

Australian Solitary Native Bees

When most people think of Bees, they usually think of honey or Bee stings! But there are many Australian native Bees that seldom sting or produce honey. These are the native solitary Bees of which there are about 1500 species in Australia with Queensland having the most.

Just because they don't produce honey, doesn't mean that they are not useful. In fact, they are essential for a healthy environment. They all pollinate. Without Bees and other insects that pollinate. Life on this Planet as we know it, would cease to exist.

The World's Bee population is declining, due to either disease or the indiscriminate use of herbicide sprays.

Solitary bees:

1. Vary considerably in size, appearance and where they choose to nest. Roughly 70% nest in underground burrows. The other 30% nest in above ground dead wood or rock/clay.
2. Do not: live in colonies, produce honey or have a queen.
3. Do not produce wax to construct the cells inside the nest. Instead different species use different materials to construct their cells and nests.
4. Drink nectar directly from the flower and spend most of their time collecting pollen which is mixed with a small amount of nectar as food for their young.
5. Are fantastic pollinators: a single Blue Banded bee is equivalent to multiple worker honeybees in the pollination it provides.
6. Do not have pollen baskets for carrying pollen, meaning that each time they visit a flower they lose far more pollen than social bees, which makes them much better pollinators
7. Provide each larvae with everything it needs but they do not tend to the young as they grow and never get to see their offspring emerge.
8. Are non-aggressive and do not swarm.
9. Safe around children and pets.



BLUE BANDED BEE



NATIVE CUCKOO BEE



**FIRE TAIL & BLACK RESIN BEES
NESTING SIDE BY SIDE**



List of Queensland Bees(Solitary and Social)

COLLETIDAE

Green Leioproctus Bee
Black Leioproctus Bee
Masked Bee
Hylaeus Bee
Golden Tail Hairless Bee
Banded Hairless Bee

HALICTIDAE

Small Metallic-green Bee
Small Metallic-banded Bee
Green and Gold Nomia Bee
Black Nomia Bee
Gold-barred Nomia Bee

MEGACHILIDAE

Black/White Leafcutter Bee
Gold-tipped Leafcutter Bee
Fire-tailed Resin Bee
Resin-dauber Bee

ANTHOPHORIDAE

Teddy Bear Bee
Blue-banded Bee
Neon Cuckoo Bee
Black Bee
Great Carpenter Bee
Metallic Carpenter Bee
Green Carpenter Bee

APIDAE

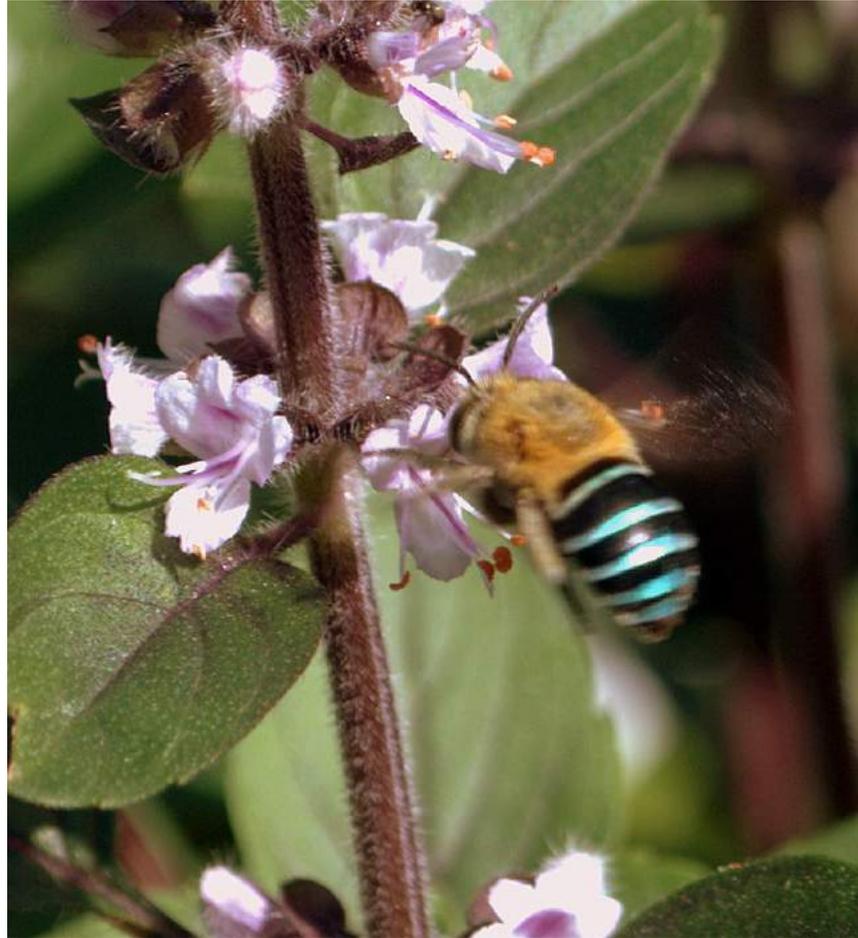
Honey Bee
Native Stingless Bee
Australia has eleven species of small black stingless bees. They are about 4 mm long

Unknown Bees

**Australian Native Bees
State-by-State Location Table**

	Qld	NSW	Vic	SA	WA	NT	Tas
Ten Major Groups of Australian Native Bees							
1. <u>Stingless Bees</u>	✓	✓			✓	✓	
2. <u>Yellow & Black Carpenter Bees</u>	✓	✓			✓	✓	
3. <u>Green Carpenter Bees</u>	✓	✓		✓			
4. <u>Reed Bees</u>	✓	✓	✓	✓	✓	✓	✓
5. <u>Blue Banded Bees</u>	✓	✓	✓	✓	✓	✓	
6. <u>Teddy Bear Bees</u>	✓	✓	✓	✓	✓	✓	
7. <u>Leafcutter Bees</u>	✓	✓	✓	✓	✓	✓	✓
8. <u>Resin Bees</u>	✓	✓	✓	✓	✓	✓	✓
9. <u>Homalictus Bees</u>	✓	✓	✓	✓	✓	✓	✓
10. <u>Masked Bees</u>	✓	✓	✓	✓	✓	✓	✓

Solitary Native Bees On My Property



Blue Banded Bee on Perennial Basil



Blue Banded Bees love the Mud and are always the first to move in to a new home!

Resin Bees

- **Resin Bees (Megachile, formerly in genus Chalicodoma)**
- **(About 100 Australian species)**

- **Resin bees come in many colours and sizes. For example there are large black 14 mm bees with white tufts of hair, and small 8 mm black bees with bright orange abdomens. They nest in pre-existing holes or gaps in timber or stonework. They are called resin bees because they collect resins and gums to build partitions between their brood cells and to seal their nest holes. Beekeepers sometimes notice resin bees hanging around stingless bee hives, trying to ‘borrow’ a little resin for their nests.**

Resin Bees



Black Resin Bee



This Black Resin Bee uses a combination of leaves and resin to seal her nest!



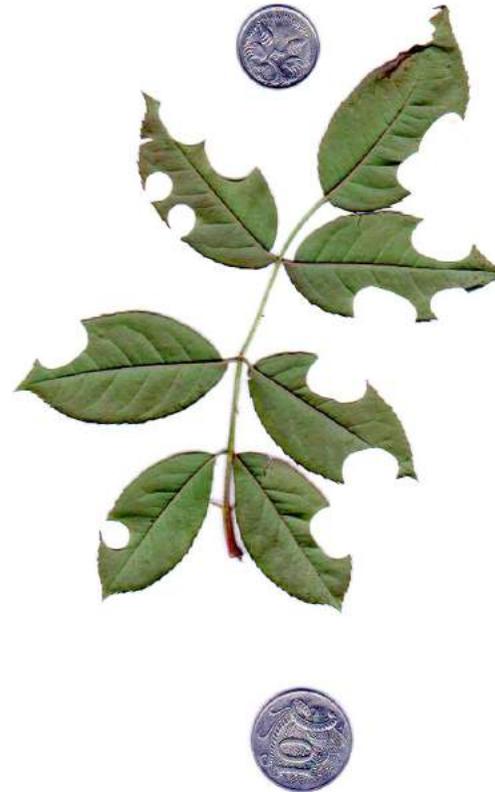
Fire Tailed Resin Bee





**Orange(Fire Tail)Resin Bees
& Black Resin Bees Co-Habit**

Leaf Cutter Bees



I really don't care that this Leafcutter Bee has redesigned my rose bush!



Cuckoo Bees



The Cuckoo Bee is probably the most spectacular of the Solitary Bees, But like it's Bird namesake, She likes to lay her eggs in other Bee's nests, usually the Blue Banded Bee. The larvae then eat the food left for the Blue Banded Bee larvae, consequently they usually die through lack of nourishment.

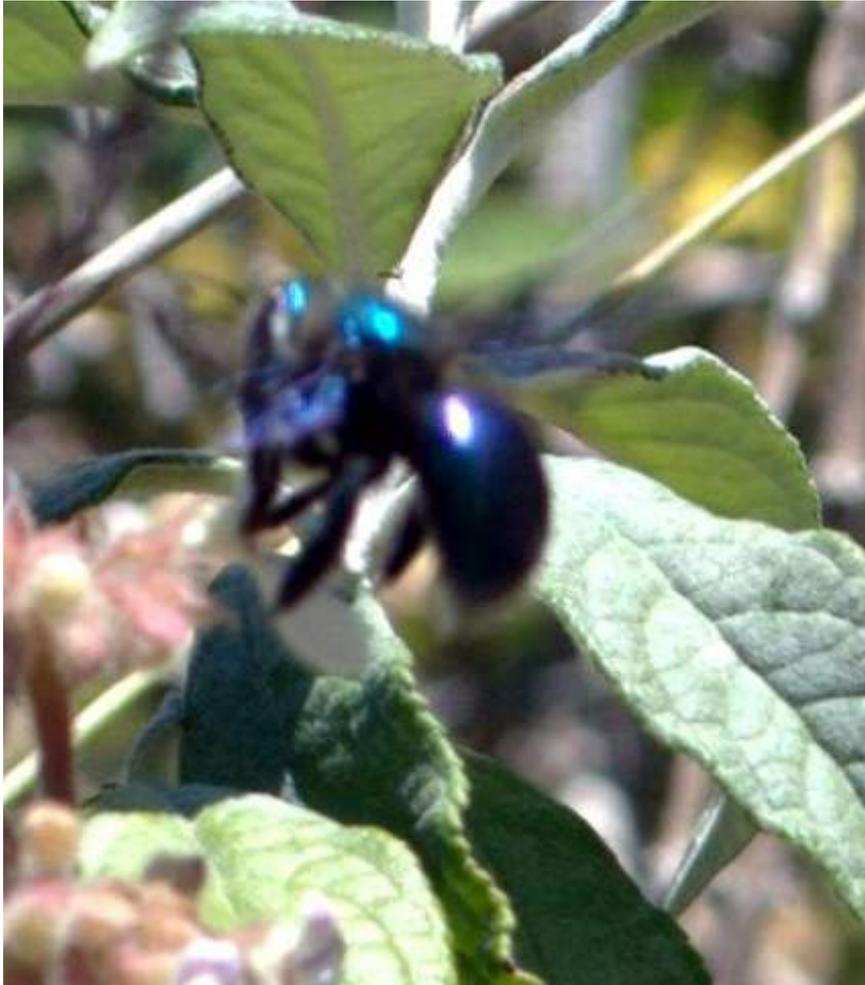
I leave them alone and let nature take it's course!

Cuckoo bees do not build their own nests. Like the cuckoo birds, they get another species to raise their young, these bees lay their eggs in other bees' nests. Usually, a female cuckoo bee stalks the nest of a blue-banded bee, and tries to sneak into it during construction of the cell intended for the nest-owner's egg. If she can go undetected while the female blue-banded bee is busy preparing food and shelter for her own young, the female cuckoo bee will also lay an egg in the cell. When the cell is sealed by the nest-owner, the egg of the cuckoo bee hatches and the larva eats all the nectar/pollen provisions. It then spins a cocoon and pupates. When the blue-banded bee larva emerges, there is often no food left and it dies.





Carpenter Bees



You may find these guys visit your garden, but don't expect them to nest in your Bee/Insect Hotel! Generally, they like to bore or gnaw their own holes in to the softer Queensland hardwoods such as Banksia and Mango to a depth of 12 inches (300mm) or more.

Other Visiting Insects!



Cuckoo wasps

Cuckoo wasps that parasitize ground-nesting bees and wasps must somehow slip their eggs into an underground burrow without being detected. They first find wasps that are in the process of digging burrows and dragging paralyzed prey into their nests as food for their own young. The female cuckoo wasps then hide nearby to watch the burrow and either try to hitch a ride on the paralyzed prey as it's being dragged into the burrow or else wait until the host flies off and then slip inside.

So these Guys are more like Jackals than Cuckoos and prey on the prey of other Wasps. Both bees and wasps often sip nectar from flowers. However, bees feed their young with pollen collected from flowers while wasps feed their young on insect or spider prey.

You might say: wasps are omnivores, while bees are vegetarian!

ICHNEUMON WASPS



FAMILY: ICHNEUMONIDAE (ICHNEUMON WASPS)

HABITAT: Common in hardwood forests, but seldom noticed.

LIFE CYCLE: Several species of these spectacular parasitic wasps occur in Queensland. The female does not sting, but uses her incredibly long, whip-like egg-laying organ (ovipositor) to penetrate solid wood and reach the host ! Possibly a larva of another wasp or Bee. The ovipositor is encased inside a pair of sheath-like filaments that brace the organ during its deployment.

How the wasp finds her concealed target remains a mystery, but once she does she "oozes" a long, slender egg onto the host grub or pupa. The ichneumon larva feeds as an external parasite, and will wait patiently for a small host to reach a large size, or pupate.

They come in several sizes and appear mainly in the warmer months, especially in early Autumn.

Grass Carrying Wasp

Unlike most of its relatives in the thread-waisted wasp family (Sphecidae), which nest in excavated underground burrows, the grass-carrying wasp prefers to nest aboveground in a preexisting cavity.

These gentle, solitary wasps are common in the Summer months, visiting a variety of flowering native plants. Females collect crickets and grass blades in our gardens and landscapes to provide food and a safe, comfortable nursery in the chosen cavity where their larvae will grow and develop.

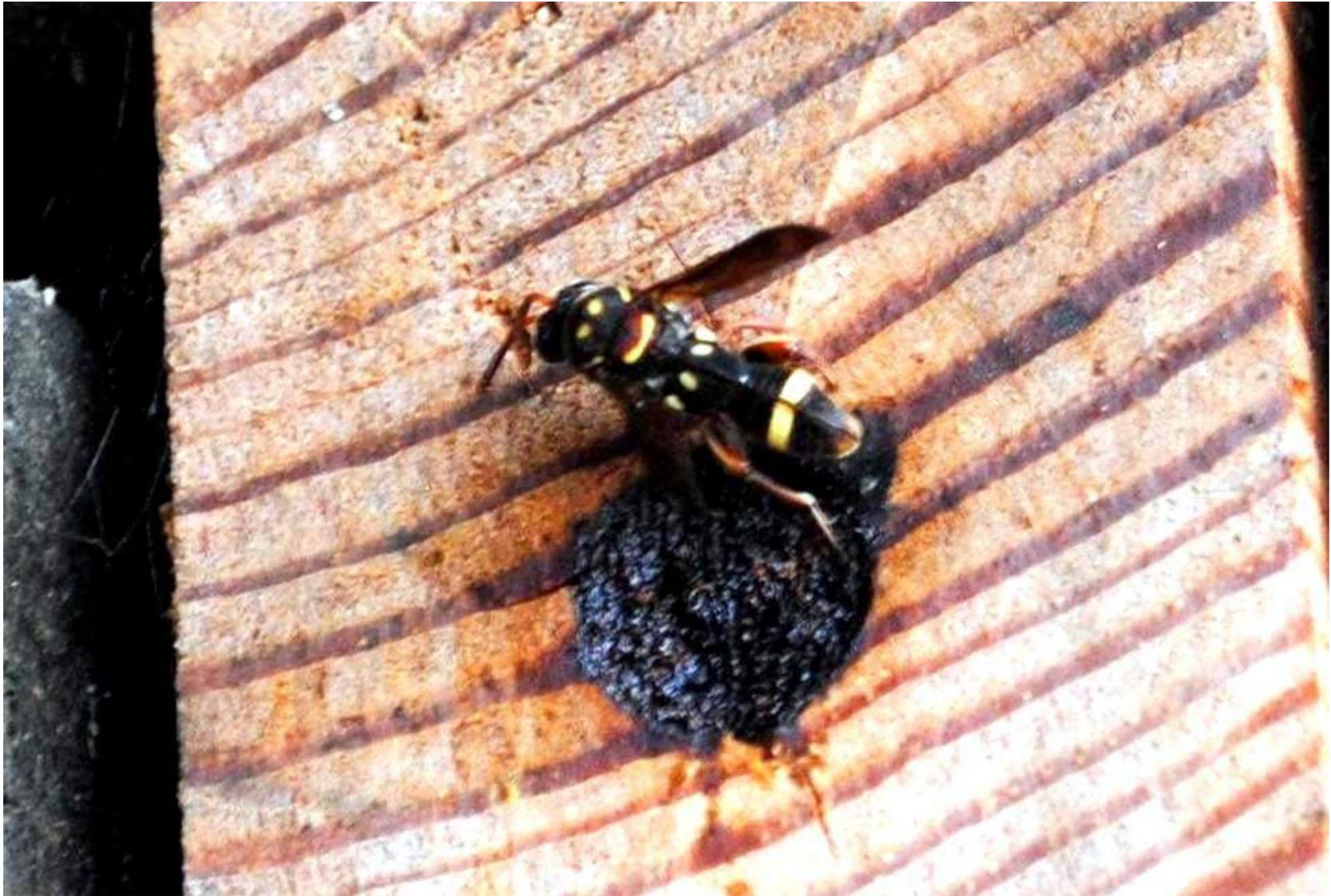
Like other solitary wasps, these wasps aren't aggressive and don't defend their nests. By providing cavities in wood or hollow plant stems in your garden in spring, as well as some of their preferred forage plants, you'll likely have these beautiful wasps visiting and nesting in your garden every season.







I haven't identified this wasp yet, but it appears harmless enough and she's taken over one of the holes adjacent to a resin Bee nest.



She appears to be stealing resin from the Resin Bees nest!



Black Soldier Fly, Because I like them!

Australia is lucky so far, disease has not yet reached our shores.

Even if we are not particularly interested in keeping bees for honey, we can all do our part in providing habitats for many of the Solitary Bees that visit our gardens.

First of all, you need to have Bee attracting flowers & shrubs/trees in your garden. A manicured lawn alone will not attract Bees, they don't play lawn bowls!

Plants that attract native Bees:-

Lavender

Basil

Roses

Garlic

Weeds (Wild Flowers)

Citrus Blossom

False Nutmeg

Etc. Etc. Etc. Most any plant that blossoms.

photos:

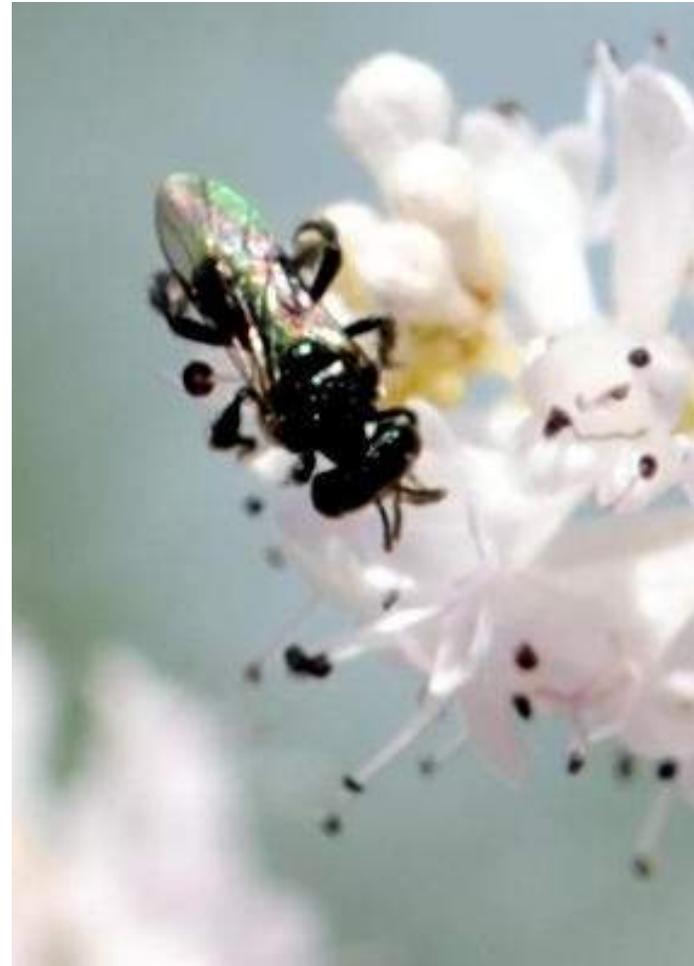
1/ Blue Banded Bee

2/Native Honey Bees on Rose Blossom.

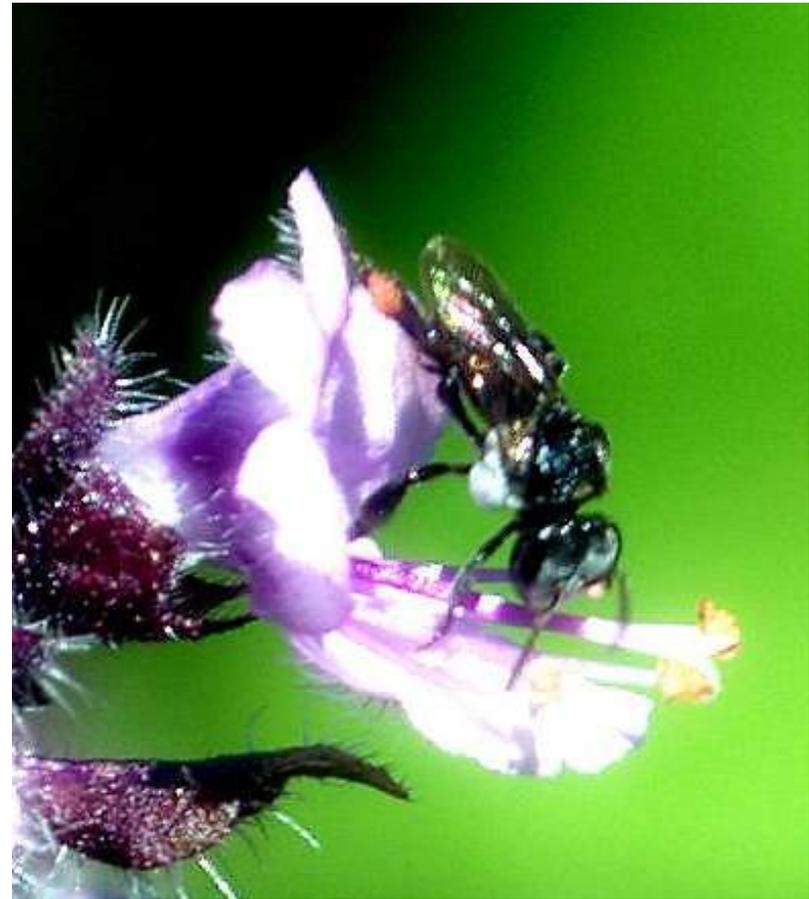
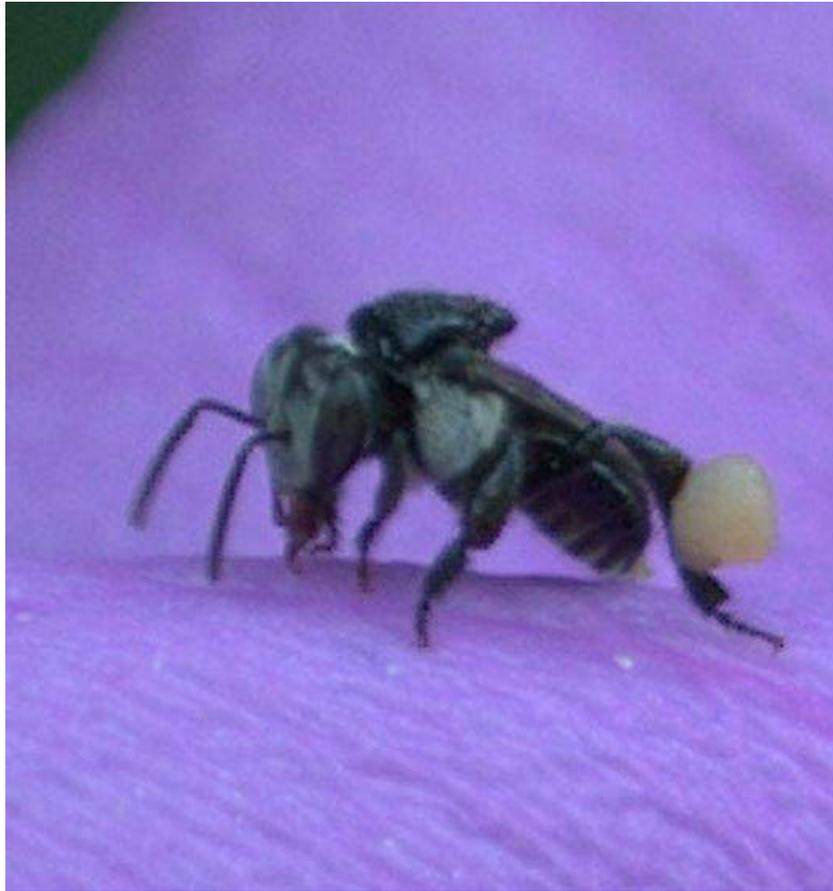




**European Honey Bee
(Gone Wild) on my
Perennial Basil**



**Native Honey Bee
(apparently 11
species) Dining On
False nutmeg**



**Australian Honey Bees on my Property
showing their pollen bags**



I made a few of these Bee Hotel Observatories , viz slots in wood covered with Perspex and then a blackout door on hinges.

Resin bees started to inhabit them immediately. The resin has been deposited all the way to the back of the "tunnel". The larvae can be see embedded in the resin.

Within a nesting tunnel, a female native bee will construct a "brood cell". She then collects enough pollen to knead it into a pollen ball, deposits an egg on it, and closes the brood cell. She can make several brood cells sequentially in one nesting tunnel. After a few days a bee larva emerges from the egg in the brood cell and starts eating the pollen ball. When all the pollen is eaten the mature larva turns into a pupa. By that time the mother bee has usually died. The bee then hibernates in the brood cell until it is time to emerge in the warmer months. After emerging males and females mate and the whole cycle starts over again.

Why are nests so deep?

Apparently, the deeper the nest, the more female eggs will be laid. The male eggs will be laid in the front 3 inches (75mm) where as the back 9 inches (225mm) will predominately have female eggs. So obviously a 3 inch nest will be at a disadvantage in providing for equal male & female eggs.



Build It, They Will Come!



Building a Bee/Insect Hotel

You have no need to go to great expense to build habitats for Bees and Insects.

Old used pallet wood, is ideal , A few pieces bamboo, clay and some hollow plant stems, you are well on your way.

You will only need a few basic tools:

Handsaw & Bench hook,

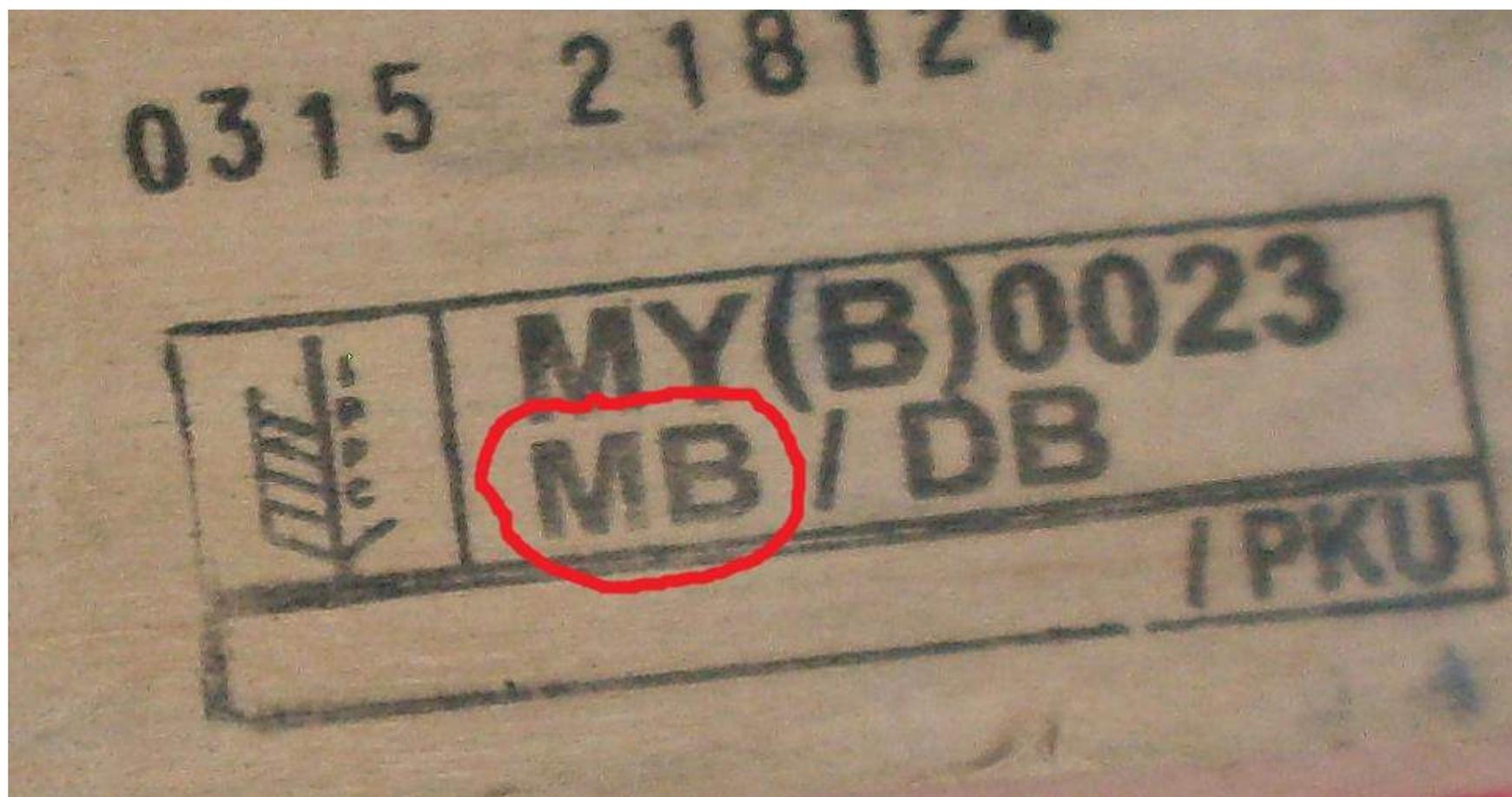
Hammer & nails (I use nails from the pallets)

Power Drill/Screwdriver and an assortment of Drill Bits, 4mm to 12mm and 75mm plus in length.





**Forming Clay Bricks, favourite of the
Blue Banded Bee**



MB= treated with Methyl bromide . A surface fumigation agent for insect control!



HT= Heat treated, the better alternative for insect control for imported wood



SELDOM INN

Fixing your Bee/Insect Hotel



Using 60mm PVC pipe and Star Pickets



Used to be my
Day Job!

