

Why are bees under threat?

- Urbanisation removes bees' natural habitat
- Urbanisation increases "flowerless landscapes"
- Pesticides contaminate bees' food sources

How can we help improve the health of our bees?

- Conserve existing bee habitat
- Provide habitat for bees
- Plant bee friendly flowers
- Reduce / stop pesticide use

How can we learn more?

- Visit the Facebook pages www.facebook.com/BeesBusiness/ or www.facebook.com/groups/beeawareofyournativebees/

- Make habitats to observe bees in your garden
- Observe your garden flowers for bee activity

To find out more please visit these websites

- www.beesbusiness.com.au
- www.aussiebee.com.au

*Designer: Brittany Hardiman | Photographs: Bees Business
Special thanks to Dr Michael Batley, Australian Museum
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Acknowledgement: Schools Engagement and the Office of Sustainability, University of Western Sydney.

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Australian Native Bees

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Learn more, up close



About native bees

Australia is home to over 1,600 native bee species, with around 200 of them found in the Greater Western Sydney (GWS) region.

Most native bees are solitary bees, meaning they complete their life cycle alone, unlike the introduced social honey bee. Solitary native bees do not produce honey or live in large colonies; although there are a few social native bees that store pollen and make honey to survive over winter.

Native bees come in a range of colours and are sized from 2 to 24 mm in length. Some have thick furry hairs while others are smooth and shiny.

Why are bees important?

We need pollinators, like bees, to help us grow our food and flowers. Of the 352,000 flowering plants and crops nearly 90% rely on pollinators for reproduction. Australian native bees are able to pollinate many fruits and vegetables, including tomatoes, watermelon, passion fruits, strawberries and mangoes.

Sadly, our bee populations are declining. As we clear land for urban development, remove plants and use pesticides, we are increasing the environmental pressures on our bee populations, which may lead to population losses.

By understanding more about our native and exotic bees we can help conserve their populations, thus supporting ecosystem biodiversity and food security.

Bee Anatomy

Bee bodies are comprised of a head, thorax and abdomen. They have six legs and two pairs of wings. They have two antennae used to touch and "smell", mandibles or jaws used for biting, working pollen or wax and two compound eyes and three simple eyes.

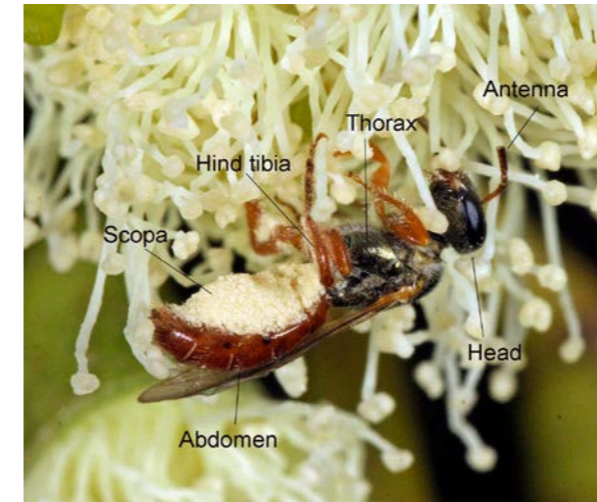


Image from Marc Newman

Pollen collection

Both social and solitary bees collect pollen to feed their young.

Female solitary bees carry pollen in their scopa; a collection of branched hairs which may be on the under belly or on the hind legs. Some bees swallow the pollen they collect, to transport it back to the nest.

Attracting bees to your garden

The best way to attract bees to your garden is to have large patches of flowers. Many bees, especially Blue Banded and Teddy Bear, are attracted to blue and purple flowers.

The greater variety of flower you can provide, the greater diversity of bee you will attract.

Plants that are known to attract bees include:

- Native flowering plants like lambertia and grevillia
- Native flowering shrubs like water gum, wattle, bottle brush, tea tree, westringia and native peas
- Exotic herbs like parsley, coriander, celery, fennel (any of the Apiaceae family)
- Lavender, rosemary, salvia, hyssop (any of the Lamiaceae family)
- Exotic flowering plants like hebe and daisies

Make sure you plant a variety of different species so that there are flowers available all year round.



Example of a cottage garden. Image from Elizabeth Richmond

Making habitats for bees

As we clear land to build houses or shopping centres, we remove natural bee habitat. We can however provide additional nesting habitats that are similar to their natural ones.

Different bees like different habitats. Resin and Leaf-cutter Bees will nest in drilled hardwood. Masked and Reed Bees nest in bundles of lantana and bamboo. Blue Banded Bees can also be encouraged into rammed earth nests.

When setting up your solitary bee nests place it somewhere you can watch the activity safely. Your nest should be set up out of the way and somewhere protected against the weather. Once you have your nest in place, never pick it up.

When you are watching your bees, DO NOT stand in the flight-path of exiting and entering bees, instead you should stand to the side of the nest. These bees CAN sting so be careful. Solitary bees are not aggressive.



Examples of man-made solitary bee nests

Resin Bees

Common Name: Black Resin Bee

Size: Approximately 1 - 1.3 centimetres in length

Features: A large, strong mandible (jaw) used to collect plant resins to build their nests.

Species in GWS: *Megachile punctata*, *Megachile aurifrons* and *Megachile deanii*.

Nesting habitat: Old borer holes (made by insects) in tree trunks.

Man-made nesting habitat: Resin bees will nest in drilled hardwood blocks.



Megachile punctata



Megachile aurifrons

Image from Marc Newman

Reed Bees

Common Name: Reed Bee

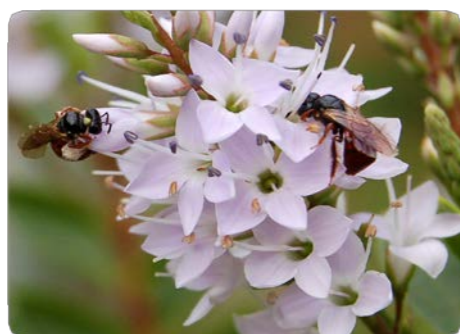
Size: Approximately 0.3 - 0.8 centimetres in length

Features: A shiny black head and thorax with a distinctive chestnut-coloured, wedge-shaped abdomen. Females often have a T-shaped, yellow mark on the face and a tibial scopa.

Species in GWS: *Exoneura* sp.

Nesting habitat: Stems of woody weed lantana, coral tree (*Erythrina* sp.), grass tree spikes (*Xanthorrhoea*), tree fern fronds and other hollow stemmed plants.

Man-made nesting habitat: Reed bees will nest in small holes drilled into dried Lantana stems.



Exoneura sp.



Exoneura sp.

Masked Bees

Common Name: Masked Bee

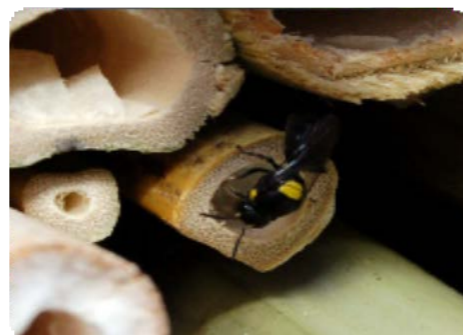
Size: Approximately 0.4 - 1.2 centimetres in length

Features: Sparsely haired with dark heads and brightly coloured facial markings, some have brightly marked bodies.

Species in GWS: *Amphylaeus morosus* and *Hylaeus nubilosus*.

Nesting habitat: Stems of tristiana, acacia and grass tree spikes (*Xanthorrhoea*).

Man-made nesting habitat: Masked bees will nest in bamboo canes and small holes drilled in hardwood.



Amphylaeus morosus



Hylaeus nubilosus

Leaf-cutter Bees

Common Name: Leaf-cutter Bee

Size: Approximately 1.2 centimetres in length

Features: A large, strong mandible (jaw) used to cut discs of soft plant leaves to form a tubeular nest. Half the males of the *Megachile* species have expanded forelegs which are flattened and often have long, sleek hairs used in part of the bees' mating ritual.

Nesting habitat: Nests are constructed in small cavities under bark or in rock crevices.

Man-made nesting habitat: Leaf-cutter bees will nest in large bamboo canes.



Megachile serricauda

Image from Marc Newman



Megachile maculariformis

Blue Banded & Teddy Bear Bees

Common Name: Blue Banded Bee

Size: Approximately 1.5 centimetres in length

Features: Blue stripes on abdomen. The female has dark facial markings and tibial scopa.



Amegilla pulchra

Common Name: Teddy Bear Bee

Size: Approximately 1.5 centimetres in length

Features: Covered in orange-brown hairs. The female has dark facial markings and tibial scopa.



Amegilla bombiformis

Nesting habitat: Ground burrows.

Man-made nesting habitat: Both the Blue Banded and Teddy Bear bees can be encouraged to nest in artificial, rammed-earth nests.

Other Native & Exotic Bees

Australian Native Stingless Bees

The native stingless bee (*Tetragonula carbonaria*) is the *only* social native bee found in the GWS region. Colonies nest in large tree cavities where they store pollen and honey. These black bees can be seen hovering near nectar-producing flowers of all types.

European Honey Bee

Honey bees (*Apis mellifera*) are an introduced bee species. They are extremely important for food production, pollinating of large scale crops. It is becoming more apparent that our native bees play an important part in pollinating native and exotic plant species.



Tetragonula carbonaria foraging beside European honey bees

African Carder Bee

The Carder bee (*Afranthidium repetitum*) is an introduced bee species and are well established in the GWS region. Carder bees have distinctive bright, white bands on the abdomen. These bees are somewhat territorial and can be seen chasing other bees away from the flowers they are foraging on.