Field trip to Putataka near Port Waikato to view Jurassic plant fossils 17 July 1993

Anne Fraser

A farm road paved with aggregate containing the plant fossils we had come to see, was the unexpected introduction to a most interesting and enjoyable day in the Port Waikato area. A large group of Botanical people gathered at the entrance to Klondyke Road and proceeded up the side of the mountains in convoy. (Imagine waiting for the kids to come home from parties if you lived up one of those roads!)

Daft Road led us to our first stop where Hugh Grenfell gave us a geological outline of the area, colouring our appreciation of the land formations. Under his guidance, the even height of the hills composing the original peneplain and the later limestone depositions were easy to see.

Walking along the farm-road was a stop-start process as one's eye was caught by interesting specimens, whetting the appetite for what was to come at the quarry - Jurassic plant assemblies in an exposure of the Huriwai formation.

This proved to be slightly less accessible from a specimen point of view than the road in, although some good work at one site produced abundant samples containing slender *Taeniopteris* leaves. Conifer remnants and ferns, *Microphyllopteris* with small rounded leaves being abundant. From personal observation, larger leaved *Cladophlebis* seemed to be less plentiful at this site than at the classic coastal Huriwai exposure and no *Osmundacaulis* stems were seen. On cleaning one of the specimens carried home it was pleasing to discover a leaf fully 30 mm wide of *Taeniopteris*, from a larger species possibly, than *T. daintreei*.

Some very nice conifer examples were recovered presumably *Elatocladus*. More abundant conifer at this site compared with the coastal exposure, indicated that we could have been nearer the ancestral Conifer swamp forest locality - "further upstream" perhaps? (see diagram of palaeoecological reconstruction in the informative hand-out for the trip, reproduced on the following page).

Some areas of the deposit were fully lignitised - individual components would be hard to identify. With such a large group it was not possible to know what other species were recovered but it is hoped that everyone was pleased with their finds. From the airstrip a view could be had across the clean relatively tree-less paddocks. Some remnants of bush formerly colonising the gullies opposite showed large specimens of *Cyathea*. It was generally agreed by the group present that some of these could indeed be *C. cunninghamii* since the locality was within its habitat range.

Two stops were then made to search for marine fossils also of Jurassic age. The second site seemed more productive and some nice examples of *Buchia* sp. came to light.

Thanks must be due to the organisers of an excellent day (especially Mike Eagle who arranged the trip and handout information, and was unable to accompany us on the day) and also to the landowners for access through their property.

Catherine and I left a little early to call on my youngest son whose birthday it was that day. He was delighted to have her expert identification of species in his small, but surprising diverse patch of bush. Among the larger species are *Beilschmiedia tarairi* and *B. tawa*, *Vitex lucens*, *Dysoxylum spectabile*, *Corynocarpus laevigatus*, *Rhopalostylis sapida*, *Myrsine australis*, *Cordyline australis*, *Dacrycarpus dacrydiodes*, *Alectryon excelsus*, *Griselinia* sp. epiphytic on a log across the swamp, *Haloragis* sp. by the pond and many species of ferns. That afternoon it also contained two excited vociferous grand-children and two eventually very muddy dogs.

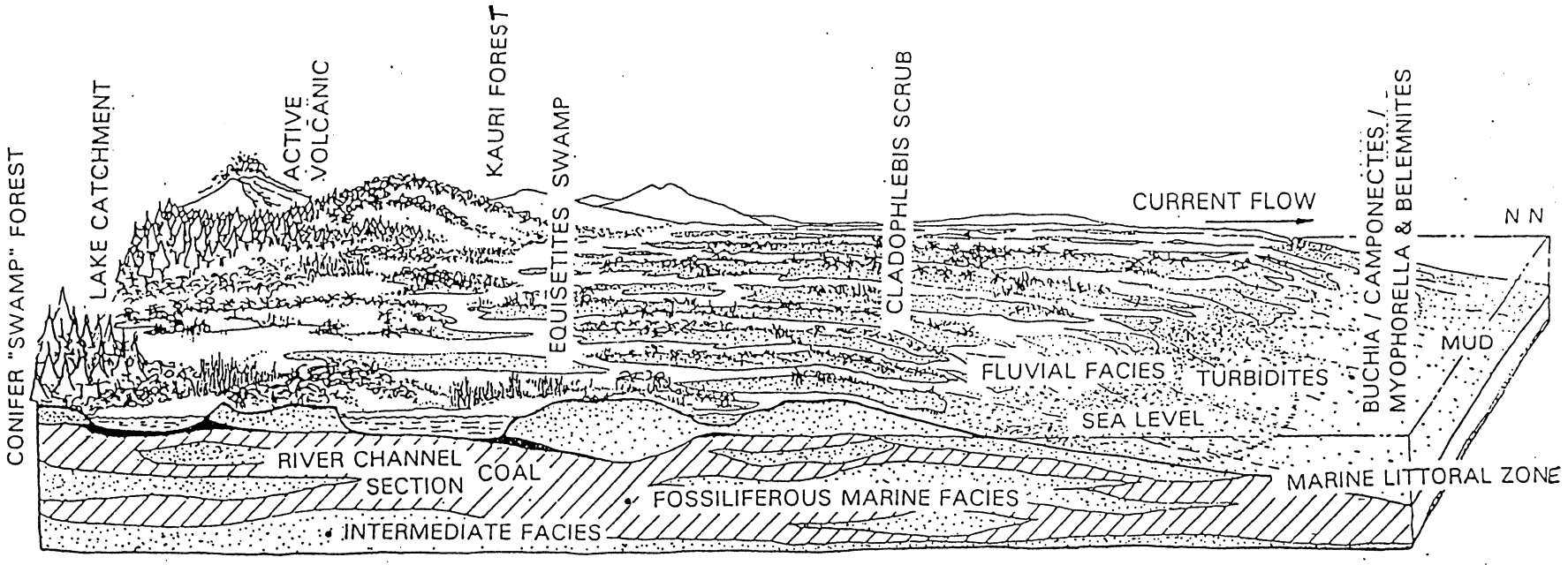
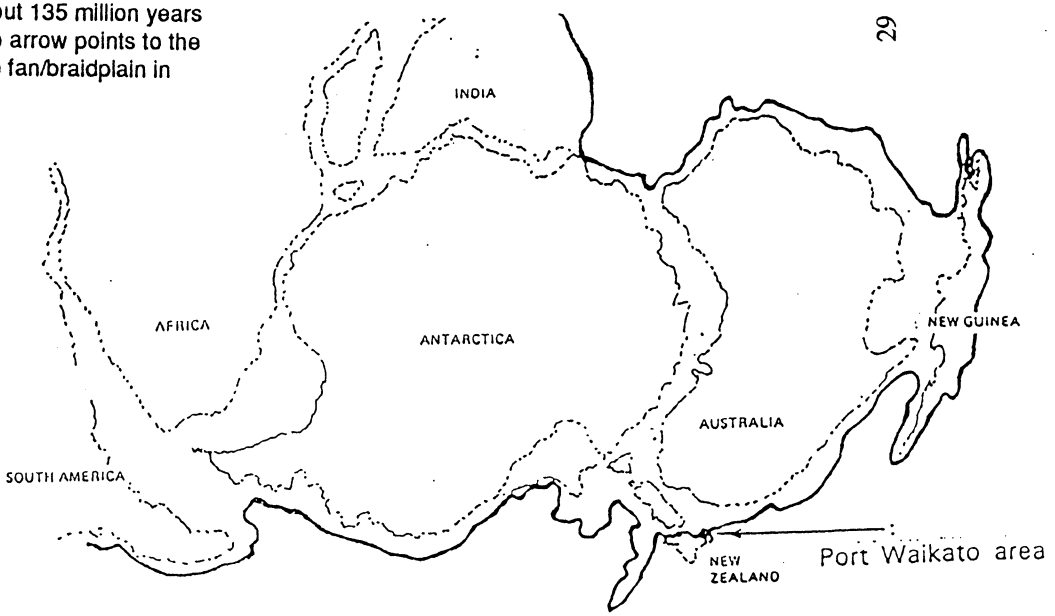


Figure 1. Reconstruction of the paleoecology of the Upper Jurassic Huriwai fan/braidplain delta illustrating some terrestrial floras and inshore marine faunas. (Based on Ballance, 1988 and Broekhuizen, 1984, figure drawn by Mike Eagle, 1993).

Figure 2. Computer fit of the Gondwana continents as they would have existed about 135 million years ago (from Stevens, 1980). The arrow points to the paleogeographic location of the fan/braidplain in Figure 1.



Citations

Ballance, P.F. 1988 The Huriwai braid plain delta of New Zealand; a late Jurassic, coarse-grained volcanic-feed depositional in a Gondwana forearc basin. *In*: W. Nemec & R.J. Steel (eds), Fan deltas; sedimentology & tectonic setting. Blackie, Glasgow. pp.457-471.

Broekhuizen, 1984 Studies on the Huriwai Group Flora Port Waikato, *Taeniopteris* Brongniart, *Cladophlebis* Brongniart. MSc thesis Auckand University.

Stevens, 1980 *New Zealand Adrift*. Reeds.

Looking back, it was a rare experience sampling 140 million years of New Zealand plant species, from the fossil flora of the Huriwai Formation to a contemporary broadleaf forest remnant in one day.

Loog-yee in Sandringham

R.O. Gardner

A browse in the sweets section of a local Thai foods shop the year before last yielded pandanus custard, durian lollies, and some packets of "Preserved Loog Yee -- Ingrs: Loog-yee, Sugar, Salt. Product of Thailand". The custard was green and very very sweet; the durian lollies resembled barbecued Instant Pudding and were memorable only as an insult to the King of Fruits; and the loog-yee, wrapped balls of a dark red sour-sweetish pulp with seeds, also contained a fair amount of what must have been chilli powder.

The resemblance of the loog-yee to tamarind paste was obvious but the quadrate-ovate compressed seeds were nothing like the brown boxy seeds of that member of the mimosa subfamily of legumes. But they were rather like those of *Cassia* and *Senna* species, and to my surprise they germinated very readily to produce what were very definitely legume seedlings. These however succumbed to an Auckland autumn, leaving me to face the temptation of simply consulting a Thai dictionary.

The matter rested until by chance I looked at the second volume (Caesalpinioideae) of a series on legume fruits and seeds (Gunn 1984). My seeds clearly belonged to the pantropical genus *Dialium* in the tribe Cassieae, having for example the characteristic pale brown colour, concave faces with longitudinal fracture lines, tiny pearl-like funicular remnant concealing the very small hilum, and thick gelatinous endosperm encasing pale green cordate cotyledons. *Dialium* fruits have a 2-layered mesocarp; the inner layer is pulpy and can be "chewed to relieve thirst or macerated in cold water and used as a beverage". The relevant volume of "Flora of Thailand" (Larsen et al. 1984) notes 10 species of this genus in Asia, 3 of which are native to Thailand. Each of these three species have "yee" as part or all of its common name ("loog" means a ball-like article), and each is noted as having edible fruit. Possibly though, one of the other species is in cultivation in Thailand and may be the source of our material.

A search is projected this summer for seedlings on the sludge heaps of Mangere.

References

Gunn, C.R. 1984 "Fruits and Seeds of Genera in the Subfamily Caesalpinioideae (Fabaceae)" *U.S. Dept of Agriculture Technical Bulletin No. 1755.*

Larsen, K., Larsen, S.S and Vidal, J.E. 1984 "Flora of Thailand" Vol. 4 Part 1. Leguminosae-Caesalpiniodeae. Forest Herbarium, Royal Forest Department. Bangkok.

Field trip - Odlins Timber Track / Cowan Stream
Saturday 18 September 1993

Maureen Young

As the name of the track suggests, this area of the Waitakeres has been logged and burned in the past, but nevertheless, under the kanuka canopy there were sufficient plants to keep the 24 members botanising happily for the duration of the walk. Early on in the trip our leader, Malcolm