

Steve Parish
KIDS

Nature Watch

More than 150
amazing photos of
Australian insects with
fun facts & easy-to-
follow information.



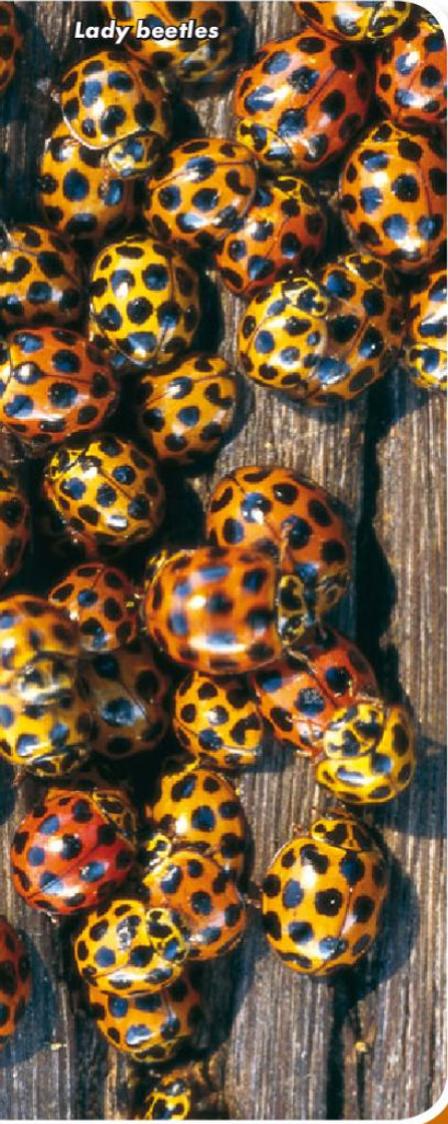
Insects



What is an insect?



Scarab beetle



Lady beetles

Compared to a human, an insect is inside out. The human skeleton is inside the body and is surrounded by muscles and skin, but an insect's skeleton is on the outside of its body. An insect's skeleton, called an exoskeleton, acts like a suit of armour, which protects the internal organs. This armour has joints in the legs and body so that the insect can move.

An insect always has six jointed legs and its armour-covered body is made up of three main parts:

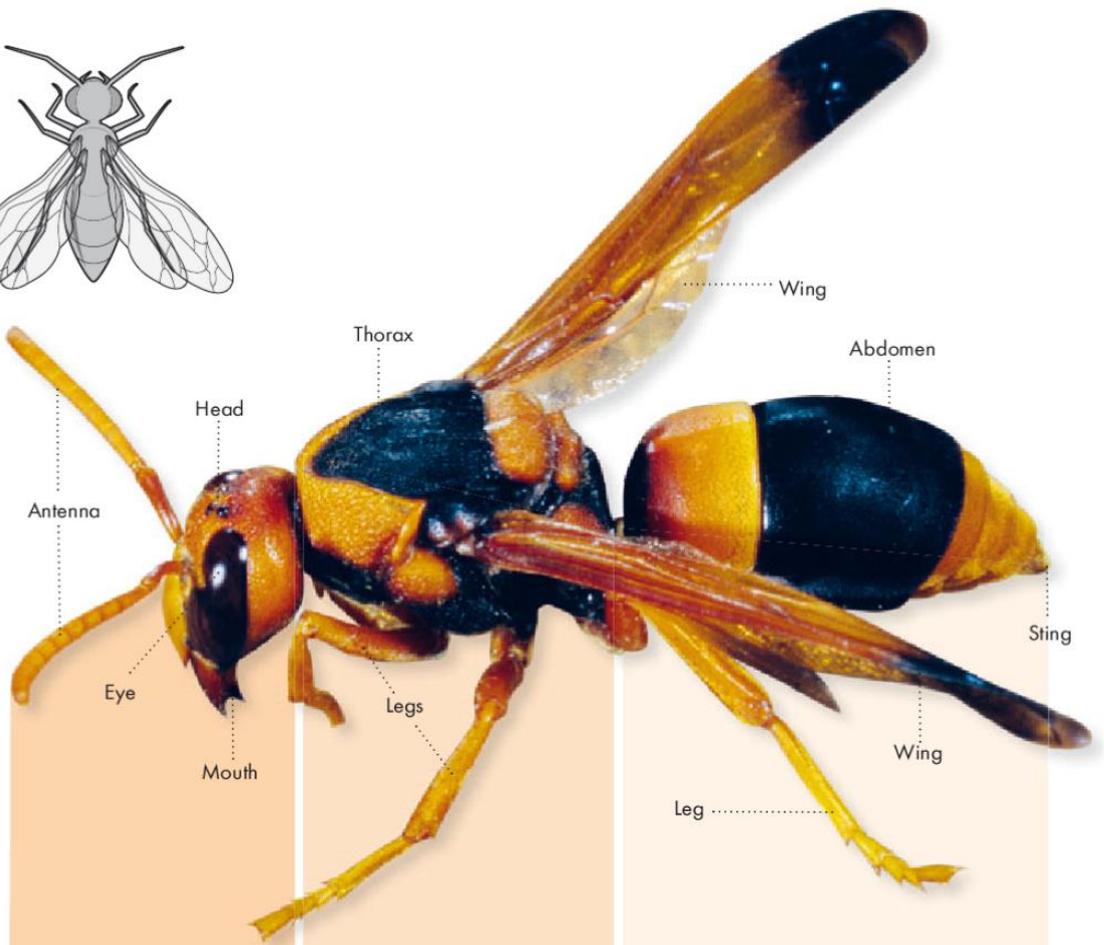
- The head**
- The thorax**
- The abdomen**



Bull ant

Insect overload!

Although insects may be small, there are many of them. Sometimes a swarm, or group, of locusts has more insects than people on Earth! There are more different kinds of insect than any other animal and they outnumber almost every other animal group.



The head holds the eyes, mouthparts and feelers, also called antennae.

The thorax contains the muscles that move the insect's legs and wings.

The abdomen contains the gut, organs and blood. (Insect blood is not red like ours. Most insects have clear, yellow or green blood.)

Large & small

The longest Australian insect is a stick insect that is about 26 centimetres long. The largest Australian ant is close to 4 millimetres long. (The smallest insects in the world are less than a millimetre long and can fit on a pin head.)



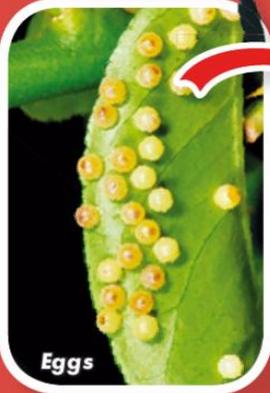
Stick insect
& ant

Transformers

Insects like butterflies and moths go through some remarkable changes as they grow. Some time after an egg is laid, a grub, called a larva or caterpillar, hatches and begins eating. The caterpillar's body is soft and grows quickly. It does not look much like the adult butterfly it will turn into.

After weeks of eating, the caterpillar makes a cocoon or chrysalis. Inside the chrysalis its body changes. Wings form and legs grow. Its soft grub-like body turns into the adult insect. Finally it crawls out of the chrysalis and opens its wings. After its wings harden, it takes to the air and flies away.

Amazing transformation!



Female
butterfly

Eggs



Butterfly

Unfolding the wings

When a butterfly first comes out of the chrysalis, its wings are small and crumpled. It has to pump liquid into its wings to blow them up. It then waits for them to dry and harden. During this time, the butterfly cannot fly.



Cicada

Growing out of the skin

Giant grasshopper



Many insects, like grasshoppers, don't go through the same changes as butterflies. They simply grow bigger. Because their armour-like exoskeleton doesn't grow with them, they quickly outgrow it. This is similar to when you get too big for your old clothes, except there are no buttons or zips to help the insect get out of its old exoskeleton!

Climbing out of the old armour is called moulting. When an insect moults, it takes air into its body. This makes the body swell and splits the old exoskeleton along the back. The insect then pulls its body and legs out. It takes some time for the insect's new exoskeleton to form, so it expands its body as much as possible before it stiffens.

Ningui attacking weevil



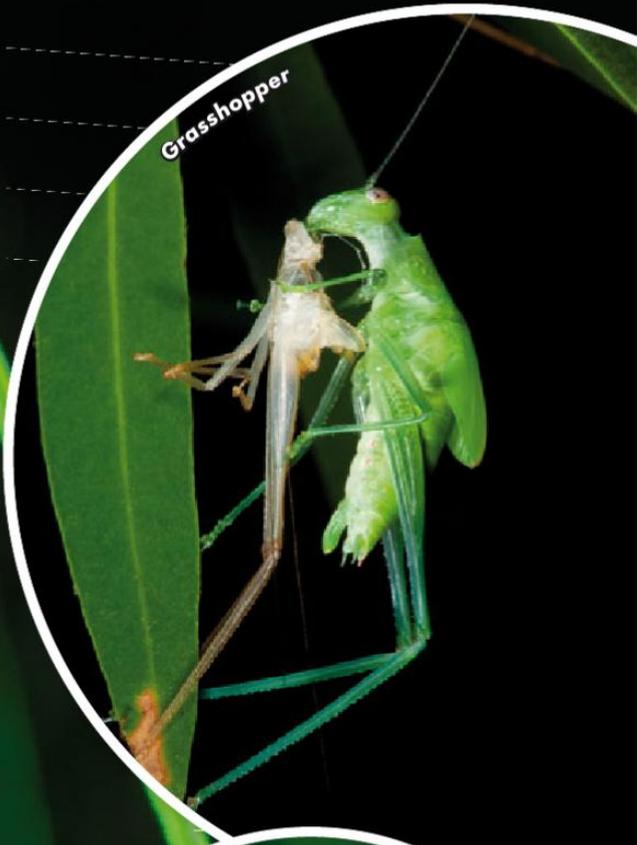
Shiny, smooth & slippery

Many beetles have hard, spiky or bumpy exoskeletons. This, together with rounded, shell-like armour plates, makes it difficult for predators to bite into.

Blue skimmer dragonfly



Grasshopper



Scarab beetle



Shields of armour

Burrowing insects have hard armour-like shields that protect their wings and body from damage as they dig. Their smooth surfaces slip through the soil or between the fibres of the wood in which they burrow.

Rhinoceros beetle



Lacewing



Insect wings



Wasp

An insect's thorax is packed full of muscles that make the wings and legs move. For an insect to fly, its muscles quickly pull the inside of the thorax in and out, which makes the wings beat. Some insects can beat their wings up to 200 times every second.

Jewel beetle



Beetles and other insects that both burrow and fly need to protect their wings. They have hard, shield-like wing covers. Their wings can be folded up and tucked beneath the covers so they don't get damaged.

Butterfly wing



Covered in Scales

Butterfly and moth wings are covered in tiny coloured scales. The arrangement of the coloured scales gives each butterfly its beautiful wing pattern. If you touch a butterfly's wings, some scales may rub off and leave your fingers feeling dusty.



Stick insect

Look closely. Can you see the veins and creases in the wing of this stick insect?

The creases allow these wings to fold in and out like a fan.



Dragonfly



Dragonfly

Stiff wings

Flying insects mostly have four wings, two on each side of the body. In insects like dragonflies, the wings are very stiff and cannot be folded away.



Home makers

Many insects are very good at building homes. By working together they are able to make huge nests out of soil, leaves, twigs or whatever is available. Bees and wasps can even make their own building materials. Some insects have learned how to make glue to hold parts of their houses together.

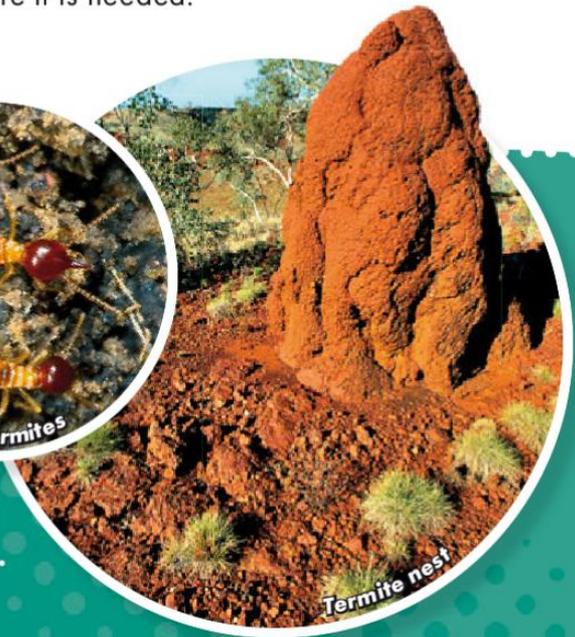


Ants are very good builders. Worker ants can carry huge loads that are several times larger and heavier than their own bodies. Many ants work together to carry large pieces of material to where it is needed.



Air-conditioned towers

Termites build some of the most amazing nests. They even make special tunnels inside the nest to keep their high-rise homes cool.



Green tree ants build their nests with the help of glue. Larvae make the glue and the ants use the larvae like glue sticks to spread the glue onto the leaves they want to stick down.



Green tree ants

potter at work

The mud-dauber wasp moulds its nest in the same way as a potter might make a pot. The nest is shaped like a pot and made from mud or clay. The wasp catches grubs, paralyses them and stores them in the nest along with its eggs. When the eggs open, the newly hatched wasp larvae eat the grubs.



Mud-dauber wasp

INSECT GLOSSARY

ABDOMEN The large, soft part of an insect's or spider's body.

ANTENNAE Slender sensitive feelers.

AVOID Keep away from.

CAMOUFLAGE To blend in with the surroundings using colours and patterns.

CAPTIVE Held prisoner.

CHRYSLIS See Cocoon.

COCOON A silk covering that protects some insects while they change from larva to adult.

COLONY A group of the same kind of animals living together.

COMPOUND EYE An eye made up of many smaller eyes.

DISEASE Illness or sickness.

DISSOLVE To break down a solid into a liquid.

EXOSKELETON An insect's skeleton that is on the outside of the body.

HATCH When a larva breaks through its egg.

LARVA Plural: larvae. The life stage between egg and adult. Also called caterpillar.

MATE An insect of the opposite sex. Can also mean a male animal transferring special cells to a female's eggs, which causes young to develop.

METAMORPHOSIS Changing from a larva to an adult.

MIMICRY Copying the looks or behaviour of another animal or plant.

MOULTING When an insect breaks out of its old exoskeleton and forms a new one.

ORGAN Important parts of the body that have special functions, such as the heart.

PARALYSE To make another animal unable to move.

POLLINATE To transfer pollen from the male to the female part of a plant.

PREDATOR An animal that hunts and eats animals.

PREY An animal that gets eaten by another animal. Can also mean to hunt.

PROBOSCIS A straw-like mouth.

SALIVA Fluid produced by glands, which flows into the mouth.

SWARM Large group.

THORAX The part of the body that is between the head and the abdomen of an insect.

