

## BAT SIGHTINGS ON KAPITI ISLAND, NEW ZEALAND, 1906-1969

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**SUMMARY:** Sightings by residents and visitors to Kapiti from 1906-1969 indicate one small colony of bats with a steady population of about 12 located south of Rangatira. The flight pattern, times of emergence and the lack of sightings during winter suggest that the long-tailed bat (*Chalinolobus tuberculatus* Forster) may be the only species present. The 1907 report by Cockayne that the long-eared bat was abundant is taken as a misprint for long-tailed bat and not the rarer short-tailed bat (*Mystacina tuberculata* Gray). The continued survival of bats in the presence of high numbers of *Rattus norvegicus*, *R. exulans* and *Trichosurus vulpecula* and in a changing forest environment, is briefly discussed.

### INTRODUCTION

Distribution records of the two species of New Zealand bats, the short-tailed bat (*Mystacina tuberculata* Gray) and the long-tailed bat (*Chalinolobus tuberculatus* Forster), have been collected by Phillipps (1948, unpubl.) and reviewed by Dwyer (1960, 1962). Dwyer reported that both Kapiti Island and Little Barrier Island have had long histories of sightings of bats but that numbers were relatively small. Because of this and the general paucity of information on long-term population changes of both species of bats in any one locality, the following discussion of sightings on Kapiti Island over the last 60 years is presented.

Kapiti Island (40°51'S., 174°55'E.) (Fig. 1) lies three miles offshore from Paraparaumu Beach on the west coast of Wellington Province. It is about six miles long by one mile wide and covers about 5,000 acres. Over 2,000 acres are covered with seral and terminal forest and much of the fire-induced grasslands, cleared for farming last century, are reverting to shrublands. The highest point is Tuteremoana (1,709 ft.). A detailed study of the vegetation of the island has recently been completed (Esler, 1967).

Bat observations on Kapiti from 1906-1969 (Table 1), were collected from files of the Dominion Museum (W. J. Phillipps); the Wildlife Service, Internal Affairs Department; Lands and Survey Department (1897-1969); Wilkinson and Wilkinson (1952), Wilkinson (1957) and private persons.

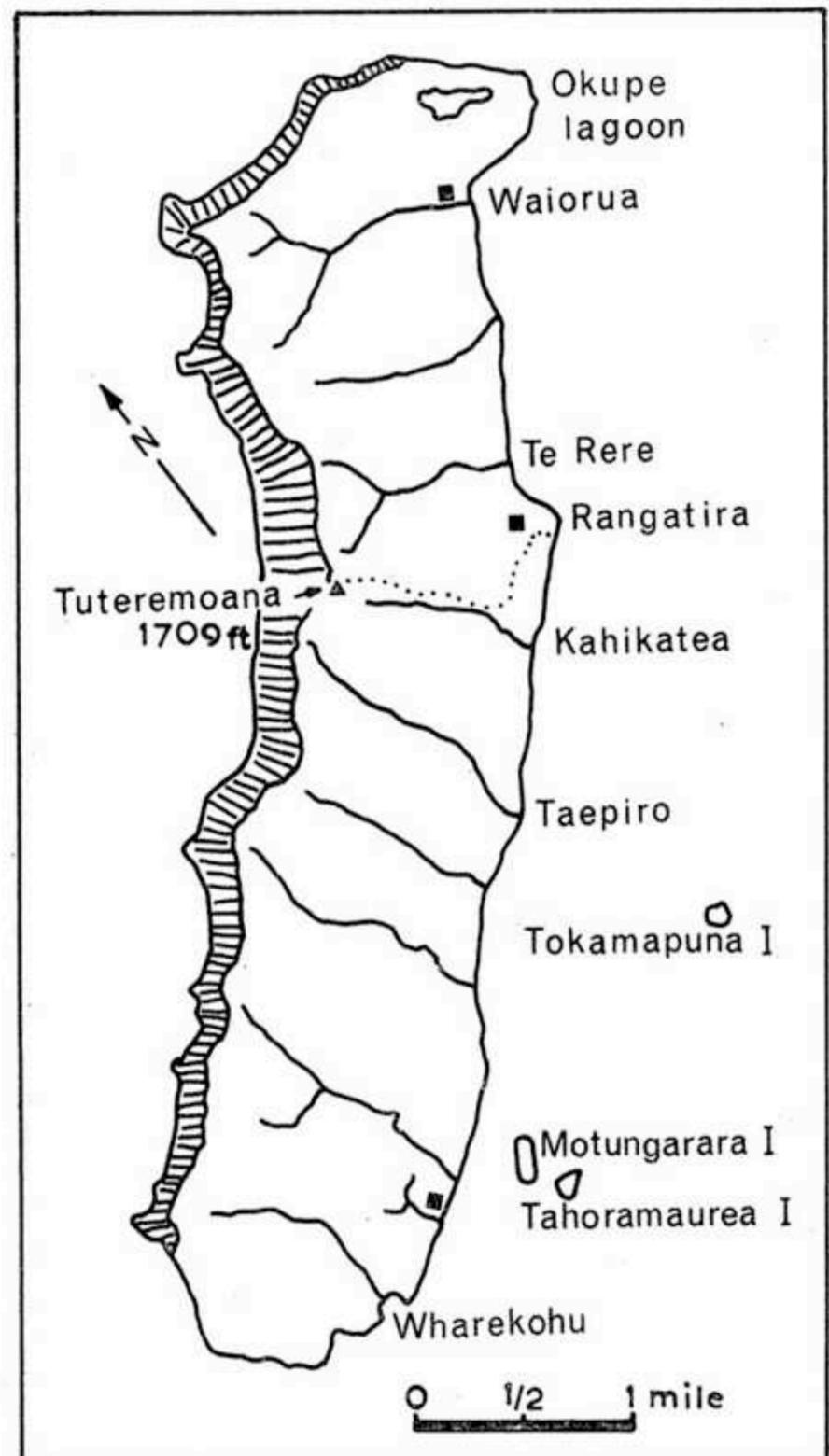


FIGURE 1. Map of Kapiti Island showing main streams and places mentioned in the text.

## IDENTITY OF SPECIES

Apparently no bats have been collected on Kapiti and positively identified. This is in contrast to Little Barrier Island where *Mystacina* has been confirmed from a colony located in a kauri (Drummond, 1908), from a specimen flying into the homestead and from one found killed by a morepork on the summit track (Watson, 1961). Both species have been reported on Kapiti (Table 1); but without specimens these reports are difficult to verify. Cockayne (1907) reported that although Little Barrier Island had the almost extinct short-tailed bat, the "long-eared bat" was abundant on Kapiti in October 1906. Although long-eared is a little-used synonym for the rarer short-tailed bat, Cockayne probably meant the long-tailed bat. Likewise, the reports of both species of bats by Mr J. L. Bennett (caretaker from 1911–1923) are open to question since his diaries do not mention any bats being handled. However, *Mystacina* may occur on Kapiti, as Myers (1921) reported them about 20 miles NNE, near Otaki, and in 1958 one was found on a lawn in Levin (Daniel, unpubl.).

From the strong flight at tree-top height mentioned by most observers and from sightings in spring and summer only, it seems that the bats usually seen on Kapiti are *Chalinolobus* which are known to hibernate for 4–5 months (Dwyer, 1962). This belief is strengthened by my own sighting of three bats flying over the sea just off the Rangitira boat ramp at 5.50 p.m. on 6 September 1966. The light was reasonably good and the bats were examined through 10×50 binoculars at a range of about 100 yards down to 10 yards as they flew through a small flock of red-billed gulls (*Larus novaehollandiae*) flying in the opposite direction. The ears were not as prominent as those of *Mystacina* and the large net-shaped caudal membrane enclosing the long tail could be seen. The bats were catching insects about 6 ft. above the sea as they flew near the ramp.

## NUMBERS PRESENT

The numbers of bats seen have apparently not decreased markedly since 1906. In 1932 the maximum seen at one time over the swamp at Rangitira was about 12, eight were seen in the same area in 1947 and about 12 were seen for several evenings behind the farm at Waiorua in 1960. The usual number ranged from 1–4.

## ROOST SITE

In February 1969 an attempt was made to locate the colony. Mist nets were set up for four nights in the Te Rere burial caves without success although bats were seen in three other localities that week. Hollow trees along the eastern side from Taepiro to Waiorua and the burial caves at Wharekohu Bay were also examined for the typical musty odour of bats without success.

Bats seen in September 1966 and February 1969 in three different places (Table 1) were all flying strongly north along the beach in the early evening. This suggests that the colony may be located south of the mouth of either the Rangitira or Kahikatea Stream and that the bats seen at Waiorua roost at the southern end of the island may have come from the one colony. The maximum foraging range of *Chalinolobus* is not known but Dwyer (1962) records ranges of up to three-quarters of a mile at Puketitiri. Phillipps (Dominion Museum file) found that *Chalinolobus* at the Orakei-Korako cave colony remained out for six hours, and in this time bats could visit all the foraging areas on Kapiti including the Wharekohu swamp near the southern extremity of the island, the Rangitira swamp and the Okupe lagoon near the northern end.

If there is only one small colony of about 12 bats, the roost may be in a hollow tree and not in the burial caves so far examined. About half of the forest was cleared for farming last century and this small colony may be the survivor of a much larger population. There are still a few hollow northern rata (*Metrosideros robusta*) of the original podocarp/rata forest, but these are becoming fewer with each successive storm (Esler, 1967 and pers. comm.). The number of large hollow kohekohe (*Dysoxylum spectabile*) on the island is increasing, but they may not be suitable as bat roosts as they are frequently occupied by opossums (*Trichosurus vulpecula*), which are abundant.

## DISCUSSION

It is interesting that the bat population apparently has not changed over the years. Besides opossums, which may interfere with bats in a hollow tree, the only other introduced mammals are brown rats (*Rattus norvegicus*) and Polynesian rats (*R. exulans*). The arboreal ship rat

TABLE 1. A summary of bat observations from Kapiti Island, 1906-1969

Location	Species	Date	Notes	Authority
Kapiti — east side	<i>Chalinolobus?</i>	Oct. 1906	"Long-eared bat" abundant (=long-tailed?)	L. Cockayne (1907)
Rangatira	<i>Mystacina?</i>	April 1914	2 Short-tailed bats seen	J. L. Bennett
Kapiti — east side	Both species?	1922	Both long- and short-tailed bats seen at dusk along east side. Their numbers are not decreasing	J. L. Bennett
Rangatira	<i>Chalinolobus?</i>	1924-1942	1-3 seen every spring and summer	A. S. and A. K. Wilkinson
Rangatira	Unknown	1932	About 12 seen over flats at one time	A. S. Wilkinson
Rangatira	Unknown	Sept. 1947	2 seen near caretaker's house	R. K. Dell and C. Lindsay
Rangatira	Unknown	1947	2, 2, 6 and 8 seen at one time	W. A. Lindsay
Rangatira	Unknown	Dec. 1949	3 or 4 seen near boatshed	C. A. Fleming
Rangatira	Unknown	1951-1968	3-5 seen most summers	G. Fox
Rangatira	Unknown	June 1955	2 seen near boatshed	L. T. Pracy
Rangatira	<i>Chalinolobus?</i>	Sept. 1966	1-3 seen for 3 evenings by boat ramp, flying north along beach	M. J. Daniel
Rangatira	<i>Chalinolobus?</i>	Feb. 1969	2 seen flying north over swamp	M. J. Daniel
Waiorua	Unknown	Last 20-30 yrs	1, 2 or 3 seen most summers	Webber family per G. Fox
Waiorua	Unknown	Oct. 1952	2 near boat landing	D. H. Arthur
Waiorua	Unknown	Dec. 1957	1 near farm house	D. H. Arthur
Waiorua	Unknown	Jan. 1960	c. 12 seen for several evenings behind farm house near eucalypt trees	A. E. Esler
Waiorua	Unknown	Aug. 1962	2 seen in garden	D. Graham
Waiorua	Unknown	Aug. 1964	2-4 seen in garden	D. Graham
Waiorua	Unknown	Aug. 1965	1 seen for 3 evenings in garden	D. Graham
Motungarara islet	Unknown	1924-1959	2-3 seen most summers	J. Johnson per G. Fox
Taepiro Stream	Unknown	June 1955	3 seen on beach by stream mouth	L. T. Pracy
Wharekohu Bay	Unknown	1924-1942	1-3 seen from Waiorua to Wharekohu	A. S. Wilkinson
Kahikatea Stream	<i>Chalinolobus?</i>	Feb. 1969	2 seen flying north over beach	M. J. Daniel
Te Rere Stream	<i>Chalinolobus?</i>	Feb. 1969	1 seen flying north over beach	M. J. Daniel

(*R. rattus rattus*), a suspected predator of bats elsewhere (Stead, 1937), is not present now although it may have been within the last 80 years (Daniel, 1969). There are no mustelids or feral cats on the island, both of which are suspected of killing bats in accessible colonies on the mainland. The only remaining predator is the morepork (*Ninox novaeseelandiae*) which is known to kill both *Chalinolobus* and *Mystacina* (Stead, 1937; Dwyer, 1961).

There are no records of bats from the very rugged western side of the island, which is little visited at dusk when bats emerge. Thus, all the efforts of observation of bats on Kapiti has been along its eastern side. As Taylor (1967) suggested, the records are likely to be as much a reflection of effort of observation as of actual distribution, so observers may be seeing only a small fraction of the total bat population of Kapiti at any one time.

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