

Stick Insects

Fact Sheet



Female Titan Stick Insect. Image: QM, Jeff Wright.

Introduction

Stick and leaf insects, scientifically known as phasmids, are among the largest of all insects in the world. At 26 cm, the Titan Stick Insect (*Acrophylla titan*) is the longest of all Australian insects. Phasmids have perfected the art of camouflage. Some resemble sticks and foliage so closely they even feature false buds, thorns and ragged leaf-like flanges. Small wonder they are rarely seen except after storms when they are blown out of trees and shrubs.

Phasmids are sometimes confused with a different group of insects, the mantids. Also called Praying Mantids, these are predators with large, spiny front legs, held folded ready to strike and grasp prey. In contrast, Phasmids are herbivores (plant-eaters) with simple front legs that are similar in size and structure to their other legs.

All stick insects feed on fresh leaves. Some browse on a wide variety of trees and shrubs but others are fussy, eating only a limited range of host plants that are often closely related to each other. For example, in Australia, a number of phasmid species feed on most types of *Eucalyptus*.

Phasmids are completely harmless and rely on their camouflage to escape predators. When mildly disturbed, some arch their abdomens and sway their bodies. If in real danger many react quickly with a spectacular display to frighten the would-be attacker. For example, a female Goliath Stick Insect (*Eurycnema goliath*) usually rests motionless with her leaf-green wings closed. When annoyed she suddenly opens and noisily vibrates her wings to reveal bright red parts and may curve her abdomen towards the attacker as though she could sting.

Adult males and females are very different from each other.



Mating pair of Children's Stick Insects. Image: Nicole Hoye.

Males, generally slender with fully developed wings, are often capable of flight. The females tend to be much larger and thicker bodied and fly with difficulty if at all; wings may be used for threat displays rather than flight. Adult females of different species have a wide variety of forms from the very stick-like Titan Stick Insect (*Acrophylla titan*) to the strangely shaped Spiny Leaf Insect (*Extatosoma tiaratum*) which has wings so small they are little more than buds.

Biology

Females lay eggs one at a time, often with a flick of their abdomens to throw the egg some distance. An individual female drops eggs at a rate of one to several per day and she can produce between 100 and 1,300 eggs in her lifetime. They fall to the ground and lie in the leaf litter.



A variety of insect eggs. (on left). An ant carrying a stick insect egg (on right). Images: QM, Jeff Wright.

Stick insect eggs are generally oval, and superficially seed-like with an amazing array of textures and ornamentation. Many also resemble tiny urns with lids, having an operculum (a cap which is pushed open to release the hatching nymph) topped with a complicated knob-like structure called the capitulum. Experiments have shown that eggs with a capitulum are attractive to ants. An egg is taken back to the ant nest, where the nutritious capitulum is eaten and the egg is discarded. This benefits the phasmids as it helps egg dispersal, plus eggs buried in ant nests have a lower rate of parasitism from wasps. Many seeds, particularly those of wattles, have a similar removable structure rich in fats (elaiosomes) that are attractive to ants. Incubation times vary enormously; some eggs hatch within a few weeks while others may remain dormant for years.



Hatching Spiny Leaf Insect resembling an ant. Image: Nicole Hoye.

Young Phasmids, called nymphs, generally look like very simple stick insects. Many hatchlings resemble ants and are thus avoided by predators. Nymphs go through a series of moults, and with each moult they more closely resemble the adult form acquiring spines, flanges and general body

shape characteristics of the adult. The time taken from egg to adult is from three to six months but it depends on food availability and temperature: the warmer the temperature the faster the development. Only adults have wings and adults never moult again.

Stick insects as pets

Australian stick insects have entered the world-wide pet trade particularly in England. They make good pets as they are easy to breed provided there is a sufficient supply of their host plant. They are strange enough to impress your friends and do not annoy the neighbours.

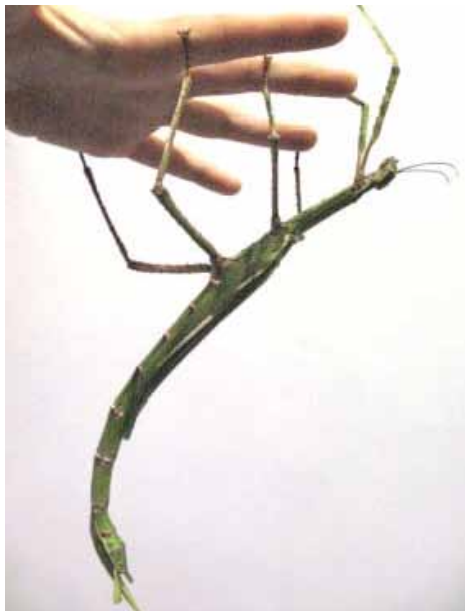
An adult stick insect may live for months. In the Inquiry Centre, Queensland Museum South Bank, a few different species of *Eucalyptus* feeding stick insects have been bred for many years. The eggs are collected and stored on top of moist vermiculite until they hatch. Many visitors to the Museum have taken nymphs home and successfully raised them through to adults.

Titan Stick Insect *Acrophylla titan*

Females grow up to 26 cm long and they are currently recognised as the longest insect in Australia. They are generally mottled grey-brown with a chequered purplish colour on their hind wings. The thorax has short conical prickles. Titan Stick Insects feed on a variety of plants including eucalypts and cypress pine trees. An image of an adult female is at the top of this Fact Sheet.

Goliath Stick Insect *Eurycnema goliath*

Females have an average length of 23 cm. While not as long as the Titan Stick Insect they are much thicker bodied and heavier. They are green with yellowish rings around the abdomen. Hind wings have a flash of red when unfolded. Goliath Stick Insects feed in the tops of eucalypts.



A female Goliath Stick Insect hanging from an adult hand for scale. Image: Nicole Hoye.

Spiny Leaf Insect *Extatosoma tiaratum*

Of the Australian stick insects, this is the species most frequently kept as pets as they are among the most bizarre and fearsome looking of all insects. They are fat, spiny and wingless with ragged leaf-like legs and funny pointed heads. They hang upside down with their abdomen curved like a scorpion. The average length of females is 14 cm. In contrast, males look like more typical stick insects and are slender with long wings capable of flight. Spiny Leaf Insects

feed on wattle, eucalypts and occasionally on cultivated roses.



A female Spiny Leaf Insect. Image: Katie Hiller.

Children's Stick Insect *Tropidoderus childrenii*

This stick insect was named in 1833 after John George Children, a celebrated English naturalist and founding president of what was to become the Royal Entomological Society of London. Female average length is 13 cm. They are relatively broad and closely resemble eucalypt leaves on which they feed. When disturbed, the hind legs are struck together and the wings are opened and beaten up and down displaying blue blotches at their base. The brown males are extremely slender and could be easily mistaken for a completely different species.

Peppermint Stick Insect *Megacrania batesi*

Females have an average length of 10 cm. They are pale green and flat with tiny wings. By day they hide in the bases of prickly Pandanus leaves (*Pandanus tectorius*) and feed on its foliage at night. Peppermint Stick Insects have an unusual chemical defence. When disturbed they squirt a milky fluid with a strong peppermint smell from glands at the front corners of the thorax. In Australia, the species is restricted to very small areas in far north Queensland, although other *Megacrania* spp. are known from many Pacific islands. All feed on Pandanus.



Female Peppermint Stick Insect. Image: QM, Jeff Wright.

Further Information

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Websites

<http://www.amonline.net.au/factsheets/phasmids.htm>

http://www.geocities.com/brisbane_hoppers/StickInsect.htm

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