

# Pekapeka / bats

## Native animals

Apart from seals and sea lions, which spend some of their lives on land, pekapeka or bats are New Zealand's only native land mammals. A Māori proverb to urge haste on travellers links pekapeka with the mythical hokioi, a night-flying bird foretelling death or disaster: Pekapeka rere ahiahi, hokioi rere po – the bat flies at twilight, the hokioi in the dark of night.

Pekapeka are found only in New Zealand, where they have been isolated from other species for millennia. There are two main kinds (genera), the long-tailed bat *Chalinolobus* and the lesser short-tailed bat *Mystacina*.

Both long and short-tailed bats are endangered. Another species of *Mystacina* that lived on two outlying islands off Stewart Island has not been seen since ship rats landed there in 1967. At least four other New Zealand bat species disappeared over 15 million years ago during a period of extreme climate change, volcanism and rising sea level.

Long-tailed bat C. O'Donnell



### Seeing with sound

Long-tailed bats emerge at dusk, when they could be mistaken for late-flying fantails or swallows. Short-tailed bats emerge only when it is properly dark, so are rarely seen. Pekapeka navigate and catch insects at night by bouncing high-frequency sounds off their surroundings. This activity, called 'echolocation', gives them a detailed picture of their environment using sound waves rather than light.

Because of the difficulty of seeing these tiny flying animals at night, scientists have developed 'bat detectors', small devices that pick up the high-frequency echolocation calls that they emit in flight. Using these, researchers have discovered that although pekapeka are widespread, their range has declined and they are numerous in only a few places.

Long-tailed bat J. Sedgely



## Forest nomads

Pekapeka are highly mobile, with flights of 10 to 25 km common. An individual will often fly over 50 km in a night and cruise to a favourite feeding site at over 60 km per hour. Because they feed over such a wide area, pekapeka need about 150 km<sup>2</sup> of forest to sustain a colony.

Both species depend for shelter on the oldest and largest trees in cool temperate rainforests, forming colonies in well-insulated tree-cavities to protect them from the elements. During the summer breeding season long-tailed bats change trees almost daily, females carrying their single young with them. A typical colony of between 100 and 200 bats may rotate between more than 150 roosting trees. Lesser short-tailed bats usually have colonies of between 1000 and 5000 individuals. They also move from tree to tree, but may stay in the same place for several weeks at a time.



Bat detector C. O'Donnell

### Did you know?

Lesser short-tailed bats are unique in the bat world: In addition to hunting insects on the wing, they forage for plant material and invertebrates on the ground and on tree-trunks and branches. When foraging on the forest floor, they listen for the sounds generated by insects and use their strong sense of smell to locate prey.

To help them run, locate and dig for prey, lesser short-tailed bats have robust back legs, long, sensitive facial whiskers, and the ability to fold their wings tightly out of the way.

## Long-tailed bat

- Although long-tailed bats are described as a single species, they exhibit significant size and genetic diversity throughout their range.
- Historical records and surveys since 1990 show that long-tailed bats are now rare or absent at many sites where formerly they were common, including Westland, Nelson-Marlborough, eastern South Island and Wellington. They still occur on Stewart Island, Little Barrier and Great Barrier islands, and Kapiti Island.
- Long-tailed bats stick strictly to a diet of flying insects; mainly moths, midges, mosquitoes and beetles. They can use a membrane along the full length of their tails to scoop up insects on the wing.

## Lesser short-tailed bat

- Lesser short-tailed bats have a short, free tail.
- They are numerous on Hauturu /Little Barrier Island, Whenua Hou/Codfish Island and in the forests of Urewera and Ruapehu.
- Populations differ genetically between lesser short-tailed bats in the kauri forests of Northland, those in the central North Island between Taranaki and East Cape, and those in the South Island.

Short-tailed bat J. L. Kendrick



- Lesser short-tailed bats are important pollinators of forest lilies, pōhutukawa and especially the parasitic wood rose *Dactylanthus*. Some New Zealand flowers produce more nectar at night, attracting lesser short-tailed bats as pollinators.
- Lesser short-tailed bats are also fond of the fleshy green fruits of kiekie and *Collospermum*. These stick to their fur, thereby dispersing the seed.
- Short-tailed bats are related to South American species and to bats that lived in Australia 25 million years ago.

## Threats

When humans arrived in New Zealand about 1000 years ago, native forest covered more than 90% of the country. Fire, logging, land-clearance, disturbance of roosts and predators such as stoats, rats, possums and cats have reduced pekapeka numbers to the point where scientists consider them endangered.

## Recovery programme

After 10 years of research, the Department of Conservation (DOC) has developed a recovery programme to ensure the survival of all species and subspecies of pekapeka. The measures they are taking to protect bats and their habitats include education, community-based conservation projects, control of introduced predators at important sites, protection of roosts sites, the development of restoration techniques, and shifting the most vulnerable bat populations to predator-free habitats.

## How can you help?

- Become a bat-spotter and assist DOC to determine their distribution.
- Work as a volunteer setting and checking traps for a predator-control programme in your area.
- Protect native forests.

By controlling predators and protecting native forest, you will assist other species as well as bats.

## Further information

For further information about bats in your area, contact your local Department of Conservation office. For a copy of the Bat (Pekapeka) Recovery Plan (price \$15), contact: Science Publications, Department of Conservation, P.O. Box 10-420, Wellington. You could also visit the DOC website at [www.doc.govt.nz](http://www.doc.govt.nz).

Cluster of short-tailed bats B. D. Lloyd

