Water Plants of the Wellington Region

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As a consequence of the hilliness of the Wellington landscape and a plentiful supply of rain, streams flow rather rapidly. Most waterways are permanent as droughts tend not to last long enough to let them dry up completely. Storms which occur several times annually can cause immense damage to plant life in or near waters. There is a fairly high concentration of urban communities on the flatter areas with a consequent increase in eutrophication. With urbanisation has come the need to drain many swamps and to straighten water courses so the whole area is not particularly suited to the maintenance of a large aquatic flora. Where the human population is large water plant-life tends to be dominated by adventive species.

Algae of numerous species are common in our area. Many are invisible to the naked eye because of their microscopic size but can be seen where they exist in sufficient concentrations. Most are types of green algae although some are of the blue-green group (cyanobacteria). Red algae are scarce in fresh water.

Of the charads, *Nitella hookeri* is the commonest especially in the Hutt Valley where it occurs in shaded or open still water. *N. hyalina* is a much smaller plant. *Chara corallina* and *Lamprothamnium papulosum* have been reported from the lakes at Pencarrow.

Because of their relatively uncomplicated structure many bryophytes are found growing in water. *Amblystegium riparium* is a fairly common water moss which is easily overlooked when growing among other plants. *Fissidens* species often grow in sheets on wet rocks around waterfalls. A locally uncommon *Drepanocladus* occurs in wet places on the southern coast. *Philonotus tenuis* with its yellow-green leaves that repel water is widespread on wet rocks. Sphagnum moss has become less common now that the Mangaroa Swamp has been drained. It is a plant of cold areas more or less exposed to the sun. Umbrella mosses need the shade of the forest and protection from drying winds to develop their full beauty while *Cratoneuropsis relaxa* and *Tridontium tasmanicum* need more open sites. *Thamnobryum pandum* is an uncommon species that lives near waterfalls. Except for their typical moss capsules some of the members of the Hookeriaceae could be mistaken for leafy liverworts. Species of *Achrophyllum* are examples.

Most of the liverworts require a very damp habitat, especially the larger species. However, the following thalloid liverworts are more likely to be found under water locally. *Riccardia* and *Aneura* are two genera whose members delight in wet places and *Monoclea forsteri* is a very large liverwort with a similar habitat. *Riccia fluitans* with a slender, much branched thallus is uncommon

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about Wellington. I have seen only small scraps of it caught up in filamentous algae on stones in the Pencarrow Lakes.

Among ferns found near water *Blechnum minus* must be the commonest as it grows in sun or light shade, provided its roots are forever damp. Deeper in the bush and often hanging from wet cliffs is a larger form of possibly the same species. Another fern of damp vertical banks is *B. colensoi*. The Prince of Wales feather fern (*Leptopteris superba*) is very dependant on water. Direct sunlight and drying winds quickly spoil the fronds which like an atmosphere of maximum humidity. A fern ally that prefers a sunny position where it can float on still water is *Azolla filiculoides.*

Mixed with *Azolla* one often finds the strange little duckweeds which are really very small flowering plants. *Lemna minor* is the most common and it occurs on seepages as well as on standing water. *Spirodela punctata* is a similar plant that is usually tinged purple while *Wolffia australina* is the smallest, consisting of a plant body about 1 mm long.

We have several buttercups inhabiting watery places. Along the coast where there are seepages, patches of *Ranunculus acaulis* can be found. *R. amphitrichus* is another species sometimes occurring in shallow water where the long-petioled leaves sometimes float on the surface. *R. macropus* is a larger and rarer version of the previous one. An adventive species, *R. sceleratus*, is an erect growing species whose younger leaves float on the surface. This plant has no stolons. With white flowers, *R. trichophyllus* has finely divided submersed leaves. Whether *R. limosella* is a permanent resident or brought in from time to time by waterfowl from Lake Wairarapa is doubtful. Only a centimetre or so high it creeps along a silty substrate in shallow water. When the water level lowers in the summer strange little flowers emerge from the warm mud. The real *Limosella*, *L. lineata* is a member of the Scrophulariaceae which has several species growing in water. *L. lineata* can grow under water or on damp ground. It spreads by stolons and has small white flowers in sunny places. Ducks seem to carry the tiny seeds with them when they pay visits to new feeding areas so the plant is widely distributed but in little colonies.

Glossostigma elatinoides is a related plant with creeping stems and seems a permanent resident in the Pencarrow Lakes while *G. diandrum* seems to come and go. When the water level lowers many small flowers are produced on the carpets of foliage. A much larger plant is *Gratiola sexdentata* which doesn't creep at all. It is rare in the Wellington area. It has white tubular flowers produced on leafy stems which grow up out of the water.

Jovellana repens is perhaps not a water plant although it grows on damp banks and rocks along streams in the bush. It has small white flowers spotted with purple that are velvety inside.

A different plant again is *Elatine gratioloides*, a small, much branched herb that grows mainly in the Pencarrow area. Although a perennial, its soft texture

makes it easily damaged by ducks. Its small flowers can be produced under water. Possibly they are cleistogamic. If the water level is lowered the whole plant assumes a reddish hue in the sun.

Mazus novae-zelandiae is a delightful small rosette plant with small white snapdragon flowers. It needs damp ground in sun or light shade. *Mimulus repens* is becoming rarer in the Wellington area. It grows near the coast where conditions are slightly saline. Lavender-pink flowers with yellow throats are freely produced in summer.

Cotula coronopifolia is a very adaptable plant. In dry positions it is an annual flourishing only during the wetter months but if it grows in water it can be a perennial. The bright yellow button flowers make it an attractive plant. Most of our native cotulas have now been put in a new genus of their own, *Leptinella*. The Wellington area is rich in members of this genus. *L. dioica* var. *monoica* is a creeping plant of damp ground in river estuaries. Usually it grows in areas affected by the tides so that many of the plants are under water twice a day. Unfortunately it has vanished from its type locality at Makara but material from there has been established on the banks of a stream flowing into the Hutt River just below the railway bridge between Ava and Melling. *L. dispersa* is confined to the Pencarrow area whereas *L. tenella* occurs in little patches in widely separated damp spots.

We have two droseras that like cool wet positions in the sun where the leaves turn bright red. *D. stenopetala* occurs mainly among sphagnum on the Marchant Ridge and *D. binata* is a plant of lower levels where it seems to be decreasing. Considering the numbers of suitable wet places it seems strange that parataniwha (*Elatostema rugosum*) is not more widespread. Most or all of the local colonies have been introduced. It is a large herb of wet places in the bush.

Gunnera monoica rosettes spread by means of stolons on very wet banks along with several species of *Nertera. N. depressa* is the most widespread but *N. scapanioides* used to exist near the Mangaroa Swamp (Fig. 1). *Montia fontana* occurs here and there. Some of this species is thought to be adventive. Several species of *Epilobium* are scattered here and there and *Triglochin striatum*, a rather inconspicuous plant with linear leaves, occurs usually near the sea.

In deep water three *Potamogeton* species occur. *P. cheesemanii* with lanceolate membranous underwater leaves and oval floating leaves is the most frequent. As its creeping stems are buried in the bottom mud they are able to survive periods of drought. *P. cheesemanii* is usually pigmented a rich brown as is *P. ochreatus* but the latter has only submersed leaves that are entire and have parallel sides. The taller this plant grows and the more it branches, the smaller its leaves become. *P. pectinatus* has very slender under water leaves only and seems to be very rare in the Wellington district.

Two native species of *Myriophyllum* occur in scattered locations. Both have finely divided submerged leaves and small aerial leaves, those of *M. propinquum*

Fig. 1. The fruit of *Nertera scapanioides* are a bright orange-red. This plant was from the edge of Mangaroa Swamp. Photo: B. V. Sneddon.

are narrow and entire while *M. triphyllum* has aerial leaves that are broader and somewhat toothed.

Pratia perpusilla must be near extinction locally. It is able to grow submerged without flowering in clear water where adequate light can penetrate. It needs air and sunshine to persuade it to flower.

In coastal areas where saline conditions obtain, one can see large mats of *Sarcocornia quinqueflora* whose fleshy stems turn shades of red and orange. In similar places are patches of *Samolus repens* and *Selliera radicans* each with its distinctive white flowers. *Ruppia polycarpa* with leaves like green hair occurs in coastal lagoons but is not plentiful. *Zostera muelleri* is our only flowering plant growing in salt water. Recently, a small colony of *Suaeda novae-zelandiae* was located amongst saltmarsh plants on the western side of Houghton Bay.

Two members of the carrot family, Apiaceae, occur around our coasts and slightly inland. *Eryngium vesiculosum* our native sea holly seems to have died out on the south coast except near the Pencarrow Lakes. It produces leaves of two forms; the summer ones are broad and prickly-margined to withstand the sun and drying soil while the winter leaves are parallel-sided and septate. A *Lilaeopsis* species occurs in coastal places where there is some fresh water seepage and is also found somewhat inland. In sunny spots the leaves are short and linear with septa. When the plant grows under water the leaves are several cms long.

On the south coast two water loving species of *Crassula* grow. *C. moschata* is a larger plant than *C. kirkii*. Both are becoming rarer.

The largest of the truly aquatic monocotyledons must be the raupo, *Typha orientalis* which is not very common in our region because there is a lack of suitable habitat. *Phormium tenax* is more widespread as it is not so dependant on water. *Carex virgata* is a sedge growing in wet conditions. Rushes are a

prominent feature of our landscape and *Baumeas* are the rarest of these. *B. tenax and B. rubiginosa* are present in small amounts. *Juncus* spp. are common – one growing near the sea is *J. maritimus* var. *australiensis.* Members of the genus with distinct leaves are *J. articulatus* and the introduced *J. bufonius*. The restiad jointed rush, *Leptocarpus similis,* occurs near the sea. Bathed in strong sunlight, its slender stems are often coloured brownish and orange. *Isolepis prolifer* is widespread whereas *I. cernua* is confined to the coast.

Corybas macranthus, a spider orchid, often occurs in damp places. When the habitat includes a moist substrate plus dappled sunlight this small plant can flower quite freely. *Eleocharis acuta* along with *E. gracilis*, which is a similar but rarer plant, are to be found in permanently wet spots.

Several of our trees and shrubs are associated with wet areas. Manuka still grows occasionally in such places although it does not grow as large as it can on drier spots. More at home in wet soil is the white pine, *Dacrycarpus dacrydioides*. The swamp maire, *Syzygium maire*, is a handsome small tree when covered in white flowers or clusters of red berries. *Coprosma tenuicaulis* is a shrub often associated with water. Supplejack (*Ripogonum scandens*) is always at its best in a damp situation. I recall seeing a large dragonfly *Uropetala carovei* ovipositing in a thicket of supplejack in the vicinity of Butterfly Creek. Nikau palms, *Rhopalostylis sapida*, always grow better near a stream where there is a constant supply of water and where, in its earlier stages, its leaves are protected from strong sunlight.

Near human habitation most of the water plants are usually adventives which often grow so rampantly as to exclude smaller native species. *Mimulus guttatus* is often abundant with its showy yellow flowers. *Aponogeton distachyus* has oval floating leaves and strangely beautiful white inflorescence with a sweet almond perfume. Unfortunately it produces many seeds which drift away to form new plants so easily that it becomes a pest. Black swans seem to delight in pulling up the long petioles. Watercress, *Rorippa* sp., is quite common but rarely becomes a nuisance. Because of its size, *Iris pseudacorus* is a possible problem plant along the Waiwhetu Stream but does not seem to be spreading. *Alisma lanceolata* the water plantain occurs here and there but is probably kept in check by waterfowl and other adventive plants. Much less troublesome is *Callitriche stagnalis* while *C. muelleri* is a rather uncommon native plant found on damp ground in the bush at Butterfly Creek.

There is also a group of plants grown by aquarium and pond owners, which find their way into streams. *Elodea canadensis, Egeria densa* and *Lagarosiphon major* are rather similar looking plants in this category. The hornwort, *Ceratophyllum demersum, Potamogeton crispus* and *Myriophyllum aquaticum* are three more rampant adventives. Floating sweet grass, *Glyceria fluitans*, can also become a nuisance at times.