

ging in some plantations while their suitability as kiwi sanctuaries is assessed”.

This article examines briefly the requirements of kiwis, discusses the advantages and limitations of indigenous and exotic forest as habitat, and presents some findings from the joint Forest Service-Wildlife Service kiwi study at Waitangi.

Needs for survival

For survival kiwis need a fairly stable habitat that provides suitable cover for shelter and nesting, adequate immunity from predators and hazards (possum traps, poisons, fire, and the like), water, and sufficient accessible food (mainly earthworms, insects, and other invertebrates, supplemented with berries and foliage) throughout the year.

Kiwi habitat

Native forests

We can only speculate about the probable great abundance of birdlife throughout the North Island in 1840, when predator-free and virtually unmodified forest (93 percent rich lowland forests and 7 percent montane forests) covered about 82 500 sq km (72 percent) of the land. About 75 percent of lowland forests and 10 percent of montane forests have now gone and today native forests (about 79 percent lowland and 21 percent montane) cover only 24 500 sq km (21.5 percent) of the island.

Much of the remaining lowland forest is fragmented or persists as small pockets and though, perhaps, 80 percent can still be classified as “virgin”, the luxuriance of the vegetation often conceals the sad truth that none remains pristine. This is often apparent only from the low numbers of birds present in seemingly bountiful habitats.

While traversing predominantly virgin North Island forests from bush-edge to bush-edge with National Forest Survey parties between 1948 and 1954, I pitched camp at over 500 different sites and spent more than 600 nights under canvas in Coromandel, Taranaki, King Country, central plateau, and Urewera forests. Pigs were widespread and numerous over extensive tracts of bush, and hunting these with dogs was a national pastime. Goats, cattle, and deer locally were common, and evidence of possums, mustelids, rats, and, at times, cats was widespread.

Diary entries, on the other hand, show that though kiwis were heard during most fly-camping trips, the numbers that appeared to be present usually seemed only a small fraction of what the habitat should support. With few exceptions (some localities in Taranaki and the Ureweras), the frequency of calling indicated only sparse or moderate populations, and seldom did the rate of calling match that heard in the seemingly more austere habitats of the Waitangi plantation some 30 years later.

The number of birds heard per unit of listening time at Waitangi also far surpassed the numbers recorded during brief 2- to 4-night kiwi surveys in several King Country and central plateau indigenous forests during 1976 and 1977.

The reasons for generally low numbers of kiwis are not known. It is doubtful whether food and shelter were limiting factors, and of the environmental hazards present in the 1940s and 1950s pigs were probably the most devastating.

Their enjoyment of flesh, keen sense of smell, and prodigious excavating skills, presumably, accounted for many birds, and the dogs that

were used to hunt pigs also killed kiwis.

Thus the introduced disadvantages in many native forests today outweigh their natural advantages and it is questionable whether they can still be regarded as “natural habitat”, for they no longer provide ideal conditions for sustaining high kiwi populations. For example, in 1967 one King Country possum trapper was reported to have already trapped more than 90 kiwis, and, more recently, the casual use of cyanide baits has taken a heavy toll.

The highest kiwi density we have so far found, surprisingly, was in an isolated 130- to 140-ha remnant of cut-over/second-growth at Tangiteroria, where (from plotting calling patterns and locations in 1976 and 1978) the population was estimated at between 35 and 43 pairs. As the number of birds is excessive for the food resources of the bush and they feed extensively in surrounding pasture land, it seems that predation here is of little or no consequence.

Exotic forests

For every 100 ha of native bush remaining in the North Island there are now 27 ha of exotic forests. These latter (48 percent private and 52 percent State owned) cover 6705 sq km, but few are known to contain kiwi. Many, in addition to sharing the shortcomings now apparent in native forests, also have other limitations that generally make them a poor second to our lowland forest. These may be related to their locations, climate and soils, their less diverse vegetation, their newness, some management practices, and the quick rotation (from seedling to logs) of their timber.

Labelling them collectively as “biological deserts” is, however, more emotive than