

WATER WEEDS:
GUIDE TO AQUATIC WEEDS
IN KING COUNTY

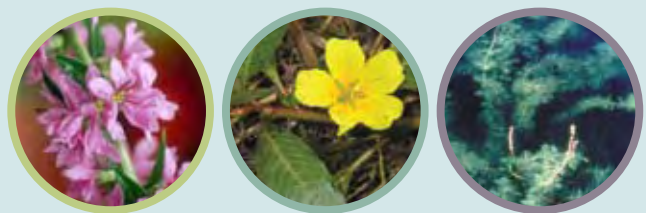


King County

Department of Natural Resources and Parks
Water and Land Resources Division
Noxious Weed Control Program



WATER WEEDS: GUIDE TO AQUATIC WEEDS IN KING COUNTY



On the cover: parrotfeather
Inside cover: purple loosestrife,
floating primrose-willow,
Eurasian watermilfoil
Page 2: native yellow pond-lily
(top and bottom)
Page 3: garden loosestrife
Page 4: Brazilian elodea
Page 5: Hydrilla
Page 6: purple loosestrife
Page 7: parrotfeather
Page 8: yellow flag iris
Page 9: common reed



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Department of
Natural Resources and Parks
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Noxious Weed Control Program

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Contents

AQUATIC NOXIOUS WEEDS INCLUDED IN THIS GUIDE

EMERGENT

- 1. Common Reed 10 & 11
(Phragmites australis)
- 2. Cordgrasses 12 & 13
(Spartina alterniflora, S. anglica, S. densiflora, S. patens)
- 3. Flowering Rush 14 & 15
(Butomus umbellatus)
- 4. Garden Loosestrife 16 & 17
(Lysimachia vulgaris)
- 5. Grass-leaved Arrowhead 18 & 19
(Sagittaria graminea)
- 6. Hairy Willowherb 20 & 21
(Epilobium hirsutum)
- 7. Purple Loosestrife 22 & 23
(Lythrum salicaria)
- 8. Reed Canarygrass 24 & 25
(Phalaris arundinacea)
- 10. Yellow Flag Iris 26 & 27
(Iris pseudacorus)

FLOATING MAT

- 10. Floating Primrose-willow and Water Primrose 28 & 29
(Ludwigia peploides, L. hexapetala)
- 11. Parrotfeather 30 & 31
(Myriophyllum aquaticum)

FLOATING LEAF

- 12. Fragrant Water Lily 32 & 33
(Nymphaea odorata)
- 13. Yellow Floating Heart 34 & 35
(Nymphoides peltata)

SUBMERGED

- 14. Brazilian Elodea 36 & 37
(Egeria densa)
- 15. Eurasian Watermilfoil 38 & 39
(Myriophyllum spicatum)
- 16. Fanwort 40 & 41
(Cabomba caroliniana)
- 17. Hydrilla 42 & 43
(Hydrilla verticillata)

To see the complete King County
noxious weed list, visit
www.kingcounty.gov/weeds



WHAT ARE AQUATIC PLANTS?

Plants that grow in water are called aquatic

plants. They grow in a variety of forms. Emergent plants

are rooted in the soil and grow along shorelines, floating plants grow in shallow to deep water and either have floating leaves or form floating mats on the surface of the water, and submersed plants grow mostly under water. Many native aquatic plants grow in Washington, and they are very beneficial to the environment and generally do not cause significant problems. These native aquatic plants developed in the area naturally and usually are kept in check



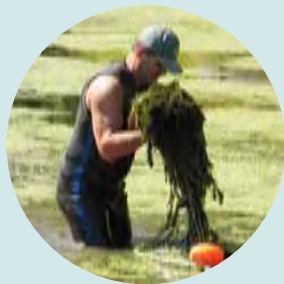
by natural controls such as herbivores, insects and other plants. Native aquatic plants provide food and habitat for fish, birds, and other wildlife. They protect shorelines from erosion and often clean pollution from the water.







WHAT ARE AQUATIC NOXIOUS WEEDS?

When aquatic plants are introduced to a new area without the natural checks and balances of their home waters, they can sometimes grow out of control, creating dense monocultures and overwhelming lakes and streams. This guide describes some of these invasive, non-native aquatic plants that have been introduced to Washington's water bodies (accidentally or as garden plants). They are all highly aggressive and create significant ecological and economic damage when they are not controlled. These invasive, non-native aquatic plants are called aquatic noxious weeds when they are identified by the Washington State Noxious Weed Board as having a significant negative impact on the state's natural and economic resources.



IMPACTS OF INVASIVE AQUATIC WEEDS:



-  loss of native plant communities
-  disruption of fish and wildlife habitat
-  damage to commercial and sport fishing
-  reduced recreational activities like boating and swimming
-  clogged irrigation and drinking water structures
-  decreased water quality.

WHAT AQUATIC WEEDS ARE INCLUDED IN THIS GUIDE?

This guide describes 17 aquatic noxious weeds on the Washington State Noxious Weed List to look out for in King County. The weeds are grouped by growth form: emergent, floating mat, floating leaves, and submersed. Many of the weeds in this guide are already widespread in King County, but some of them have only been found in a few locations or only in nearby counties. The guide does not include any native aquatic plants, some of which

closely resemble these weeds. If you find a plant that looks like one of the weeds in this guide, we suggest you consult the more detailed references listed at the back of this guide or ask an expert for help with getting a positive identification.

WHAT CAN WE DO ABOUT AQUATIC NOXIOUS WEEDS?

Everyone can help prevent new introductions by cleaning boats, trailers and other equipment, by never dumping aquariums into lakes and creeks, and by not planting invasive aquatic plants. Also, early detection of an invasive aquatic weed greatly increases the opportunity for preventing damage. If you find an aquatic noxious weed in a new area, it is important that the responsible agency or landowner is alerted as soon as possible, while there is still a chance to stop its spread. Even when invasive weeds are already widely established in a water body, it is still possible to reduce their impact and contain their spread. For instance, it can help to remove seed heads before they mature or to contain the weed by controlling new satellite populations.



WHAT SHOULD I DO IF I FIND AN AQUATIC NOXIOUS WEED?

Mark the location of the plant with a weighted buoy if it's in the water, or a flagged stake if it's on the shore, and carefully collect a specimen including stems, leaves and any flowers or seed pods. Place the specimen in a sealed container with water and store in a cool, dark place. Contact the King County

Noxious Weed Program at **206-296-0290** to make arrangements for getting the specimen identified. If this is not possible, contact the weed program and we can help determine if a site visit is needed to identify the plant.

WHAT DOES THE STATE NOXIOUS WEED LAW REQUIRE WHEN IT COMES TO AQUATIC NOXIOUS WEEDS?

Washington's noxious weed law (RCW 17.10) requires property owners to control and stop the spread of noxious weeds on their property, including both aquatic and non-aquatic noxious weeds. The law



applies equally to private and public property. However, this requirement does not include noxious weeds that are widespread in the state or the county, but only those weeds where the state weed board

believes there is still an opportunity to eradicate it from all or part of the state. The noxious weeds are classified by distribution: Class A weeds are the highest priority statewide because they are highly limited in distribution, Class B weeds have a split distribution and control is required only where they are not already widespread, and Class C weeds are the most widespread and their control is typically not required, although recommended where possible.

HOW DO I KNOW WHICH WEEDS HAVE TO BE CONTROLLED?

The King County and Washington State noxious weed lists are available online at **www.kingcounty.gov/weeds** or by contacting the King County Noxious Weed Control Program at **206-296-0290**. In this guide, the weed classification and any control requirement is provided for each weed described.

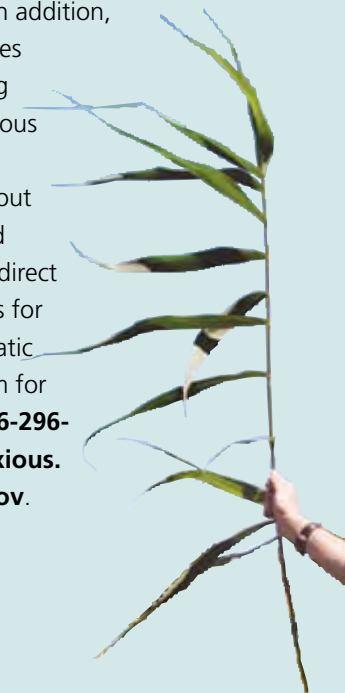
HOW DO I FIND OUT MORE ABOUT PERMIT REQUIREMENTS FOR AQUATIC WEED CONTROL?



Since aquatic plants are by definition growing in an easily disturbed, sensitive environment, any work done to remove them is regulated by state or local laws. In order to do any noxious weed removal in water, you need at minimum a pamphlet Hydraulic Project Approval (HPA) permit from the Washington Department of Fish and Wildlife, which is available free of charge from this Web site: <http://wdfw.wa.gov/hab/aquaplnt/aquaplnt.htm>, or by calling **360-902-2534**. Other permits from state and local agencies may be required for work involving bottom barriers, mechanical equipment or herbicides. For assistance, contact the King County Noxious Weed Control Program at **206-296-0290** or noxious.weeds@kingcounty.gov, the Washington State Department of Regulatory Assistance at **800-917-0043** or assistance@ora.wa.gov, and/or your local city government permitting office.

WHAT HELP DOES THE COUNTY PROVIDE FOR AQUATIC NOXIOUS WEED CONTROL?

The King County Noxious Weed Program is available to provide information and advice on identification and control methods for aquatic weeds and to guide property owners through the complex permit regulations that exist when working in aquatic environments. In addition, because of the challenges involved with controlling aquatic weeds, the noxious weed program will help landowners find out about additional resources and may be able to provide direct assistance in some cases for the highest priority aquatic weeds. Call the program for more information at **206-296-0290** or email us at noxious.weeds@kingcounty.gov.





EMERGENT

1. Common Reed *Phragmites australis*

What it is: 12 foot tall rhizomatous grass with purplish feathery flower head and stiff blue-green leaves. Key identification features: no other wetland grass in this region gets that tall.

Why we care: Forms dense single-species stands at water's edge, can tolerate brackish water. Dense, tall growth excludes all other vegetation, dramatically reducing habitat value of shorelines and access to water.

When we find it: Easiest to recognize when it reaches full height in July, but the previous year's dead stalks can indicate presence year round.

Where we find it: Freshwater and brackish wetlands and river corridors. Currently one major infestation along the Duwamish River in Seattle, with smaller infestations in a few other spots, including along the Sammamish River and in Union Bay.

What we can do about it: Not realistic to control by hand due to six foot deep rhizome mass. Prevent seed production by cutting off flowerheads or removing plants at ground level. Herbicide should only be applied by a licensed aquatic herbicide applicator unless the plants are growing away from the water. Spray actively growing plants with a systemic herbicide. Herbicides are most effective when flowers are first forming.

What it's confused with: Pampas grass is also tall with feathery plumes, but doesn't grow in wetlands and forms clumps rather than large clones. Other ornamental grasses might also fit the general description, but aren't as tall and don't grow in water. Reed canarygrass is similar but not as tall, more yellow-green in color, and lacks the feather plumes.

Legal Status: Class B, control required in King County.





2. Cordgrasses *Spartina alterniflora*, *S. anglica*, *S. densiflora*, *S. patens*

What it is: These four grasses are invaders of saltwater marshes and estuaries. They are generally rhizomatous (except *S. densiflora*) grasses that begin by forming circular patches at the upper edge of tidelands and then spread out to create dense single-species stands covering the mudflats. Key identification features: All of these grasses have ligules (thin membranes that stick up along the stem where the leaf attaches) that look like a fringe of hairs.

Why we care: Species of spartina can drastically change the nature of Pacific Northwest tidelands, obliterating mudflats that are critical for oysters and other shellfish as well as important habitat for migratory birds.

When we find it: Best to look for it in the summertime.

Where we find it: All of these grasses are currently in the Puget Sound area. Common cordgrass (*Spartina anglica*) was found on Vashon Island beaches several years ago but appears to be eradicated. Look for cordgrasses on beaches along Puget Sound, especially on Vashon Island.

What we can do about it: Pull seedlings and dig out small clumps, being sure to get all the roots and rhizomes. For larger infestations, contact the King County Noxious Weed Control Program. Herbicide should only be applied by a licensed aquatic herbicide applicator. Apply systemic, non-selective aquatic herbicide to actively growing plants.

What it's confused with: Other beach grasses. The *Spartina* species are the only salt-tolerant grasses that have a ligule like a fringe of hairs.

Legal Status: Class A, eradication required in King County.





3. Flowering Rush *Butomus umbellatus*

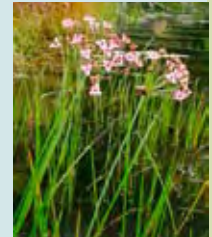
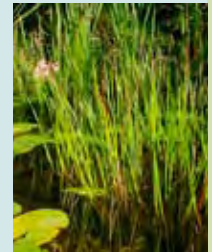
What it is: Emergent or submerged rush-like plant. Emergent form has stiff

leaves that are triangular in cross-section; submerged form has ribbon-like, limp leaves that float on the water's surface. Key identification features: pretty pink to white flowers in umbrella-like clusters atop round stalks. Difficult to identify without flowers. Washington has an emergent form that rarely flowers.

Why we care: Competes with native wetland and shoreline vegetation and can crowd out more desirable species.

When we find it: Blooms from June through August.

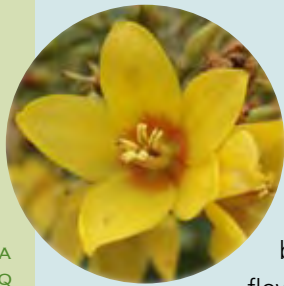
Where we find it: Currently not known in King County. Established populations known from Whatcom and Benton counties. Emergent in saturated soil or shallow water, and submerged in water up to nine feet deep.



What we can do about it: Carefully dig small infestations, making sure to remove all plant parts (spreads vegetatively). Herbicide should only be applied by a licensed aquatic herbicide applicator. Spray actively growing plants with a systemic aquatic herbicide. If you think you have flowering rush, contact the King County Noxious Weed Control Program for verification.

What it's confused with: Several native aquatic plants have ribbon-like underwater leaves, including species of bur-reed (*Sparganium spp.*), water-potain (*Alisma spp.*) and arrowhead or duck-potato (*Sagittaria spp.*) Sedge species (*Carex spp.* or *Scirpus spp.*) and giant bur-reed (*Sparganium eurycarpum*) may have leaves that are triangular in cross-section.

Legal Status: Class A, eradication required in King County.



4. Garden Loosestrife *Lysimachia vulgaris*

What it is: Tall perennial wetland plant with showy bunches of five-petaled yellow flowers. Key identification features: leaves often in whorls of three and usually have tiny black or orange dots on the underside visible with magnification.

Why we care: Very aggressive plant outcompetes even purple loosestrife and hardy natives such as cattails. Spreads by rhizomes and seeds, plant fragments will root. An ecological pest, it crowds out native plants and has little habitat value for native animals.

When we find it: Blooms from mid July through August. Difficult to spot when not in bloom.



Where we find it: Wetlands, stream and river corridors, lake margins, ditches, in shallow water or saturated soil. Abundant on Lake Washington, Lake Sammamish, Lake Burien, the Sammamish, Snoqualmie and Raging Rivers, and some associated wetlands. Not known elsewhere in King County.

What we can do about it: Very difficult to control by hand. At minimum cut the plants at base to prevent seed formation. Dig up small infestations, try to get all the roots. Herbicide should only be applied by a licensed aquatic herbicide applicator unless the plants are growing away from the water. Spray actively growing plants with a systemic herbicide. Discard plants in garbage, not yard waste.

What it's confused with: No native plant looks like this, but there are many weed species with yellow flowers.

Legal Status: Class B, control required in King County.



5. Grass-leaved arrowhead *Sagittaria graminea*

What it is: Rhizomatous emergent plant with narrow leaves (occasionally spoon-shaped) about 20 inches long and sprays of showy three-petaled white flowers about $\frac{2}{3}$ inch across.

Why we care: Aggressive weed forms monocultures in shallow water and outcompetes native plants. Native to eastern North America and readily available on the internet, it could be introduced to King County waterbodies.

When we find it: Blooms summer into fall.

Where we find it: Shallow water, muddy shorelines. Can also grow submerged in deeper water. Currently known from Lake Roesiger in Snohomish County and Mason Lake in Mason County. Not known in King County.



Photo by Jenifer Parsons

What we can do about it: Contact the King County Noxious Weed Program for verification and assistance.

What it's confused with: Several native species. Duck potato (*Sagittaria latifolia*) has arrow-shaped leaves. Water plantains (*Alisma spp.*) have spoon-shaped leaves and much smaller flowers. Submerged forms can be confused with bur-reeds (*Sparganium spp.*) when not in flower.

Legal Status: Class B, control required in King County.



Photo by Arlene Fullerton



6. Hairy Willowherb *Epilobium hirsutum*

What it is: Tall, wetland-dwelling relative of the native plant fireweed. Looks similar, with showy magenta flowers and

long skinny seed-pods that burst open to release fluffy white seeds. Key identification features: stem and leaves covered with soft hairs; magenta flowers have four notched petals and a white center; leaves opposite, lance-shaped and toothed along the edges; rhizomes thick and spreading.

Why we care: Pushes out native wetland plants, can grow densely enough to impede water flow, spreads easily to undisturbed wetlands.

When we find it: Easiest to identify when in flower in July and August.

Where we find it: Generally in places with wet or moist soil; including pastures, meadows, wetlands, streambanks and lakeshores. Can also spread into drier areas.



What we can do about it: Dig out small infestations, being careful to get all the roots. Mature plants can be cut off at the base to prevent seed production. Mowing does not work and may spread the infestation. Herbicide should only be applied by a licensed aquatic herbicide applicator unless the plants are growing away from the water. Spray actively growing plants with a systemic herbicide. Discard plants in garbage, not yard waste.

What it's confused with: Easily confused with the native fireweed (*Epilobium angustifolium*), which is not hairy. Purple loosestrife (*Lythrum salicaria*) is found in the same habitats, but it has a square stem, smooth-edged leaves and flowers with five petals.

Legal Status: Priority Class C, control required in King County.



7. Purple Loosestrife *Lythrum salicaria*

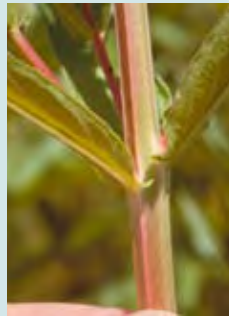
What it is: Tall perennial wetland plant with showy, compact spikes of magenta flowers. Key identification

features: the stem is square and the leaves are opposite, smooth edged and narrow.

Why we care: Has up to 2.5 million seeds per plant, spreads by rhizomes, and plant fragments will root. An ecological pest, it outcompetes native plants and provides little habitat for native animals.

When we find it: Blooms from mid July through August, but you can find it by the square stems at other times.

Where we find it: Wetlands, stream and river corridors, lake margins, ditches, wet pastures, in shallow water or saturated soil. It is



fairly common and widespread in King County.

What we can do about it: Dig or pull plants in soft soil, cut plants at base to prevent seed formation. Herbicide should only be applied by a licensed aquatic herbicide applicator unless the plants are growing away from the water. Spray

actively growing plants with a systemic herbicide. Always throw this plant in the trash, never in compost or yard waste.

What it's confused with: Hardhack (*Spiraea douglasii*), native woody shrub with spikes of fuzzy pink flowers and wider, alternate leaves; fireweed (*Epilobium angustifolium*), tall upland perennial with more open spikes of pink flowers and alternate leaves. Some native plants in the mint family have square stems, but the leaves are toothed.

Legal Status: Class B, control required in King County.



8. Reed Canarygrass *Phalaris arundinacea*

What it is: Rhizomatous sod-forming wetland grass up to six feet tall. Key identification features: leaves stick out at a wide angle from the stem (like corn), leaves have a long ligule (thin membrane that sticks up along the stem where the leaf attaches), flower heads are held high above leaves on tall stems.

Why we care: Highly invasive grass can form solid monoculture excluding even the seeds of other plants. Clogs streams and ditches, destroys wetland restoration sites, degrades wildlife habitat.

When we find it: Easy to see any time of year – in summer when it's green and vigorous, or in winter when the dead flower stalks blanket areas.

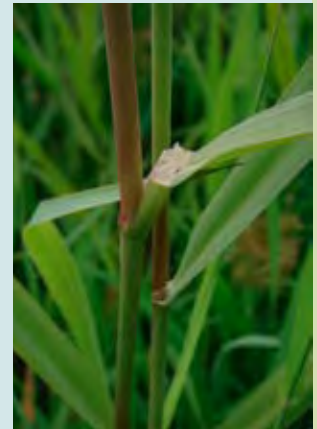
Where we find it: Very common and widespread in King County. Typically found in wet pastures, ditches, wetlands and shorelines.

What we can do about it: The best control is to shade it out, since it does not do well without full sun. Mowing can reduce its impact but will not harm

the plant. Herbicide should only be applied by a licensed aquatic herbicide applicator unless the plants are growing away from the water. Spray actively growing plants with a systemic, non-selective or grass herbicide. For a more thorough discussion on reed canarygrass control, see our Web site.

What it's confused with: Many other grasses, but tends to be taller, more robust and more dense in growth than other grasses that grow in wet areas.

Legal Status: Non-regulated noxious weed, control not required in King County.





9. Yellow Flag Iris *Iris pseudacorus*

What it is: Large yellow iris.
This is the only iris in King
County that grows in water.

Bright showy flower, long
folded leaves.

Why we care: Extensive, tough rhizomes form
impenetrable mats. Spreads by rhizomes and seeds.
An ecological pest, it outcompetes native plants and
degrades habitat of native animals.

When we find it: Blooms late April through June.

Where we find it: Wetlands, stream
and river corridors, lake margins, ditches.
Common and widespread in King County.

What we can do about it: Difficult to
control by hand. Often requires repeated
use of heavy tools such as pick-axes or
hatchets to remove sections of rhizome.
Herbicide should only be applied by a
licensed aquatic herbicide applicator unless
the plants are growing away from the
water. Spray actively growing plants with a
systemic herbicide.



What it's confused with: Cattail (*Typha latifolia*)
leaves are not flattened and folded like iris. Nothing
else that grows in water looks like it in bloom.

Legal Status: Non-regulated noxious weed, control
not required in King County.



FLOATING MAT

10. Floating Primrose-willow and Water Primrose *Ludwigia peploides*, *Ludwigia hexapetala*



What it is: Low growing perennial that forms mats in water up to 10 feet deep. Key identification features: showy yellow five-petaled flowers in leaf axils, smooth-margined alternate leaves, prostrate stems float on water.

Why we care: Clogs waterways, impedes recreation. Ecological pest that outcompetes native plants.

When we find it: Easiest to locate when flowering, late July to August.

Where we find it: In King County we currently have one small floating primrose-willow infestation (on a tributary to the Green River) and one small water primrose



infestation (in a private pond in Renton). There have been other small infestations in the past, successfully eradicated. One to look out for!

What we can do about it: Hand pull or rake up small infestations, being sure to get as many roots as possible (roots will resprout). Herbicide can only be applied by a licensed aquatic herbicide applicator. Apply a systemic herbicide to actively growing plants.

What it's confused with: The native water purslane (*Ludwigia palustris*) has inconspicuous green flowers and opposite leaves. No wetland native has showy yellow flowers like this.

Legal Status: Class A and B, control required in King County.



11. Parrotfeather *Myriophyllum aquaticum*



What it is: Spikes of feathery leaves emerging up to a foot above the water. Key identification features: no other plant has whorls of feathery leaves emerging from the water in this manner. Looks like miniature pine trees growing on the water's surface.

Why we care: Clogs waterways, wetlands, shallow ponds, ditches, lake edges, and slow-flowing streams and rivers, filling entire water column from sediment to a foot above water. Eliminates recreation, wildlife habitat, and native plants. Causes economic damage in agricultural areas. Spreads by fragmentation. Very difficult to eradicate.

When we find it: Emerges in late May and persists into October.



Where we find it: Currently four known infestations in small private ponds in King County. Still sold as a water garden plant on the internet (illegal to buy or sell it in Washington), so it could potentially be found anywhere.

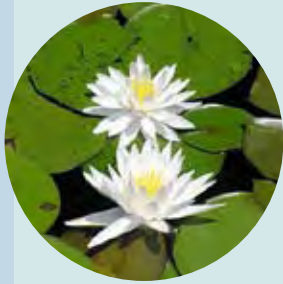
What we can do about it: Pull or rake, being very careful to remove all fragments from the water. Manual control requires persistence over many years. Herbicide can only be applied by a licensed aquatic herbicide applicator. Apply systemic herbicide to actively growing plants.

What it's confused with: Underwater stems resemble other milfoil species, but above water

stems are very distinctive and hard to confuse with anything else.

Legal Status: Class B, control required in King County.





FLOATING LEAF

12. Fragrant Waterlily *Nymphaea odorata*

What it is: Floating perennial from long, stout rhizomes. Round floating leaves (the ubiquitous “lily pads”) with the stem attached at a slit in one side. Showy flowers are usually white to pink. Key identification features: leaves are round and stay floating even as the water level drops (the stems are not stiff like our native pondlily).

Why we care: Forms dense mats on the water surface that impede recreation, creates ideal mosquito breeding areas, and can alter water quality by increasing water temperature and decreasing dissolved oxygen. Plant die-back in the fall can contribute to algae blooms.

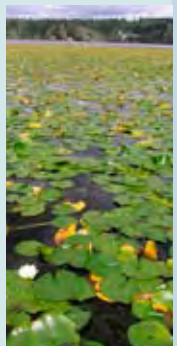
When we find it: Leaves emerge in spring and persist until fall. Flowers continuously bloom from June through October.

Where we find it: Lakes, ponds, slow-moving water up to eight feet deep. Widespread and common in King County.

What we can do about it: Pull plants or use bottom barriers to maintain small areas of open water. Use hand or mechanical weed cutters or harvesters to clear larger areas for open water, making sure to remove cut plants from water. Persistent pulling of each leaf as it emerges over several years can result in eradication. Herbicide can be applied by a licensed aquatic herbicide applicator.

What it's confused with: The native yellow pondlily (*Nuphar lutea*) has ball-shaped yellow flowers and large, heart-shaped leaves that are held out of the water as the water recedes. The native watershield (*Brasenia schreberi*) has oval leaves with no slit and the stem attached in the center of the leaf, and the lower leaf surface and stem are covered in a slippery gelatinous substance.

Legal Status: Non-regulated noxious weed, control not required in King County.



13. Yellow Floating Heart *Nymphoides peltata*



What it is: floating, bottom-rooted perennial with several leaves per stem. The small (3-10 cm) floating leaves are nearly round to heart-shaped with wavy leaf margins and purplish undersides. One to five flowers per stalk are held above the water surface, and they are bright yellow with five distinctly fringed petals. Key identification features: Small floating leaves, showy, yellow, five-petaled flowers.

Why we care: Forms dense mats on the water surface that impede recreation, create ideal mosquito breeding areas, and can alter water quality by increasing water temperature and decreasing dissolved oxygen. Plant die-back in the fall can contribute to algae blooms.

When we find it: Has habits similar to fragrant waterlily. Flowers from June through August.

Where we find it: Wetlands, lakes, ponds, slow-moving water up to 12-feet deep, also can grow in wet mud.

What we can do about it: There is little information available on the best control methods in Washington, but it can probably be controlled with methods used to control fragrant waterlily. Hand pulling may work with small infestations, but plant fragments will form new plants. Herbicide can only be applied by a licensed aquatic herbicide applicator.

What it's confused with: The native yellow pondlily (*Nuphar lutea*) has ball-shaped yellow flowers and large, heart-shaped leaves that are held out of the water as the water recedes. The native watershield (*Brasenia schreberi*) has oval leaves with no slit and the stem attached in the center of the leaf, and the lower leaf surface and stem are covered in a slippery gelatinous substance.

Legal Status: Class B, control required in King County.



SUBMERGED

14. Brazilian Elodea *Egeria densa*



What it is: Long-stemmed perennial with visibly smooth leaves in whorls of four (up to six) and small white, three-petaled floating flowers. Can top out and form mats on the surface. Key identification features: Most leaves in whorls of four.

Why we care: Spreads rapidly by fragmentation, clogs waterways, impedes recreation, outcompetes native species, reduces fish habitat, can alter water quality.

When we find it: Summer.

Where we find it: Lakes, ponds, slow-moving water up to 30 feet deep. Known infestations Lakes Union, Washington, Sammamish, Fenwick and Dolloff.

What we can do about it: Clean fragments from boats, motors and trailers after boating in infested waters to prevent spread. Hand pull small infestations, taking great care to remove all plant fragments from the water. Dense, whole-lake infestations can be mowed with a mechanical harvester to maintain open water (not recommended for partially infested water bodies). Herbicide can only be applied by a licensed aquatic herbicide applicator. Contact the King County Noxious Weed Control Program for assistance.

What it's confused with: Hydrilla (*Hydrilla verticillata*) has visibly toothed leaves in whorls of five and grows from tubers. The native American waterweed (*Elodea canadensis*) has smaller leaves in whorls of three.

Legal Status: Class B, control required in selected areas of King County.



**15. Eurasian Water
milfoil**
*Myriophyllum
spicatum*



What it is: Perennial with feathery underwater leaves, long reddish or green stems and small emergent spikes of tiny flowers. Can top out and form mats on the surface. Key identification features: leaf “feathers” have more than 14 leaflet pairs, leaves collapse against stem when plant is removed from water.

Why we care: Spreads rapidly by fragmentation, clogs waterways, impedes recreation, outcompetes native species, reduces fish habitat, can alter water quality.

When we find it: Summer.

Where we find it: Lakes, ponds, slow-moving rivers up to 20-feet deep. Fairly common in King County.

What we can do about it: Clean fragments from boats, motors and trailers after boating in

infested waters to prevent spread. Hand pull small infestations, taking great care to remove all plant fragments from the water. Dense, whole-lake infestations can be mowed with a mechanical harvester to maintain open water (not recommended for partially infested water bodies). Herbicide can be applied by a licensed aquatic herbicide applicator.

What it's confused with: Native milfoil species, which generally have fewer than 14 leaflet pairs and hold their shape out of water, and variable-leaf milfoil, a Class A noxious weed not known in



King County. All milfoils can be difficult to tell apart. If you think you have an invasive milfoil, contact the King County Noxious Weed Control Program for verification.

Legal Status: Non-regulated noxious weed, control not required in King County.



16. Fanwort *Cabomba caroliniana*

What it is: Submerged aquatic weed with opposite, finely divided fan-shaped leaves and showy pink or white

flowers held above the surface of the water. Key identification features: Fan-shaped, branched leaves on relatively long stalks, arranged opposite one another on the stem.

Why we care: Spreads rapidly by fragmentation, clogs waterways, impedes recreation, outcompetes native species, reduces fish habitat, can alter water quality.

When we find it: Summer.

Where we find it: Lakes, ponds, ditches, slow-moving water up to 30 feet deep. Not currently known from King County. Only known infestation in Washington is in channels off the Columbia River around Longview and Kelso.

What we can do about it: Clean fragments from boats, motors and trailers after boating in

infested waters to prevent spread. Hand pull small infestations, taking great care to remove all plant fragments from the water. Dense, whole-lake infestations can be mowed with a mechanical harvester to maintain open water (not recommended for partially infested water bodies). Herbicide can only be applied by a licensed aquatic herbicide applicator. Contact the King County Noxious Weed Control Program if you find this plant.

What it's confused with: Several native aquatic plants. Coontail (*Ceratophyllum demersum*) has divided leaves that are whorled around the stem. Marsh marigold (*Megalodonta beckii*) and water buttercup (*Ranunculus aquatilis*) both have similar looking submerged leaves, but they are smaller and alternate on the stem. Common bladderwort (*Utricularia vulgaris*) has conspicuous round bladders attached to the leaves.

Legal Status: Class B, control required in King County.



17. Hydrilla *Hydrilla verticillata*



What it is: Long-stemmed perennial with visibly toothed leaves in whorls of five. Flowers inconspicuous. Grows from small tubers. Key identification features: toothed leaves in whorls of five, the only aquatic plant in Washington growing from tubers.

Why we care: One of the top 10 federally listed noxious weeds. Spreads rapidly by fragmentation, clogs waterways, impedes recreation, outcompetes native species, reduces fish habitat, alters water quality. Extremely aggressive.

When we find it: Summer.

Where we find it: Lakes, ponds, ditches, slow-moving water up to 30 feet deep. The only known infestation in



Hydrilla photos by Vic Ramey, University of Florida/Center for Aquatic and Invasive Plants, used with permission.

Washington State is in Pipe and Lucerne lakes in Maple Valley/Covington.

What we can do about it: If you find this plant, call the King County Noxious Weed Control Program immediately.

What it's confused with: Brazilian elodea (*Egeria densa*) has smooth-edged leaves in whorls of four. American waterweed (*Elodea canadensis*) has smooth-edged leaves in whorls of three.

Legal Status: Class A, control required in King County.



WHAT SERVICES DOES THE COUNTY WEED PROGRAM PROVIDE TO COUNTY RESIDENTS?



- 🌿 Early detection and eradication of pioneering infestations of high-priority noxious weeds
- 🌿 Weed surveys and consultations
- 🌿 Best Management Practices and fact sheets for noxious weeds in the county
- 🌿 Cooperative Weed Management Area coordination
- 🌿 Advice on the appropriate use of weed control methods and tools
- 🌿 Training and coordination of Weed Watcher volunteers to monitor lakes for noxious weeds

🌿 Presentations and slide shows on weed identification and control



WHAT CAN PROPERTY OWNERS DO?

Prevent weed infestations:

- 🌿 Follow noxious weed laws and quarantines
- 🌿 Never put non-native plants or aquarium contents into a natural water body
- 🌿 Choose non-invasive species for gardens
- 🌿 Clean boats, trailers, boots, and other equipment before entering water or wetlands
- 🌿 Become a Weed Watcher and help find new invaders

Control weed infestations:

- 🌿 Obtain necessary permits before working in water
- 🌿 Use integrated pest management and control weeds safely and appropriately
- 🌿 Follow Best Management Practices for aquatic weeds
- 🌿 Properly dispose of noxious weeds and weed seeds
- 🌿 Contact the noxious weed program if you are unsure about what to do
- 🌿 Monitor the area and follow up as needed to keep the weeds out after the first year of control

Contact us with questions and concerns:
www.kingcounty.gov/weeds or 206-296-0290.

RESOURCES FOR ADDITIONAL INFORMATION

King County Noxious Weed Control Program,
www.kingcounty.gov/weeds or 206-296-0290

Washington State Department of Ecology, Aquatic Plants, Algae and Lakes, <http://www.ecy.wa.gov/programs/wq/links/plants.html>

Washington State Department of Fish and Wildlife: Aquatic Plants and Fish, <http://wdfw.wa.gov/hab/aquaplnt/aquaplnt.htm> or 360-902-2534

Center for Aquatic and Invasive Plants, University of Florida
<http://plants.ifas.ufl.edu/>

An Aquatic Plant Identification Manual for Washington's Freshwater Plants, Washington State Department of Ecology, June 2001, Publication 01-10-032.

A Field Guide to the Common Wetland Plants of Western Washington and Northwestern Oregon, Sarah Spear Cooke, Editor, Seattle Audubon Society, 1997.

Aquatic and Riparian Weeds of the West, Joseph M. DiTomaso and Evelyn A. Healy, University of California Agriculture and Natural Resources, 2003, Publication 3421.

WETLAND AND AQUATIC PLANTS WHOSE SALES ARE PROHIBITED IN WASHINGTON STATE "The Quarantine List"

COMMON NAME	SCIENTIFIC NAME
African elodea	<i>Lagarosiphon major</i>
Australian swamp stonecrop	<i>Crassula Helmsii</i>
Brazilian elodea	<i>Egeria densa</i>
cordgrass, common	<i>Spartina anglica</i>
cordgrass, dense-flowering	<i>Spartina densiflora</i>
cordgrass, salt meadow	<i>Spartina patens</i>
cordgrass, smooth	<i>Spartina alterniflora</i>
delta arrowhead	<i>Sagittaria platyphylla</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European frog-bit	<i>Hydrocharis morsus-rana</i>
fanwort	<i>Cabomba caroliniana</i>
flowering rush	<i>Butomus umbellatus</i>
garden loosestrife	<i>Lysimachia vulgaris</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willow herb	<i>Epilobium hirsutum</i>
hydrilla	<i>Hydrilla verticillata</i>
marsh dew flower, Asian spiderwort	<i>Murdannia keisak</i>
mud mat	<i>Glossostigma diandrum</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
reed sweetgrass, tall manna grass	<i>Glyceria maxima</i>
slender-leaved naiad, brittle naiad	<i>Najas minor</i>
swollen bladderwort	<i>Utricularia inflata</i>
water caltrap, devil's pod, bat nut	<i>Trapa bicornis</i>
water chestnut, bull nut	<i>Trapa natans</i>
water primrose	<i>Ludwigia hexapetala</i>
yellow floating heart	<i>Nymphoides peltata</i>

Index

COMMON & SCIENTIFIC NAMES

Brazilian Elodea, 36, 37

Butomus umbellatus, 14, 15

Cabomba caroliniana, 40, 41

Common Reed, 10, 11

Cordgrasses, 12, 13

Egeria densa, 36, 37

Epilobium hirsutum, 20, 21

Eurasian Watermilfoil, 38, 39

Fanwort, 40, 41

Floating Primrose-willow, 28, 29

Flowering Rush, 14, 15

Fragrant Water Lily, 32, 33

Garden Loosestrife, 16, 17

Grass-leaved Arrowhead, 18, 19

Hairy Willowherb, 20, 21

Hydrilla, 42, 43

Hydrilla verticillata, 42, 43

Iris pseudacorus, 26, 27

Ludwigia hexapetala, 28, 29

Lythrum salicaria, 22, 23

Myriophyllum aquaticum, 30, 31

Myriophyllum spicatum, 38, 39

Nymphaea odorata, 32, 33

Nymphoides peltata, 34, 35

Parrotfeather, 30, 31

Phalaris arundinacea, 24, 25

Phragmites australis, 10, 11

Purple Loosestrife, 22, 23

Reed Canarygrass, 24, 25

Sagittaria graminea, 18, 19

Spartina alterniflora, 12, 13

Spartina anglica, 12, 13

Spartina densiflora, 12, 13

Spartina patens, 12, 13

Water Primrose, 28, 29

Yellow Flag Iris, 26, 27

Yellow Floating Heart, 34, 35

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WATER



IN KING COUNTY



King County

Department of
Natural Resources and Parks
Water and Land Resources Division

Noxious Weed Control Program

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