

## Bats and bat flies

IN 1973 when Kopi, the legendary giant kauri of Omahuta Kauri Sanctuary, toppled over a remarkable discovery was made.

Lesser short-tailed bats killed during the tree's collapse were found to have unknown spidery-looking flies crawling through their fur. The mouthparts of the flies, rather than being modified for piercing skin, were suited to eating guano and their claws were adapted for moving over fur.

Subsequent work by the DSIR's Beverley Holloway saw the flies described as the sole representative of a new family, *Mystacinobiidae*, a distant relative of the vinegar flies, *Drosophila*.

Assisted by the fall of a second bat roosting tree in 1975, Holloway found the bat flies were totally dependent on the short-tailed bats for their survival. Wingless and blind, they fed entirely on yeasty droppings and required the constant 30° C incubator-like conditions of the bat colony.

Female bat flies lay two batches of eggs in the guano-coated walls of the colony and die shortly afterwards.



ROD MORRIS

The wingless bat-fly on the back of a lesser short-tailed bat.

Males act as a guard caste producing high-pitched sound through vibrating membranes near where their wings should be. The noise prevents the bats from interfering with the community or from eating the flies during grooming.

When bats change roosting sites a

new colony of bat flies is started by those adults clinging to the fur of departing bats. Those that remain die with the cooling of the colony and depletion of the food supply.

The greater short-tailed bat is thought to have had its own bat fly which became extinct with its host.



ROD MORRIS

Mike Daniel examines a lesser short-tailed bat caught in a mist net on Codfish Island.

He says the lesser short-tailed bat is currently classified as vulnerable, but with rodents, feral cats and stoats present in its North Island localities he believes it will soon be endangered. Cyanide and 1080 poison baits for possums may constitute an additional threat.

The north-west Nelson population, the only known South Island population, is already endangered, he says. Only

