MANGAOTUKU VALLEY, TARANAKI: NOTES TOWARDS THE CONCEPT OF "ECOLOGICAL DISTRICT"

R.O. Gardner

Inland Taranaki, from the edge of the Egmont ring plain across to the Wanganui River and its tributaries, is typical mid-altitude North Island hill country, dissected late Tertiary sandstone and mudstones that dip south-west towards the present-day coastline. The major valleys mostly run down in this direction, and there is some rectangularity in the drainage pattern of the region (whether caused by faulting, folding or variation in rock erodibility I do not know).

Occasional bands of lime-cemented mudstone and pebble-shell conglomerate may form low bluffs or crown ridges, otherwise the landscape is rather uniformly steep and not conspicuously terraced even close to those sections of stream with a floodplain. Cotton (1948) described this topography as "feral", in the sense of its being unsubdued by erosion; the term is appropriate botanically too because of the still considerable areas of forest and reverting farmland here and their infestation by goats, pigs and opossum.

Towards the western edge of the region, its headwaters at about a thousand feet, is the Mangaotuku Stream, which flows south-west into the Patea River. In its middle and upper sections it has a relatively wide and negotiable (though swampy) valley floor, and provides access inland by both road and rail. The former, State Highway 43, is the once-infamous "Ohura Road" from Stratford to Whangamomona, the Tangarakau Gorge and Ohura; now nearly all sealed it makes an unhurried but not unexciting scenic route.

The writer spent several weeks this year in the Mangaotuku Valley (districts here are known as "valleys") at Te Wera State Forest and the associated Lands and Survey farm both of which lie around S.H. 43. Although mostly plantation and pasture it was an interesting place to botanize at, and where no reference is given below as to exact locality it can be assumed that reference is being made only to places within 2 km or so of Te Wera Forest Village on S.H. 43.[1]

There is already the best of guides to this kind of landscape: Fleming (1953) on all aspects of Wanganui geology; Nicholls (1956) on Taranaki forest patterns; Levy's (1923) study of pasture/scrub successions. And for inspiration from the east one naturally turns to Guthrie-Smith's "Tutira".

Serendipitously for Mangaotuku studies there are good surveyors' descriptions in the railway exploration reports (e.g. Carkeek 1884); also a useful soil/forestry survey (Ward and Hocking 1956) made in 1953 on Te Wera Forest's establishment (apparently a first for New Zealand).

The rock of the district is a blue-grey silty sandstone of the Matemateonga Formation (Hay 1967). It is slightly coarser than the well-known papa mudstone of further inland, with grains that can be felt

Opposite plan from Appendices to the Journal of the House of Representatives 1884 Session II I - 6

The present article treats an area at "Mangaoutuku R." (lower central).

between the teeth on sampling. It weathers to an engaging light orange clay.

On the gentler slopes the soil is formed by andesite Egmont ashes. There is a younger set of Holocene age and an older paler deposit perhaps of the nature of loess (P. Blaschke pers. comm.).

Summers here are mild and showery and the winters wet, foggy and frosty.

The Mangaotuku and nearby districts were settled only in the 1890s. Railway construction was begun in Stratford in 1901, reaching Te Wera in 1910 and the Pohokura Saddle at the head of the valley a year or two later (Garcia 1940; Lambert and Lambert 1983). According to the railway surveyors, the valley sides of the Mangaotuku were mostly in light bush[2]. Maori influence on the vegetation here was probably slight, their tracks through the region lying not in the Mangaotuku but in the Makahu Valley, parallel to the south (Hooker 1971).

Today only fragments of forest remain. One of the best is of tawa, hinau and kamahi[3] with some white maire, titoki and rimu, over mahoe and pigeonwood. Further south-west where the stream is more active the newer slopes and terraces have dense young podocarp stands (kahikatea, matai[4], rimu, miro, totara[5]). These species, however, are absent from pasture slopes at Te Wera (e.g. not in the scrub patches or along old fence-lines) and they are hardly seen further inland on S.H. 43 until about Ohura, where the "Taumarunui parklands" with their abundant second-growth podocarps, totara especially, are reached.

This might well represent a primitive difference in forest composition, podocarps being favoured on soil created by the Taupo Pumice cataclysm of 1800 years ago. Totara would perhaps have flourished in droughty river terrace manuka and on moa-browsed forest remnant margins.

Hall's totara occurs plentifully on the higher slopes and ridges of the forested catchments, south and east of the Mangaotuku but has not taken up the role of a secondary species at lower altitude.

The rarity or absence of three other physiognomic trees can be noted. Kanuka was seen only once, on an old fence-line[6]. Though it has been a sought-after species for firewood its rarity here does seem to be natural, since it is hardly represented in the still very extensive manuka scrub of adjacent valleys.

Cabbage trees (Cordyline australis) are completely absent from the Mangaotuku Valley, like totara becoming prominent only eastwards of Ohura. Kowhai has an identical distribution, presumably having reached Ohura from an inland source.

Like Hall's totara, black beech and hard beech occur on ridges south and east of the Mangaotuku[7]. Professor Schweinfurth's note of hard beech on the Pohokura Saddle in 1958 would refer one supposes to relict trees, and there seem to be none in the manuka here today.

Valley-floor forest near Te Wera is represented by a very few medium-size kahikatea, and all the debris-heap material in the Lands and Survey farm pasture[9] is of this nature. Last century this ground was in young kahikatea forest and swampy scrub, but there is no great diversity of native wetland flora in the swampy side valleys today.

After forest clearance the settlers would first have had to cope with regrowth of bracken. It is prominent now only in places away from grazing, like road cutting tops, but was exceptionally troublesome in the young pine plantations until controlled by sheep and goats.

Manuka would have extended with burning and soil impoverishment and is still a formidable adversary in the back-country south and inland.

Levy's third important native weed, Paesia scaberula (local name is "carpet fern") is not much in evidence near Te Wera, the slopes being free of the open manuka and log-strewn places where this species usually grows. It is at home though under tall open pine stands, coping well with needle fall.

Other scrub weeds of the pasture slopes are toetoe (Cortaderia fulvida), lacebark, Himalayan honeysuckle, barberry (Berberis glaucocarpa), Juncus gregiflorus, J. australis, Scotch thistle and foxglove.

The Mangaotuku Valley floodplain is c. 300 metres wide here and is more or less level, without meander scars or conspicuous terraces. The stream runs steadily on bedrock about two metres below the floodplain surface, its course being in part man-made. There are no relict native trees on its banks, only willows (Salix fragilis, S. caprea? and S. alba var. vitellina). Manuka and perhaps two kinds of blackberry grow here, in roadside drains, along the bottom of the railway embankment &c. Salix fragilis is being poisoned upvalley by the catchment authorities.

A species which will probably increase near Te Wera is Japanese walnut (Juglans ailantifolia), though at present it occurs only as a single old homestead tree with seedlings below[11]. It is thoroughly naturalized in areas of streamside scrub between New Plymouth and Te Kuiti, its nuts being spread by flood waters (cf. Gunn and Dennis 1976). Black walnut has been planted as an ornamental and timber tree and it too produces seedlings. The ordinary walnut is an occasional homestead tree but apparently does not naturalize.

The cuttings along State Highway 43 are at their best after rain when their texture and colours stand out nicely, and with a presentable flora too, of bracken, manuka, toetoe, koromiko, tutu, Coprosma robusta and an occasional Dracophyllum strictum. More modified places have Festuca arundinacea and other grasses, Himalayan honeysuckle, blackberry, Rubus phoenicolasius, Ligustrum sinense, barberry, buddleia and Cotoneaster franchetii. Broom and lupin are absent; gorse and pampas grass (Cortaderia selloana) are both very local, being well-grazed on forestry tracks &c.

Besides willows the only exotic trees to have naturalized much along the main road are silver wattle (Acacia dealbata) and Cornus capitata. Locust tree (Robinia pseudoacacia) and Tasmanian blackwood (Acacia melanoxylon) are increasing along forestry roads.

Te Wera Forest was established in the early 1950s from swampy and scrub-infested farmland. Its plantations are mostly radiata pine, with a number of other conifers and eucalypt species (Anon. 1984). Chamaecyparis lawsoniana, Cryptomeria japonica and Pseudotsuga menziesii, being shade-tolerant and browse-resistant, are discretely reproducing themselves.

There is an arboretum at Te Wera Forest Village with a variety of pines and some shapely Taxodium distichum and Metasequoia glyptostroboides. None of the eucalypts seem well suited to this rather shaded slope but on better sites in the district at large there are some very fine stands of brown barrel (E. fastigata).

Homestead trees in the valley are mostly radiata, macrocarpa or lawsoniana, with a well-knitted row or two of rhododendron and Prunus lusitanica. There are only a few barberry hedges, perhaps because of

pointers gained in the longer-settled parts of Taranaki. The inevitable wild fruit tree (Rosaceae) is here a kind of plum, its small yellow-fleshed fruit ripening a month later than similar "Xmas plums" in Auckland.

On the larger view -- what might the future hold for the Mangaotuku and other valleys, perhaps so that the region may one day become what English agricultural historians will delight in calling a "country"? Special as yet experimental combinations in two-tier farming, with soil-conserving angiosperms[12], one answers hopefully, while knowing that in the shorter term economic survival here depends on pines, cheap petrol, and some assiduous agropeltery[13].

NOTES (superscripts 1 - 13)

Locality grid references are to NZMS 1 Map Series

1 N110 147716 600 ft

2 Carkeek (1884): "The Mangaotuku Valley for the next seven or eight miles [from about Tututawa] consists partly of light bush and partly of open fern clearings, of light but good soil; the flats, although narrow, are surrounded by low hills, about 300 feet high, with easy side slopes, covered with tawa and other light bush, easily cleared. For some distance now [from about Huiakama] the valley is covered alternately with kahikatea bush and swampy patches of scrub; the hills on both sides being still low, and covered with light bush and scrub. The valley gradually closes in, and becomes near the source of the stream a mere swampy gully; the hills also increase in height from 300 feet to about 600 feet, with steep side slopes; so that here the dividing range between the Mangaotuku and the Makahu is a succession of razor-back ridges covered with black birch."

3 On ridge at N110 142718

4 E.g. near S.H. 43 bridge at N120 125682

5 The abundant young totara above the arboretum (N110 148715) I suppose were planted.

6 South of trig. at N110 173733

7 See 2 above

8 See 2 above, last sentence

9 E.g. near N110 158734

10 See 2 above

11 N110 155733

12 The regional dominant, tawa, seems to be experiencing a dieback epidemic, with disease outliers now in Tangorakau Gorge and Aotuhia.

Trials are suggested of hazel/truffles, Prunus mume, and cricket-bat willow/ducks on the lower ground; perhaps bonzai in the more remote valleys?

13 Canadian foresters' expression. An advance might be made by recycling the oppossums as Himalayan roses, except that these are known to be troublesome in pines.

REFERENCES

Anon. 1984 "Te Wera Forest Camp". N.Z.F.S. Palmerston North 22 pp.

Carkeek, M. 1884 North Island Main Trunk Railway. App. J. House Representatives Session II I-6a.

Cotton, C. 1948 "Landscape" 2nd edn. Whitcombe & Tombs
Fleming, C.A. 1953 "Geology of Wanganui Subdivision". N.Z. Geol. Survey Bull. ns. 52.
Garcia, Jas. 1940 "History of Whangamomona County". Taranaki Daily News, New Plymouth. 136 pp.
Gunn, C.R. and Dennis, J.V. 1976 "World Guide to Tropical Drift Seeds and Fruits". Quadrangle/N.Y. Times Book Co., New York.
Guthrie-Smith, H. 1969 "Tutira: the Story of a New Zealand Sheep Station" 4th edn. Whitcombe & Tombs.
Lambert, G. and Lambert, R. 1983 "An Illustrated History of Taranaki". Dunmore Press, New Plymounth.
Levy, E.B. 1923 The Grasslands of New Zealand. Series II. The Taranaki Back-Country. N.Z. J. Ag. 27: 281-93.
Hay, R.F. 1967 "Geological map of New Zealand 1:250 000 Sheet 7 Taranaki". Gov't Printer, Wellington.
Hooker, R.H. 1971 Field Research in the the Inland Taranaki Region. N.Z. Arch. Soc. Newsl. 14: 142-56.
Nicholls, J.L. 1956 The Historical Ecology of the Indigenous Forest of the Taranaki Upland. N.Z. J. Forestry 2: 17-34.
Schweinfurth, V. 1966 "Neuseeland". Ferd. Dümmlers, Berlin.
Ward, W.T. and Hocking, G.H. 1956 Soils and Forestry of the Northern part of Te Wera State Forest, Taranaki. N.Z. J. Sci. Tech. 38: 157-85.

Received 1 September 1987

A REVISED LIST OF MOSSES FOR UNIVERSITY RESERVE, KELLYS ROAD, WAITAKERE RANGES

Jessica E. Beever

The visit of the Botanical Society to the Kellys Road Reserve on 19th September 1987 provided an opportunity to update the list of mosses recorded on our last visit, exactly 6 years ago to the day (ABS Newsletter 37(1): 21).

We entered from Kellys Road where the rather dark, dry slope was not rich in bryophytes. Under a canopy of kauri, kanuka and Kirk's pine (Halocarpus kirkii), we recorded Camptochaete arbuscula and Hypnum chrysogaster on the bases of trees, and small patches of Ptychomnion aciculare, Thuidium furfurosum, Dicranoloma billardierei and Breutelia pendula on the ground. As we proceeded down the slope conditions became moister: Fissidens pallidus and Achrophyllum quadrifarium were found on damp soil slopes, with the latter moss occurring in extensive patches in the boggy area of the valley bottom. Magnificent stands of the umbrella moss Hypnodendron comatum, with many plants fruiting, were also seen here, while in the wettest sites Hypnodendron spininervium was common. Tree trunks in the valley bottom carried a rich coating of mosses, including Ctenidium pubescens with capsules, this latter being a relatively rare sight in the Auckland area. On the ridge beyond the