A NEW RECORD FOR *STICHERUS FLABELLATUS* IN BULLER

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Sticherus flabellatus (Gleicheniaceae) is one of several New Zealand plants with disjunct distributions between northern North Island and northwestern South Island. *S. flabellatus* is found in Australia, New Caledonia and New Guinea, and in New Zealand from North Cape to the Bay of Plenty as well as in the northwest of South Island (Brownsey and Smith-Dodsworth 1989). Its South Island distribution has been reviewed by David Given (1982). There it is known from two areas; near Takaka in northwest Nelson and in the catchment of the Ngakawau River near Stockton (especially Mangatini Stream). Only two colonies are known from the Takaka site, but it is present at a number of sites in the Stockton area.

During a recent trip to the Denniston-Stockton area, where we were evaluating potential protected natural areas, we spent a day exploring the southern flanks of Mt Frederick, climbing up from the Waimangaroa River across the plateau towards the summit. This area is typical of the 'coal-measure' plateaux that occur in the Ngakawau Ecological District. The plateau vegetation is mainly open heathland dominated by *Empodisma minus, Chionochloa juncea* and dwarf, prostrate shrubs of *Leptospermum scoparium, Halocarpus biforme* and *Dracophyllum* species, with small pockets of upland mixed beech-podocarp forest in the gullies and on steeper slopes. The underlying geology is dominated by Tertiary Brunner coal-measures, mainly quartz sandstones, with smaller areas of shales and coal seams. Much of the plateaux has been exploited for coal over the years, with numerous old and current mines present. The large Stockton opencast coal mine, under Mts Augustus and Frederick, is the largest of its type in New Zealand. The Ministry of Energy's coal resources exploration programme has confirmed substantial additional coal deposits and further mining is mooted over much of the plateau in the future.

While climbing up the Kiwi Fault scarp, which cuts across the plateau, we came across a small colony of *Sticherus flabellatus* at the base of an exposed bluff about half-way up the scarp. The site (Grid reference NZMS260 L29 147417) is at about 760 m a.s.l., and is considerably higher than other known sites (Given 1982) It is in the upper Waimangaroa catchment, about 8 km further southwest of the nearest colonies in Mangatini Stream. The site is on a southeast facing bluff, while Given (1982) notes that most of the Stockton records are from north facing bluffs.

The plants of *Sticherus flabellatus* were growing in horizontal clefts near the base of the bluff. The colony was quite small with probably no more than 20

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clumps of *S. flabellatus* in total. The plants were generally of small size and the whole site lacked the splendour described by Jack Ballin (1977) for one of the Stockton sites; ". . . there is a pride of *Gleichenia flabellata* (=*S. flabellatus*) in its own dripping lime cave completely covering the floor and ceiling". Nonetheless, the presence of these plants at this new locality is an important addition to its known range.

The low forest below the bluff was a mixture of species including *Nothofagus solandri, Quintinia acutifolia, Leptospermum scoparium, Metrosideros umbellata, Halocarpus biforme* and *Lepidothamnus intermedius*. The bluff itself was sparsely vegetated, with small shrubs of *Leptospermum scoparium, Cyathodes juniperina* and *Metrosideros umbellata,* and herbaceous plants including *Carpha alpina, Empodisma minus, Brachyglottis bellidioides, Forstera mackayi, Schizaea australis, Celmisia dubia, Chionochloa australis, Mitrasacme montana* var. *helmsii* and *Actinotis novae-zelandiae. Metrosideros parkinsonii,* another species with a disjunct distribution between northern North Island and northwestern South Island, is also present under bluffs adjoining the *Sticherus flabellatus* site.

Although extending the southern limit of *Sticherus flabellatus* slightly further south, the real interest in this record is that it suggests that this species may be more widespread in the Denniston-Stockton area than was previously thought. Unfortunately time did not permit extensive searching during our trip, although we saw no further plants around the site. A number of other potential sites are, however, present in the vicinity and should be searched. The presence of additional colonies increases the security of this species on the coal plateaux. This is particularly important, given the possibility of further opencast coal mining and associated habitat destruction.

The new colony is of interest also because of its high altitude and southern aspect. Given (1982) suggests that shelter from frosts and wind may be critical for the survival of *Sticherus flabellatus* in Buller, which would agree with the generally northern distribution of the species extending up into Queensland and New Guinea. It is therefore somewhat surprising that the new locality, the southern limit for the species, is the highest altitude location recorded in New Zealand and occurs on a generally cool southeast facing bluff. We do not at present know why this is, although it may be that this site represents a chance establishment. Certainly adjoining trees and a scarp location away from frost-prone valley flats provides some protection from wind and frost. Further searching is needed to establish if other comparable sites occur.

As David Given points out in his article, it would seem likely that *Sticherus flabellatus* established in this area independently of the North Island populations by long distance dispersal from Australia. As he notes, this is not the only species that has established by long-distance dispersal from Australia. Another good local example, and growing with *S. flabellatus* at

the new locality, is *Mitrasacme montana* var. *helmsii*, a tiny herb in the Loganiaceae. This plant is very closely allied to the Tasmanian species *Mitrasacme montana* and also has a very limited distribution, being confined to the Paparoa Range and the Denniston-Stockton area.

The coal measures of the Denniston-Stockton area, with their open heathlands, sandstone pavements and many hidden gorges, are a fascinating place to visit and are well worth spending time exploring. The forthcoming Department of Conservation PNA report on the Ngakawau Ecological District will provide a useful reference for botanical excursions, and we suspect that there are many more interesting finds to be made in this area.

References

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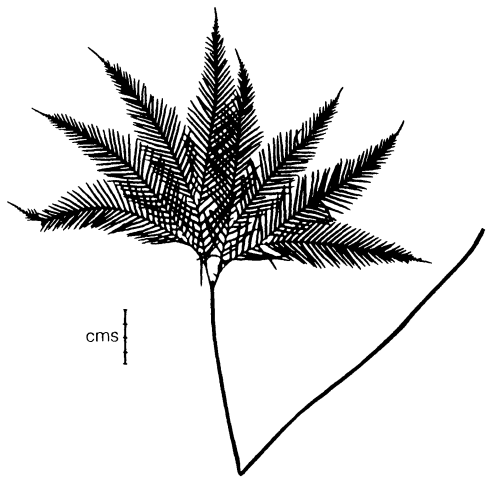

Sticherus flabellatus. From Brownsey, P.J. & Smith-Dodsworth, J.C. 1989. *New Zealand Ferns and Allied Plants*. Bateman. Drawing by Tim Galloway.