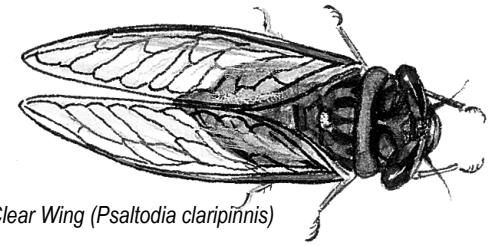
Environment Department

Couran Cove Island Resort

Cicadas of Couran Cove Island Resort

Australia is home to over 200 species of cicada. Each species has its own distinct colours and patterns but we are most familiar with them by their variety of deafening calls. Children have been intrigued by cicadas for decades resulting in some of the most common cicadas attracting colourful names such as Green Monday, Floury Baker, Double Drummer and the Cherry Nose.



Clear Wing (Psaltodia claripinnis)

At Couran Cove Resort we have located 12 different species of cicada, most of which have familiar common names. The species present are as follows:

- Mangrove Cicada *Arunta interclusa*
- White Drummer *Arunta perulata*
- Paperbark Cicada *Cicadetta hackeri*
- Double-spotted Cicada *Cicadetta labelulata*
- Razor Grinder *Hericopsaltria eydouxii*
- Cherry Nose Cicada *Macrotristria angularis*
- Beach Front Cicada *Pauropsalta aktites*
- Clear Wing Cicada *Psaltoda claripennis*
- Yellow Belly *Psaltoda harrisii*
- Black Friday *Psaltoda pictibasis*
- Black Prince *Psaltoda plaga*
- Double Drummer *Thopa saccata*

The Black Friday Cicada has not previously been recorded at either the Sunshine Coast or the Gold Coast, so its presence at Couran Cove Island Resort is of special ecological significance.

Cicadas lead an interesting life that passes through several different phases. Cicadas that we see and hear are in the adult stage of their life cycle. It is as adults that cicadas are colourful flying insects that have the ability to make a loud resonating call. The patterns of colours on an adult cicada's body are used as camouflage from birds and other predators.

LIFE CYCLE

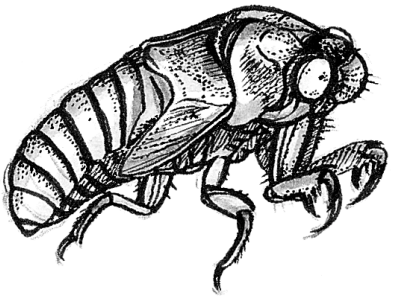
Eggs

Eggs are laid in small slits that a female cicada makes in the branches of trees, in dead wood and even in some grasses. Up to 20 eggs are laid in each slit and batches usually total 200-300, but can be up to 600 depending on the species.
It is generally between 70 and 120 days before the eggs hatch, which takes place immediately after rain.

Nymph

The hatchlings, called nymphs, are so light that they fall to the ground without injury, but are very vulnerable to predators. They quickly search for a crack in the ground and dig their way underground using their strong spade-like fore legs. The nymph burrows to between 40cm and 1m below the surface where they construct a cell by compressing the earth walls with their back. When the cell is completed they seek food from the closest suitable root, which is generally protruding into their cell. The waste generated by feeding is used to compress and harden the walls of the chamber. Nymphal development takes from 9 months to several years, but can last for up to 17 years, depending on the species (Moulds, 1990).

During the nymph stage, cicadas normally shed their skin four times, the last of these are the shells we find clinging to the trunks of trees. Nymphs emerge from the ground when external conditions are suitable, generally warm nights in early summer.

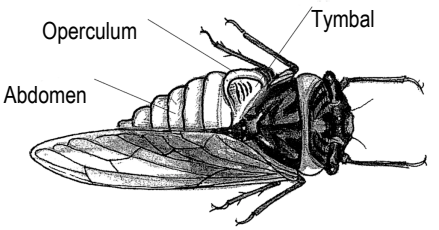


Cicada Nymph

Adults
Some cicadas shed their skin during the day, while most prefer the protection of darkness , as it is during this time that a cicada is most vulnerable. Cicadas fill their bodies with air to crack the back of the shell and slowly ease themselves out. This process takes approximately an hour. At the time the cicada emerges from its shell its wings are crumpled into a little ball. Haemolymph (their watery blood) is slowly pumped into the wings to expand them and later withdrawn back into the body, allowing the wings to dry and strengthen (Moulds, 1990). By the next day, the wings are strong enough for flight but the males do not sing for 2 or 3 days.

Adult cicadas live for only 2 to 4 weeks. During this time mating takes place frequently. Females often mate 2 or 3 times, with several days in between, during which egg laying occurs. Eggs develop in the hollow chamber in the abdomen. Females use their *ovipositor*, a spear-like needle that protrudes from their abdomen, to dig small grooves in wood. Eggs then pass through the ovipositor into the grooves and so the whole cycle repeats itself.

Cicada Calls
Each species of cicada has a distinct call that the males use to attract a mate. Only the male cicadas have the ability to call and often many males group together in trees, calling in chorus, so that females can easily find them. Sometimes these collective calls are so loud that they can frighten predators such as birds away, however, they can also deafen the cicadas themselves. Cicadas have eardrums on their underside called *tympani* (singular – tympanum) that are covered by *operculi* (singular – operculum) and are larger on males. When the calls become too loud the cicadas can close their operculi to shut out the noise (Clyne, 1992).



The noise that cicadas make comes from their *tymbals, which* lie on either side above the tympani and are covered by large flaps called tymbal covers. The tymbals are a fairly rigid, ribbed membrane which is flexed by an internal muscle. The buckling of the tymbal, inward and outward, results in a series of high speed sound pulses at such high frequencies that only a continuous sound is heard by our ear (Queensland Museum, 1997). The abdomen of the cicada is hollow and used by the males as a resonating chamber to amplify the noise that they make.

Eating
Cicadas feed on the sap from the soft shoots of trees or the roots when they are nymphs. Their mouth is a *proboscis* called a *rostrum,* which is like a long drinking straw with a point at the tip. You can generally see the rostrum tucked up between the cicada's legs. The point pierces the soft bark so that the sap can be extracted but it is not sharp enough to injure humans or other animals. The rostrum is the only entrance to the mouth and it has two tubes in it, one for saliva going down and one for sap to come up. Saliva partly digests the sap before sucking it up. The bulbous nose (*postclypeus*) at the front of the head contains a muscle to pump the sap into the cicada. Cicadas feed for three hours or more on hot days and can sing or mate whilst eating. As the sap of trees is very low in nutrients, large quantities must be consumed. Nutrients are extracted from the sap and the clear, water-like waste is squirted at frequent intervals from the end of the body (Moulds, 1990). Sometimes you can even feel a light sprinkling of this 'rain' as you walk under a tree in summer.

Eyes and Sight
The head of the cicada is dominated by two large compound eyes, positioned at the widest point of the head. These eyes are usually red, grey, brown or black. In the centre of the head there are also three jewel-like simple eyes, called *ocelli*, which detect the direction of light sources to assist in flight.

Importance to Food Web
Due to their size and abundance, cicadas hold a significant position in the food web during the summer months. Despite their camouflage, they are relatively easy targets for many birds including cuckoo shrikes, magpies, noisy friarbirds and cicadabirds, who all actively hunt cicadas. Possums, gliders and other insectivorous mammals, tree climbing lizards, small snakes, hunting spiders and spiders that build aerial webs impose a heavy toll on cicada populations. Cicadas attracted to lights at night are easy pickings for insectivorous bats in the air and for cane toads when they land on the ground (Moulds, 1990; Jones & Elliot, 1995). Cicadas that die naturally represent an important source of food for ants that recycle the nutrients found within their bodies and so goes the cycle of life.

References

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Botanical Illustrations by Louise Sanders©

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