Tropical Factsheets

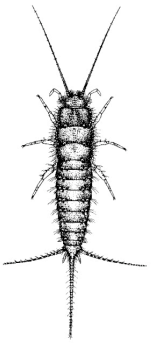
Insects of the Cryptosphere

- Insects have an **exoskeleton** which provides excellent protection from the environment on the outside and strong points for muscle attachment on the inside.
- Adult insects have **three pairs of legs**, a pair of **antennae**, **three obvious body divisions** (head, thorax and abdomen) and **wings**.
- Look closely and you can see many different insects in the cryptosphere. You can find more detailed information about other insects in fact sheets on **Ant Facts, Green Tree Ants** and **Beetle Facts**.

Insect

Silverfish

- Silverfish belong to a **primitive** group of insects which **never evolved wings.**
- They have **six** walking legs, but under their bodies they have tiny **remnants** of more legs. (They evolved from ancestors with many legs.)
- Silverfish have tiny reflective scales which give them a **silver sheen.**
- They **live** in the leaf litter, under bark and stones, or in ant or termite nests.
- They **eat** decaying plant and animal matter in the cryptosphere.



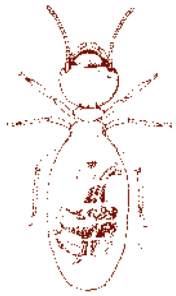
Silverfish

Termites

- Termites are one of the most **numerous** insects in tropical rainforests. The **biomass** of termites is greater than that of all other forest animals combined.
- Termites feed on decaying logs, releasing nutrients for the living forest. They rely on tiny organisms such as **bacteria** and **protozoa** living in their gut to break down the wood.
- Termites are **social** insects and their society is divided into castes. The **workers** travel far from the nest to gather food, and the **soldiers** guard the colony.

These fact sheets are based on the Tropical Topics newsletters edited by Stella Martin
and produced by the Wet Tropics Management Authority and the Queensland Environmental Protection Agency.

- Workers feed the queen, king and soldiers (whose defensive jaws prevent them from gathering their own food).
- Queen termites are among **the longest living insects**, reaching ages of over 25 years.
- Like other social insects termites communicate by passing chemicals known as **pheromones** around their colony. The workers feed pheremones from the queen to the **young** to prevent them from developing sexually.

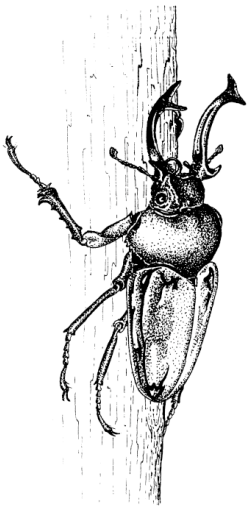


Termite

- Sometimes the queen **stops** sending these messages and the young develop **wings**. An evening shower may **trigger** them to leave the colony in large swarms.
- **Birds** love to feed on winged termites and most of them live a very short life. If they're able to **mate**, new kings and queens begin **new colonies**.

Beetles

- The **larvae** of several beetle species are important because they break down wood, making the nutrients available for the rest of the forest.
- **Longicorn Beetles** lay their **eggs** in the bark of dead fallen trees. They tunnel deep into the wood to feed, boring holes in the logs.
- The larvae of **Scarab Beetles** (such as Rhinoceros beetles and Christmas beetles) also feed on decaying wood and humus and help break down fallen timber.



Mueller's Stag Beetle

Crickets

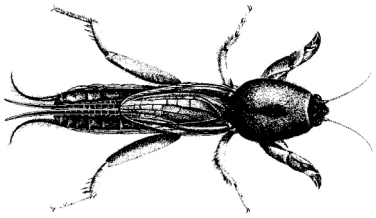
- Crickets eat **vegetation** and other **insects** in the cryptosphere.
- The sound of male crickets dominates the rainforest at night, especially in the wet season.
- Some crickets call from their **burrows**, while others call from **under leaves** on the ground.
- Their penetrating songs occur at specific **frequencies** and are arranged in **pulses** so that each species can be recognised by its own song - like frogs.
- Crickets produce their sound by rubbing their modified **wing cases** together.

Giant King Cricket

- The tropical rainforests of north Queensland have **26** species of **Wetas** or **Giant King Crickets.** Eight species are endemic. All the **winged species** of King Crickets (including the two most primitive species in the world) occur in the cryptosphere and the understorey.
- The **White-kneed King Cricket *(Papuastus sp)*** can grow up to 8cm long. They live in smooth-walled **burrows** in the soil during the day. They pull leaf litter over the entrance of their tunnels to conceal them.
- Their **hindlegs** are very powerful and they can leap several metres if disturbed. They emerge at **night** to roam the forest floor and feed on decaying organic matter. They have **large, strong jaws** which they use to kill small creatures in the leaf litter.

Mole Cricket

- The **Mole cricket** lives below ground in a burrow which it digs with strong clawed forelegs. It feeds on the roots of plants and small animals in the leaf litter. Their burrows are specially designed to amplify the males' call to attract females.



Mole Cricket

Cockroaches

- Cockroaches live under **stones and logs**.
- Their **flat, oval** shapes enable them to squeeze into cracks.
- **Sensory hairs** on their legs respond to any disturbance in the surrounding air. This triggers their leg muscles to move very quickly. A cockroach is up and running before it can think!
- Female cockroaches produce hard oval **egg capsules**. Some mothers deposit these capsules, others carry them around with them.
- The **largest** cockroach in the world ***Macropanesthia rhinoceros*** lives in north Queensland. It reaches **65**mm in length and lives **under the ground.**

Antlions

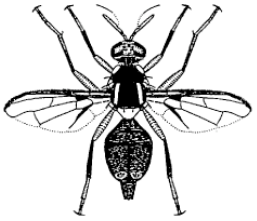
- When **antlion larvae** hatch from their eggs, they burrow backwards into sand and form a pit.
- They hide at the **bottom** with only their elongated mouthparts showing, and wait for a victim to fall in.

- When an ant loses its footing and falls into the pit, the antlion flicks sand at it which dislodges it even more.
- When the scrambling ant comes within reach the antlion grasps it with pincer-like mouthparts and **sucks** it dry.
- Antlions don't have bottoms and don't excrete waste until they become **adults**.

Antlion

Flies

- Flies have just **one** pair of wings and are very good flyers.
- Their **mouthparts** are adapted for sucking or piercing. They dissolve solid food in their saliva and then suck up the liquid.
- **March flies** are common in the tropical rainforests of north Queensland.
- Female March flies are **bloodsuckers**, while the males feed on nectar and plant juices.
- The females have two large **blade-like mouthparts** which they use to slash the skin of their host, and a long horny **proboscis** that pierces the skin.
- Their **larvae** live and feed on the leaf litter of the cryptosphere. The average **life span** for an adult March fly is three to four weeks.



Fly

Mosquitoes

- Mosquitoes are very **abundant** in the cryptosphere because of the warm temperatures and humid conditions.
- Mosquitoes can **breed** in tiny amounts of water trapped in plants, tree holes and on leaves lying on the ground.
- The **larvae** remain in the tiny pools of water until they become adults.
- The females require a **blood meal** to produce eggs.