

there were many — gradually eliminated secondary shrubs such as inaka and mountain toatoa, and ‘selected’ for today’s red tussock grasslands. As the ‘fuel load’ remained low, these later fires did not substantially alter the pattern of relict forest.

Later, in the 1880s, Pakeha settlers brought sheep and cattle to graze on the Mangaohane Plateau. Initially, stock was driven over the main Ruahine Range back and forth from Hawkes Bay but, as rail and road links improved, Wanganui became the main connection. Much of the lower-altitude red tussock was converted to rye and clover with Government subsidises in the early 1980s.

The last big fire occurred in 1948, and the remaining red tussock grasslands on the plateau have been slowly changing back into shrublands ever since. Without further fires or other disturbances, more shrubs will establish, eventually allowing pahautea forest to regenerate.

While human-induced fires provide an explanation for the current forest boundary at Ruahine Corner, far more complex processes have shaped other aspects of the unusual vegetation of the Mangaohane Plateau.

The Makirikiri Tarns and Reporoa Bog are two peat bogs on the plateau that existed before the fires, enabling some special and wholly local plant species to survive. While both peat bogs lie within a few kilometres of each other, they have distinct ecologies, and both contain quite different plants. Other spots on the plateau also contain rare and locally specific plants.

What many of these plants have in common though, is an uncanny link with South Island flora. For example, one species of eyebright, *Euphrasia disperma*, occurs in

the northwestern Ruahine Range but doesn’t crop up again until north Westland. Similarly, North Island records for *Myosotis tenericaulis* are restricted to the northwestern Ruahines and Waiouru, but this forget-me-not is more prevalent in the South Island. One creeping native herb, *Tetrachondra hamiltoni*, doesn’t occur again until Otago. The foxglove *Ourisia modesta*, known from just one damp location at Ruahine Corner, is also a rare plant in the South Island. Other plants in the area fit the same general pattern.

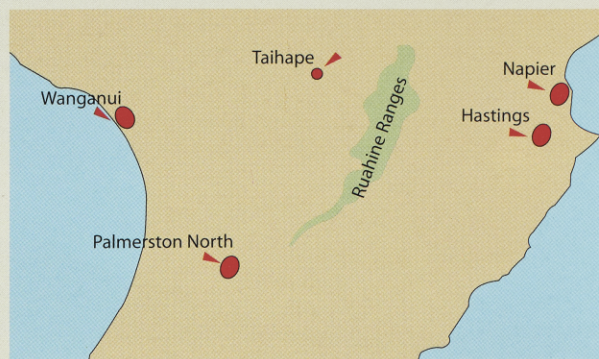
These biogeographical anomalies confounded early botanists Norman Elder and Tony Druce who, in the 1940s, were amongst the first to study the area’s vegetation. Druce went on to describe the area’s special plants, and in turn spurred the interest of Geoff Rogers.

Only as understanding of past landforms increased have plausible explanations of such unlikely plant distributions emerged. Rogers says these plants exist here because of a unique combination of factors: the soils, landforms, altitude, climate and geological history.

‘The habitats are just right for those species; here alone in the North Island,’ he says.

Two theories can explain what are essentially unusual North Island occurrences of predominantly South Island plants.

The first is to consider them refugees from North Island Miocene landscapes that existed before a more-recent period of inundation. In the late Miocene and Pliocene, some 8-2 million years ago, sea levels rose and flooded much of the lower North Island. During this period of submergence, marine deposits formed a



Most of the northwestern area is within the Ruahine Forest Park. The remainder is Maori land. Local detail is available on NZMS 260 U21 Kereru.

limestone cap in some areas, including the northwestern Ruahine Range (where limestone outcrops are still evident). While the inundation extinguished the ‘Miocene refugee’ plants from the lower North Island, the central North Island provided a refuge for them. After later tectonic uplift raised the Mangaohane Plateau, in the last 1-2 million years, the ancient plants colonised the area, but were subsequently lost from some of their former refuges in the central North Island.

The second explanation suggests that, after the inundation, the Miocene refugees spread from their South Island strongholds, but survived only at localised spots like the northwestern Ruahine Range where their specialised habitats still exist. Other potential habitat elsewhere in southern North Island has been ‘too faulted, folded, and eroded’ for the plants to persist. The extent of such geological disruption is evident in the main Ruahine Range, which was upthrust during the last 1-2 million years. Some marine gravels exist on a few summits of the Ruahine Range, but the soft limestone cap has eroded off to expose the underlying greywacke that modern day trampers are so familiar with.



Lake Colenso is named after missionary-explorer William Colenso. This small four-hectare lake is the only one in Ruahine Forest Park.

Right: Few New Zealand trees display as much character as pahautea (New Zealand cedar), with their conical shape, vibrant foliage and striking bark. One Forest Service writer, Geoffrey Chavasse, described the pahautea trees of Ruahine Corner as ‘...stag-headed, split, leaning every which way, looking like little old gnomes, squat, thick in the butt, with rich green pointed caps and russet red trunks.’ Pre-European Maori found the bark useful for fashioning into canoe-shaped vessels to store the mutton-birds (mottled petrels) that used to exist in the area.