

A NOTE ON THE SALT MARSH VEGETATION OF FAREWELL SPIT

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INTRODUCTION

The salt marsh vegetation of New Zealand has been described by Chapman (1974) although information pertaining to the South Island is limited to only a few localities, *viz.*, Nelson, Lake Ellesmere, Lake Grassmere and Bank's Peninsula. At Farewell Spit, there are vast areas of salt marsh which begin about 10-11 kilometres out along the south side of the spit and extend eastwards for a distance of nearly 13 kilometres. Despite visits by many botanists, there is little published information on the vegetation of the salt marsh, and its successional development. A visit by the Auckland University Field Club to Farewell Spit from 23-27 May, 1977, provided an opportunity to make observations on the salt marsh vegetation and the results are reported as follows. Nomenclature follows Allan (1961) and Moore and Edgar (1970) for native plants, and the New Zealand Weed and Pest Control Society (1969) for adventives and common names.

VEGETATION DESCRIPTION

The vegetation of the salt marsh follows a pattern of zonation from low to high water mark, depicted in diagrammatic form in Fig. 1. Below the outer limit of the salt marsh communities there are extensive beds of eelgrass (*Zostera muelleri*). The primary colonist is glasswort (*Salicornia australis*), a perennial species, which forms an integrated pattern with eelgrass where they meet. A major factor influencing this transition is probably the nature of the tides although the tidal limits were not measured. However, Davies (1931) records a vertical limit of 9 feet 6 inches to 10 feet (2.9 to 3.1m) above low water mark in Nelson, approximately 85 kilometres to the southeast across Golden Bay and Tasman Bay. Above the transition from eelgrass, glasswort is exposed at lowtide in wide swards across the flats. Examination of the substrate indicated that increasing amounts of sediment are trapped and accumulated by glasswort as one moves from low to high water mark. This has the effect of forming islands and where the substrate has been built up, shore primrose (*Samolus repens*) has invaded the glasswort extensively. Chapman (1974) relates the presence of this species to a shingly substrate and subsequently improved drainage.

In the upper parts of the glasswort zone the composition of the salt marsh is diversified by the appearance of quantities of buckhorn plantain (*Plantago*

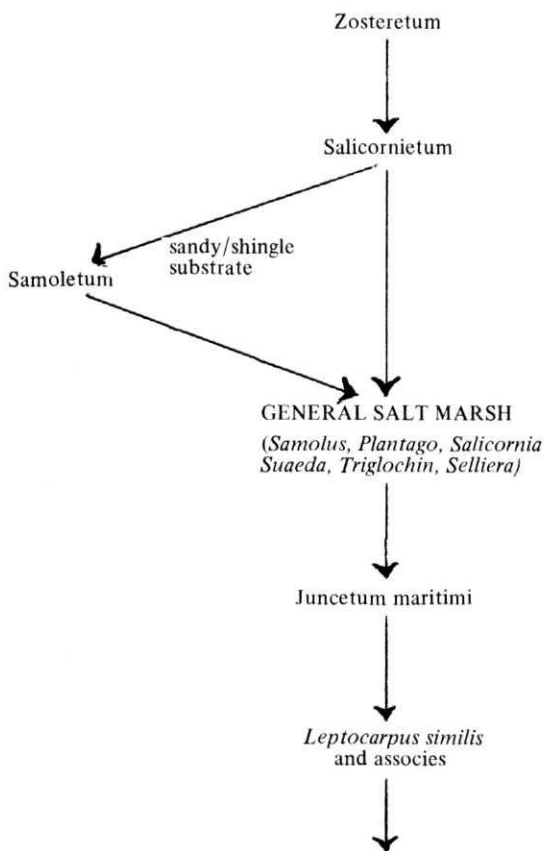


Fig. 1. Generalised flow diagram of development of the vegetation at Farewell Spit. Nomenclature follows Chapman (1974).

coronopus) and *Suaeda novae-zelandiae* with lesser amounts of *Selliera radicans* and *Triglochin striatum*.

Behind this zone the next colonist is sea rush (*Juncus maritimus* var. *australiensis*), followed by a zone of *Leptocarpus similis*. Associated with the *Leptocarpus* are a variety of species including *Schoenus nitens*, *Triglochin striatum*, bachelor's button (*Cotula coronopifolia*), tall fescue (*Festuca arundinacea*), *Zoysia minima* as well as rare plants of sea rush and Maori celery (*Apium australe*). Occasional plants of catsear (*Hypochoeris radicata*) and Yorkshire fog (*Holcus lanatus*) are also present. Shrubs of the salt marsh ribbon wood (*Plagianthus divaricatus*) and sand coprosma (*Coprosma acerosa*) were locally

common. The inner limit of the salt marsh is clearly defined by a wide zone of flax (*Phormium tenax*).

DISCUSSION

The succession of the salt marsh vegetation at Farewell Spit is typical of that found below the lower limit of mangrove distribution at Tauranga (Chapman 1974) and is almost identical to that of Porirua Harbour (Chapman 1974) and Nelson Haven (Davies 1931) on the north and south shores of Cook Strait respectively. An interesting feature of the succession is the presence of the North Island species, bachelor's button (*Cotula coronopifolia*) on the marsh rather than the South Island species, *C. dioica*.

The majority of the species on the marshes were natives and only two adventives were recorded: bachelor's button (*Cotula coronopifolia*) and buckshorn plantain (*Plantago coronopus*). A third adventive, sickle grass (*Parapholis incurva*) was reported as occurring by M.J.A. Bulfin in an unpublished report to the Abel Tasman National Park Board but was not seen during this visit.

Spartina townsendii was not found growing on the main salt marsh, but some isolated plants were seen near the base of the spit. It was first found growing in 1972 in two small stands some 9.5 kilometres apart, and thought to have been established from fragments carried by birds (Simpson 1973). *Spartina* is well known for its ability to modify the vegetation and aid land reclamation (Bascand 1970). It is therefore considered to be undesirable on Farewell Spit and any plants found are destroyed by the park rangers.

Numerous hoofprints, probably those of red deer were observed on the marshes. Thus, despite eradication of sheep and cattle from the spit, it is evident that the salt marsh vegetation, especially glasswort, is still under (possibly considerable) grazing pressure.

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