



**NIWA**

Taihoru Nukurangi

# Horizons Regional Council

## Aquatic plant identification course

Paul Champion

NIWA Hamilton







# Submerged species

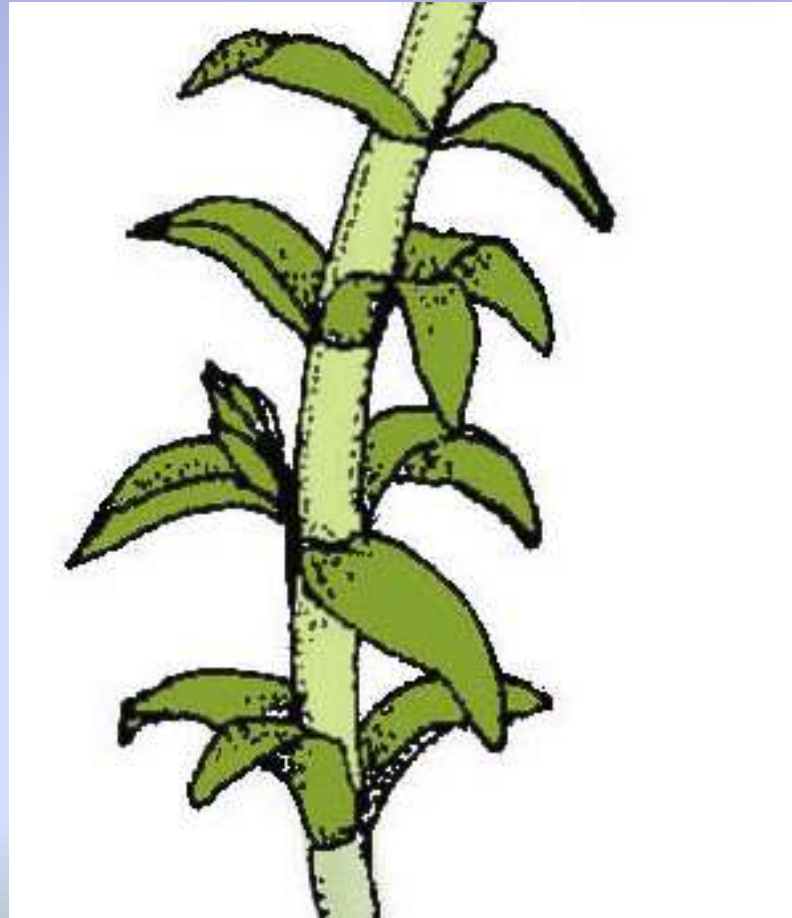




# Identification of submerged plants

*Elodea canadensis*

elodea, Canadian pondweed









# Identification of submerged plants

*Elodea canadensis*

## Key features

Leaves in whorls of 3, up to 1.2 cm long  
Indistinct female flowers (rarely male)

## Distribution

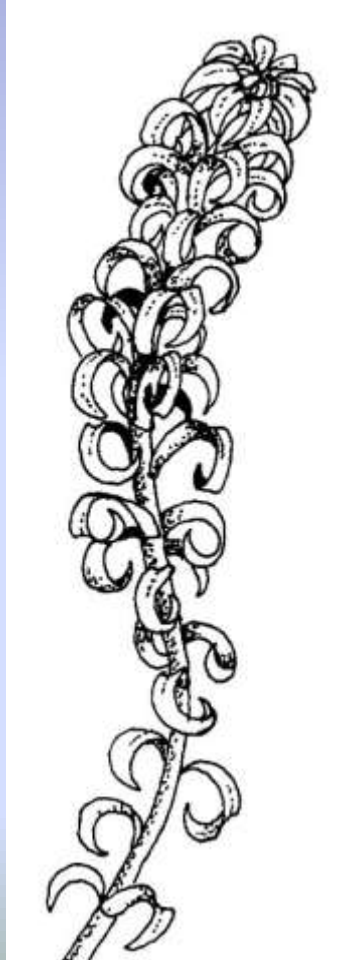
Widespread throughout



# Identification of submerged plants

*Lagarosiphon major*

lagarosiphon









# Identification of submerged plants

*Lagarosiphon major*

## Key features

Leaves not in whorls, alternately arranged

Leaves curled downwards, up to 2 cm long

Indistinct female flowers

## Distribution

Common in North Island



# Identification of submerged plants

*Egeria densa*



egeria









# Identification of submerged plants

*Egeria densa*

## Key features

Leaves mostly in whorls of 4-5 (cf. 3 in *Elodea canadensis*), up to 3 cm long

Acute leaf tip

Distinct white 3-petalled male flowers, 2 cm across

## Distribution

Common in North Island

# Identification of submerged weeds

*Hydrilla verticillata*

hydrilla







# Identification of submerged weeds

*Hydrilla verticillata*

## Key features

Leaves usually in whorls of 4 or more, up to 1 cm long

Leaves often with toothed margins

Tubers and turions present

Indistinct male flowers in leaf axils

## Distribution

Restricted to 4 Hawkes Bay lakes, nearly eradicated



# Identification of pondweeds (*Potamogeton*)

Narrow leaves

Wavy leaves, red  
veins, flattened stem



*P. crispus*



Straight leaves,  
uniform green

*P. ochreatus*

# Identification of pondweeds

Broader leaves



*P. cheesemanii*



# Identification of pondweeds

*Potamogeton crispus*

curled pondweed

## Key features

Leaves alternately arranged

Leaves usually with crimped and waved margin

Main vein usually red

Stem flattened

## Distribution

Widespread throughout

# Identification of pondweeds

*Potamogeton ochreatus*

blunt pondweed

## Key features

- Leaves alternately arranged

- Leaves with flat margin and a blunt tip

- Main vein inconspicuous, leaves uniform green or bronze

## Distribution

- Widespread throughout



# Identification of pondweeds

*Potamogeton cheesemanii*

red pondweed

## Key features

- Leaves alternately arranged

- Submerged leaves broad often with a wavy margin, pale brownish-green, almost translucent, with a conspicuous petiole

- Floating leaves usually present, often brown coloured

## Distribution

- Widespread throughout

# Identification of submerged weeds

*Potamogeton perfoliatus*



clasped pondweed

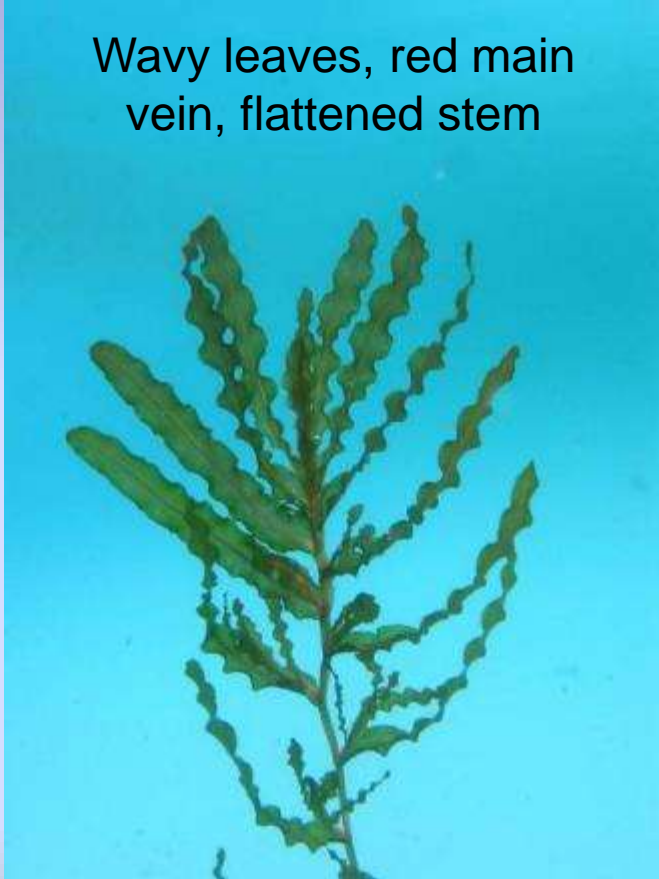




# Identification of submerged weeds

## Narrow leaves

Wavy leaves, red main vein, flattened stem



*P. crispus*

## Broad leaves

Wavy leaves, many veins, rounded stem



*P. perfoliatus*

# Identification of submerged plants

## *Potamogeton perfoliatus*

### Key features

Leaves broad, many veined

Leaves thin translucent, often  
bronze in colour

Leaves clasping stem

### Distribution

Three known South Island sites  
– eradicated?





# Identification of milfoils



*Myriophyllum propinquum*



*M. triphyllum*

# Identification of milfoils

## *Myriophyllum* spp.

### Key features

- Leaves pinnate, arranged in whorls of 3 or 4

### *M. propinquum*

- Submerged leaves shortly petiolate with ovate outline, pinnae straight

- Submerged leaves usually pale green or brown

### *M. triphyllum*

- Submerged leaves sessile with oval outline, pinnae curved

- Submerged leaves usually dark green or bronze

Distribution - widespread throughout



# Identification of submerged species

*Ranunculus trichophyllus*

water buttercup









# Identification of submerged species

*Ranunculus trichophyllus*

## Key features

Leaves alternate, leaves divided many times

Leaves thread-like

Flowers white with yellow centre, 5-petalled

## Distribution

Scattered in southern NI and SI

# Identification of submerged species

*Nitella* sp. aff. *cristata*

*nitella hookeri*





# Identification of submerged species

*Nitella sp. aff. cristata*

## Key features

Plants consist of a main axis of single cells, with whorled branches

Whorled cells branched at end

Usually forms dark green or even black dense masses, often shaded by other macrophytes or marginal vegetation

## Distribution

Widespread throughout

# Identification of submerged plants

*Ceratophyllum demersum*



hornwort







# Identification of submerged plants

*Ceratophyllum demersum*

## Key features

Leaves in whorls, leaves forked once or more

Leaves usually stiff with toothed outer margin

Plants do not produce roots

## Distribution

Widespread in North Island, eradicated from South Island



# Identification of submerged weeds

*Cabomba caroliniana*



cabomba







# Identification of submerged weeds

## *Cabomba caroliniana*

### Key features

Leaves in pairs, leaflets spreading like a fan

Floating leaves occur when plant grows to surface

Flowers white, floating, up to 1.5 cm across

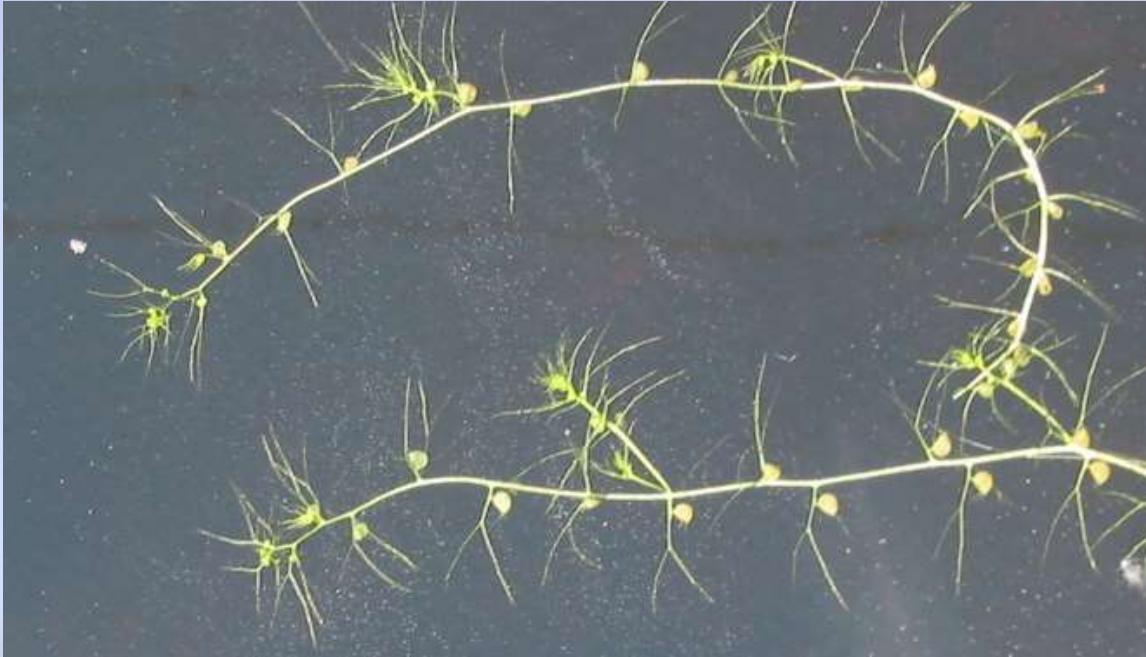
### Distribution

One naturalised site in Paremuka, Henderson, Auckland

# Identification of submerged weeds

*Utricularia gibba*

bladderwort









Waitakere *U. gibba*  
1980



Northland *U. gibba*  
1999



# Identification of submerged weeds

*Utricularia gibba*

## Key features

Plant a dense floating mat, superficially like filamentous algae

Leaves sparsely branched, with attached bladders

Flowers yellow emergent

## Distribution

Common in Northland and Auckland, few sites in Waikato, now in Taranaki

# Identification of submerged weeds

*Vallisneria australis*



eelgrass



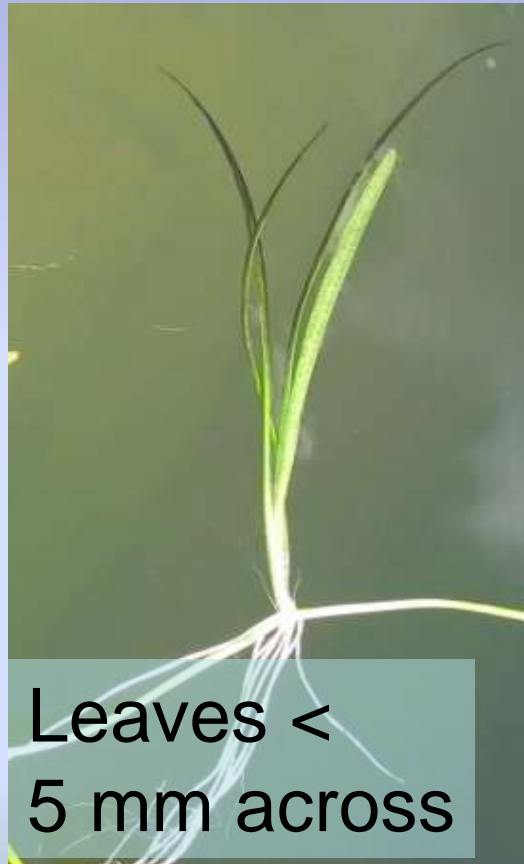






# Identification of submerged weeds

Floating/emergent flowers



*Sagittaria subulata*



*S. platyphylla*

# Identification of submerged plants

*Vallisneria australis*

Submerged flowers

Found in Auckland, Waikato, Wanganui, Wellington and Marlborough

*Sagittaria* spp.

Emergent flowers, tubers (*S. platyphylla*)

Found in Auckland, Waikato and Tasman



# Floating leaved species





# Identification of floating leaved species

*Callitriche stagnalis*

starwort





# Identification of floating leaved species

*Callitriche stagnalis*

## Key features

Floating leaves, pale or light green, in a rosette

Submerged leaves pale, with 3 veins, arranged in pairs

Flowers tiny, in axils of floating leaves, monoecious

## Distribution

Common throughout

# Identification of floating leaved species

*Potamogeton cheesemanii*



red pondweed



*Potamogeton suboblongus*



# Identification of floating leaved species

*Potamogeton cheesemanii*

## Key features

Floating leaves oval, dull green to brown, up to 25 mm long, leaf tip rounded, 5-11 veins evident each side of main vein

Submerged leaves linear, translucent

Flower heads a dense spike floating or projecting above the surface (cf. *P. suboblongus* – floating leaves with pointed tip and 13-21 veins each side of main vein)

## Distribution

Common throughout

# Identification of floating leaved species

*Nymphaea alba* white waterlily









# Identification of floating leaved species

*Nymphaea alba*

## Key features

Plant with long horizontal rhizomes

Floating leaves ~ circular, up to 20 cm across

Flowers many petaled, white (pink, red, yellow)

## Distribution

Throughout, ornamental plantings



# Identification of floating leaved plants

*Aponogeton distachyos*

Cape pondweed



# Identification of floating leaved plants

*Aponogeton distachyos*

## Key features

Plant tuberous, no rhizomes or stolons

Leaves  $\geq 3x$  longer than wide

Flowers a white, two forked spike, very fragrant

## Distribution

Scattered in both islands



# Identification of floating leaved plants

*Ottelia ovalifolia*



swamp lily



# Identification of floating leaved plants

*Ottelia ovalifolia*

## Key features

Plant lacking tubers, rhizomes or stolons

Floating leaves ~2x longer than wide

Submerged leaves strap-like

Flowers 3-petaled, white

## Distribution

Common in coastal North and northern South Islands

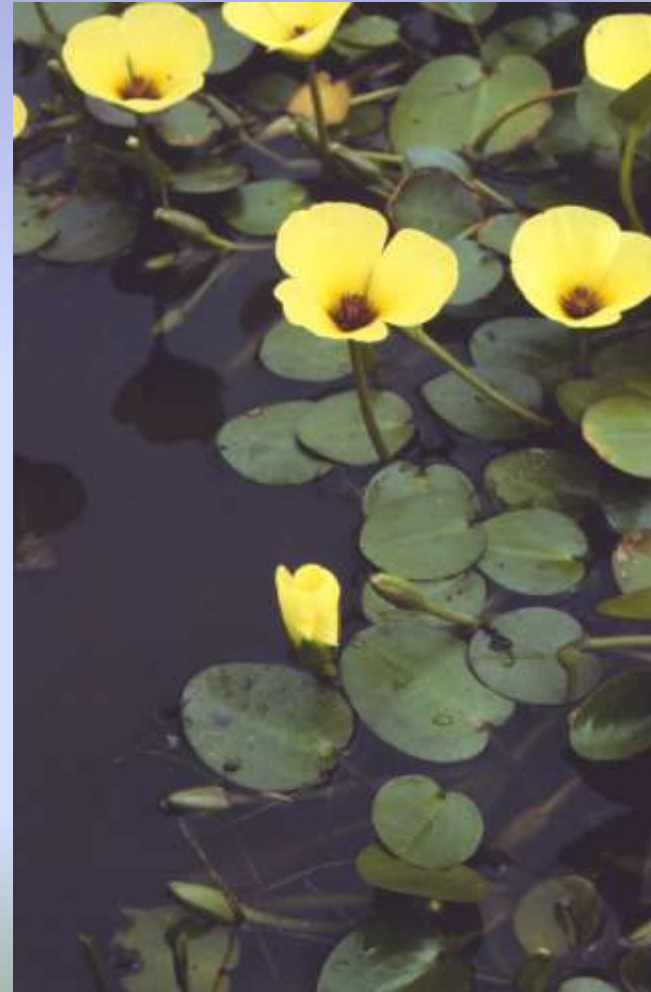


# Identification of floating leaved weeds

*Hydrocleys nymphoides*



water poppy



# Identification of floating leaved weeds

*Hydrocleys nymphoides*

Key features

Plant stoloniferous

Leaves longer than wide,  
lower main vein inflated

Leaves barely notched

Flowers lemon yellow with purple centre

Distribution

Few sites in Northland, Auckland, Waikato and BOP, nearly eradicated





# Identification of floating leaved weeds

*Nuphar lutea*

yellow waterlily









# Identification of floating leaved weeds

*Nuphar lutea*

## Key features

Plant with massive spongy creeping rhizomes

Leaves longer than wide

Submerged leaves thin 'lettuce-like'

Flowers yellow, buttercup-like, up to 6 cm across

## Distribution

Field sites in Hawkes Bay and Canterbury

Other *Nuphar* occasionally cultivated



# Identification of floating leaved weeds

*Nymphaea mexicana*

Mexican waterlily







# Identification of floating leaved weeds

*Nymphaea mexicana*

## Key features

Plant with erect rhizomes and fleshy creeping stolons, with banana-like brood bodies

Leaves ~ circular, purple blotched, often scalloped edges, up to 20 cm across

Flowers yellow, many-petalled, up to 15 cm across

## Distribution

Scattered field sites in Auckland, Waikato, BOP, mostly unmanaged



# Identification of floating leaved weeds

*Nymphoides montana* (was *N. geminata*)      marshwort









# Identification of floating leaved weeds

*Nymphoides geminata*

Key features

Plant with creeping stolons

Leaves ~ circular, lacking distinct main vein beneath, up to 10 cm across

Flowers yellow, 5- petalled with fringe of hairs on margins, up to 4 cm across

Distribution

Few field sites in Auckland, Waikato, BOP, Wellington, Nelson-Marlborough & Canterbury, mostly eradicated



# Identification of floating leaved weeds

*Nymphoides peltata*



fringed waterlily





# Identification of floating leaved weeds

*Nymphoides peltata*

Key features

Plant with creeping stolons

Leaves ~ circular, margin scalloped, lacking distinct main vein beneath, up to 10 cm across



Flowers golden yellow, 5- petalled with entire fringe, up to 4 cm across

Distribution

One field site in Auckland, pond sites in Hamilton, eradicated

# Erect emergent species





# Identification of erect emergent species

*Alisma* species



*Alisma lanceolatum*



water plantains



*Alisma*  
*plantago-aquatica*







# Identification of erect emergent species

*Alisma lanceolatum*

## Key features

Leaves lanceolate, petiole 'D' shaped

Flower heads many-branched, open, much larger than leaves

Flowers 3-petalled, pink

(cf. *A. plantago-aquatica* with pale lilac flowers and wider broad-ovate leaves)

## Distribution

Locally common in eastern and southern NI

# Identification of erect emergent species

*Iris pseudacorus*

yellow flag









# Identification of erect emergent species

*Iris pseudacorus*

## Key features

Leaves sword-shaped, edges smooth, basal area usually tinged purple

Rhizomes thick, corky, ~ 3 cm diameter

Flowers yellow, typically iris-shaped, produced in spring

## Distribution

Widespread



# Identification of erect emergent species

*Typha orientalis*

raupo



# Identification of erect emergent species

*Typha orientalis*

## Key features

Leaves dull blue-green, grass-like, but edges smooth and leaf spongy, up to 3 m long, 3 cm wide

Flower heads an erect continuous brown sausage-shaped spike (female flowers), up to 20 cm long, 5 cm wide, with a narrower pale (male) spike above

## Distribution

Common throughout



# Identification of erect emergent weeds

*Lythrum salicaria*

purple loosestrife









# Identification of erect emergent weeds

*Lythrum salicaria*

## Key features

Stems 4 to 6-sided, not mint scented

Leaves opposite, not toothed, sessile with a clasping base

Flowers purple, arranged in a showy terminal spikes

## South Island distribution

Scattered, a few sites around Christchurch, especially New Brighton and Tai Tapu, ornamental sites elsewhere. Targeted for eradication.

# Identification of erect emergent plants

*Sagittaria montevidensis/sagittifolia*  
arrowhead



*S. montevidensis*



*S. sagittifolia*



*Sagittaria montevidensis*

arrowhead









# Identification of erect emergent plants

*Sagittaria montevidensis*

## Key features

Leaves arrow-shaped, stems semi-circular

Flowers white with a basal purple dot, in whorls

Plants lack a horizontal rhizome and tubers



## Distribution

Two field sites in Auckland, two in Waikato,  
ornamental pond sites elsewhere

# Identification of erect emergent plants

*Sagittaria sagittifolia*

Key features

Leaves arrow-shaped, stems triangular

Flowers lacking in New Zealand

Plants with a horizontal rhizome and tubers



Distribution

One field sites in  
Coromandel, cultivated  
elsewhere





# Identification of erect emergent plants

*Sagittaria platyphylla*

sagittaria









# Identification of erect emergent plants

*Sagittaria platyphylla*

## Key features

Leaves lance-shaped, stems triangular

Flowers white, on stalks  $\pm$  leaves

Plants with a horizontal rhizome and tubers

## Distribution

Few field sites in Auckland and Waikato,  
ornamental pond sites elsewhere

# Identification of erect emergent weeds

*Phragmites australis*



phragmites





# Identification of erect emergent weeds

*Phragmites australis*

## Key features

Tall bamboo like grass, up to 3 m tall

Thick far-reaching rhizomes

Leaf lacking a petiole, often aligning in one direction

Flower head purple, silky to 40 cm long

## South Island distribution

Scattered, a few sites around Christchurch (Bexley, Hagley Park) and Ashburton, under national eradication programme.

# Identification of erect emergent weeds

*Phragmites karka*







# Identification of erect emergent weeds

## *Phragmites karka*

### Key features

Tall bamboo like grass, up to 6 m tall

Perennial

Thick far-reaching rhizomes

Leaf lacking a petiole

Flower head purple, silky to 40 cm long

Very similar to *Arundo donax*, more upright

### Distribution

Auckland and Manawatu

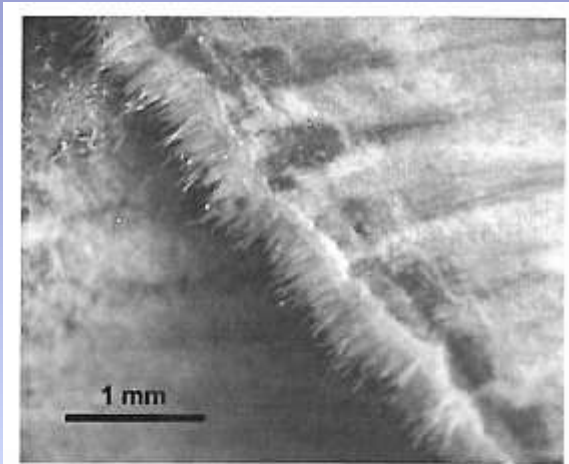


Fig. 4. Ligule of *Phragmites karka*, Tahapa East Reserve, 5 June 2011. Photo: Mike Wilcox.

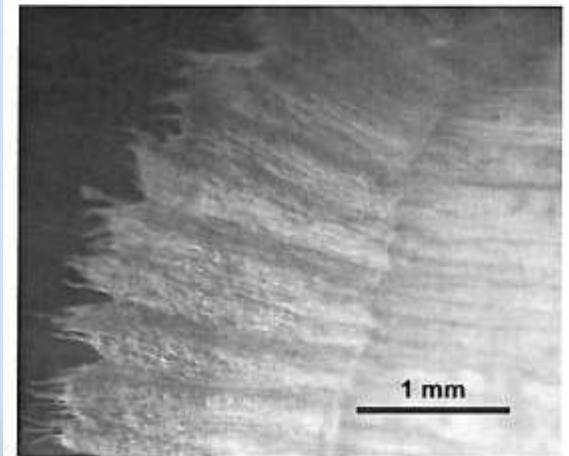


Fig. 5. Ligule of *Arundo donax*, Monarch Reserve, Hillcrest, Auckland, 13 July 2011. Photo: Mike Wilcox.



# Identification of erect emergent weeds

*Arundo donax*



giant reed



# Identification of grass-leaved plants

*Arundo donax*

## Key features

Tall bamboo like grass,  
up to 6 m tall. Often variegated  
Thick far-reaching  
rhizomes  
Leaf lacking a petiole

## Distribution

Throughout, commonest in north





# Identification of erect emergent weeds

*Phragmites australis*



*Arundo donax*



Very hard to distinguish vegetatively, both are on NPPA

# Identification of erect emergent weeds

Bamboo – *Pseudosasa japonica* (was *Arundinaria japonica*)

Note petiole





# Identification of erect emergent weeds

*Zizania latifolia*

Manchurian wild rice











# Identification of erect emergent weeds

## *Zizania latifolia*

### Key features

Tall leafy grass, up to 4 m tall

Thick far-reaching rhizomes

Leaves basal up to 2 cm wide, with a long (4 cm) membranous ligule

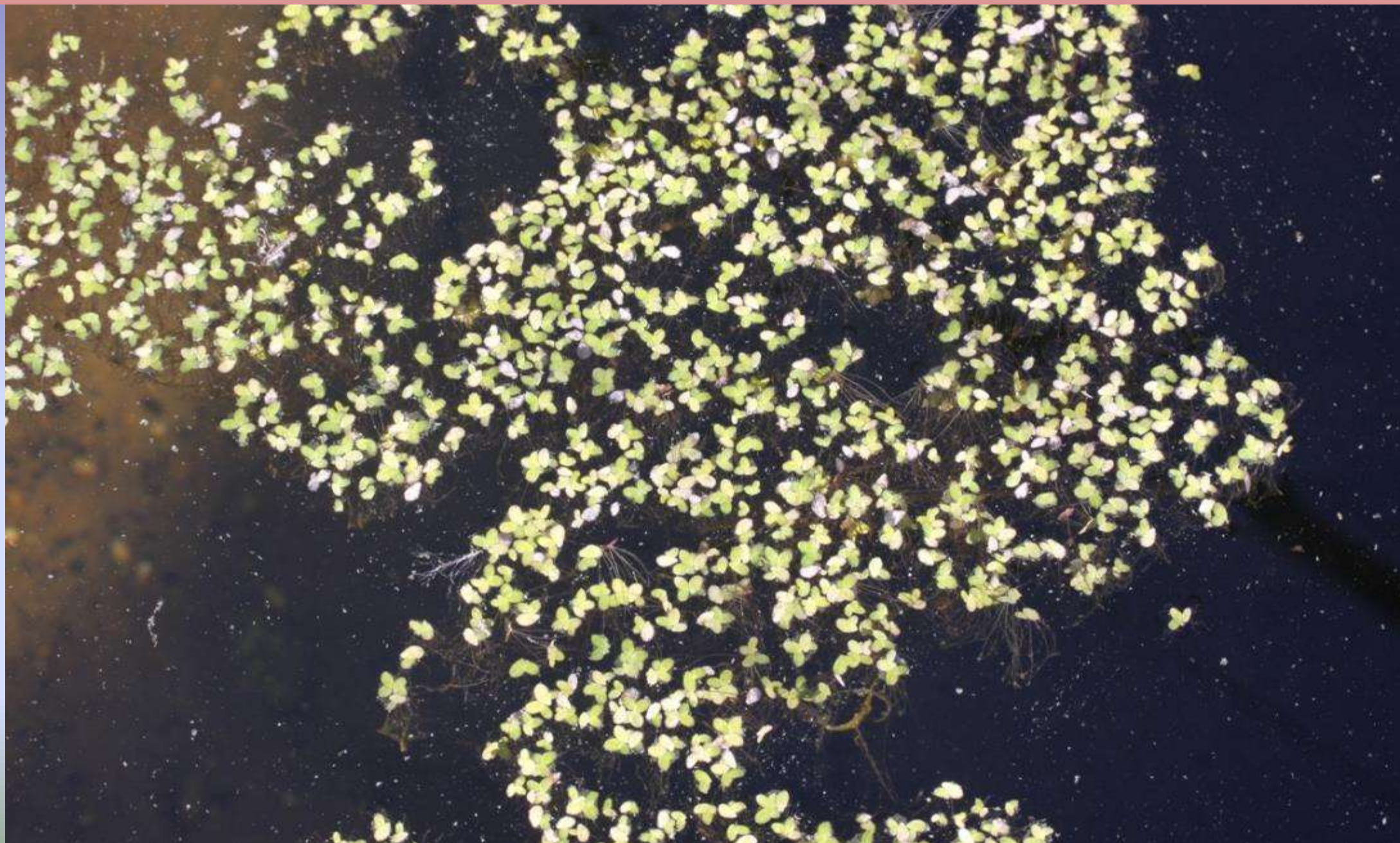
Flower head large, reddish when young, male above female flowers

### Distribution

Widespread in Kaipara, also rare elsewhere in Northland, Auckland, Waikato and Waikanae



# Free-floating species





# Identification of free-floating species

*Azolla rubra*

azolla





# Identification of free-floating species

*Azolla rubra*

## Key features

Plant with red or green scale - like leaves

Plant oval or elliptic with irregular branches

Root hairs absent

(cf. *A. pinnata*; triangular, regular branching, root hairs present – not known from Hawkes Bay?)

## Distribution

Common throughout

# Identification of free-floating species

*Azolla pinnata*

ferny azolla



*A. rubra*

*A. pinnata*





# Identification of floating ferns

*Azolla pinnata*

## Key features

Plant with red or green scale –like leaves

Regular branches like a Norfolk pine branch

Root hairs present

## Distribution

Abundant from Northland south to Waikato/BOP,  
rare further south to Wellington Region



# Identification of free-floating species

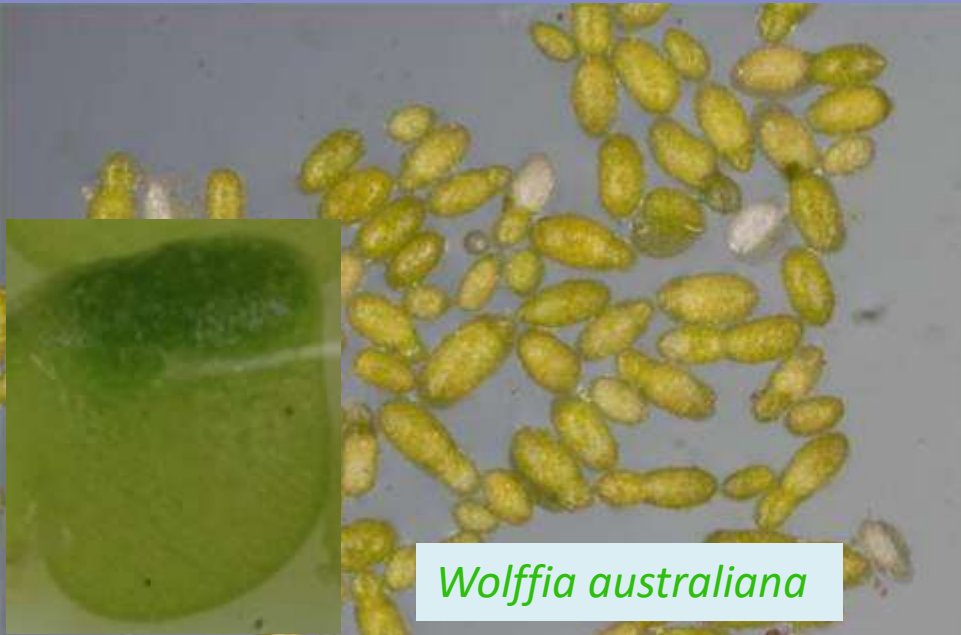
## Duckweeds

*Landoltia punctata* -  
Purple-backed duckweed

*Lemna disperma* -  
Duckweed

*Wolffia australiana* -  
Watermeal





*Wolffia australiana*



*Landoltia punctata*  
(was *Spirodela punctata*)



*Lemna disperma* (was *L. minor*)





# Identification of free-floating species

## Duckweeds

### Key features

#### *Landoltia punctata*

Several roots per plate, often red-purple underside

Plate oval to 5 mm long, 1.5 to 3 x as long as wide

#### *Lemna disperma*

One root per plate, not red-purple underside, but occasionally pale red

Plate oval to 4 mm long, 1 to 2 x as long as wide

#### *Wolffia australiana*

Roots absent, with pale deep keel on underside

Plate oval to 1.3 mm long, 1.3 to 2 x as long as wide

All common in NI

# Identification of free-floating weeds

*Salvinia molesta*



salvinia













# Identification of free-floating weeds

*Salvinia molesta*

## Key features

Plant with paired leaves, either flat on water surface or folded

Hairs like egg-beaters

Sporangia like string of beads

## Distribution

Most sites north of Waikato, mostly eradicated

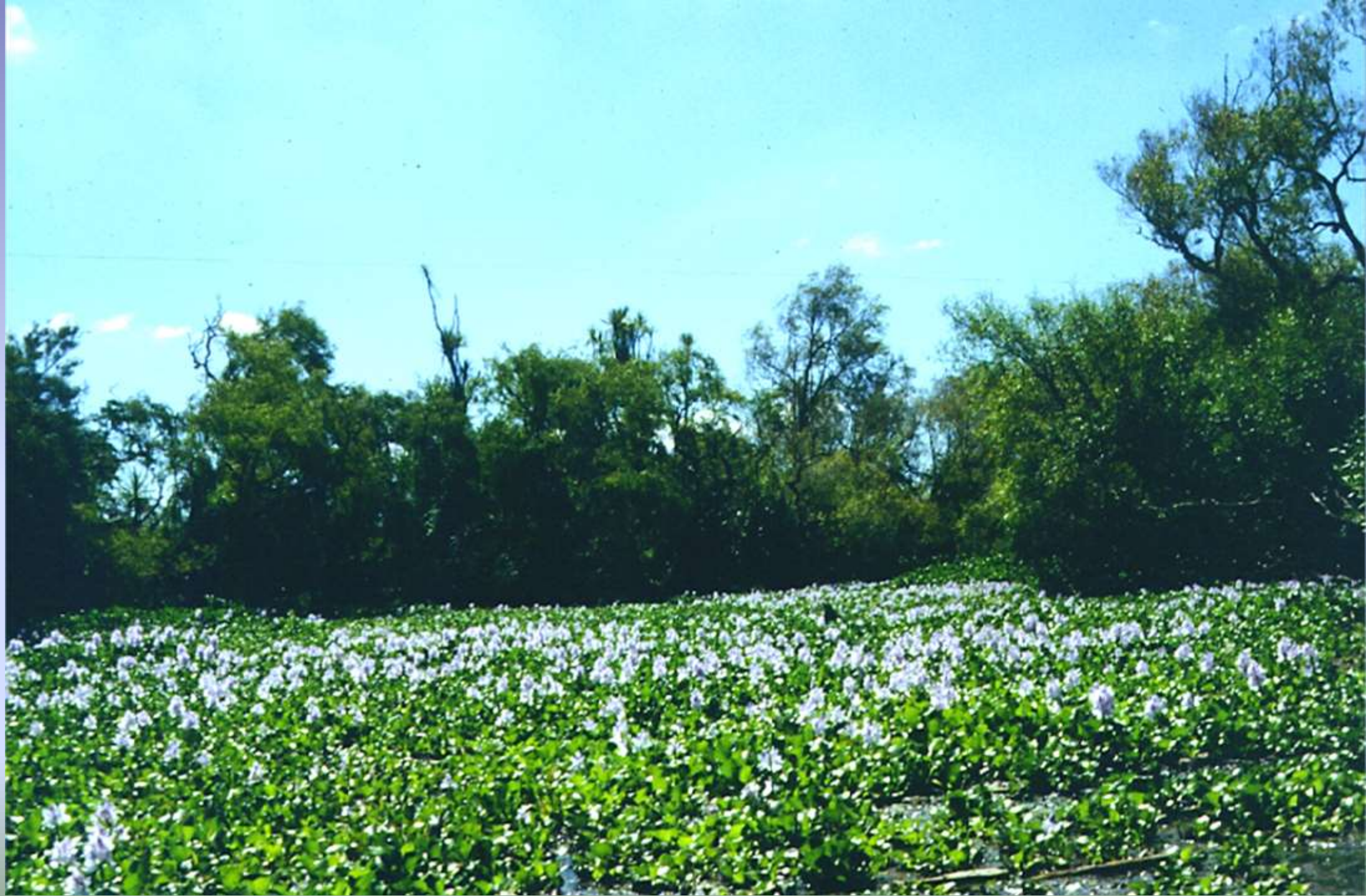
# Identification of free-floating weeds

*Eichhornia crassipes*

water hyacinth







# Identification of free-floating weeds

*Eichhornia crassipes*

## Key features

Plant stoloniferous often with daughter plants

Petiole inflated

Flowers showy, pale blue with yellow eye

## Distribution

Most sites north of Waikato, mostly eradicated



# Identification of free-floating weeds

*Pistia stratiotes*

water lettuce









# Identification of free-floating weeds

*Pistia stratiotes*

## Key features

Plant stoloniferous often with daughter plants

Leaves densely hairy

Flowers green, like a miniature arum flower

## Distribution

Two known sites, now eradicated



# Sprawling emergent species





# Identification of sprawling emergent species

*Ludwigia palustris* water purslane







*Ludwigia palustris* and *Juncus articulatus* (jointed rush)



# Identification of sprawling emergent species

*Ludwigia palustris*

## Key features

Leaves opposite, ovate

Leaves bright green, but can be bronze or bright red when submerged

Flowers green, in leaf axils

## Distribution

Common throughout

# Identification of sprawling emergent species

*Erythranthe* (was *Mimulus*) *guttata*

monkey musk





# Identification of sprawling emergent species

*Erythranthe guttata*

## Key features

Leaves opposite, orbicular

Leaves bright green, corrugated, hairless or sparsely hairy (cf. *E. moschata* densely sticky hairy)

Flowers large, yellow with red dots on throat

## Distribution

Common throughout

# Identification of sprawling emergent species

*Veronica* spp.

*V. anagallis-aquatica*



*V. catenata*



water speedwell

*V. americana*





# Identification of sprawling emergent species

*Veronica* spp.

## Key features

Leaves opposite

*V. anagallis-aquatica*

Leaves sessile, flower heads paired, flowers bluish mauve

*V. catenata*

Leaves sessile, flower heads paired, flowers pink

*V. americana*

Leaves short-petiolate, serrate, flower heads paired, flowers blue

## Distribution

*V. anagallis-aquatica* throughout NI and northern SI, *V. americana* more local, *V. catenata* mostly in Canterbury, scattered.

# Identification of sprawling emergent species

*Myosotis laxa*

water forget-me-not





# Identification of sprawling emergent species

*Myosotis laxa*

## Key features

Leaves alternate, linear, hairy

Flowers 2 to 4 mm across, blue with a yellow and white centre (cf. *M. scorpioides* 5 to 10 mm across)

## Distribution

Widespread throughout

# Identification of sprawling emergent plants

*Ludwigia peploides* var. *montevidensis*    primrose willow









# Identification of sprawling emergent plants

*Ludwigia peploides*

## Key features

Plant waxy with glossy leaves

Swollen white floating roots sometimes present

Black stipules at base of leaves

Flowers yellow



## Distribution

Abundant in Waikato, also in Northland, Auckland and Manawatu



# Identification of sprawling emergent species

*Persicaria* spp.



*P. hydropiper* water pepper

willow weeds



*P. decipiens* swamp willow weed

# Identification of sprawling emergent species

*Persicaria* spp.

Key features

Leaves alternate, with ochrea, hairless

*P. hydropiper*

Leaves bright green, no black dot, margins wavy

Flower heads greenish, drooping, leafy in lower part

*P. decipiens*

Leaves deep green, sometimes red, black dot often present, margins not wavy

Flower heads pink, more or less erect

Distribution

Widespread throughout



# Identification of sprawling emergent species

*Ranunculus flammula*

spearwort



# Identification of sprawling emergent species

*Ranunculus flammula*

## Key features

Leaves alternate, lanceolate to ovate, hairless

Flowers 15 to 18 mm across, yellow buttercup-like

## Distribution

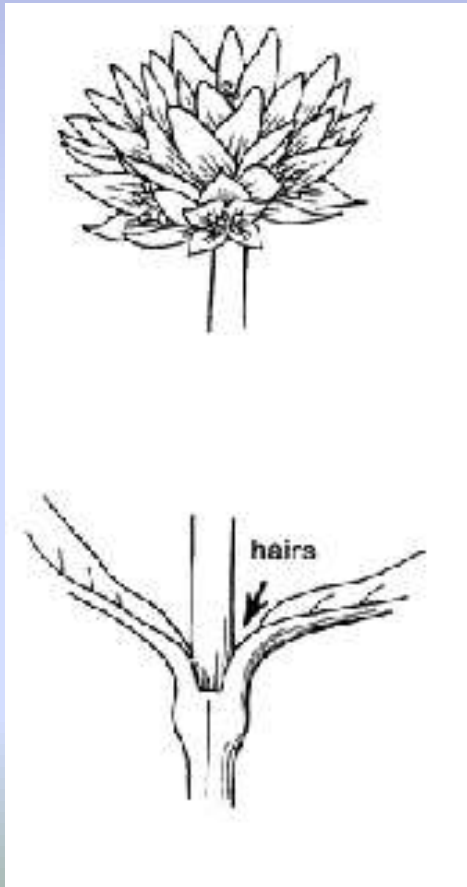
Widespread throughout



# Identification of sprawling emergent weeds

*Alternanthera philoxeroides*

alligator weed







# Identification of sprawling emergent weeds

*Alternanthera philoxeroides*

## Key features

Plant waxy, stems hollow

Leaves opposite, connate (joined at base) with margin of hairs

Flowers white, clover-like

Northland to Waikato/BOP, Horizons RC. Eradicated from all SI sites

# Identification of sprawling emergent weeds

*Gymnocoronis spilanthoides*

Senegal tea





# Identification of sprawling emergent weeds

*Gymnocoronis spilanthoides*

## Key features

Stems 6-8 angled

Leaves conspicuously toothed

Flowers white, clover-like, highly scented

Scattered in NI. In SI only known from a wetland on the banks of the Waimakariri River and a pond site in Tasman District, under eradication programmes

# Identification of sprawling emergent weeds

*Menyanthes trifoliata*

bogbean

## Key features

Leaves trifoliate

Flowers 5-petalled, pink-white with hairs

Long floating stolons

## Distribution

One field site in Canterbury  
(Racecourse Hill, Darfield),  
pond site in Queenstown,  
eradicated?





# Identification of sprawling emergent species

*Nasturtium officinale/microphyllum*  
water cress



# Identification of sprawling emergent species

*Nasturtium* spp.

## Key features

Leaves alternate, pinnate with 5 to 9 pinnae, peppery when crushed (cf. *Heliosciadium nodiflorum* - carrot smell)

*N. officinale*

Leaves green throughout year

Flowers white, up to 6 mm across, capsules with two rows of seed, up to 20 mm long



*N. microphyllum*

Leaves brown during winter

Flowers white, larger than 6 mm across, capsules with one row of seed, up to 30 mm long



Distribution - widespread throughout



# Identification of sprawling emergent species

*Heliosciadium nodiflorum*

water celery



# Identification of sprawling emergent species

*Heliosciadium* (was *Apium*) *nodiflorum*

## Key features

Leaves alternate, pinnate with 2 to 8 pairs of toothed leaflets

Leaves glossy, with distinctive carrot or celery smell when crushed (cf. *Nasturtium* spp. that are peppery)

Flowers white, in umbels produced from leaf axils

## Distribution

Widespread in NI



# Identification of sprawling emergent species

*Oenanthe javanica*



Vietnamese parsley



# Identification of sprawling emergent species

*Oenanthe javanica*

## Key features

Leaves alternate, bipinnate with toothed leaflets

Leaves glossy, with distinctive carrot or celery smell when crushed

Flowers white, on stalked umbels

## Distribution

Near Levin in NI, Nelson, Tasman and Canterbury in SI



# Identification of sprawling emergent species

*Oenanthe* species



*Oenanthe aquatica*

horsebanes



*Oenanthe sarmentosa*

# Identification of sprawling emergent species

*Oenanthe* spp.

Key features

*Oenanthe aquatica*      horsebane

Leaves 2-4 pinnate, divided linear submerged leaves

Flower heads in umbels

Toxic, found in Marlborough

*Oenanthe sarmentosa*      American horsebane

Leaves bi- tripinnate

Flower heads in umbels

Toxic, found near Greymouth



# Identification of sprawling emergent species

*Myriophyllum aquaticum*

parrot's feather



*M. aquaticum*

*M. robustum*







# Identification of sprawling emergent species

*Myriophyllum aquaticum*

## Key features

Leaves pinnate in whorls of  $> 4$ , pale blue-green

Leaves rounded at tip (cf. *M. robustum* – rare sp.)

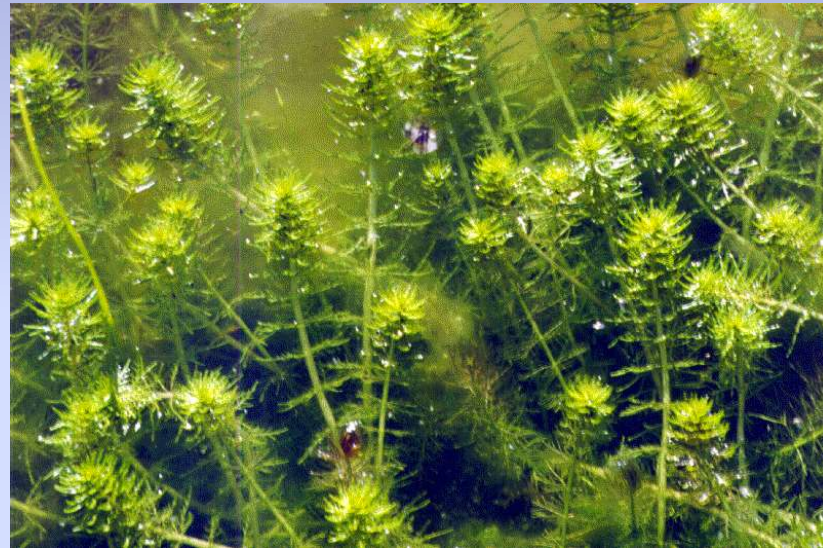
Flowers white, inconspicuous in leaf axils

## Distribution

Becoming widespread

# Identification of sprawling emergent plants

*Myriophyllum variifolium*



Leaves in whorls of 5-6, either pinnate or linear  
Few sites in gardens, field site on Maramarua River, N.  
Waikato



# Identification of sprawling emergent plants

## Similar plants

## *Myriophyllum propinquum*



*M. variifolium*

*M. propinquum*

### Key features

Leaves in whorls of 3-4

Emergent leaves usually coarsely pinnate, occasionally entire

### Distribution

Native plant found throughout NZ

# Identification of sprawling emergent grasses

*Glyceria maxima*

reed sweet grass, poa aquatica









# Identification of sprawling emergent grasses

*Glyceria maxima*

## Key features

Tall grass with leaves up to 60 cm long, 2 cm wide

Leaf tip with boat-keel like tip

Leaf sheath with cross veins

Flower heads large, many branched

## Distribution

Widespread



# Identification of sprawling emergent grasses

*Glyceria fluitans/declinata*



floating sweet grass



# Identification of sprawling emergent grasses

*Glyceria declinata/fluitans*

## Key features

Sprawling grass with leaves up to 20 cm long, 7 mm wide, often floating on the water surface

Leaf tip with boat-keel like tip

Leaf sheath with cross veins

Flower heads narrow, few branches

Species distinguished on floral characters (see key)

## Distribution

Widespread throughout



# Identification of sprawling emergent grasses

*Agrostis stolonifera*

creeping bent



# Identification of sprawling emergent grasses

*Agrostis stolonifera*

## Key features

Sprawling, mat forming grass with obvious stolons

Leaves up to 20 cm long, 5 mm wide

Leaf tip acute, leaf sheath without cross veins

Flower heads open, many branched, contracting when mature

## Distribution

Widespread throughout



# Identification of sprawling emergent grasses

*Alopecurus geniculatus*

kneed foxtail



# Identification of sprawling emergent grasses

*Alopecurus geniculatus*

## Key features

Sprawling grass, with obvious knee-like bends at each node, sometimes floating on the water surface

Leaves up to 12 cm long, 7 mm wide

Leaf tip acute, leaf sheath without cross veins

Flower heads a dense spike, up to 7 cm long, 5 mm wide

## Distribution

Widespread throughout



# Identification of sprawling emergent grasses

*Paspalum distichum*

Mercer grass



# Identification of sprawling emergent grasses

*Paspalum distichum*

## Key features

Sprawling grass, with obvious stolons and leaf blades distantly arranged

Leaves up to 10 cm long, 6 mm wide, hairy near base

Flower heads of two narrow spikes, each up to 5 cm long

## Distribution

Widespread especially in warmer parts



# Identification of sprawling emergent grasses

*Phalaris arundinacea*

reed canary grass



# Identification of sprawling emergent grasses

*Phalaris arundinacea*

## Key features

Robust, coarse, rhizomatous grass forming dense tall swards up to 2 m tall

Stems bamboo-like

Flower heads open heads at first, narrowing when mature, lobed, purple or cream coloured

## Distribution

Scattered, locally abundant