

Vascular plants and vegetation of Makerua Swamp Wildlife Management Reserve, Tokomaru.

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Based on visits 9.2.83, 5.4.91,

Wanganui Plant List 29

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1. Vegetation

The external appearance of Makerua Swamp is of a relatively uniform flax swamp with scattered emergent cabbage trees and pockets of Carex sedges and Juncus rushes. While there is clearly a preponderance of adventive plants in the flora of the swamp, the vegetation structure is dominated by native species, except for the grazed pasture and willow forest. There is a surprising absence of terrestrial ferns.

The main plant communities are

cabbage tree/flax	: tree tussockland (abundant)
<u>Carex virgata</u> - <u>Carex lessoniana</u>	: sedgeland (common between flax areas)
<u>Juncus</u> spp.	: rushland (most common around swamp margins)
<u>Coprosma</u> spp. - <u>Melicytus micranthus</u> /sedges	: shrubland (small areas among flax)
Tall fescue - creeping bent - kneed foxtail - Yorkshire fog (etc)	: pasture (mostly around margins of swamp)
Crack willow/pasture	: forest (mostly near southern boundary)

To judge the regional importance of Makerua Swamp, its vegetation and flora were compared with that described for the Manawatu as a whole in "Botany of the Manawatu" (A E Esler 1978). Esler estimated that the Manawatu had over 8,000 ha of swampland last century, and considered such swamps to have been a major feature of the landscape. Now "very little remains of the swamps of the Manawatu except for limited areas near the coast". As Makerua is inland, its importance as an historical, landscape and botanical vestige seems clear.

Esler cited comments by Kettle (1842) on the Makerua Swamp, including his observations on the toitoi (sic) in this area. Toetoe (Cortaderia toetoe) appears absent from Makerua now. A survey map of 1859 is referred to by Esler, and notes for Makerua show that the swamp had herbaceous vegetation then ("flax, toetoe, raupo, rushes, etc"), rather than swamp forest. This is similar to the present vegetation structure, with the addition of an area of willows and the appearance of cabbage trees.

2. Flora

In terms of plant species present, Makerua Swamp is not especially diverse. The uniformly flat topography, and the lack of permanent open water and true marshy areas contribute to the lack of plant variety. Nevertheless, there are some species whose present here is of some note regionally, e.g.:-

Coprosma tenuicaulis: very local in the Manawatu, except on Kahuterawa Flat (Esler 1978). Scattered groups of shrubs comprising 3 Coprosma spp. occur among flax at Makerua.

Melicytus micranthus (small-leaved mahoe): fairly infrequent in the Kairanga County, but is the main shrub in some forest remnants between Feilding and Sanson (ibid). Only a few plants at Makerua, all with Coprosma species.

Dichondra "brevifolia": has been noted in hill country pastures in a few places (ibid). This "species" is now known to be an aggregate of several, possibly unnamed species, and the swamp plants in Makerua might not be the same species as Esler's hill country plants). Plants at Makerua were on grazed turf hummocks in 1983.

Urtica linearifolia (swamp nettle): Esler cites Round Bush, Himatangi Bush, and Pukepuke lagoon as the only places known to him, but quotes Cheeseman's 1925 'Manual of the New Zealand Flora' for plants at Makurerua (=Makerua) Swamp. It is, in fact, not clear whether Esler had visited Makerua Swamp himself; swamp nettle is locally common here now, and it is unlikely that he would have missed this species had he been here.

Viola lyallii (NZ swamp violet): Esler knew this species at one place only - Himatangi Beach. It occurs at Makerua most commonly in the Coprosma - Melicytus scrub stands.

Carex dipsacea: known to Esler near Himatangi Bush only, although he acknowledged that the species might have been overlooked elsewhere. Plants are not common at Makerua, but grow under Coprosma scrub.

Carex secta var. secta: Esler states that this species is in swampy places throughout the Manawatu, but is "now uncommon except on the margins of coastal lagoons". The species is uncommon at Makerua also. It is important to note that studies of spotless and marsh crakes at Pukepuke Lagoon have highlighted C. secta as the plant in which these crakes build their nests.

Hoheria angustifolia (narrow-leaved lacebark): Esler states "Now rather uncommon" in the Manawatu. A grove of about 10 shrubs was found at Makerua in 1991, mostly 2 - 3 m tall, all with adult foliage terminally, but divaricating branchlets and juvenile leaves on lower parts of the stems. The grove is among flax and Coprosma shrubs in the northern corner of the reserve.

Gahnia xanthocarpa: "now restricted to a few places" in the Manawatu, according to Esler; a few scattered plants were found among pasture on the north-west edge of the flax stands, in the northern corner of Makerua Swamp in 1991. None of the plants had seed-heads, and the individual plants were small, for this species.

Among exotic plants at Makerua, Cardamine pratensis was noted by Esler as being regionally local in occurrence, while Ceratophyllum demersum and Alisma lanceolata at Makerua appear to be new records for the Manawatu. Lolium multiflorum was noted by this survey of Makerua, although Esler stated that he knew only hybrids with L. perenne in the region. The pear tree (Pyrus communis) at Makerua might have been deliberately planted rather than adventice to that site. Esler did not record pears as a wild species in the Manawatu.

3. List of Plants

Dicot trees and shrubs

Coprosma propinqua var. propinqua	
C. rigida	
C. tenuicaulis	
Hoheria angustifolia	narrow-leaved lacebark
Melicytus micranthus	small-leaved mahoe
Pittosporum tenuifolium var. tenuifolium	kohuhu
*Pyrus communis	pear
*Salix fragilis	crack willow

Dicot lianes

Calystegia sepium agg.	convolvulus
Muehlenbeckia complexa	small-leaved pohuehue
*R. fruitcosus agg.	blackberry
*R. laciniatus	cut-leaved blackberry
Rubus cissoides x R. australis	bush lawyer (hybrid)
*Solanum dulcamara	bittersweet

Dicot herbs

*Anagallis arvensis	scarlet pimpernel
*Bidens frondosa	beggar's ticks
*Callitriche stagnalis	starwort
* Cardamine pratensis	cuckoo cress
C. sp. (unnamed, C. debilis agg., "Narrow Petal" of Pritchard 1957)	bitter cress
*Cerastium glomeratum	mouse-eared chickweed
*Ceratophyllum demersum	hornwort
*Cirsium arvense	Californian thistle
*C. vulgare	Scotch thistle
*Conium maculatum	hemlock
*Conyza bilbaoana (?)	fleabane
*Coronopus didymus	twin cress

Cotula coronopifolia	batchelor's button
Dichondra sp. (unnamed, D. brevifolia agg.)	
*Galega officinalis	goat's rue
*Galium palustre	marsh bedstraw
Gnaphalium gymnocephalum	cudweed
G. involucratum	cudweed
*G. sp. (recorded as G. americanum in 1983 visit)	cudweed
Hydrocotyle novae-zeelandiae	marsh pennywort
*Hypochoeris radicata	cat's ear

*Leontodon taraxacoides
 *Lepidium sp.
 *Lotus pedunculatus
 *Mentha pulegium
 *Myosotis laxa var.
 caespitosa
 Myriophyllum propinquum
 Oxalis exilis
 *Plantago major
 *Polygonum aviculare
 *P. hydropiper
 P. salicifolium
 *Prunella vulgaris
 *Ranunculus repens
 *R. sceleratus
 *Rorippa nasturtium-aquaticum
 R. palustris
 *Rumex conglomeratus
 *R. crispus
 *Senecio jacobaea
 *Solanum nigrum
 *Spergularia rubra
 *Stellaria graminea
 *S. media
 *Sonchus asper
 *Taraxacum officinale
 *Trifolium repens
 Urtica linearifolia
 Viola lyallii

hawkbit

 lotus major
 pennyroyal

 water forget-me-not
 water milfoil

 broad-leaved plantain
 wire-weed
 water pepper
 willow-weed
 self-heal
 creeping buttercup
 celery-leaved butercup
 watercress

 clustered dock
 curled dock
 rag wort
 black nightshade
 sand spurry
 stitchwort
 chickweed
 prickly sowthistle
 dandelion
 white clover
 swamp nettle

Monocot Tree

Cordyline australis

cabbage tree

Grasses

*Agrostis capillaris
 *A. stolonifera
 *Alopecurus geniculatus
 *A. pratensis
 *Bromus hordeaceus
 *Dactylis glomerata
 *Festuca arundinacea
 *Glyceria declinata
 *Holcus lanatus
 *Lolium multiflorum
 *L. perenne

browntop
 creeping bent
 kneed foxtail
 meadow foxtail
 soft brome
 cocksfoot
 tall fescue
 floating sweetgrass
 Yorkshire fog
 Italian ryegrass
 perennial ryegrass

*Phalaris arundinacea
*P. sp (P. minor?)
*Poa annua

reed canary grass
canary grass
annual poa

Rushes

*Juncus articulatus
J. gregiflorus
J. sarophorus

jointed-leaved rush

Sedges

Carex dipsacea	
C. lessoniana	
C. secta var. secta	
C. virgata	
*Cyperus eragrostis	
C. ustulatus	mariscus
Gahnia xanthocarpa	
Isolepis sp.	

Other Monocots

*Alisma lanceolatum	water plantain
Lemna sp. (L. minor auct)	duckweed
Phormium tenax	
Potamogeton crispus	curled pondweed
Typha orientalis	raupo

Gymnosperm

Dacrycarpus dacrydioides	kahikatea
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Fern

Azolla filiculoides	
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Species Totals

	<u>Indigenous</u>	<u>Adventive</u>	<u>Totals</u>
Dicotyledons	21	42	63
Monocotyledons	13	19	32
Gymnosperm	1		1
Fern	1		1
	—	—	
	36	61	97
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