Echolocation describes the way bats use sound waves and echoes to find their way at night. Bats use their mouths to send out pulses of sound and listen for the returning echoes that bounce back. When a bat hears the echo, it can tell exactly what is around; it can even detect a mosquito flying by! These sound pulses are too high for humans to hear but we can use a bat detector to hear them. Bats can 'see' at night with

echolocation!

summer, and on warm nights, pekapeka tou roa are out feeding. They fly along bush edges and streams to catch moths, beetles, and flying bugs. They can eat 1000 mosquitoes in a night!

During the day, they sleep or roost upside down in small groups, inside old trees or under loose bark. A roost tree might be an old puriri, or a pine tree but the kauri tree is their favourite! The rūrū is the pekapeka tou roa's natural predator.

When the temperature drops below 10 degrees, pekapeka tou roa stay in their roost and enter a state of torpor - a bit like hibernation. They slow their heart rate to use less energy. During this time, they are vulnerable to tree-felling and predators, and it is very important they are not disturbed.

Female pekapeka tou roa give birth to one pup a year. Pups are born flightless, spending the first 4-5 weeks in a maternity roost with other pups and females. Pups hold tight to their flying mums until they learn to fly. Mother bats return to the roost regularly to feed pups and sometimes move their pups to a new roost. Male bats roost separately and do

not raise pups.

There is still so much we don't know about pekapeka tou roa in Tāmaki Makaurau. We do know there are bats in Te Wao Nui o Tiriwa (Waitākere Ranges) and the Hunua Ranges, around Riverhead and Pakiri, and sometimes they are detected closer to town. Someone found a bat roosting under their balcony during winter! Bats can fly up to 60 kilometres per hour and can have a home range of 100 km so they could be visiting somewhere near you!

The Pekapeka forms part of the Mataora (full-faced tā moko). Above the eyebrows on the forehead, is the tiwhana represented by the pekapeka with wings spread. The kākāpō's beak is represented in the design around the nose, and the rūrū with its large eyes as the mouthpiece.

The story of Mataora recounts how he fell in love and married Niwareka; a tūrehu (spirit) from Rarohenga (the underworld). One day they had a confrontation and Niwareka fled to the underworld to join her people. Mataora followed; consumed by remorse. There; Mataora not only found redemption, but also learnt the art of tā moko or facial tattooing.

On their return to Te Ao Tūroa (the natural world) Mataora and Niwareka were guided by creatures of the underworld including the pekapeka and rūrū; and brought the sacred knowledge of tā moko.

Tā Moko illustration by Te Haunui Tuna; Bat illustrations by Erin Forsyth

PEKAPEKA TOU ROA

New Zealand Long Tailed Bat

(Chalinolobus tuberculatus)



UNDER THREAT

Pekapeka tou roa are in danger of extinction if nothing is done.

They are vulnerable to introduced predators like rats, possums, cats, wasps and stoats that attack when they are roosting. They are also at risk from loss of forest habitat and kauri dieback, especially losing big old trees. Research in the South Island found that three out of four bat roost trees were over 100 years old. As cities expand, old trees and bush are often removed for housing. Climate change will affect conditions for hibernating; and unhealthy streams may not provide enough kai for our rare pekapeka tou roa.

You can help protect bats by educating others! You can also protect big old trees, and follow local rules to avoid the spread of kauri dieback. Predator control is also key – join a predator trapping group! Likewise, join a local stream restoration group or start monitoring a stream health with your school or work.

You can also borrow a bat detector from Auckland Council and do a bat walk with your friends and family. Information from bat walks adds to our knowledge about bats.



LONG TAILED BAT FACTS

Scientific name: Chalinolobus tuberculatus

Distribution: Widely throughout Aotearoa and on several offshore islands

Size: About 60mm long (human thumb) with a wingspan of about 180mm

Weight: 8-11 grams

Other features: Chestnut brown fur, small ears

Age: Lives up to 20 years

New Zealand threat classification: Nationally Critical (The highest threat rating)

Other species: The lesser short-tailed bat is only found at a few locations including Little Barrier island, Northwest Nelson, and Fiordland. The greater short-tailed bat is thought to be extinct.

SURVEYING FOR BATS

You can survey for bats by doing a bat walk! All you need is a bat detector. The bat detector converts the high frequency echolocation calls to a sound that is audible to humans. You can borrow a bat detector from Auckland Council.

You should conduct the bat walk on dusk. Bats start emerging at sunset but may take 30 minutes to appear. Good spots to do a bat walk are along a stream, through the forest, or along the edge of the bush.

Email **biodiversity@aucklandcouncil.govt.nz** to find out more about borrowing bat detectors.

HOW TO USE A BAT DETECTOR:

- Find a suitable site near a stream or bush edge and wait till sunset
- 2. Switch on
- . Tune to 40 Khz.
- 4. Turn up the volume
- 4. Point the microphone forwards and upwards.









