

## SOME RECENT FERN FINDS ON BANKS PENINSULA

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With its island-like origins and distinctive geology, it is little surprise that Banks Peninsula is home to several endemic species, or that a number of species there are recorded at their distributional limits. Being young (in geological terms) and having initially been isolated by sea, Banks Peninsula's original native plants would most likely have arrived there from the land masses that preceded our modern-day foothills and Southern Alps. The ability of species to make this jump would have depended largely on their means of dispersal, including some that floated on water, some that were bird-vectored, and some that blew in on the wind.

Ferns had every opportunity to volunteer, as their tiny wind-dispersed spores could easily have arrived on any of the winds that swept early Banks Peninsula. The range of familiar mainland ferns encountered on the Chatham Islands serves to remind us of the ability of ferns to spread far and wide.

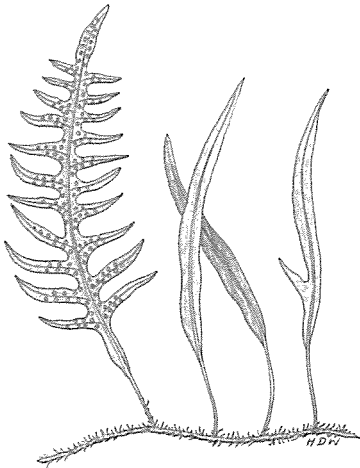
Mankind did a remarkably thorough job of denuding Banks Peninsula of its once near-continuous forest cover, to the point that early 20th century Banks Peninsula supported only about 800ha of primary forest (0.8% of the original cover). Botanists of that time would have had much less forest to fossick through than today's botanists, so had every chance of finding most of the forest species that remained. Indeed there are several records of species that have not been seen in more recent times, although there is some doubt whether some of the early records were based on correct identifications, as voucher specimens were not always kept.

With improved accessibility and a greater conservation ethic, Banks Peninsula and its botany are increasingly under the hand lens. It is thus unsurprising that some of those old records are finally being confirmed, decades later.

Etienne Raoul first found scented mokimoki *Microsorium scandens* (page 64) on Banks Peninsula in the early 1840s, and further records were made in 1880 by Joseph Armstrong, in 1919 by Robert Laing, and in the 1980s by Arthur Ericson. The precise locations of these records are not known. Scented mokimoki was eventually found again in 2005 in Stony Bay, in a recently registered QEII covenant. *Microsorium scandens* occurs quite commonly in coastal forest down to North Canterbury just south of the

Conway River, some 140km north of Banks Peninsula. Typical of many species growing near the limits of their tolerance, the plants on Banks Peninsula are small in stature. Their laminae are nearly all juvenile and strap-like, though a few plants are now beginning to climb tree trunks and produce fertile pinnate fronds. Nine discrete plants are currently recorded at Stony Bay, mainly scrambling over rocky ground under a māhoē-dominated canopy. All the plants were subject to browsing by sheep and cattle before the area was covenanted, and now appear to be expanding.

In a recent summer monitoring check, one Stony Bay plant formerly thought to be *Microsorium scandens* growing in its juvenile strap-leaved habit was observed to be uncharacteristically pale and wilted, and on closer inspection turned out instead to be lance fern *Anarthropteris lanceolata*, another species seldom encountered on Banks Peninsula and again reaching its southern mainland limit there. Three other small populations of lance fern are currently known in nearby bays. Like scented mokimoki the Banks Peninsula plants are diminutive compared to specimens seen in their northern home range, and again this species is next recorded in Canterbury just south of the Conway River. Further checks have revealed several additional lance fern plants within two gullies in the covenant.



Scented mokimoki, *Microsorium scandens*

Whilst recently recording the grid references for these plants, the Stony Bay covenant again revealed unexpected ferns. Close to a photopoint monitoring a mokimoki plant, a mossy boulder displayed a covering of a fine filmy fern. Closer inspection revealed a broad crinkly wing on the stipe, rachis and primary pinnae, a distinctive characteristic of *Hymenophyllum flexuosum*. Given this species' usual preference for wetter parts of the country, this was a most unexpected find, and is the first record for the species on Banks Peninsula.

A search was then made of nearby boulders in the hope of finding additional *H. flexuosum*, and a short distance upstream another filmy fern was located, though smaller and darker in colour. Tubular indusia indicated that this was a species of *Trichomanes*, subsequently confirmed as *Trichomanes endlicherianum*. This species had only been found on Banks Peninsula twice

before, first in 1880 by Joseph Armstrong, and in 1985 in Peraki Saddle Scenic Reserve during Hugh Wilson's botanical survey of Banks Peninsula.

Joseph Armstrong recorded jointed fern *Arthropteris tenella* on Banks Peninsula in 1880, but no further plants were recorded after that. In 2008 a single healthy specimen of jointed fern was found in a covenant at Red Bay, quite close to a known population of *Anarthropteris lanceolata*. This area had been fenced and destocked some 8 years previously, and the plant was just

beginning to ascend tree trunks and produce fertile adult fronds. Whether this is a one-off recent volunteer or part of a larger population is unclear, but no further plants have been found in the immediate locality despite fairly thorough searching. Yet again, the closest current record of jointed fern occurs just south of the Conway River, intriguingly in the same gully there as *Anarthropteris lanceolata*.



Watercolour of Jointed fern *Arthropteris tenella*.

and 'Arthur'. However recent botanical opinion tends to the view that *Anarthropteris lanceolata* should now be called *Loxogramme dictyopteris*, which rather spoils this.

The five ferns above were all recorded in a few coastal gullies on the south-eastern tip of Banks Peninsula. These sites share a number of other plants we tend to associate with Marlborough and places further north, including abundant shining broadleaf *Griselinia lucida*, akeake *Dodonaea viscosa*, tītoki *Alectryon excelsus*, kawakawa *Macropiper excelsum*, shining spleenwort *Asplenium oblongifolium* and (rarely) nīkau *Rhopalostylis sapida*.

Across on the south-western side of Banks Peninsula another covenant has recently revealed a fern which had dubious earlier records. John Armstrong recorded *Lastreopsis microsora* in 1870. Over a century later two small plants were recorded growing in secondary kanuka forest at Governors Bay, though the proximity to domestic gardens provided grounds for suspicion about their origin. In 2009 twelve discrete patches of *Lastreopsis microsora* were found in Prices Valley, ironically in one of the most closely studied bush remnants on Banks Peninsula. Whilst the leaves are superficially similar to *Lastreopsis glabella*, the rhizomatous habit of *Lastreopsis microsora* provides an easy diagnostic feature. The Banks Peninsula plants are not diminutive, in fact they appear every bit as robust as specimens seen growing in covenants just north of Kaikoura. The Kaikoura populations and occasional records from the Cheviot and Motunau ecological districts were previously regarded as representing the species' verified mainland southern distributional limit.

There are other records of unexpected ferns on Banks Peninsula. Limestone spleenwort *Asplenium lyallii* (customarily associated with calcareous soils) occurs locally on Banks Peninsula, probably reflecting its liking for high fertility sites.

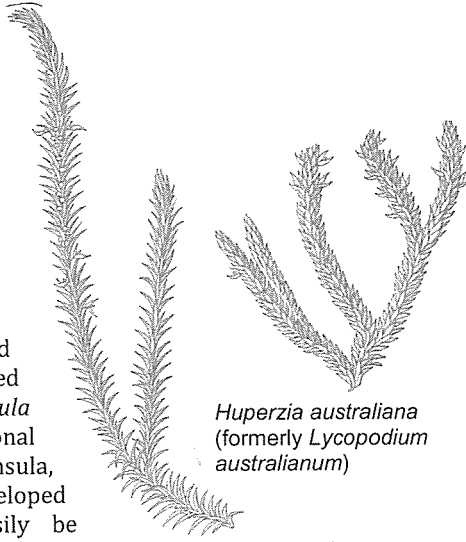
A single plant of *Asplenium polyodon* (formerly *A. falcatum*) was recorded in the early 1980s by Arthur Ericson; this plant was again checked in 1987 during Hugh Wilson's botanical survey of Banks Peninsula. Whether this plant survives today or has perhaps even proliferated is unknown.

*Blechnum triangularifolium* has reputedly been seen near Sumner, though there is no voucher specimen. Given its occurrence in the coastal foothills as far south as Omihi (only 55 km to the north of the Port Hills), its occurrence on Banks Peninsula would not be unexpected.

A single verified specimen of *Doodia australis* has recently been recorded growing on the Port Hills near Tai Tapu, and a further plant has recently been noticed volunteering (albeit in an urban situation) in Governors Bay. Given the proximity of both sites to gardens, this species is regarded by many as naturalised rather than indigenous to Banks Peninsula.

*Huperzia australiana* (formerly *Lycopodium australianum*) (page 67) has only been recorded three times, initially by Joseph Armstrong in 1880, again during Hugh Wilson's survey, and most recently in 2008 by Canterbury Botanical Society members in a covenant in Western Valley, high above Little River.

A lone clump of *Pteris macilenta* (alternatively called *P. pendula* by some authorities) was recorded growing wild between Allandale and Governors Bay in 1988. That species' occurrence had been reported earlier (location unknown) by Allan in 1961, and was again referred to by Crookes and Dobbie in 1963. The related shaking brake *Pteris tremula* reaches its southern distributional mainland limit on Banks Peninsula, hence small or poorly developed *Pteris* specimens might easily be dismissed as all being further *P. tremula*. Indeed,



*Huperzia australiana*  
(formerly *Lycopodium*  
*australianum*)

what appeared to be a small patch of young *P. tremula* growing in Hinewai Reserve has recently 'grown up' to be a luxuriant little colony of *Pteris macilenta*.

In 2005 a filmy fern was noted growing on a Hinewai tree fern trunk, and was tentatively identified as *Hymenophyllum revolutum*, though the absence of sporangia left some doubt. Given that this species had never been recorded on Banks Peninsula, the plant was kept under observation, and has recently developed sufficiently to confirm its suspected identity.

Early in 2011 a group of fern enthusiasts embarked on a fern-finding expedition up Hinewai's Mamaku Gully, midway up Stony Bay valley. Whilst none of the rarities encountered in the nearby QEII covenant were found, two small patches of another filmy fern were eventually located at the base of a large bluff. Initially there appeared to be no fronds bearing sporangia, however a methodical search eventually revealed a single sporophytic frond, distinguishing it as *Hymenophyllum cupressiforme*, a species previously known from only one other site on Banks Peninsula, at Castle Rock on the Port Hills.

That brings Hinewai's tally of native ferns and fern allies to 66 species, and Banks Peninsula's confirmed tally to 97 – a century beckons.

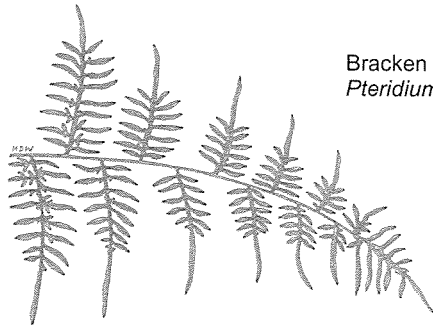
New species have recently been added by other means. Banks Peninsula now has its own endemic fork fern, the recently-described *Tmesipteris horomaka* (formerly known as *T. aff. tannensis*). Given this species' need for

tree fern trunks upon which to lead an epiphytic life, it is and is likely to remain rare and localised in its distribution.

With the numerous initiatives to protect more of Banks Peninsula's biodiversity, there is clearly still scope to make further discoveries. Certainly, there is no such thing as a 'complete' fern species list.

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Bracken fern,  
*Pteridium escaletum*.