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## NOTES ON THE VEGETATION OF THE UPPER GINGIN BROOK, WESTERN AUSTRALIA

By A. S. GEORGE, Western Australian Herbarium, South Perth, W.A.

On 29 July 1970 the W.A. Herbarium received, per favour of Kings Park Botanic Garden, specimens of the Veined Helmet Orchid, *Corybas dilatatus* (Rupp & Nicholls) Rupp & Nicholls ex Rupp, from Miss D. Sharpe of Gingin. They had been collected along Gingin Brook, about 50 miles north of Perth and 150 miles north of the previous northernmost record of the species in W.A. I visited the area on 7 August and found the orchid to be common along 2-3 miles of the Brook below its source (Lat. 31° 18' S, Long. 115° 56' E). Its habitat here is the leaf litter under the dense belt of trees which lines the Brook and includes such species as *Melaleuca raphiophylla* Schau., *Eucalyptus rudis* Endl., *Agonis linearifolia* (DC) Schau., *Astartea fascicularis* (Labill.) DC, and *Leptospermum firmum* (Schau.) Benth.

The typical habitat for the *Corybas* in W.A. is the karri forest of the extreme south west where the rainfall is 40-60 in. per annum, though it occurs in other suitable winter-damp localities between Collie and Albany, including the Stirling Range. At Gingin the annual rainfall is 30 in. and the summer is long, hot and dry. The hills surrounding the headwaters of the Brook are sandy, supporting a woodland dominated by *Eucalyptus calophylla* R.Br., *E. marginata* Donn. ex Sm. and *Banksia* species. Gingin Brook is a perennial freshwater stream fed by abundant springs and the resulting swamp vegetation could be expected to provide a refuge for plants from wetter regions.

The presence here of a tropical fern, *Cyclosorus gongylodes* (Schkur.) Link, has been known since 1846 when it was collected there by James Drummond who wrote of it thus:

"I visited Gingin, a farm of Mr. W. L. Brockmans situated on a fine and ever running stream, of the purest water a tributary of the Moore River, . . . I was delighted to find it in many places almost filled with a remarkable fern, (a rare order in this part of New Holland) it resembles a good deal *Aspidium Felix Mas*, but it is a larger plant bearing fructifications on the margins of the fronds, the stems creep mostly on the dead wood which is covered with the water of the brook."

The fern grows also along the perennial Lennard Brook just south of Gingin and at a fresh spring beside the Moore River below Mogumber Mission. Apart from another occurrence on the lower Murchison River, the species otherwise is known in W.A. only from the Kimberleys, though it is widespread in tropical countries.

Recent collecting (further visits were made on 22 August 1971 and 24 October 1971) has revealed four other species which, like the Helmet Orchid, are outliers to the north of their normal range.

Crested Wattle, *Albizia lophantha* (Willd.) Benth., is fairly widespread in the Darling Ranges from Perth to Albany, but this is the northernmost record some 40 miles from the next known population.

Tall Boronia, *Boronia molloyae* Drumm. (syn. *B. elatior* Bartl.), occurs mainly between Margaret River and Albany along the south coast. There are populations at Collie, Waroona and Byford, the latter some 60 miles south of Gingin.



The tea tree *Leptospermum firmum* (Schau.) Benth. was collected at Bayswater near Perth in 1901 but is otherwise known only from the south coast between Busselton and Albany. Strangely, the Gingin plants are much taller than those of the south, being up to 8 m tall with a stout trunk and rough, fissured bark, instead of a shrub of 2-3 m.

Twining Bladderwort, *Utricularia volubilis* R. Br., has been seldom collected but its main range is the south coast, in wet swamps between Pemberton and Albany. It grows on peaty banks in flowing water. Other outlying populations are at Bayswater and Esperance.

It is possible that these species were once more widespread when the climate was wetter and that increasing dryness has forced them to retreat to the extreme south west except for populations which can survive in such favoured localities as the Gingin Brook. Similarly the *Cyclosorus* may have survived from a time when wetter conditions provided a link up the west coast to tropical Australia.

An exciting find near the source of the Brook, though in the adjacent jarrah-banksia woodland rather than along the Brook itself, was the legume *Ptychosema pusillum* Benth. A herb only a few cm tall with small pinnate leaves, it has long-stalked red-brown and yellow flowers resembling those of the Lamb Poison, *Isotropis cuneifolia* (Sm.) Domin. Previously it was unrepresented at the W.A. Herbarium, and apart from an old collection in the State Herbarium of South Australia had not been seen since Drummond collected it in the 1840's.

Aquatic plants which are common in the Brook include the floating fern *Azolla filiculoides* Lam., Water Starwort *Callitriche stagnalis* Scop., Water Buttons *Cotula coronopifolia* L. and Water Ribbon *Triglochin procera* R.Br.

In the summer of 1970-71 a bushfire occurred near the source of the Brook and resulted in the flowering in 1971 of several species in which flowering is usually suppressed by the dense swamp vegetation. One was the Pink Bunny Orchid, *Eriochilus scaber* Lindl., here the late-flowering (October) form which is less hirsute than the typical, winter-flowering form. Others were an unidentified *Lagenifera*, much smaller than the common *L. stipitata* (Labill.) Druce, and a tiny yellow-flowered *Goodenia*, also as yet unidentified.

Finally, mention should be made of the unexpected find of a tree fern, *Cyathea cooperi* (Hook. ex F. Muell.) Domin, of which there are 20-30 plants along 1½ miles of the Brook. They vary in size, the largest having trunks 3 m tall. The species is native to Queensland and New South Wales and must have been introduced here some years ago, though the local farmers cannot suggest its origin. The presence of the common fig, *Ficus carica* L., and some naturalised roses (*Rosa ?canina* L.) further downstream, indicates that they are garden escapes. That this fern is able to establish itself under suitable conditions in this State is shown by its occurrence at Bedforddale near Armadale where it has spread along 2 miles of Nerrigen Brook from a single specimen planted in 1934. (This was recorded by Smith, *W. Austral. Nat.*, 9 (4), 1964: 93 as *Cyathea australis* (R.Br.) Domin). Less easily explained is a solitary *Cyathea cooperi* growing in Karri forest about 30 miles west of Manjimup—possibly the chance survival of a wind-blown spore is the answer.

## THE STICK-NEST RAT, *LEPORILLUS CONDITOR*, IN THE GIBSON DESERT

By STAN GRATTE, Geraldton

In August, 1970 a party of members of the Geraldton Historical Society, including myself, went to the lower Gibson Desert area in search of relics left at Blyth Pool by John Forrest in 1874.

We located two mammal nests which very greatly intrigued us and they were eventually proved to be the nests of the Stick-nest Rat, *Leporillus conditor*. The first nest was very old and partly demolished,



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