tensively farmed by Pakihiroa station. It is dominated immediately to the east by the sparsely vegetated conical rock and surrounding apron of unfenced indigenous forest which makes up Wharekia. Westward, the view of Whanokao bluffs and alpine shrubland colours slowly takes on an enormous silhouette as we rise above the low ridge separating us from that mountain. Above the 100m contour 4 km of northern rock face forms steep bluffs and scars interlaced with threads of leatherwood and speargrass. Half a kilometre of montane forest (100 percent silver beech canopy) separates the farmed land and the alpine scrub that predominates to the summit itself.

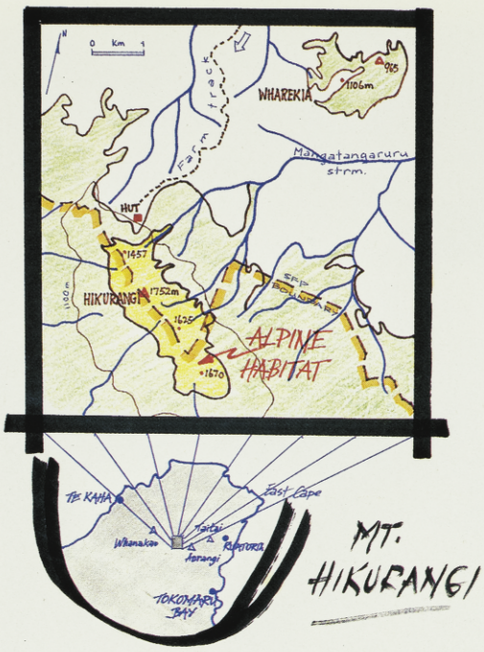
Our studies at Mt. Hikurangi centre on silver beech and mass movements of the rocks and soils, so we have occasion to climb the 200m to the timberline several times and also survey speargrass distribution and species diversity among the alpine shrubs (checking out statistical methods we learned in class). Living at this altitude, we are building up an affinity for the land and plants here. We readily sense differences in aspect and altitude ourselves, and have a birds-eye view of the surrounding land. We learn to interpret the land: the growth forms of plants and the shapes of valleys and ridges. We begin to see patterns in the ecology of these plants and movements of the land, and wonder if we are on the right tack. Finally we can do some counts (and measuring), have a closer look, and check ourselves out.

Writing by candlelight

Evenings see us crowded around the small table by candlelight for 2–3 hours writing it all up and reading material we have brought with us to help. Never did we each fill three quarters of a 1B5 Exercise book in three days before.

Steadily we are gaining an overall impression of the features which make our study area unique. Being the most northerly habitat for truly alpine flora in New Zealand (montane flora and some alpine species inhabit Te Aroha and Moehau further north) Mt. Hikurangi is the abrupt northern limit for many alpine species. Some of the large alpine flowers like the foxgloves *Ourisia macrophylla* and *O. caespitosa, Gentiana bellidifolia,* Edelweiss, the speargrasses *Aciphylla colensoi* and *A. squarrosa* have their northern limit here. Apparently the forget-me-not *Myosotis amabilis* is confined to broken shingle on the summit of Mt. Hikurangi. Leatherwood and snowgrass also have their northern limit here. So also do the montane plants *Olearia ilicifolia* and mountain beech.

Since Mt. Hikurangi is the place in New Zealand where the timberline reaches its highest altitude, and Latitude 38°S generally marks the southern limit of so many of the subtropical elements in our flora, it would not seem unreasonable to expect some of our northern species to reach their greatest altitudes on this mountain. According to botanist Peter Wardle, four of our beech trees (*Nothofagus fusca, menziesii, solandri, s. cliffortoides*) are found together on Mt. Hikurangi and the fifth (*N. truncata*) is present on the neighbouring slopes of Whanokao.



In view of these known records alone we are surprised that some form of permanent protection has not already been secured for this unique mountain.

No beech seedlings

We further check out the effects of humans on this part of the biosphere (as the form 7 biology prescription dictates) and are amazed by what we see. Beech trees normally have about two good seed falls every ten years and this season is an excellent one, yet on the forest floor we are hard pressed to find any beech seedlings at all from previous years' seed, even where there has been windthrow and sufficient light penetrates the forest floor. Cattle tracks are very evident throughout the silver beech and through the alpine shrubland. Through the leatherwood, cedar and divaricating coprosmas on the southern slopes of the mountain there is a maze of these tracks 20cm deep. Within 300m of the summit we disturb three sheep. Experience tells that such destruction of this unique alpine habitat will lead to accelerated erosion. Indeed, in 1947, a fire swept through most of the scrub on Hikurangi's western slopes. This caused such severe erosion that a tarn was completely silted up within four years. Unfortunately this author had hoped that if the Raukumara Range became a Forest Park (it was gazetted in 1979) all of its unique vegetation types be preserved from fire, and other damage.

In his description of a walk in to Hikurangi mountain in 1897, botanist James Adams relates "that the way up the mountain is over a landslip, and that save in the stream itself the soil is so loose that it makes the ascent difficult and the descent in some places really dangerous. The mountain itself seems to be rapidly falling away. Large slips appear on all sides of it, ending abruptly in precipices." The situation is not improved; the land here is very unstable, and depends on continued vegetation cover to remain intact.

In addition to the erosion being initiated by livestock, it is apparent that the alpine vegetation is also being selectively grazed, the more succulent plants being cropped and the less palatable ones gaining dominance. No fences separate the farmed land below 1100m from the forest or from the alpine vegetation. Further to this anomaly, the summit ridge of Mt. Hikurangi marks the boundary between the Raukumara State Forest Park to the southwest and the freehold land of Pakihiroa station to the northeast of the ridge. This must mean that half of the unique alpine ecosystem is legitimately grazed anyway.

Though no fence prevents cattle from entering the S.F.P., the NZFS has recently announced its intention to begin another wild animal control programme in the Park. It is acknowledged that "the cattle are having a detrimental effect on the forest understorey, notably in the . . . Tapuaeroa valley and Mt. Hikurangi." Reasons given why past culling of feral cattle was not continued were largely economic ones: "the meat was unsaleable" the article said.

Recently, however, the State Forests Scientific Reserves Advisory Committee have expressed concern about the damage being caused to vegetation by livestock and at the evidence of accelerated soil erosion probably caused by this grazing pressure. The committee has recommended ecological area status for the State Forest portion of Mt. Hikurangi and I have been assured that investigations with the landowners on various methods of protecting land above 1300m are being made.

The field work has come to an end. On returning home, young minds struggle to come to terms with conflicting ideas concerning a fleeting experience and lasting memories; concerning the grandeur of an ancient environment and the future rapid changes to that environment through continued grazing, possible clearing, erection of translators; concerning the enjoyment and learning experienced and the uncertainty that the same experience will be there for their children.

To all visitors of Mt. Hikurangi today, the flora, fauna and natural landforms are not only unique but are of national importance and represent a coveted part of our national heritage. To the Ngati Porou of the East Coast, Hikurangi is also their mountain, their mana and much of their legendary past.

The name Hikurangi is an ancient one that occurs in mythology; in the paridisial land of Hawaiki there is a mountain named Hikurangi which the light rests upon, a place of eternal life where death is unknown. In Aotearoa many prominent peaks were called after this first tapu mountain, with the mythic Hikurangi and the local one being closely associated or perhaps completely identified. Certainly this happened with Mount Hikurangi on the East Coast . . . In the 1930s a Pakeha trader travelling near this mountain found that the countryside round about was so seldom traversed as to be pathless, its only inhabitants innumerable birds and lizards that were believed to be spirits. As well, the summit was thought to be the home of a solitary moa, which stood there on one leg and fed on only the wind. (from The Natural World of the Maori, *by Margaret Orbell (Collins).*

I write this with anticipation that some form of permanent protection such as the maintenance of adequate fencing adjacent to the indigenous forest or adequate boundary fencing at least can be agreed upon and be assured for this northern bastion of New Zealand's alpine plants.