

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

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Small African Hive Beetle



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

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What we will cover

- Asian bees and their mites 
- Predatory wasps 

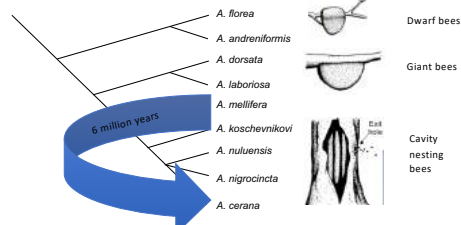
But not:

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






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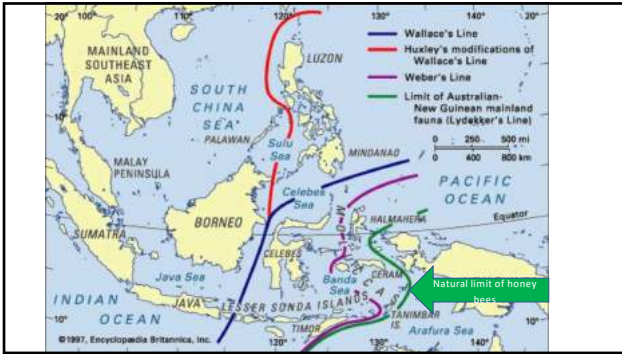
Honey bees of the world



6 million years

- A. florea*  Dwarf bees
- A. andreniformis*
- A. dorsata*  Giant bees
- A. laboriosa*
- A. mellifera*
- A. koschevnikovi*
- A. nuluensis*
- A. nigrocincta*  Cavity nesting bees
- A. cerana*

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Dwarf bees

Apis florea

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

Apis andreniformis

- Black dwarf honey bee
- Rainforest species, SE Asia East

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Threats to Australia

Apis florea

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

Apis andreniformis



- Confined to wet tropics

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Dwarf bee mites


<i>Apis florea</i>	<i>Apis andreniformis</i>
<p><i>Euvarroa sinhai</i></p>  <p style="font-size: x-small;">M. BURGESS</p>	<p><i>Euvarroa wongsirii</i></p>  <p style="font-size: x-small;">L. De GUZMAN</p>

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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

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Giant bees – treats to Australia

Apis dorsata, Apis laboriosa

- *Tropilaelaps mercedesae*
- *Tropilaelaps koenigurum*
- *Tropilaelaps thajii*



Tropilaelaps mercedesae



L. de Guzman
Tropilaelaps koenigurum

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Apis breviligula (Philippines)






Tropilaelaps clareae



Lilia de Guzman

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Cavity nesting bees

<p><i>Apis cerana</i></p> <ul style="list-style-type: none"> • 'Asian hive bee' • Pan Asian • Kept in many places  <p><small>B. Oldroyd</small></p>	<p><i>Apis koschevnikovi</i></p> <ul style="list-style-type: none"> • 'Red bee' • Indonesia, Malay peninsular • Rainforest  <p><small>B. Oldroyd</small></p>	<p><i>Apis indica</i></p> <ul style="list-style-type: none"> • 'Plains bee' • India  <p><small>B. Oldroyd</small></p>	<p><i>Apis nigrocincta</i></p> <ul style="list-style-type: none"> • Mountains of Sulawesi • Larger than <i>A. cerana</i>  <p><small>G. Otis</small></p>	<p><i>Apis nuluensis</i></p> <ul style="list-style-type: none"> • 'Mountain bee' • Borneo mountains  <p><small>B. Oldroyd</small></p>
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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 destructor</i> <i>Varroa underwoodi</i>	<i>Varroa rindereri</i>	Mites undescribed	<i>Varroa jacobsoni</i>	Mites undescribed

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Predatory wasps




Giant Asian hornet
B. Oldroyd



Asian hornet
B. Oldroyd




South African Bee pirates
Stolen from the internet




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

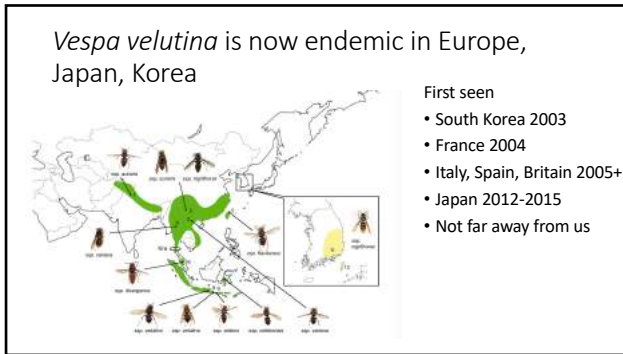


Apis mellifera (video K. Tan)



Apis cerana (video B. Oldroyd)

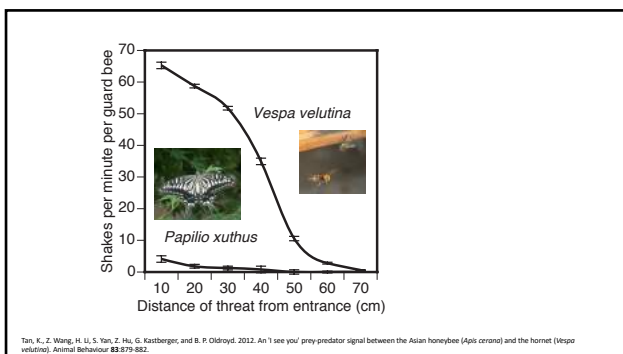
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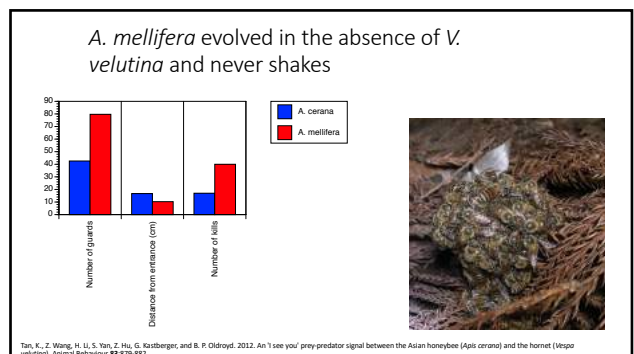
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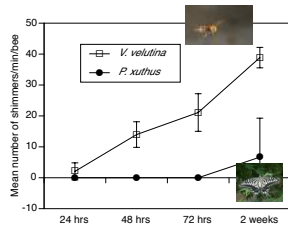


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Response of young *A. cerana* raised in the lab



Tan, K., Z. Wang, W. Chen, Z. Hu, and B. P. Oldroyd. 2013. The 1 see you! prey-predator signal of *Apis cerana* is innate. *Naturwissenschaften* 100:245-248.

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Giant Asian Hornet *Vespa mandarina*



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• *V. mandarina* trap South Korea


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Bee pirates



Palorus latifrons

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

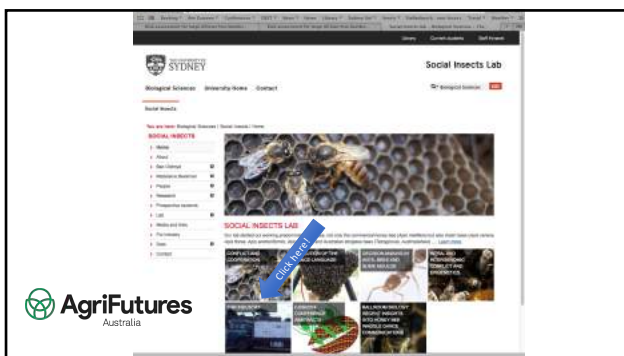


Philanthus triangulum

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