



OUR BIG BUGS

QVMAG is a Children's University learning destination.

Titan beetle larvae have never been found, but perhaps feed on wood below ground.

Titan beetles live in rainforests in South America, and are threatened by habitat loss.

Tasmania has some large beetles of its own

DID you know the world's largest insects can weigh more than 30 grams, and are about the same size as a typical rat?

The largest insect of all is a giant long horn beetle called the titan beetle, or *Titanus giganteus*, which has to be the best scientific name we have heard.

Titan beetles can grow up to 17 centimetres long, and have a wingspan of 28 centimetres (close to the length of a standard ruler).

While the male Hercules beetle can grow longer, but about half of its length is an enormous set of horns, which it uses in battle.

On body length, titan beetles are recognised as the largest.

They have extremely strong and sharp mandibles, capable of snapping a pencil in half.

They also have sharp spines, and the ability to hiss by pushing out air through the breathing holes along their sides.

OK, so they sound a little scary, but they are not aggressive.

Simon Fearn, Collections Officer, Natural Sciences, at the Queen Victoria Museum and Art Gallery (QVMAG), in Launceston, said the world's two largest species of beetles were found close to the Equator, in the warm jungles of

Central and South America.

"The largest and heaviest insects occur in the tropical regions of the world, but the reasons for this are still not clear," Mr Fearn said.

"It is thought that the constant warmth and humidity, as well as rapid nutrient cycling in the tropics allows insects to grow at optimal rates."

The intricate breathing systems of insects appear to operate best in the tropics, but still limit how large insects can grow.

Another factor is the weight of an insect's exoskeleton.

This is the hard covering that supports and protects the bodies of insects and some other invertebrate animals.

The word exoskeleton means "outside skeleton".

Exoskeletons are made up of a substance called chitin.

Mr Fearn said large crustaceans such as crabs and crayfish offset the problem with exoskeletons by living in water, which helps support their weight.

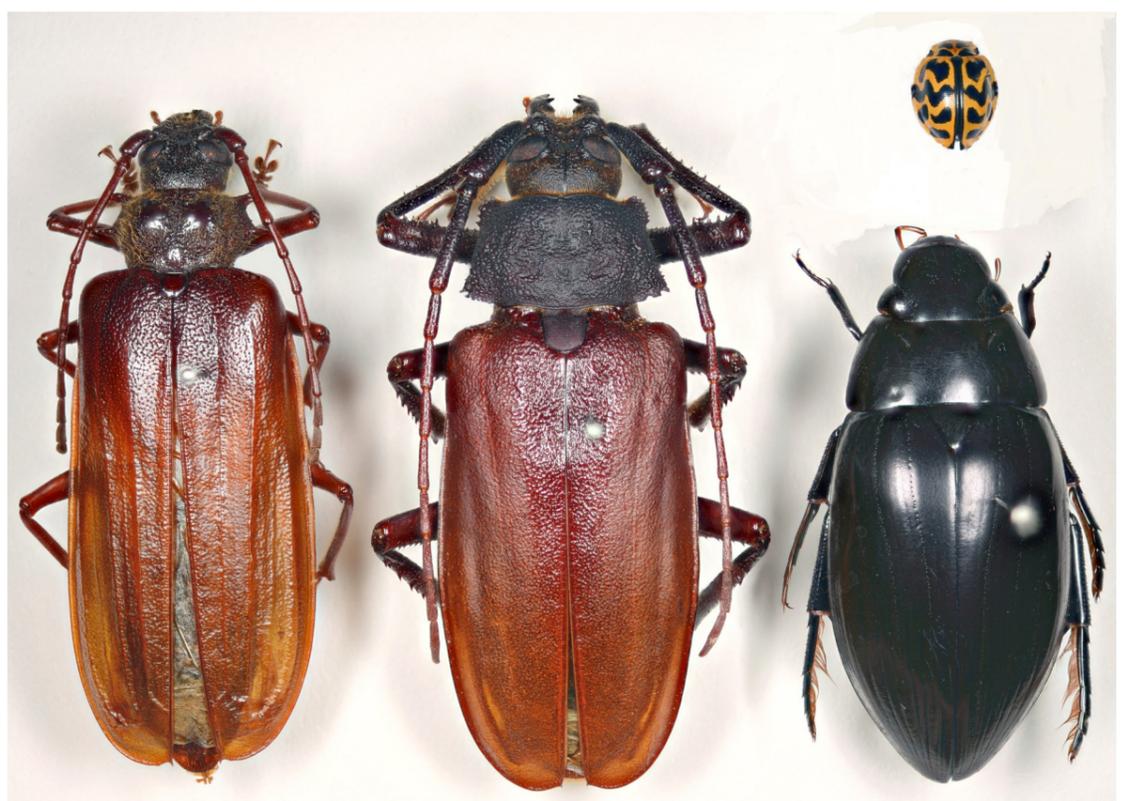
While Tasmania's cool and variable climate appears to restrict the size of insects, we do have three beetles that are considered large by world standards.

Continued Page 2



IN FULL FLIGHT: A titan beetle compared in size to an adult male sparrow.

Picture: David Maynard, QVMAG.



IMPRESSIVE: Tasmania's three largest beetles, from left, *Toxotes arcuatus*, *Cnemoplites australis* and *Hydrophilus latipalpus* are huge compared to a ladybird beetle, top right.

Picture: David Maynard, QVMAG.

Our largest beetles

From Page 1

The largest and heaviest is the Banksia longhorn, *Cnemoplites australis*.

This species can grow to more than 5 centimetres in body length, and can be found in drier woodland habitats in eastern and coastal Tasmania.



SIGNS: A large, dead Banksia tree covered in large emergence holes. Picture: Simon Fearn, QVMAG

Females lay their eggs in Banksia, She-Oak and sometimes Paper-Bark trees, and it is fair to say their larvae have a big appetite.

Mr Fearn said these white grubs bore large tunnels in the wood for several years and often weaken trees to the point that they snap in high winds.

“When at maximal size, these grubs can be over 70mm long and thick as a human finger,” he said.

“The grub bores out a large oval chamber in the wood to pupate and metamorphose into an adult beetle.

“When the adult beetle is ready to emerge it has to chew its way out of the thin layer of wood separating it from the outside world.”

“Large Banksias can often be seen in coastal habitats with dozens of emergence holes in them.”

Tasmania’s second largest beetle is also a longhorn beetle and is yet to receive a common name.

Toxotes arcuatus are endemic to Tasmania, and



Banksia longhorns have razor sharp mandibles and can draw blood if mishandled.

Banksia longhorns are nocturnal, and while common they are rarely seen.

***Hydrophilus latipalpus* go into torpor during winter at the bottom of bodies of water.**

Tasmania’s third largest beetle is the 4cm water scavenger *Hydrophilus latipalpus*, which can be found in swamps, lagoons, farm dams and slow flowing rivers throughout eastern and coastal Tasmania.

The adult beetles forage for vegetable matter in the water, but their larvae are predators with sharp mandibles for capturing and eating prey, including tadpoles and small fish.

When fully grown the larvae create an oval chamber in soft mud near the water’s edge to pupate and metamorphose into an adult beetle.

Hydrophilus latipalpus have stiff, long hairs on their middle and hind legs that provide ‘paddles’ for swimming.

Picture: David Maynard, QVMAG

the female can rival Banksia Longhorn beetles in length.

Toxotes grubs also like to bore through timber for a couple of years, mainly eucalypt logs on the forest floor, and emerge as adult beetles.

They are rarely seen unless they blunder into house lights, but are very common and widespread throughout Tasmania, and play an important role in our forests.

“Their large emergence holes let in moisture, fungal spores and a range of other insects that all assist in breaking down the timber, releasing nutrients and recycling them through the forest ecosystem,” Mr Fearn said.

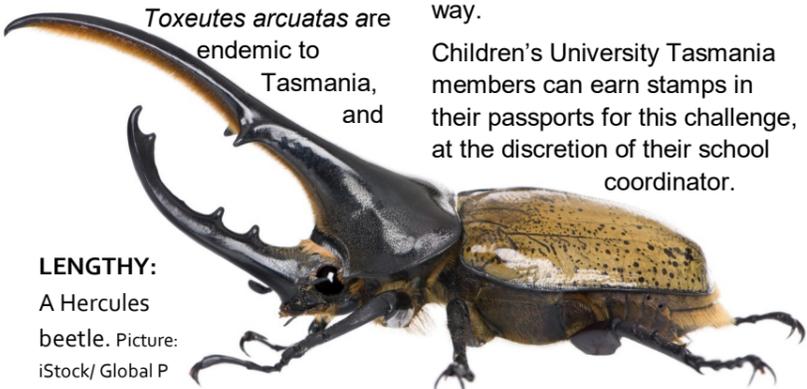
“A range of small animals such as lizards, frogs and baby snakes also use the emergence holes and tunnels as home sites.”

Your challenge is to come up with a common name for *Toxotes arcuatus*, provide your reasons for the name and present your ideas in a creative way.

Children’s University Tasmania members can earn stamps in their passports for this challenge, at the discretion of their school coordinator.

LENGTHY:

A Hercules beetle. Picture: iStock/ Global P



How to draw a YAK

Using a pencil draw a circle, an oval and a square. Add two curved lines to the top of the square. Draw two small triangles for your yak’s feet, then add a couple of lines to show the positioning of his legs. These will be your guides.

Around the curved guides draw his horns. Using ‘u’ shaped lines draw the shaggy hair on his head and shoulders. More ‘u’ shaped lines give your yak’s shaggy body and legs some shape. Inside the square draw the shape of his face. Add an eye and a nose. Draw a line from his eye to the bottom of his face and some more ‘u’ shaped lines to define the shape of his jaw.

Starting at the top of the circle draw a line down your yak’s back leg and across his flank to give his body some shape. Finish his legs, add some lines to his nose and his horns and you’re just about done. Rub out all the lines you don’t want and ink him in with a fine tipped pen or texta. To finish off, just add some colour.

Artwork: www.johnpollyfarmer.com.au/