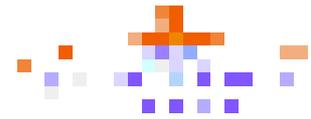




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Fact Sheet



Mosquitoes

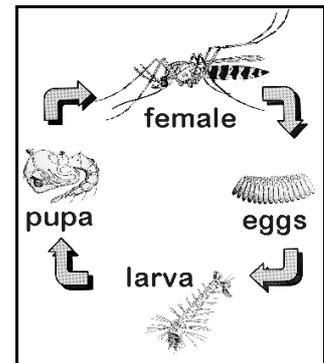
Over 30 species of mosquitoes are native to the Central Coast and Lake Macquarie regions. Many of these play important roles in wetland habitats and the environmental effects of removing them is unknown.

Mosquito Life-Cycle

Female mosquitoes lay their eggs in a body of water in which the mosquito larvae can grow and develop into adults. Mosquitoes cannot lay their eggs in any pool of water as each species requires specific water conditions including temperature, salinity and oxygen levels for successful development.

A couple of days after being deposited, the eggs hatch and larvae emerge. The larvae feed continuously and go through a few stages of development, taking up to two weeks. They eventually turn into pupae and then emerge from the water as adult mosquitoes.

After emerging as an adult, female mosquitoes mate and deposit batches of 50 to 200 eggs every 48-96 hours. The cycle starts again.



Mosquito Life-cycle

Ecological Importance

Mosquito larvae are important food sources for fish, crabs, birds and small invertebrates. The removal of larvae from waterbodies therefore may have a detrimental environmental impact on many other animal species. They also feed on and thus help to reduce the amount of detritus and other organic matter in the water, thereby improving water quality.

Adult mosquitoes provide food for a range of terrestrial animals including birds, bats, lizards and frogs. They also contribute greatly to plant reproduction by aiding pollination.

Nuisance Mossies

There are over 30 species of native mosquitoes living on the Central Coast and in Lake Macquarie. Of these, only a few actually bite us humans, and even fewer cause us any real harm.

Mosquitoes can be divided up into four main groups depending on where their larvae like to live.

Estuarine Mosquitoes	Freshwater Mosquitoes	Floodwater Mosquitoes	Urban Mosquitoes
<ul style="list-style-type: none"> Only a small number of species. Some significant biting species and transmitters of arboviruses. Common in saltmarsh habitats. Larvae usually develop in pools which are covered with water for a few days and then dry out before becoming inundated again. 	<ul style="list-style-type: none"> Large number of species. Most not considered significant biting pests. Of concern when freshwater wetlands become clogged with vegetation such as Cumbungi, resulting in increased mosquito breeding sites. 	<ul style="list-style-type: none"> Some significant biting pest species. Population increases highly dependent on rainfall. Main habitats for larvae are temporary pools in bushland. 	<ul style="list-style-type: none"> Found close to homes. Larval habitats typically man-made (pot-plant bases, tins, cans, outdoor toys, drains). Some problem biting species and arbovirus transmitters. Population increases are highly dependent on rainfall.

Arboviruses

Arboviruses are diseases transmitted in the saliva of mosquitoes. They include two of concern on the Central Coast and in Lake Macquarie, **Ross River Virus** and **Barmah Forest Virus**. Both of these are classed as infectious diseases which are notifiable to the local Public Health Unit. However, only some species of mosquitoes are able to transmit these diseases and their abundance varies greatly across the region.



Estuarine mosquito
Aedes vigilax

Mossie Facts—Dispelling the Myths

- Male and female mosquitoes feed on plant nectar and juices.
- Only female mosquitoes require a blood meal.
- Not all mosquitoes bite humans.
- Some female mosquitoes feed only on lizards and frogs.
- Only arboviruses are transmitted by mosquitoes, not other viruses such as influenza and HIV.
- There have been no cases of Denge, Murray Valley Encephalitis, Kunjin Virus or any other arbovirus on the Central Coast or Lake Macquarie.

How Best to Protect Yourself

1. Avoid being outdoors when mosquitoes are most active, at dawn and dusk.
2. Wear light-coloured, long, loose-fitting clothing.
3. Cover-up with insect repellent which contains diethyl toluamide (DEET) or Picaridin.
4. Fit insect-screens to building doors and windows.
5. Empty water from all containers around the home.
6. Use a mosquito net when camping.

Controlling Mossies with Bti

There has been some recent interest in the use of a chemical pesticide called Bti as a control agent for mosquitoes on the Central Coast and in Lake Macquarie. This chemical comes from a bacterium known as *Bacillus thuringiensis israelensis* and kills mosquitoes by destroying their gut wall. Bti is generally sprayed over mosquito breeding sites such as wetland habitats so that the larvae will ingest it and die within 12 hours. It is regarded as a 'safe' chemical pesticide and environmentally acceptable because it affects mosquitoes and very few other insects. However, long-term studies of the impacts of Bti on our wetland environments, which are quite degraded in some places and under a lot of pressure from development, have not been done to confirm this.

The Materials Safety Data Sheet for Bti states that people should avoid all direct contact with the product as it may cause irritation to the eyes and skin. Protective clothing, an air purifying respirator, impervious gloves and safety goggles should be worn by anyone using Bti. It also states that ecological information regarding the effects of Bti has not yet been determined and neither has its chemical stability. In other words, a lot more testing has to be done before we can decide that Bti is in fact a safe chemical to put into wetland environments.

Sources: Living with Mosquitoes on the Central Coast Region of NSW; Living with Mosquitoes in the Lower Hunter and Mid North Coast Regions of NSW; Vectobac WG Material Safety Data Sheet; Mosquito Control Association of Australia Inc.