



## Annual distribution of *Durvillea willana* lineage

The branched bull kelp, the brown seaweed *Durvillea willana* Lindauer, is restricted to the South and Stewart Islands. It grows in the upper subtidal zone at around 1–2 m depth. The thalli are shorter with longer and thicker stipes than *D. antarctica* and have side branches growing out of the main stipe. The blades grow to ca. 5 m in length and the thalli are not buoyant. *D. willana* can co-occur with *D. antarctica*.

(Note the spelling of the genus name *Durvillea*—recent opinion of nomenclature experts is that the genus name should be spelt '*Durvillea*' and not '*Durvillaea*' as previously.)

### 1. Literature sources

The literature was searched for distributional information for the brown kelp *D. willana*. (*Durvillaea willana* was also searched although not shown below.)

- a. A search was carried out of the following databases: Te Puna using the keywords "*Durvillea willana* +Zealand +geograph? +distributed?" (16/09/2005); Aquatic Sciences and Fisheries Abstracts "*Durvillea willana* and zealand and (geograph\* or distribut\*)" (16/09/2005); Web of Science "TS=(*Durvillea willana* and zealand and (geograph\* or distribut\*))" (15/09/2005); Scopus "TITLE-ABS-KEY("*Durvillea willana*" AND zealand AND (geograph\* OR distribut\*))" (16/09/2005); Google Scholar "zealand geographic OR distributed OR distribution "*Durvillea willana*" (19/09/2005). From all these sources there were no papers that provided additional information on geographical range or distribution of the species.
- b. Using subject indices, *Seafood New Zealand* was checked for articles dealing with *Durvillea willana* and research.
- c. A search of NIWACAT in September 2005 produced no records that contributed additional distribution information for this species.

### 2. Ministry of Fisheries electronic databases

Data in the Ministry of Fisheries electronic databases are recorded using KBL for bull kelp: this does not distinguish between species of bull kelp. The data on landings do not contribute information on the distribution of this species that is not also available (more accurately) from other sources.

### 3. Museum holdings

Holdings of *D. willana* were examined at WELT, the herbarium of the Museum of New Zealand Te Papa Tongarewa, CHR (Landcare Research herbarium), and AK (Auckland Museum herbarium, including the herbarium of Auckland University), and records held by the algal research team at NIWA. Data were used to help estimate presence/absence.

#### 4. Summary

*Durvillea willana* is restricted to the South and Stewart Islands, growing in the upper subtidal zone; it does not extend into the subantarctic or to the Chatham archipelago. It can co-occur with *D. antarctica*.

There are specimens identified as *D. willana* collected in 1947 from the Whakataki reef at Castlepoint, on the Wairarapa coast, in CHR but these are juvenile specimens and the identification of these is equivocal. There is a single drift specimen of *D. willana* from the same area in WELT, collected in 1998. There are, however, no confirmed records of *D. willana* growing anywhere in the North Island.

The 90% and 100% distributions were extended to link headlands where this species has been recorded and/or where equivalent habitats occur.

The above information on the distribution of *D. willana*, derived primarily from herbarium collections, was reviewed by Dr Murray Parsons, former Keeper Landcare Herbarium, and then integrated by hand onto a large-scale map of New Zealand. The rounded lines were then digitised and imported into a GIS software package as layers. The areas of each distribution class were calculated and the layers were linked to attribute and metadata files. The map, because of its scale, cannot be taken to accurately define the local distribution of this species.

#### 5. References

The following publications were the key references and/or the ones most useful in describing the recent/current annual distribution of *D. willana*. The list is not intended to be an exhaustive bibliography of publications about this species.

- Adams, N.M. (1994). *Seaweeds of New Zealand*. Canterbury University Press, 360 pp.
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- Hurd, C. (2003). Bull kelp. In Andrew, N.L., Francis, M.P. (Eds.), *The living reef: the ecology of New Zealand's rocky reefs*, pp. 56–63. Craig Potton Publishing, Nelson, New Zealand.
- Neale, D.; Nelson, W.A. (1998). Marine algae of the West Coast, South Island, New Zealand. *Tuhinga* 10: 87–118.

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