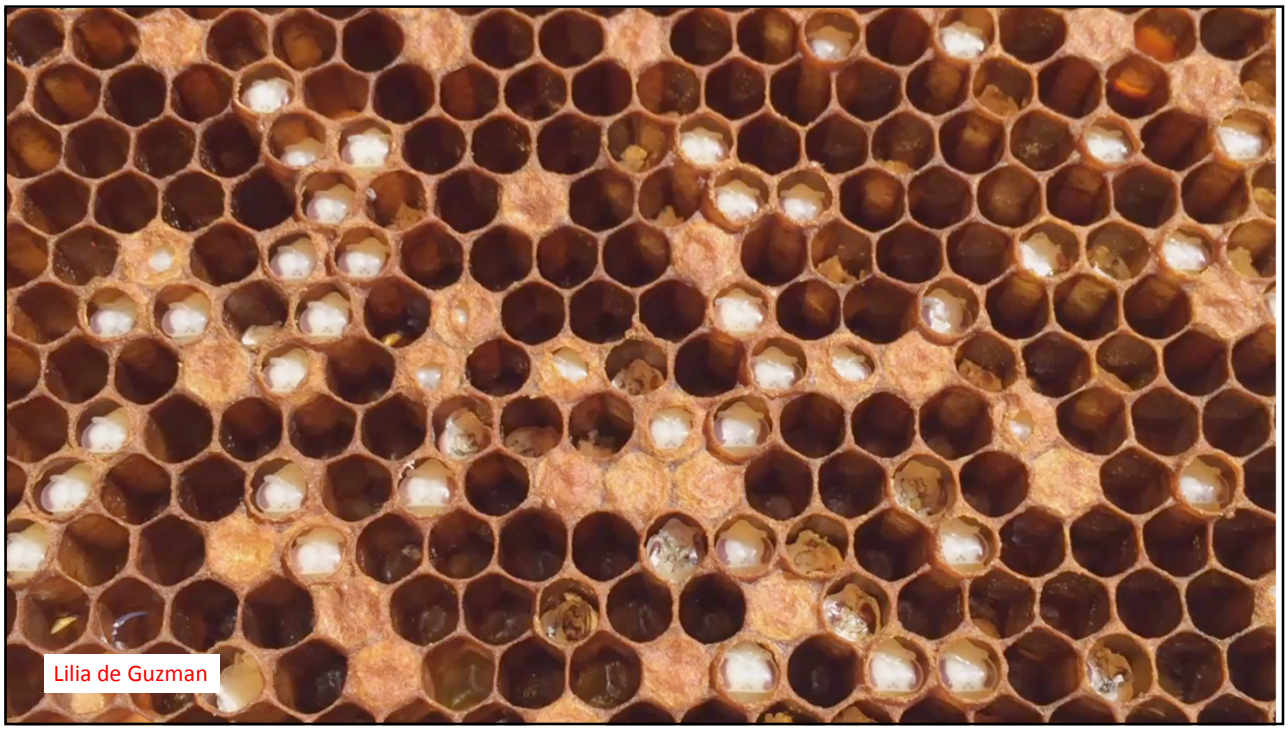
- *Tropilaelaps mercedesae*
- *Tropilaelaps koenigurum*
- *Tropilaelaps thaii*



Tropilaelaps mercedesae

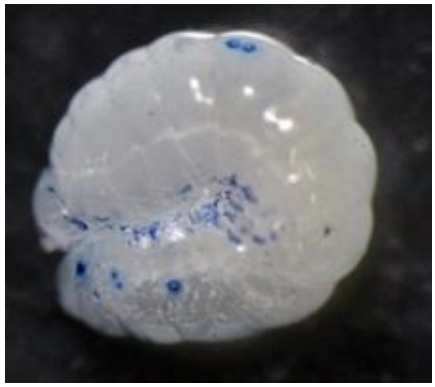
L de Guzman

Tropilaelaps koenigurum



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
- Mountains of Sulawesi
- Larger than *A. cerana*


G. Otis

Apis nuluensis
- 'Mountain bee'
- Borneo mountains


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Cavity nesting bee mites

Apis cerana	***Apis koschevnikovi***	***Apis indica***	***Apis nigrocincta***	***Apis nuluensis***
Varroa jacobsoni *Varroa destructor* *Varroa underwoodi*	*Varroa rindereri*	Mites undescribed	*Varroa jacobsoni*	Mites undescribed

Predatory wasps

Giant Asian hornet.
B. Oldroyd

Asian hornet .
B Oldroyd

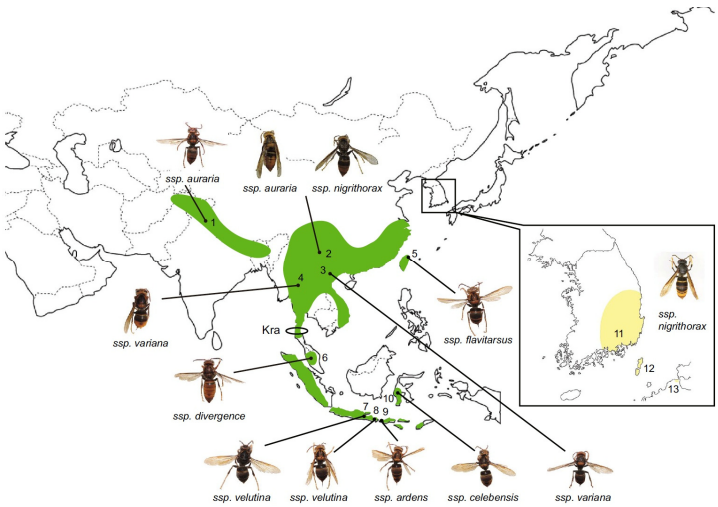
South African Bee pirates.
Stolen from the internet

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

Apis mellifera (video K. Tan)

Apis cerana (video B. Oldroyd)

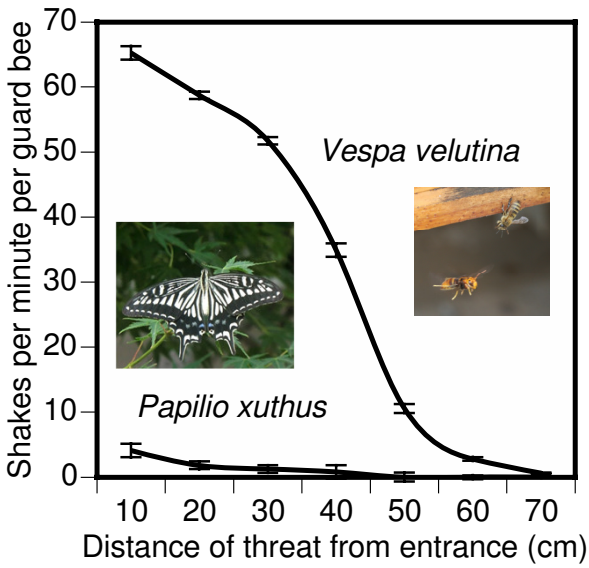
Vespa velutina is now endemic in Europe, Japan, Korea



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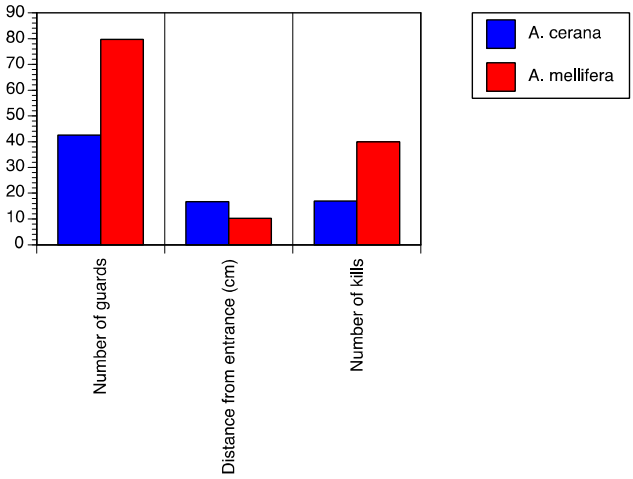
A. mellifera evolved in the absence of *V. velutina* and never shakes



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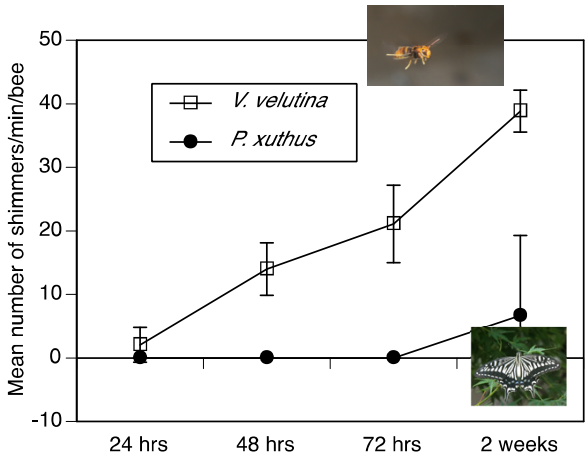
Response of young *A. cerana* raised in the lab



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*

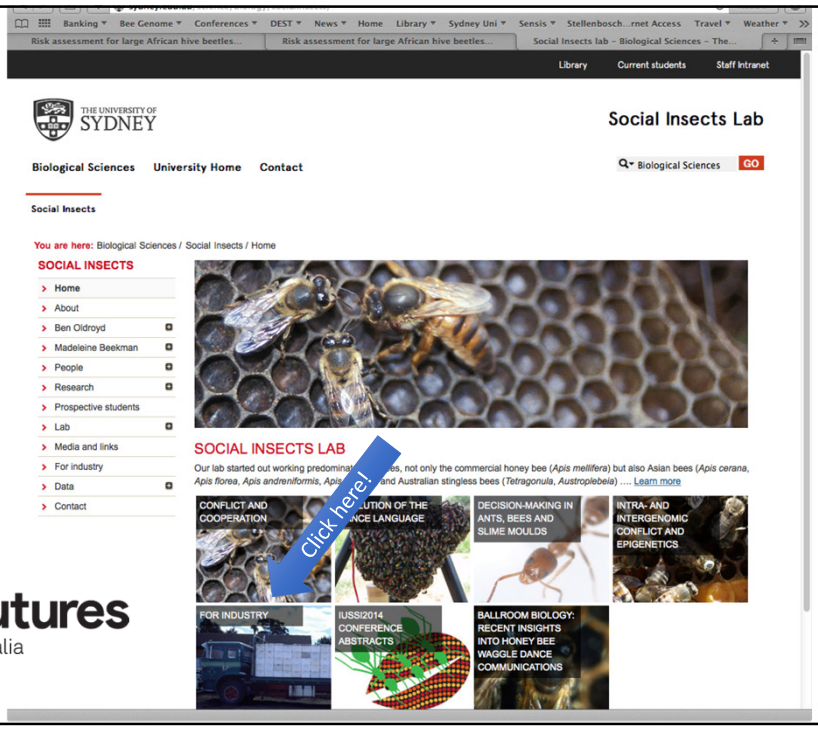
- *V. mandarina* trap South Korea

Bee pirates

Palarus latifrons

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

Philanthus triangulum



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