

Marginariella, a genus of brown seaweeds
found only in New Zealand

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Marginariella urvilliana (A. Richard) Tandy and Marginariella boryana (A. Richard) Tandy are two very distinctive brown seaweeds growing only in New Zealand waters from Cook Strait south to Stewart Island, the Auckland Islands and also in the Chatham Islands. They are often found in the drift weed on the strand-line, left there by the receding waves and tide, even as far north as Castlepoint and Levin in the North Island. Both species are easily distinguished from other large brown seaweeds in New Zealand because both species have their reproductive organs and floats arranged on only the inner margin of the "leaves" as in the illustration. M. urvilliana has broad "leaves" that are deeply toothed and the floats or vesicles are spherical as shown in the single "leaf" illustrated. M. boryana on the other hand has narrow "leaves" with or without teeth and the floats are elliptical. Both species grow on rocks usually below the low tide mark where the water can be quite rough. Only during the lowest spring tides of the year, generally in August, will some of the plants higher on the shore be exposed to the air.

The plants cling on the rocks with a cone-shaped fibrous holdfast at the base of a rather thick wiry flattened stem. Towards the top, and from the edges of the flattened stem, side branches or "leaves" are formed in pairs. The floats or vesicles are filled with gas, probably very similar to air, and these help float the fronds of the plant up towards the sunlight. The reproductive organs, as shown in the illustration are rather slimy finger-like branches, about 2-4 cm long, called receptacles. These are formed often in great clusters on the inner margins of the "leaves". The receptacles carry small flask-shaped pits in which the eggs and sperm are produced and protected. When mature the eggs and sperm are released into the water where fertilisation takes place. The fertilised eggs then settle down on the rocks to form new plants.

The two species of Marginariella were first described from material collected when Captain Dumont d'Urville visited New Zealand in 1827, on the ship "l'Astrolabe". D'Urville recorded that on 29th and 30th January, 1827 in Palliser Bay the ship was often surrounded by big brown seaweeds floating on the surface of the waves. He gathered a few specimens which he immediately had his secretary young Lauvergne draw for him (Wright 1950, p.107). Later in France these drawings were given by Pierre - Adolphe Lesson, one of the "Astrolabe" surgeons and a naturalist, to the botanist Achille Richard (1833, p.10) who used them to describe the species; Marginaria urvilliana, named after d'Urville, and Marginaria gigas so named because of its larger size. The illustrations that were published clearly show the rows of round air bladders on the inner margins of the "leaves" which caused Richard to call the new genus Marginaria. Later, Richard discovered in a box that had been mislaid, a parcel of dried seaweeds from New Zealand and Australia. In this material there were plants with elliptical bladders and rows of finger-like receptacles

on the inner margins of the "leaves". Richard (1834, P.138) named this species after the French botanist, Bory de Saint Vincent. However, Richard decided that his earlier genus Marginaria was not really different from Sargassum, so he called the new species Sargassum boryanum and changed the other two names to Sargassum urvillianum and Sargassum lessonianum (after Lesson). Richard felt that the name Sargassum gigas based on the earlier name was most inappropriate so he incorrectly used Sargassum lessonianum as a new name for that species. Montagne (1842) another French botanist obtained more specimens from Auckland Island, collected by Dumont d'Urville in 1840 on his next voyage south. He was so certain that Marginaria was sufficiently different from Sargassum that he resurrected the genus and he renamed Sargassum boryanum as Marginaria boryana. J. Agardh (1848, p.257) of Lund, Sweden when writing about all the then known brown seaweeds realised that the slight difference between Marginaria urvillianiana and M. gigas was not sufficient to keep them as separate species although he did recognise two forms. William Harvey (1855, p.214) of Dublin, when describing the specimens collected by J.D. Hooker on the voyage of the "Erebus" and "Terror" decided that New Zealand had only two species of Marginaria, and that even the forms were not worth recognising.

The story of the name changes of these two species doesn't end here however, for realising that the name of Marginaria had been used by Bory for a genus of ferns before Richard used it for these seaweeds, Tandy (1936) proposed Marginariella as a new name for this genus of brown seaweeds. And there it all rests for the present.

References

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