

Germination of kowhai at Hokio Beach

ANYONE who frequents the Wellington west coast beaches from Paekakariki northwards becomes familiar with the sight of kowhai seeds (*Sophora microphylla*) washed up along the strandline. Two queries spring to mind: "Where have they come from?" and "Could they germinate there and start a colony?"

In November, 1968, there were many such seeds near the Hokio estuary. As they were swollen with fluid I decided to attempt to grow some. Several were chipped and planted, of which one germinated and survived, later to be watched for any characteristics suggesting a possible source. A year later, a careful examination of the same strandline showed 18 small kowhai seedlings in a length of about 30 yards. These were obviously similar to the garden-grown plant, and of the same age, showing that it was indeed possible for seeds to germinate at the coast.

Twenty or more years ago the Hokio stream swept in a southerly arc at its estuary, biting more and more into the foredunes. A weir was built at a critical curve, and the stream was encouraged to flow more directly to the sea. The most southerly curve of the estuary of that time has remained as a small lagoon. Between this and the stream's present course is a damp flat occasionally flooded by an exceptionally high tide, or by extra water in the stream. The upper strandline in the embayment is about 350 yards inland from the high water mark on the outer coast. The kowhai seeds had been deposited in a six-foot-wide layer of small driftwood sticks, on the landward side of the lagoon. Here the ground was kept moist by the proximity of the lagoon, and by the mulch of sticks at the upper strandline. A certain amount of silt and minerals enrich the ground where the stream has flowed. Unfortunately for the kowhais, another high tide (some time before the end of January, 1970) piled up a thick layer of larger sticks, and the prevailing drought partially dried up the lagoon. This combination of circumstances destroyed the seedlings. However the germination and growth of these plants at Hokio strandline shows that they can tolerate brackish conditions. If they could be washed up on to terrain which could remain reasonably moist, without being piled with driftwood, they could probably continue to grow. Sheltered estuaries or inlets would be more likely places for such conditions.

It seems unlikely that the seeds are of local origin, as kowhais have a limited distribution in the district, and none are known to be near water. Some on a low terrace on the Ohau River may be near temporary distributaries in times of flood. Even if any seeds from these did reach the coast via the Ohau River, the southward-setting currents along the coast would prevent their being carried north to Hokio Beach. Thinking of the Manawatu district as a possible source, I asked Alan Esler if he could make any sug-

gestions. He confirmed the presence of kowhai seeds on Manawatu beaches from the Manawatu River northwards (pers. comm). On account of the southerly current he thought that they could have come from any of the rivers from the Rangitikei to the Patea. Even a South Island origin was possible, as beech trees have been seen washed up on Manawatu beaches with granite and schist entangled amongst their roots, suggesting a current sweeping north up the South Island west coast and meeting a southward-sweeping current along the Manawatu coastline.

The living plant has been taken to Dr E. J. Godley at Botany Division, Lincoln, where its growth will be watched and compared with that of plants from known localities. Dr Godley noted that it was beginning to develop a juvenile form, and remarked that as the kowhais of the Patea and Wanganui Rivers do not have this character, the seeds could not have come from there. The Rangitikei River (with its tributaries) is a doubtful source, and somewhere along the lower course of the Manawatu or its tributaries seems more probable. This will not be clear until the plant has grown on for some time. In November, 1969, the plant had leaves with up to seven leaflets. With an increase in the number of twigs, the beginning of a divaricating juvenile form, new leaves were forming with five leaflets only.

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CAN YOU BELIEVE IT?

- Here may be found the extraordinary vegetable sheep (*Raoulia*) and the giant buttercup — the largest *Ranunculus* in the world, its white and yellow flowers measuring eighteen inches across.
New Zealand Geography, by R. D. Mayhill and H. G. Bawden, 1966
- We turned off to the Chateau which . . . stands at 3700 ft in a bare landscape of red tussock. [Treasure not to have trees on?]
The Empire Forestry Review, 36, p.373, 1957
- The beautiful *Celmisia macmahoni* I did not see, but it is confined to steep rocks inaccessible to goats.
Bull. Wellington bot. Soc. 23, p.20, 1950, pointed out to me by H. E. Connor
- The specific succession has been leptospermum and soil-tolerant scrub hardwoods . . .
The Synecology of the West Taupo Indigenous Forest by P. J. McKelvey, p.1, 1963
- The red beech is aggressive . . . and assimilating the adjacent Hall's totara scrub hardwoods type. [The reds are coming — watch out you backwoods types!]
Ibid, p.9

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