

File note (Draft as at 11 June 2002; updates as on 25 Nov 2016; 18.3.21)

**Vegetation and threatened plants of the coast near mouth of Mangahume Stream,
south-east of Opunake, South Taranaki**

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Background In 1964, A P Druce collected two CHR specimens of plants with a nationally threatened status on the coast just east of Opunake. The details from the herbarium labels are as follows:

CHR 131036 *Pimelea arenaria* [*Pimelea villosa*] Near Mangahume Stream, Egmont Coast. Cliff with blown sand, only 1 plant seen. May 1964
CHR 131037 *Austrofestuca littoralis* [*Poa billardierei*] Near Mangahume Stream, Egmont Coast. Bare ground on headland, only 1 plant seen. May 1964

Because the sand pimelea of northern New Zealand (*Pimelea arenaria* s.s. renamed as *P. villosa* subsp. *arenaria*) differs morphologically from the sand pimelea of the southern North Island, de Lange et al. (1999) listed the latter as *Pimelea* aff. *arenaria*, under 'taxonomically indeterminate'. (See also NZ Plant Conservation Network http://www.nzpcn.org.nz/flora_details.aspx?ID=193 for discussion on 'subsp. *arenaria*'). It was allotted a conservation status of 'At Risk, Declining'. Sand fescue (*Poa billardierei* *Austrofestuca littoralis*) also has a status of 'At Risk, Declining' (loc. cit.). There are no records of sand pimelea elsewhere in Taranaki, although it is scattered to quite common locally on dunes in Whanganui Conservancy [of Dept. of Conservation] from Castlecliff to Foxton. Sand fescue is unknown now in the whole of Whanganui Conservancy. Apart from Druce's collection at Mangahume, the only known records are from Foxton in 1928 and 1932 (Esler 1978).

The 2002 survey

On April 24 2002, Jim Clarkson of the Stratford Area Office of DOC and I undertook a survey of the coast around the mouth of Mangahume Stream, specifically to try and find the above two species. We walked the length of three bays to the east of the stream mouth, viewing sea-cliff vegetation from the beach. Where dunes had formed at the foot of the cliffs (Fig. 1), we climbed them in search of coastal dune species. In places, these dunes were half the height of the cliffs or more, and generally had a damp or wet dune hollow against the cliff. Dunes reached the cliff tops in the third bay east from Mangahume Stream.

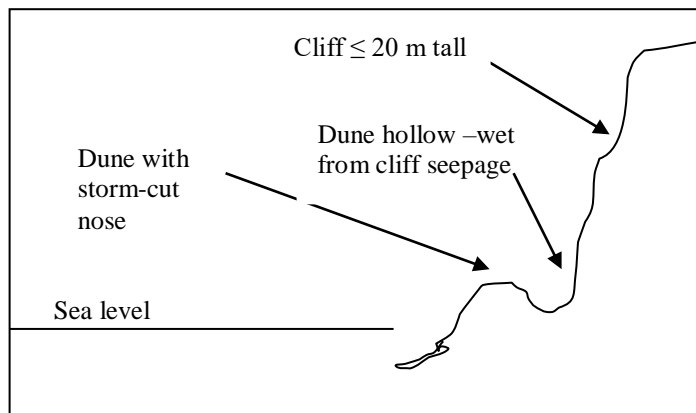


Fig. 1: Sketch of coastal profile in bays east of mangahume stream mouth

Vegetation and landforms

East of Mangahume Stream, indigenous vegetation dominated on the coastal cliffs and headlands, as in many other parts of the South Taranaki coast. The cliffs were ≤ 20 m tall, very steep to vertical, and composed of lahar deposits. They are generally very dry but seemingly permanent seepages occurred in places, with associated moisture-demanding coastal plants. These included sedges (e.g. *Isolepis cernua* and the large, mainly coastal, unnamed species of *Carex* related to *C. geminata*), native grasses (e.g. *Poa anceps*), rushes (e.g. *Juncus planifolius*) and dicot herbs (e.g. a native plantain [*Plantago raoulii*], native lobelia [*Lobelia anceps*] and batchelor's button [*Cotula coronopifolia*]). These are all widespread plants along the Taranaki coast.

It was evident that the sea reached the cliff base in most places at high tide. Closest to the salt influence, the plants low on the cliffs were widespread halophytes such as glasswort (*Sarcocornia quinqueflora*), half-star (*Selliera radicans*) and sea primrose (*Samolus repens*). A sand dune formed the top of the beach in each of three bays that we traversed east of Mangahume Stream. The front edge of the dunes had been cut back by the sea. The dunes were all dominated by marram grass, sometimes to the exclusion of all other vascular plants. The only indigenous specialised dune plants among marram along this section of coast were *Calystegia soldanella* (sand convolvulus), *Lachnagrostis billardierei* (sand bent) and *Isolepis nodosa* (club rush). As stated below, the pingao plants were the result of plantings. Some of the other species in Appendix 1 grow as dune plants elsewhere, but in this section of coast were in fine gravels (e.g. sand carex [*Carex pumila*]) or in sand pockets on cliff ledges (e.g. sand buttercup [*Ranunculus acaulis*]).

At low tide, the mouth of Mangahume Stream spread across the stony beach and was crossed almost dry-shod. At high tide, the stream would need to be swum, as it is confined to a channel between steep hill slopes and cliffs, especially on the true left bank. Narrow river terraces would give easy access to the mouth at all tides on the true right bank. Near a fenced-off urupa on the top terrace of the headland on the true right bank were some native and exotic plantings that been done some years ago. Although we did not explore the stream valley, some patches of harakeke, toetoe and native trees occurred on the steeper parts on both banks.

Threatened plants and other indigenous flora

The list of vascular plants from all habitats is Appendix 1. It reflects the range of hard and soft, wet and dry habitats that we saw and most species were typical of such sites in the district.

We were unable to find any plants of the two plants we particularly went to find, namely sand pimelea and sand fescue. This was not too unexpected, because Druce's records were made nearly 40 years ago, and he saw only one plant of each of these two species. Of other species on the national list of threatened and uncommon plants (de Lange et al. 1999) we saw the native spurge (*Euphorbia glauca*) [status: **At Risk, Declining**], native sowthistle (*Sonchus kirkii*) [status: **At Risk, Declining**] and pingao (*Ficinia* [*Desmoschoenus*] *spiralis*) [status: **At Risk, Declining recovering—conservation dependant**].

Native spurge was locally abundant and at least scattered the full length of coast that we covered east of Mangahume Stream. Mostly it was on ledges and steep slopes of the sea cliffs, but we found several patches on sand where the top of a dune abuts a sea cliff. This is the only place on the Taranaki coast where I have seen native spurge growing on dune sand, although dunes are known to be an important habitat in some other regions, including Chatham Islands. Although not quantified here, the large amount of native spurge must make this one of the most important sites for it in the region. In fact, there are few if any places on the NZ mainland where so much native spurge would be growing over such a small area.

As in many other parts of the South Taranaki coast, the native sowthistle was found on cliff ledges at almost any shaded site with a freshwater seepage. South Taranaki appears to be a national stronghold for this species.

A few clumps of pingao were growing on a steep dune near "Shag Point" (NZMS 260/P20/852917), where they were planted by local people (J Clarkson pers. comm.). Some plants had many vigorous shoots but others appeared to be moribund.

Weeds

Adventive species are listed in Appendix 1, except for planted specimens near the road access to the stream mouth. A couple of the species deserve further comment:

Chilean gunnera (*Gunnera tinctoria*) was listed recently by TRC as a total control weed, and TRC and DoC have started control work along the South Taranaki coast. We climbed one of the dunes east of Mangahume Stream and found and removed a young gunnera plant from a wet ledge near the cliff-top, at about NZMS260/P20/850920. This is the furthest west that Chilean gunnera has been found on the coast, the next known plants being at the end of Puketapu Road near Pihama, some 6 km along the coast to the south-east.

Most significant as being of potential threat to native species on cliffs and/or dunes are pampas grass and boxthorn. Marram grass has occupied most of the dunes, leaving little habitat for indigenous dune plants. However, marram might not have displaced the sand pimelea or sand fescue, at least from the 1960s, because the specimens of those plants were collected from cliffs rather than dunes. It is not known whether the dunes are more or less extensive in the past. If they are pre-European dunes, then they would have had an indigenous flora but, if so, most of this flora was lost many decades ago, probably through marram invasion.

The presence of lily-of-the-valley vine (*Salpichroa origanifolia*) between the urupa and the stream was of interest as a weed previously unrecorded by me or by Druce (1974) on the Taranaki coast. It is a soft vine, usually in waste areas and of no obvious threat to conservation values – it is locally common in Wanganui city. Not a significant weed, but of some interest as a ~~potentially~~ new weed record for ~~New Zealand, Wanganui Conservancy, was an as yet unidentified~~ *Cotula lineariloba-discolor* (Manning et al. 2013), a species of ~~South African~~ daisy that had spread into rough pasture over a mound of lahar stones near the urupa. It had creeping, almost woody stems, finely dissected grey leaves and flower heads with white rays and a yellow disc. It is likely this daisy was planted originally and it is probably spreading only vegetatively here.

Conclusions

1. The coast for about 1 km south-east of Mangahume Stream is significant for
 - the variety of landforms, including the unusually extensive dunes against the sea cliffs;
 - the large amount of the nationally declining sea spurge – perhaps the largest single population in Taranaki site for it, and including what might be the only Taranaki site with it on dunes;
 - occurrence of other nationally threatened or uncommon plants, namely native sowthistle (locally common in this site) and pingao (small population established by planting);
 - being the last (and only) known sites in Taranaki with the nationally declining plants, sand pimelea and sand fescue (see #3, below).

2. Several weeds are a potential threat, but the only urgent need is for more survey and then eradication of any Chilean gunnera.
3. While it is not possible to state for sure that sand pimelea and sand fescue no longer occur near the Mangahume Stream, it seems likely that they have become extinct here and hence no longer occur naturally in Taranaki. However, these plants should be kept in mind when other management occurs here, such as Chilean gunnera control. Other people with a knowledge of these two species might be encouraged to undertake further searches.

Acknowledgements

My thanks to Jim Clarkson for initiating this project and his assistance during the field work, and to the landowners for allowing us access to the mouth of Mangahume Stream; also to Peter Heenan, Helen Greenep and other staff of CHR for extracting early records of plants collected at this site

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List of vascular plants recorded on coast south-east of Opunake, South Taranaki, in vicinity of Mangahume Stream and about 1 km to the east.

24 April 2002

Wanganui Plant List 146

Colin Ogle and Jim Clarkson

List excludes species present as planted specimens that are not naturalising

Dicot Trees, Shrubs, Lianes

Calystegia soldanella (sand convolvulus)

Coprosma acerosa var. (sand coprosma) [plants with prostrate form, growing on hard surfaces]

Coprosma repens (taupata)

Coprosma acerosa x C. repens [= C. kirkii]

Corynocarpus laevigatus (karaka)

*Lycium ferocissimum (boxthorn)

~~Macropiper~~ Piper excelsum (kawakawa)

Pimelea arenaria villosa subsp. arenaria (sand daphne, sand pimelea)¹

P. urvilleana carnososa (pinatoro)

http://www.nzpcn.org.nz/flora_search.aspx?scfSubmit=1&scfLatin_Common_Name=Pimelea+carn

*Salpichroa origanifolia (lily-of-the-valley vine)

Tetragonia trigyna (NZ spinach)

*Ulex europaeus (gorse)

Monocot Tree

Cordyline australis (cabbage tree, ti kouka)

Grasses

*Agrostis stolonifera (creeping bent)

*Ammophila arenaria (marram)

~~Cortaderia~~ Austroderia fulvida (toetoe)

Austrofestuca littoralis (sand tussock)²

*Bromus willdenowii (prairie grass)

*~~C.~~ Cortaderia selloana (pampas)

*Dactylis glomerata (cocksfoot)

*Holcus lanatus (Yorkshire fog)

Lachnagrostis billardierei (sand bent)

*Lagurus ovatus (hare's tail)

*Lolium ~~Schedonorus phoenix~~ arundinacea (tall fescue)

Poa anceps ssp. anceps

Poa pusilla

Sedges

Carex flagellifera ?

C. geminata agg. [all(?) "large" sp.]

C. pumila (sand sedge)

Cyperus ustulatus (mariscus)

Ficinia nodosa (club rush)

~~Desmoschoenus~~ Ficinia spiralis (pingao) [established from planted specimens]

Isolepis cernua

~~I. nodosa (club rush)~~

¹ CHR 131036 *Pimelea arenaria* Near Mangahume Stream, Egmont Coast. Cliff with blown sand, only 1 plant seen. May 1964. A P Druce

² CHR 131037 *Austrofestuca littoralis* Near Mangahume Stream, Egmont Coast. Bare ground on headland, only 1 plant seen. May 1964. A P Druce.

Rushes

- **Juncus articulatus* (jointed-leaved rush)
- Juncus planifolius*

Monocot herbs other than grasses, sedges, rushes

- Lemna **disperma** sp. (~~L. minor of NZ authors~~)
- Phormium tenax* (harakeke, NZ flax)

Dicot herbs

- **Anagallis arvensis* (scarlet pimpernel)
- Apium prostratum* subsp. *australe* (sea celery)
- **Atriplex prostrata* (orache)
- Colobanthus muelleri*
- *~~*Conyza albida* (fleabane)~~
- **Coronopus didymus* (twin cress)
- Cotula coronopifolia* (batchelor's button)
- **Cotula discolor* (button daisy) – First NZ record in the wild
- Disphyma australe* (NZ iceplant)
- **Erigeron sumatrensis* (fleabane)
- Euphorbia glauca* (NZ spurge)
- **Fumaria muralis* (fumitory)
- **Gunnera tinctoria* (Chilean rhubarb) [1 plant, removed]
- Hypochoeris radicata* (catsear)
- Lagenifera pumila*
- **Leontodon saxatilis* (*L. taraxacoides*) (hawkbit)
- Leptinella squalida* s.s.
- Lilaeopsis novae-zelandiae/ruthiana* (tape-measure plant)
- Linum monogynum*
- Lobelia anceps*
- **Lotus pedunculatus* (lotus major)
- **Lotus suaveolens* (hairy lotus)
- **Lythrum hyssopifolia* (loosestrife)
- **Nasturtium* sp. (watercress)
- **Plantago australis* (swamp plantain)
- P. raoulii* agg. [broad-leaved, fleshy]
- Ranunculus acaulis* (sand buttercup)
- **Ranunculus repens* (creeping buttercup)
- *~~*Rorippa* sp. (watercress)~~
- **Rumex acetosella* (sorrel)
- **Sagina procumbens* (pearlwort)
- Samolus repens* (sea primrose)
- Salicornia quinqueflora* (glasswort)
- Selliera* (*Goodenia*) *radicans* (half-star)
- **Senecio elegans* (purple groundsel)
- Senecio lautus*
- **Silene gallica* (catchfly)
- Sonchus kirkii*
- **Sonchus oleraceus* (puwha)
- **Trifolium repens* (white clover)

Ferns

- Adiantum cunninghamii* (maidenhair fern)
- Blechnum blechnoides*
- Blechnum triangularifolium* (cliff kiokio)