



Department of
Primary Industries

Basic guide to identifying exotic honey bees



Images: Front cover courtesy of David W Clark. All other images as labelled

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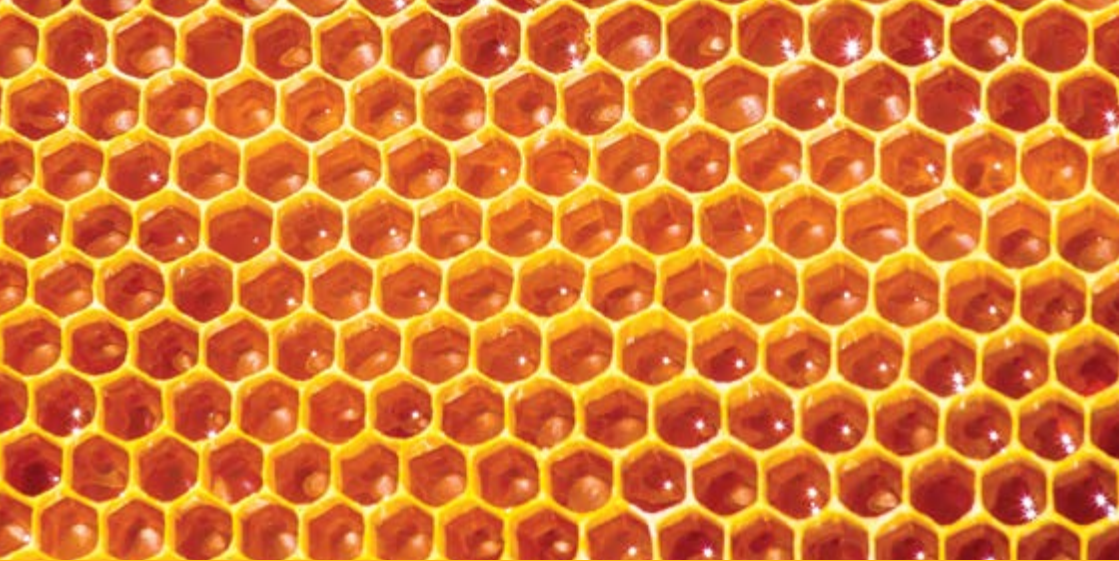
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European honey bee

Image courtesy of Phil Bendle, T.E.R.R.A.I.N, NZ

The European honey bee (*Apis mellifera*) was brought into Australia over 180 years ago. This is the common honey bee found in Australia. This species is **NOT** an exotic threat. You do not need to report it.

Why is recognising exotic honey bees important?

European honey bees are the main domestic bee in Australia. The Australian honey industry is estimated to be worth \$104 million, with New South Wales accounting for 41% of production. Pollination benefit to agriculture and horticulture is estimated to contribute \$8.4-20 billion to the Australian economy - *National Plant Biosecurity status report (2018) Plant health Australia*

Exotic honey bees threaten our domesticated and native bees. Exotic honey bees carry exotic mites and viruses, will compete with managed and native bees, and in some cases could parasitise the nests of other bee species. They generally swarm frequently, spread disease, store less honey and act aggressively. Exotic honey bees are more difficult to manage for honey or pollination and are not effective alternatives to the European honey bee.

Report exotic honey bees to the **Exotic Plant Pest Hotline**.

EXOTIC PLANT PEST HOTLINE
1800 084 881

Description

1. Variable in colour but usually brownish with dull yellow and black banded abdomen
2. 13–16 mm in size
3. 2–3 uneven yellow bands on abdomen
4. Wing colour light brown with dark brown veins

Average nest size

40,000 – 80,000 bees

Nest structure

Build nests with parallel wax combs in enclosed spaces.

Behaviour



Can sting when threatened.



Swarm once or twice a year, if unmanaged, usually in spring or early summer. Swarms can be large (tens of thousands of bees). Swarms are generally docile and usually move only a few hundred meters from the original colony. Swarms settle in an unstructured cluster.



Image of a European honey bee swarm



Asian honey bee

Asian honey bees (*Apis cerana*) are smaller and less hairy than European honey bees. In Australia, they are present near Cairns in north Queensland. If found outside the Cairns region report Asian honey bees to the **Exotic Plant Pest Hotline 1800 084 881**.

Description

1. Similar in colour to European honey bee but with more defined abdominal banding
2. 10–13 mm in size, smaller than the European honey bee
3. 4–5 visible yellow bands on abdomen
4. Wing colour clear with dark brown veining

Average nest size

20,000 bees

Nest structure

Build small nests of parallel wax combs in protected spaces. Unique drone cells differ from all other bees by having a raised cap with a distinct pin hole at the top (see image above).

Behaviour



Can sting when threatened.



Fly faster and more erratically than European honey bees when foraging on flowers. In tropical areas *A. cerana* can exist as mobile clusters of broodless and combless adults for several weeks at a time. Hives can be abandoned more frequently with poor seasonal conditions or a disturbance.



Image courtesy of Ben Oldroyd, University of Sydney



Asian honey bee swarm

- Asian honey bees (*Apis cerana*) may swarm up to a distance of 10km in an 'invasive' mode
- Three reproductive swarms per year
- Swarms are often smaller than the European honey bee (2,500 bees) and appear highly organised when resting





Giant honey bee

Giant honey bees (*Apis dorsata*) are the world's largest honey bees, growing up to 20 mm long. Giant honey bees are not found in Australia. Report suspect giant honey bees to the **Exotic Plant Pest Hotline 1800 084 881**.

Description

1. Larger than European honey bee but similar in colour
2. 17–20 mm in size
3. 3 distinct pale bands on abdomen between black to brown bands
4. Wing colour clear with dark brown veins

Average nest size

60,000 bees

Nest structure

Build large single combs (1.5 x 1 m) that hang in open spaces. Multiple single nests may be seen in one area, unlike European or Asian bee nests which are generally solitary.



Behaviour



Bees form a protective layer over the nest and when threatened, aggressively attack intruders by stinging. Known for the "mexican wave" shimmering motion across the comb to warn off potential predators.



Migrate seasonally following wet and dry seasons in tropical areas, travelling up to 200 km at a time. Colonies will travel for many months, building combs along the way.



Giant honey bee swarm

- Giant honey bees (*Apis dorsata*) swarm in huge numbers and over hundreds of kilometers
- Seasonal swarming occurs as well as migration
- The queen will fly away slowly from the colony for the colony to follow her to a new nest site
- The vast distance travelled during migratory swarming poses a high risk of spreading exotic mites and diseases if it were to enter Australia

Image courtesy of Willard S Robinson - Plos One



Image courtesy of Willard S Robinson - Plos One





Image courtesy of Gideon Pisanty, Israel

Dwarf honey bee

Dwarf honey bees (*Apis florea* and *Apis adeniformis*) are the world's smallest honey bees, only growing to 10mm. Dwarf honey bees are not found in Australia. Report suspect Dwarf honey bees to the **Exotic Plant Pest Hotline 1800 084 881**.

Description

1. Darker overall colouring than European honey bee, with light grey hairs rather than golden
2. 7–10 mm in size
3. *A. florea* has a distinct thick brown band on the abdomen, followed by three alternating pairs of black and white bands. By contrast, *A. adeniformis* has a striped, black and white abdomen.
4. Wing colour clear with dark brown veins



Image courtesy of Zestin Soh, flickr.com

Average nest size

3,000 bees

Nest structure

Build small single combs (<25 cm) on small branches with a 'crown' built above for honey storage. A propolis (sticky) barrier is placed either side of the crown to repel other insects. "Shimmering" can occur when threatened like the giant honey bee.



Image courtesy of Keystone Foundation

Behaviour



Bees form a protective layer over the nest and when threatened, aggressively attack intruders by stinging.



Colonies are very mobile and will swarm often when nests become overpopulated, disturbed by natural enemies, exposed to inclement weather or when forage is scarce.



Image courtesy of David W Clark

Dwarf honey bee swarm

- Dwarf honey bees (*Apis florea* and *Apis adeniformis*) swarm seasonally and for migration purposes
- Worker bees will scout out a new nest site before swarming. The scouts will lead them to the new nesting site
- New nests are formed on branches rather than in cavities, this makes nesting sites more readily available



Image courtesy of Zestin Soh, flickr.com





Image courtesy of John Donaldson, SANBI

Cape honey bee

Cape honey bees (*Apis mellifera capensis*) are a subspecies of the European honey bee. Cape honey bees are not found in Australia. Report suspect Cape honey bees to the **Exotic Plant Pest Hotline 1800 084 881**.

Description

1. Similar in appearance to European honey bee though generally darker in colour
2. Head and thorax covered in hair
3. Slightly smaller than European honey bees
4. Generally indistinguishable from European honey bee to the naked eye, requiring genetic analysis to accurately identify



Image courtesy of Ujube.com

Average nest size

40,000 – 80,000 bees

Nest structure

Build nests with parallel wax combs in enclosed or protected spaces.

Behaviour



Can sting when threatened.



Cape honey bees colonise other honey bee nests by replacing the role of the host colony queen through a process known as social parasitism. They swarm much more frequently than European honey bees, generally every one to two months



Image courtesy of Scott Bauer, USDA
Agricultural Research Service, United States

African and Africanised honey bees

African honey bees (*Apis mellifera scutellata*) are a subspecies of the European honey bee. Africanised honey bees are hybrids of European and African honey bees. African and Africanised honey bees are not found in Australia and suspect bees should be reported to the **Exotic Plant Pest Hotline 1800 084 881**.

Description

The image above shows an Africanised bee (back) next to a European honey bee (front). Although these bees appear quite different in colour, variations in colour occur within both species and they can't be distinguished by the naked eye. African honey bees are slightly smaller than European honey bee and produce far less honey. But the main point of difference is the African and Africanised bees are highly aggressive and swarm frequently.



Image courtesy of Barloventomagico, flickr.com

Nest differences

African honey bees are less selective than European honey bees when considering nest sites. They will nest in a much smaller area in various structures whereas European bees prefer to nest in larger cavities.

Behaviour



Can sting when threatened and are more defensive than other honey bees. Three to four times as many workers will respond to a perceived attack and pursue intruders for longer distances. Africanised bees are also known as "killer bees".



African and Africanised honey bees swarm much more frequently than European honey bees, potentially every month or two. African bee swarms tend to be smaller than European swarms.



Further resources

Websites

NSW DPI Honey bees

www.dpi.nsw.gov.au/animals-and-livestock/bees

Bee aware

www.beeaware.org.au

Plant Health Australia

www.planthealthaustralia.com.au

Publications

Biosecurity Manual for Beekeepers
Plant Health Australia

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