

as they swoop with typical zigzag flight over streams, lakes and forest clearings, to catch a meal of small moths and other small flying insects. It is easy to mistake fantails, swallows and even large moths for bats in the fading light at dusk.

Long-tailed bats have adapted to the changing New Zealand environment, and are found in exotic pine forests as well as in native forests, in farm shelter belts, and occasionally in farm buildings, in caves and under bridges. They hibernate for up to 4 or 5 months during winter over most of the country, but in parts of Northland are active in winter during mild weather. From our records they appear to be widespread, and have been found from near Kaitaia to Stewart Island. However, an unknown number of our bat records may in fact have been of swallows or large moths!

Short-tailed Bats

There are, or were until 1965 (see below), two species of short-tailed bats, which belong to the endemic New Zealand family Mysta-

cinidae. In many ways these are among the most remarkable bats of the nearly 1,000 species found in the world. They possess several unique features, such as spurs on their claws, and a remarkably efficient way of folding and protecting their furled wings, which enable these bats to hunt for food on the forest floor and by crawling up tree trunks and along tree branches.

The greater short-tailed bat (*Mystacina robusta*) was at one time – several hundred years ago – found over both the North and South Islands, but has not been seen on its last rat-free refuges since 1965 when ship rats wreaked havoc on the birds, plants and bats on Big South Cape and Solomon Islands off Stewart Island. The 1988 IUCN Red List of Threatened Animals gives this species as extinct, but a few may possibly survive on one of the small rat-free muttonbird islands near Big South Cape Island, their former stronghold.

The lesser short-tailed bat (*Mystacina tuberculata*) weighs about 15g and has large prominent ears, short frosted-brown velvety

fur and remarkably strong hind legs and feet for scurrying around on the forest floor. Their terrestrial behaviour makes them particularly vulnerable to introduced predators such as cats, stoats and rats. They live in deep forest, and have in recent years been found only in a few extensive native forests in the North Island, on Little Barrier Island, in Northwest Nelson Forest Park and on Codfish Island off Stewart Island. They are listed as vulnerable in the 1988 IUCN Red List of Threatened Animals and in The New Zealand Red Data Book.

Short-tailed bats roost in hollow trees, caves and occasionally in seabird burrows and in tramping huts in the mountains. They are active only after dark until just before dawn, and they eat fruit, nectar and pollen, as well as insects caught while flying and while hunting on the ground. Like some of the South American bats, their tongues have a special brush tip for collecting nectar and pollen.

Much of our knowledge of the ecology and natural history of lesser short-tailed bats has come from our studies in Omahuta kauri forest in Northland, and on Codfish Island. A brief account of the recently discovered lek mating behaviour of these bats appeared in the August 1989 issue of *Forest & Bird*.

Bat Distribution Survey

Ecology Division, DSIR, has been collecting records of bat sightings for a number of years with help from other agencies and the public. All records of bat sightings from the old Wildlife Service, from DoC, and from the public are entered on special cards in the New Zealand bat distribution scheme. New Zealand's natural habitats are disappearing at a rapid rate. We need to increase our knowledge of the distribution and habitat requirements of the two remaining species of native bats so that sound conservation advice on forest management proposals will ensure their continued survival. A copy of our new bat distribution form is reproduced here. We would be very grateful to Forest and Bird members for details of any sightings of bats, dead bats (well wrapped please!), occupied bat roosts, or photos of bats found. Old records are of as much value as recent ones, provided the dates and localities can be accurately recalled. Bat survey forms can be obtained from Mike Daniel, Ecology Division DSIR, P O Box 30-379, Lower Hutt (phone (04) 694-859), or you can send information in a letter. We need to know as much detail as possible about your bat record, such as precise locality (so we can locate it on a map), the date, the observer's name and address, how many bats were seen, what habitat type and any other information you can provide. Thank you in advance for your help in furthering our scientific knowledge of New Zealand's unique native bats.

For further information on bats: *The Collins Guide to the Mammals of New Zealand* (1986) by Mike Daniel and Alan Baker, provides information on New Zealand bats with colour photographs and drawings. A list of scientific publications of studies on New Zealand bats is available on request from Ecology Division. Mike Daniel and Alison Ballance are scientists with the DSIR Ecology Division.

NEW ZEALAND BAT DISTRIBUTION SCHEME
Ecology Division, DSIR, P.O. Box 30379, Lower Hutt
Contact: Mike Daniel, Phone (04) 694 859
Please fill in form as completely as possible, tick or circle alternatives

OBSERVER _____ DATE _____ TIME (24 h) _____
ADDRESS _____ Day/Month/Year
NUMBER OF BATS SEEN _____

Map Series No.
NZMS 1
OR
NZMS 260

Map Number
Imperial
N
S
Metric

Grid Reference
Easting Northing

Square Number
10,000 yd
10,000 m

LOCALITY – Please fill in details and description of locality where bat(s) seen

ANY OTHER NOTES:

SPECIES OF BAT
Unidentified
Long-tailed
Lesser short-tailed
Greater short-tailed

Bat activity/ location
1. Seen flying
2. Found dead
3. Roosting in:
a. Hollow tree
b. Under tree bark
c. In cave
d. In building
e. In rock crevice

Habitat Types
1. Beech forest
2. Podocarp forest
3. Broadleaf forest
4. Exotic pine forest
5. Scrub
6. Farmland
7. Stream/lake/swamp
8. Coastal
9. Other (describe in notes)
Bat(s) seen
1. In daylight
2. At dusk
3. At dawn
4. After dark

Voucher specimen/photo: _____ Yes / No
Museum specimen number _____
Identified by _____
Reference used _____

NEW ZEALAND BATS

LONG-TAILED BAT

LESSER SHORT-TAILED BAT

GREATER SHORT-TAILED BAT (extinct)

(Approx. Scale in mm.)
0 5 100 150 200

Distinguishing characteristics marked with arrows