NATIVE BEES

BushBlitz
SPECIES DISCOVERY PROGRAM

AUSTRALIAN NATIONAL BOTANIC GARDENS

Alive with discovery

There are over 1,600 species of “true blue” Australian native bees represented in three types; solitary bees, semi social bees, and social stingless bees.

The buzz about bees!

- The bees we generally see in our gardens everyday are not native bees, they’re the commercial honey bee, *Apis mellifera*, which were imported from Europe in 1822 for honey production.
- Most Australian native bees are either solitary or semi social bees. It’s the social stingless bees that are our ‘true blue’ honey bees.
- Solitary native bees usually nest in burrows in soil or wood, or in isolated cells made of resin or mud. Each female nests by herself, stocking the cell with pollen and honey and laying an egg in the cell. The mother usually dies before the young emerges. Solitary bees can vary in size, shape and colour and they can all sting.
- In semi-social native bees, two or more females nest together in each nest. They also vary widely in size and shape and can sting.
- The ten species of social stingless native bees are primitive social bees, living in colonies with a queen, drones and thousands of workers.
- Social stingless bees are mainly found in hollow trees. These bees were prized by Indigenous people as the honey was an important food source, medical remedy, and nest resins were used as glue for making tools and weapons.
- All bees are important pollinators for plants but the native bees play a particularly important role in pollinating native plants and horticultural crops.
- Australia’s smallest native bee is Cape York’s Minute bee which is less than 2 mm long.
- The largest bee is the Great Carpenter Bee of tropical north and northern NSW measuring up to 24 mm long.

Vital for agriculture

Most flowers release their pollen passively when a bee just lands on them, but many native flowers, only release their pollen when a flower is vibrated rapidly – this is called “**buzz pollination**”.

The **Blue-banded bee**, Amegilla cingulata, is one of a number of Australian bees capable of buzz pollination. The introduced European honey bee cannot buzz pollinate, so these plant species depend on native bees for their reproduction.

Tomato is a commonly known buzz pollinated plant. Australian tomato growers using greenhouses have to use an “electric bee” vibrator to pollinate flowers, a very time consuming task.

Researchers from The University of Adelaide have studied blue-banded bees for introduction to greenhouses. They found that tomatoes pollinated by blue-banded bees are heavier and tastier!

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Unlike honeybees, **nearly all 1,600 native Australian bee species are solitary**. Single females make nesting burrows in the ground, crevices in rocks, or in hollows in dead stems and branches of trees and shrubs. The Blue-banded bee makes their nesting burrows in the ground, enabling them to be very efficient pollinators of crops such as canola.

Although the honey bee is responsible for a large proportion of agricultural pollination due to its sheer numbers, because the honeybee relies on a hive, they will only travel a certain distance from the hive to gather nectar.

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Adelaide University researchers have found that this can result in only part of a field close to a bee hive being well pollinated.

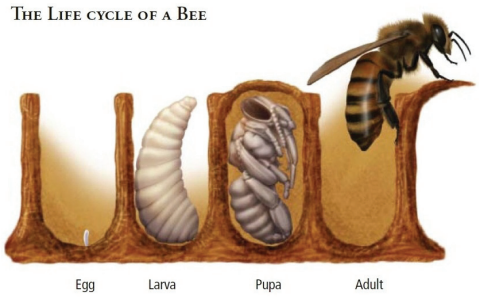
In contrast, the Blue-banded bee will develop burrows in the ground throughout a field, pollinating the whole field!

Non-till agriculture practices encourages the establishment of Blue-banded bees as it doesn't destroy the burrows each year, resulting in better crop yields year after year.

Blue-banded bees are common in the Australian National Botanic Gardens; look for them on blue and yellow flowers. Often, you can hear them buzzing before you see them!

The life cycle of bees

For all types of bees their are four stages in the life cycle - egg > larva > pupa > adult.



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Leafcutter bees

The newly emerged females begin constructing nests after they emerge in Spring. In each cell they will lay a single egg, and supply it with pollen upon which the larva can feed once it hatches. The larvae pupate and develop inside these cells.

They will remain in their cells over winter as mature larvae, and emerge as adults the following spring or early summer.

Carpenter bees

They emerge from hibernation in the spring, around April or May. As adults they remain in wood within abandoned nest tunnels over winter.

By late spring or early summer, you may see them hovering around searching for mates and suitable nesting sites. After mating, the fertilized females excavate tunnels in wood.

As with some other solitary bees, the female constructs the nest alone.

She lays her eggs within a series of small cells, each supplied with a ball of pollen on which the larvae feed.

The larvae emerge as adults in late summer, and hibernate until the following year.

Get into the buzz

There are a number ways you can support our true blue bees such as building a bee hotel in your garden, planting bee-friendly species, and grow a variety of plants (native and food plants) to promote year round flowering.

For more information on how to build a bee hotel - download the "How to make a bee hotel" fact sheet at **http://www.parksaustralia.gov.au/botanic-gardens/do/resources.html**

There are heaps more great resources online. Here are some websites that can provide information on native bees, pollination, bee hotels and creating a bee-friendly garden. You can even share your experiences with your new buzzing friends!

- **http://www.buzzaboutbees.net**
- **http://www.aussiebees.com.au**
- **http://australianmuseum.net.au/welcome-to-plant2pollinator**
- **http://flyingdocbees.wix.com/flyingdocbees**