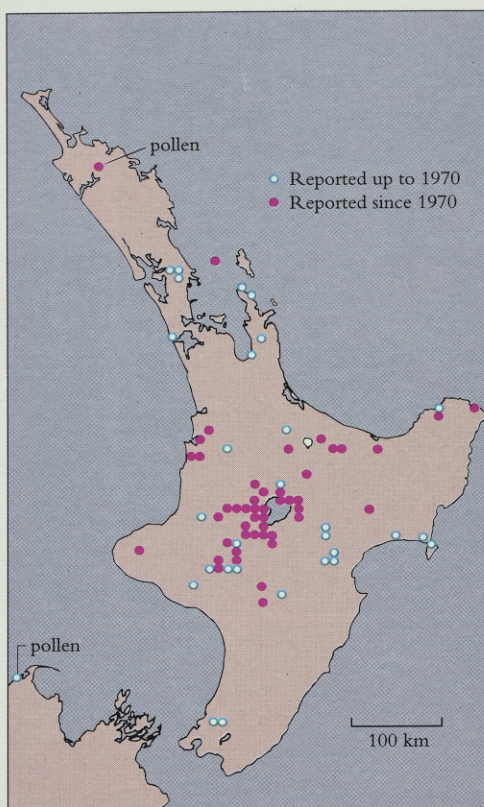


climbing down to the ground, crawling through the netting enclosure to the *Dactylanthus* flowers and pushing its head into the flower. Upon finishing this feast of nectar the bat flew up through the 50-mm mesh netting without hesitation. Amazingly this bat visited the same flowers 40 times that night from 8pm until nearly dawn.

Over the next four weeks we made further visits to this site and set up a 35-mm camera and flashlight alongside the video camera. From a comfortable spot nearby we used the video as a closed circuit television system, and remotely triggered the camera and flash when the bat was in position for a photograph. Although frightened by the flash, the bat kept quickly returning to the site.

These photographs and the video tape provided the proof that *Dactylanthus* is indeed a bat-pollinated species.

**A**N EXCITING RESULT of this discovery is the opportunity now to use *Dactylanthus* flowers, or an artificial lure imitating the nectar, to help locate short-tailed bats. The bats are completely nocturnal, extremely hard to locate and very difficult animals to study. We still do not know, for example, whether they are killed during operations to control possums using 1080 poison.



*Dactylanthus* was once widely distributed throughout the North Island and fossil pollen indicates that it also used to occur in the South Island. Now, however, it is known mainly from small areas of secondary forest in the centre of the North Island between East Cape and Wanganui, and on Little Barrier Island. It has not been seen in Northland, Coromandel or near Wellington for over 60 years.

*Dactylanthus* is the only plant in the world producing flowers at ground level that is known to be bat-pollinated. This special relationship is not so surprising because the short-tailed bat feeds on the ground more than any other bat species and it has developed from its ancient Gondwanan ancestors alongside *Dactylanthus* over millions of years. The remains of extinct larger species of short-tailed bat have been found in ancient Maori ovens and these larger bats may also have been pollinators of the *Dactylanthus* flowers.

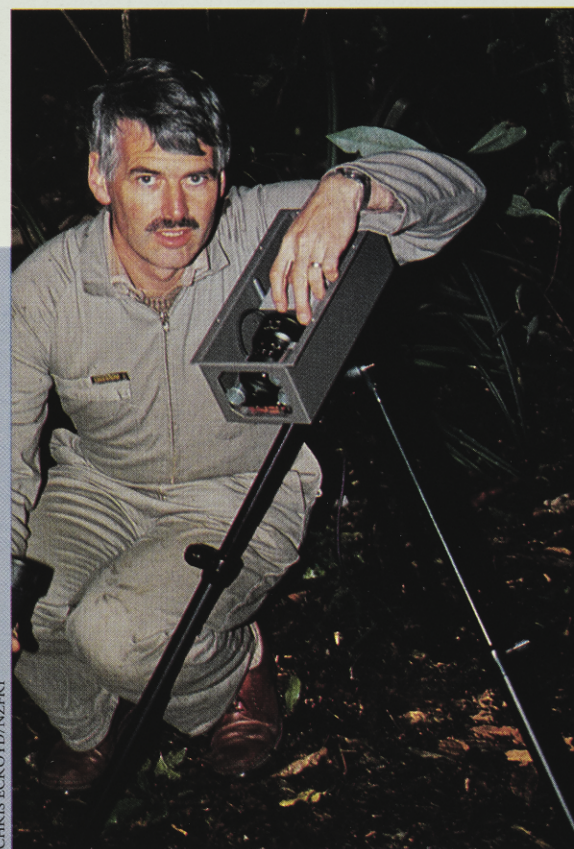
Unfortunately, instead of bats these flowers are now attracting introduced mammals such as possums and Polynesian rats which are destroying the flowers and preventing seed production.

Frequently thought to be “just a fungus” or disease, *Dactylanthus* is now recognised as being a very distinctive member of our native flora. Not only a rare and interesting plant in its own right, it also has great ecological significance by producing nectar which contains ingredients important for the diet of the short-tailed bat.

A limited number of plants can be protected from possums by a very simple wire netting enclosure with the mesh coarse enough to allow bats through. Possum control using traps or poison is expensive and if small areas are involved,



Possums are the main, but not the only, threat to the future of *Dactylanthus*. A possum, lured by the strong scent, has eaten all the flowers leaving only the leaves. Possums usually break off the inflorescences at the bud stage, often before they fully emerge above ground.



Chris Ecroyd about to focus the “night-vision” video camera which was used to monitor short-tailed bats, rats, and possums visiting *Dactylanthus* flowers. The equipment needed heavy 12-volt batteries, and a strong back to carry them.