

# FIRST RECORD OF A COLONY OF LONG-TAILED BATS IN A *PINUS RADIATA* FOREST

M. J. DANIEL\*

## INTRODUCTION

Two small species of bats, the long-tailed bat (*Chalinolobus tuberculatus*) and the short-tailed bat (*Mystacina tuberculata*), are New Zealand's only native land mammals. Because they are active only at night and twilight, they are rarely seen. The more common long-tailed bat (Fig. 1) is widely but unevenly distributed in native forests from northern Northland (lat. 35°S) to northern Stewart Island (lat. 47°S). Over the last 100 years, colonies of bats, ranging in size from a few bats to several hundred, have occasionally been found in limestone and thermal caves, inside hollow native trees (totara, rimu, kahikatea, kauri, kamahi and beech), under loose bark on trees (rimu, kahikatea and exotic eucalypts and macrocarpas), and under old wooden bridges (Dwyer 1960, 1962; Daniel 1976, 1979; Daniel and Williams, 1981).

This note reports the discovery of a small colony of about 20 long-tailed bats in a cavity in a dead *Pinus radiata* in an exotic pine forest near Tokoroa.

## OBSERVATIONS AND DISCUSSION

In January 1976 part of the Waikato block of *Pinus radiata* owned by N.Z. Forest Products near Lake Arapuni, Tokoroa, was clearfelled. When D. Bashford, one of the bushmen, cut down a dead pine he noticed about 15 bats flying around the fallen tree. On close examination he found a small decayed cavity, approximately 50 mm wide by 150 mm deep by 170 mm high, in the 300 mm diameter trunk. The cavity was opened and 5 additional bats were found alive inside. Because the area was going to be burned after logging, the live bats were collected by J. Pember-ton, taken to Tokoroa, and given to R. J. Wisheart and M. J. Davenport of the Tokoroa Junior Naturalist Club for study and release elsewhere. The 5 bats, identified as long-tailed bats, were measured, photographed and then released in the rimu-broadleaf forest of the Titiraupenga Reserve near the YMCA Adventure Camp.

---

\*Ecology Division, DSIR, Private Bag, Lower Hutt.

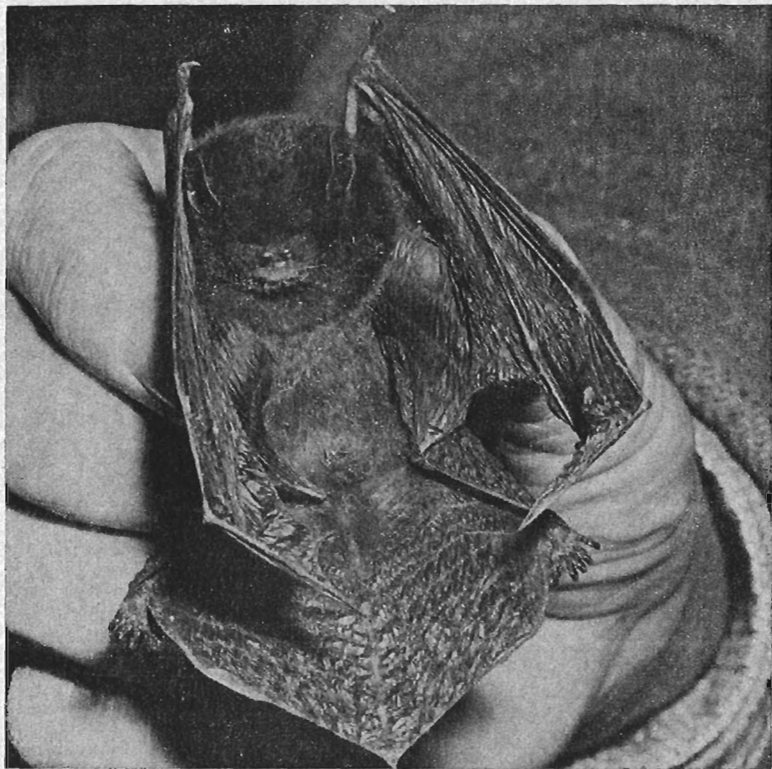


FIG. 1: A long-tailed bat showing the long tail completely enclosed in the membrane between the hind legs. The tail membrane is often used as a net to catch moths in flight. These bats are small: head and body length about 45 mm, tail 40 mm, wingspan about 260 mm, and weight 8-10 g. This particular specimen was found under the bark of a large rimu near Marton. (Photograph: J. L. Kendrick, N.Z. Wildlife Service.)

This record, apparently the first reported of a small colony of long-tailed bats in a pine plantation, is of some ecological interest. Because pine trees in New Zealand are harvested at an earlier age than podocarps and other native species, and because malformed and decaying pine trees are usually thinned out before the final crop, there are likely to be few decayed trees suitable for bat roosts in any pine plantation. The nearest native forest is about 3 km across Lake Arapuni to the west and about 6 km to the east. It seems likely that these bats originally came from

the native forest across Lake Arapuni. The lake appears to be an ideal area for their main foods of small aerial lepidoptera and diptera (Daniel and Williams, 1981). The fact that a pine tree in a large plantation was selected as a roost site, perhaps for several years, suggests that the bats may have foraged for food over the lake and into the pine plantation and that other suitable roost sites in the adjacent native forest may have been scarce.

Measurements of the 5 bats indicated that they were all adult. The limited information available on the reproductive biology of this species in the North Island suggests that they give birth to single young in January or February (Daniel and Williams, 1981). This colony may have been a nursery colony consisting mainly of adult females and, if so, they would have given birth within 2 to 3 weeks if undisturbed.

This record and others from native tree species emphasise the importance of hollow and decaying trees in the ecology of forests, both exotic and native, as natural roost sites for both species of bats. Decayed trees are also important as nest and food sites for several endemic forest birds such as kaka (*Nestor meridionalis*), parakeets (*Cyanoramphus* spp.), kingfishers (*Halcyon sancta*), tomtits (*Petroica macrocephala*), riflemen (*Acanthisitta chloris*), and, in the South Island only, yellowheads (*Mohoua ochrocephala*). In several European countries artificial roosts or bat boxes have been used in coniferous forests for over 30 years as a substitute for natural tree holes to help conserve bats (Gaisler, 1979; Stebbings, 1974). Although several bat boxes of European design have been made by the writer, a suitable forest locality has not yet been selected for a trial.

Bats may be more common in exotic forests than was previously thought. Information would therefore be welcomed by the writer from forestry workers who have seen bats in exotic or native forests. A national survey of bat distribution is currently being carried out by the writer and G. R. Williams (Lincoln College) and reports of additional sightings would be of great value in making the survey as complete as possible.

#### ACKNOWLEDGEMENTS

The author is grateful to R. J. Wisheart (Principal of Amisfield School, Tokoroa) for bringing this record to my notice. Thanks are also due to D. Bashford, J. Pemberton and M. J. Davenport, and to Mr and Mrs M. Hardie for their help in saving and releasing the remaining bats from this colony.

## REFERENCES

- Daniel, M. J., 1976. Feeding by the short-tailed bat (*Mystacina tuberculata*) on fruit and possibly nectar. *N.Z. Jl Zool.*, 3 (4): 391-8.
- 1979. The New Zealand short-tailed bat, *Mystacina tuberculata*; a review of present knowledge. *N.Z. Jl Zool.*, 6 (2): 357-70.
- Daniel, M. J.; Williams, G. R., 1981. Observations of a cave colony of the long-tailed bat (*Chalinolobus tuberculatus*) in North Island, New Zealand. *Mammalia*, 45: in press.
- Dwyer, P. D., 1960. New Zealand bats. *Tuatara*, 8 (2): 61-71.
- 1962. Studies on the two New Zealand bats. *Zool. Publ. from Victoria Univ. of Wellington*, 28: 1-28.
- Gaisler, J., 1979. Ecology of bats. Pp. 281-342 in Stoddart, D. M. (Ed.), *Ecology of small Mammals*. Chapman & Hall, London.
- Stebbins, R. E., 1974. Artificial roosts for bats. *J. Devon Trust for Nature Conserv.*, 6 (3): 114-9.

*Note added in proof:*

Another record of bats in an exotic forest has come to my notice. In 1978 when a large pine tree was felled in Tauhara Forest east of Taupo, two stunned bats fell out. Although not identified, they were probably long-tailed bats as this species is known to be present in Opepe Reserve off the Taupo-Napier Highway a few kilometres to the south (J. Powell, pers. comm.).