area and dig the rats out of their holes; at such times quite a number would often be found in one hole."

## Mr. Batley, of Moawhango, comments:

". . . (This) might well apply to such areas as Mangaohane, Owhaoko and Oruamatua where the native rat was always abundant and formed an important food-item in pre-European days."

Place names in the upper Moawhango indicating fire (ahi) such as Auahitotara and Nga Motu o te Ahi Maire are of some historical and possibly ecological interest.

Pre-European fires affecting beech forest are repeatedly mentioned by Colenso in his early missionary journeys, as for instance in 1847 near Poronui and on the edge of the Rangipo Plain, and in 1851 near Kuripapango, and he also records fern fires near Matuku on the Inland Patea. Percy Smith in 1871 describes the Tikitiki Bush (Fig. 3) as a thicket of dense 20-year-old regeneration (this has recently been confirmed by tree-ring counts).

Thus local evidence of pre-European fires is widespread.

However, with the coming of Europeans and the early introduction of sheep on the Inland Patea, the regular burning of tussock has affected practically all these forest margins and many islands of beech forest have regenerated since being swept by fire, most of them about the 1880's. Even well into the range between the Mangamaire and Rangitikei Rivers the area known as Mesopotamia and the whole face of the Mangamaire up to the timberline of the Makorako Range have been burnt and the forest partly or completely replaced by subalpine scrub, tussock or frequently a carpet of *Celmisia spectabilis*.

## FAUNA

INDIGENOUS. Birds are generally plentiful, surprisingly so for beech forest, though individual estimates of their abundance have fluctuated over the past 20 years. Tui, bellbird, parakeets, fantail, morepork, rifleman, whitehead and warbler (the latter as high as 5,000ft in subalpine scrub) are common in forest, and robins are frequent, while in podocarp forest such as the Opawa Bush pigeons and kaka are plentiful. Paradise ducks are common on open river beds, and pipit on all open ground. Kiwi have been heard and their probings seen, wekas heard and whio (blue mountain duck) are frequent in several rivers. Black shag colonies have been seen in the Waiotaka and a pied shag in the Oamaru. Shining cuckoos are numerous in summer. Harrier hawks are common in open country and a nest has been found in scrub at 4,000ft. Sparrow hawks have been encountered occasionally. The former abundance of kiore on the Inland Patea has already been mentioned and kakapo were also hunted here. Moa bones have been collected at Waipuna (Moawhango).

INTRODUCED. Pig. Though the earliest introduced animal, most of the country is too high for pig, and as the low country towards the lake is compara-

tively accessible to hunters they are not of great significance.

SHEEP. Sheep were run round the northern end of the ranges as early as the 1850's and were introduced on the Inland Patea in 1868. Stocking here was fairly heavy in the early stages, but is now considerably reduced. Owhaoko station (also known as Ngamatea, the names being interchangeable) still musters to the head of the Ngaruroro and Mangamaire Rivers and even the crest of the Makorako Range, but the whole of the head basin of the Moawhango River is now unstocked. There are still traces of some old fences, but most of the country is unfenced. Stray sheep are encountered only infrequently on the margins of the range and they hardly seem to have established themselves in wild flocks on the scale of the Kawekas.