Here then, beyond the cut-off of effective light, is a new *sciaphilic* or dark-loving community - the second of the two great living formations investing the shore. You can see graphically where this change-over occurs, by turning over a clean low-tidal boulder and finding the sharp or indentured cut-out of pink, where the light-supported community ceases, just behind the margin. Far more than traditional low water mark, it is with this final pink edge that we meet the threshold of a new realm.

This same realm we have first glimpsed under low tidal boulders. In these dark sites a rich, colourful and diverse community runs through its own scenario. The "big three" encrusting groups after tubeworms and barnacles are in order of time, *bryozoans, ascidians* and finally *sponges.*

We can artificially contrive a diminished sciaphilic community within the alkathene piping of a seawater circulating system. There - with total darkness but architected to a strong current flow - we shall find a pallid, even snow-white community, of tube and vase sponges, bryozoans and serpulid worm tubes.

So it is from the *MIDDLE SUBLITTORAL ZONE* that we can see long salients, bringing up privileged dark enclaves into the intertidal. I can think of a terrestrial analogy in English woodland flowers through spring and summer - in a succession of white, pale yellow, blue or mauve, red and finally golden yellow. In long salients from under the shaded woodland canopy, these flowers - celandine, cuckoo pint, bluebell, ragged robin - move out (like the items in partition-chromatography) at their own species rates along hedgerows traversing the open meadows.

What lies beyond the *MIDDLE SUBLITTORAL*? The same dark community continues in sufficient depths as at Poor Knights and Mimiwhangata. On a pallid ground colour, sponges are still there - with the scarlet points of brachiopods and cup corals. But now it is anthozoanns we begin to find dominating, with the mauve and puce and fawn sea fans (Gorgonians) - and snow-white thickets and shrubs of *Apanipathes,* (ineptly named "black corals").

There comes a break when the steep-plunging subtidal cliffs are finally cut off by the sediment line which is the inner edge of the continental shelf. The slope now gives place to a low-angled almost horizontal stretch. Here - as long as there is still rock a few centimetres under the surface - sediment-resistant sponges can still attach. We now find an outlandishly architected, dim-lighted landscape. Sponges grow in fans, candelabras, bowls, vases, golf-balls, tennis balls or low ground-crusts. All now in the subdued colours of brown, grey, buff or mauve.

Further out lies what? As sediment thickens, there remain only burrowing animals - especially bivalves and polychaete worms - with bottom-cruising and browsing fish. So we are seeing a changed and unearthly landscape. Not a single plant amongst its trees. With the loss of light and with no firm ground-base, there is hardly an item of interest for a botanist, and I have finally lost my tenuous excuse for talking to a Botanical Society - even in the hospitable dimensions of a Lucy Cranwell Memorial Lecture.

The Whau Creek

R. O. Gardner

I have been inspired by Dan Hatch's evocation of Laingholm's plants (Hatch, 1994) to write something about the place, also in West Auckland, where I grew up. Or more accurately, about its wildest frontier, which I knew as the Whau (pronounced ["Wow"]) Creek, though it seems that it should be called the Whau River from its mouth in the Waitemata Harbour up to just above the top of its tidal part, when it becomes the Avondale Creek, this a name I never heard used by any New Lynn-ite.

I start the description from where the Creek makes its closest approach to the Manukau Harbour, at Green Bay, the Creek being the line of the well known Maori portage. As is also well known, "The Whau", as the Avondale-Blockhouse Bay-New Lynn area was called, had no giant kauri to boast of,

but, except for the pohutukawa etc. on the steep Manukau cliffs, was a landscape of scrub. On the flat ground above the cliffs, in Motu Moana camp (or as we Scouts knew it, "Mudhole by the Sea"), some manuka scrub has survived a generation or two of sausage sizzles. Manuka can also be found on the Titirangi Golf Course and in Craigavon Park, where there are a few smaller gumland herbs, sedges and grasses, though it is some time since I saw a wahlenbergia or a thelymitra. It would probably have been in teatree scrub that Carse collected *Tetraria capillaris* and *Lagenifera lanata* from "New Lynn" in the early 1920s. In Craigavon Park at one place there is now the uncommon adventive daisy *Solenogyne gunnii*, an Australian very much at home on these poor clays.

Well-grown pine trees are plentiful around this upper part of the Creek, most being *Pinus radiata*. But it would have been a maritime pine (*P. pinaster*) that was Grammaticus's "old Scotch Pine", which "stood on the first bend, just beyond Hogg's rambling hakea hedge". He goes on: "the pinus silvestris or Scotch fir was scattered through the radiata (we called it 'insignis') which almost forested the southwest in those days, until it reached the sharp edge of the swathe of gumland wilderness east of Titirangi" [I have lost the NZ Herald reference to this, but see also Blaiklock (1979)].

In c. 1866 Benjamin Gittos and his sons built what was the first tannery in West Auckland, on the west bank of the Oakley Creek below Trent and Tait Streets, and wattles were planted there to provide tan-bark. In the late 1880s Elijah Astley, who was Gittos' foreman, set up his own tannery on the Whau at Portage Road, near to another at the foot of Wolverton Road (Avondale History Group, 1994). So originated, one has to suppose, the black wattles (*Acacia mearnsii*) so very conspicuous today along the Portage Road section of the Whau, particularly at the Clark Street crossing, where their delicious springtime scent lies along the valley floor.

The stream terraces of the Clark Street reserve still have a few native plants such as *Pomaderris kumeraho, Rytidosperma biannulare, Lachnagrostis filiformis, Deyeuxia quadriseta, Dichelachne crinita, Dianella nigra*, and *Baumea juncea*, but the best remaining gumland lies just south alongside the railway line, where there is a minuscule area of *Carex breviculmis, Schoenus tendo, S. apogon, Drosera auriculata, Lepidosperma laterale, Microtis unifolia* and *Thelymitra pauciflora*. Now that NZ Railways are concentrating on making profits rather than clearing verges this community will soon be overtaken by pampas and gorse. The north-facing slopes down to the Creek have black wattles over a luxurious growth of *Microlaena stipoides*.

An unnamed but equally large stream comes in from the east to join the Avondale Stream at the north end of the Clark St reserve - they join just south of the railway bridge, not north as shown on the R11 topographic sheet. Alligator weed (*Alternanthera philoxeroides*) is plentiful. The low-level terraces are grassy, with a few flax plants. I had hoped to rediscover Carse's *Juncus holoschoenus* locality somewhere here, but in vain.

The first mangroves appear in the widened head of the tidal part of the Creek, among abundant *Scirpus fluviatilis*. Common native species occur here and there along the east bank of the Creek to the Whau Bridge, where there is an c. 100 m x 30 m long stretch dominated by kanuka, though much influenced by the pines around and through it. Naturalising into this scrub is Japanese cherry (*Prunus serrulata*). Most notable is the concentration of smallish to medium-sized totara some way back along the very edge of the Creek. I suppose that these are native to the area, in the same way that similar-sized totara are occasional in such situations around the head of the harbour, e.g. Te Atatu North, Limeburners Bay.

Whau Bridge itself was the site of a terrific battle in the early '80s, between Alan Esler with his Weed Inspectors, and the terrible skeleton weed (*Chondrilla juncea*), ending decisively it is believed in 1988 with the application of about a litre of Tordon ™ to the foxhole of the last survivor.

South of the Bridge the Whau soon becomes so wide as to have made its eastern bank seem to a New Lynn boy to be another country, and the fascinations of that shore - *Eucalyptus tenuiramis*, *Ranunculus acaulis*, manuka with *Baumea articulata* at the Pollen brickworks site, and Pollen Island itself - were to be discovered in a more purely botanical phase of endeavour.

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Flora and vegetation of Taitomo Island and Nun Rock, South Piha, West Auckland

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Introduction

Taitomo Island (Camel) lies at the southern end of Piha Beach on Auckland's west coast (grid ref. NZMS Q11 406704) (Figure 1). It used to be known as Goat Island because of the goats which were present there up until a little after the turn of the century (P.J. Byers pers. comm.). Taitomo means 'tidal cave' which refers to the natural tunnel through it. The island, covering 2.6 ha, is vertically cliffed on the seaward side, and steep to vertically cliffed on the landward side except for more gentle slopes at the south-east end. The central ridge is a relatively easy gradient, reaching *c.*60 m a.s.l. at the north-east summit. At the southern end the island is separated from the mainland by a rocky channel, The Gap, but on its eastern side it is linked by a tidal sandy strip some 50 m wide. It is thus accessible by foot, except near high tide.

Taitomo Island is exposed to the full force of the Tasman Sea, and most of the steep topography is bare rock. At its most luxuriant the vegetation reaches 2 m tall and forms a low windswept cover on the south-facing landward slopes. Nun Rock (grid ref. Q11 405703) is a vertical pillar, mainly bare rock with overhangs, covering *c.*0.2 ha and reaching *c.*35 m a.s.l. It is situated on the exposed western side of Taitomo and is separated from it by less than 20 m (Figure 1).

Taitomo Island was awarded to the Kawerau Tribe, represented by four people, on 9 December 1942 (Kaipara Minute Book of the Maori Land Court, No. 23/178). Nun Rock appears to be uninvestigated Maori Customary Land. The adjacent mainland is part of Centennial Memorial Park managed by the Auckland Regional Council, and south of the parkland is private land owned by the Byers family. This article is based on two visits to the island by two of us (EKC and GAT on 29 December 1993 and 9 April 1994) and a single visit by one of us (JEB on 9 April 1994), plus a study of herbarium records. All specimens collected by us are lodged in the Auckland Museum Herbarium (AK) and are cited in this paper (see Appendix 1); only one previous collection was located (*Lindbergia maritima*).

Geology and History

Both Taitomo Island and Nun Rock are comprised of volcanic conglomerate of early Miocene age (Waitakere Group) (B.W. Hayward pers. comm.). An andesite dyke runs through the middle of Taitomo, much of which has been blasted out by wave action, and forms the Key Hole, a wave-washed tunnel through which people gain access to favoured fishing sites on Taitomo's exposed storm platform.

The archaeological sites of south Piha, which include three pa, indicate that the area supported at times a large Maori population. Hayward and Diamond (1978) recorded on top of Taitomo Island a pa in two parts with platform, terraces and midden and below the top of the north face a rock shelter 12 x 2 m, dry floor beneath with a 3 m high roof.

Taitomo Island has suffered from a series of fires, the last of which in *c.*1957 burnt about one-third of the island's vegetation (P.J. Byers pers. comm.). In recent years the native bush on the adjacent