All About Bees

About native bees

Australia is home to 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 hives; 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. 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 decreasing. As we clear land for urban develop, remove plants and use pesticides we are causing our bee populations to be under threat of extinction.

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

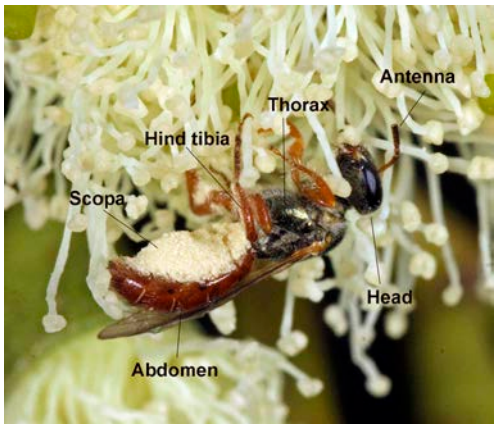

Image from Marc Newman

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 (abdominal scopa) or on the hind legs.

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, grevillea, water gum, wattle, bottle brush, tea tree, westringia and native peas

• Herbs like parsley, coriander, celery, fennel (any of the Apiaceae family), thyme

• Exotics like lavender, rosemary, salvia, hyssop (any of the Lamiaceae family), hebe and daisies.

Plant a variety of different species, so flowers are available all year round.

Cottage garden. Image from Elizabeth Richmond

Summary

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 additional habitat for bees
- Plant bee friendly flowers
- Reduce or stop pesticide use

How can we learn more?

- Observe bees at nest sites
- Observe flowers for bee activity
- Visit the following websites

www.beesbusiness.com.au
www.aussiebee.com.au
www.facebook.com/BeesBusiness/
www.facebook.com/groups/beeawareofyournativebees

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Examples of man-made solitary bee nests

WESTERN SYDNEY UNIVERSITY

Australian Native Bees

Learn more, up close

Australian Native Bees

Resin Bees

Common Name: Black Resin Bee

Size: Approximately 1 - 1.3 centimetres in length

Features: Large, strong mandibles (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) or other cracks and crevices in trees.

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 hardwood or in dried Lantana stems.

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 tristania, acacia, tree fern fronds and grass tree spikes (*Xanthorrhoea*).

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

Hylaeus nubilosus

Leaf-cutter Bees

Common Name: Leaf-cutter Bee

Size: Approximately 1.2 centimetres in length

Features: Large, strong mandibles (jaw) used to cut discs of soft plant leaves to form a tubular 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 and drilled hardwood.

Megachile serricauda
Image from Marc Newman

Megachile maculariformis, male with modified forelegs

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 (*Amegilla* sp.) can be encouraged to nest in artificial, rammed-earth nests.

Other Native & Exotic Bees

Australian Native Stingless Bees
The 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 little (4mm), black bees can be seen hovering near flowers of all types.

European Honey Bee
Honey bees (*Apis mellifera*) are an introduced species. They are extremely important for food production, & pollination of large scale crops. However, 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.

Afranthidium repetitum, female