



# Aquatic Invasive Plant Control Program

## California State Parks Division of Boating and Waterways (DBW)

### Submersed Aquatic Vegetation Approved for Control (2023 Season)

#### Brazilian waterweed

*Egeria densa*

**Submersed**



Image Credit: Jose Martinez, DBW

#### Description

- Completely submersed with roots anchored in the soil
- 3-6 leaves in a whorled arrangement
- Middle and upper leaves are between 15-40 mm (~0.50-1.50 in) long and 2-5 mm (~0.10-0.25 in) wide
- Small white flowers that extend up to 3 cm (~1.25 in) above the water surface
- Native to South America

**Growth Period:** spring - late fall; flowers June - October

**Habitat:** slow-flowing or still water in sloughs, canals, river, ponds, lakes, reservoirs; often in nutrient-rich substrates

**Control Methods Currently Used By DBW:** Herbicide

#### Curlyleaf pondweed

*Potamogeton crispus*

**Submersed**



Image Credit: Leslie Mehroff, University of Connecticut

#### Description

- Leaves are floating and/or submersed, have rounded tips, and have minutely toothed margins
- Wavy, stiff, crinkled leaves between 50-76 mm (~2-3 in)
- Develop turions, or specialized stem buds that survive unfavorable conditions. Turions resemble brown pinecones between 7-25 mm (~0.25-1 in) long
- Can be confused with Richardson's pondweed
- Native to Eurasia

**Growth Period:** early spring - late summer; flowers May - September

**Habitat:** ponds, lakes, streams, rivers, reservoirs, irrigation ditches, marsh areas

**Control Methods Currently Used By DBW:** Herbicide

#### Eurasian watermilfoil

*Myriophyllum spicatum*

**Submersed**



Image Credit: Zoya Akulova

#### Description

- Perennial with creeping underground stems; typically submersed, sometimes emergent leaves while flowering
- Finely divided, whorled leaves with more than 12 leaflet pairs
- Uniform, parallel, acutely-angled leaf segments
- Stems and growing tips often red-tinged
- Does not develop turions
- Small, pinkish, whorled emergent flowers
- Can be confused with coontail/hornwort and fanwort
- Native to Eurasia and northern Africa

**Growth Period:** spring - fall; flowers June - September; plants can die back in winter or remain green

**Habitat:** ponds, lakes, rivers, streams, canals, ditches

**Control Methods Currently Used By DBW:** Herbicide

For more detailed information, please visit: [www.dbw.parks.ca.gov/WeedControlNotices](http://www.dbw.parks.ca.gov/WeedControlNotices).

To report sightings of these invasive aquatic plants, contact DBS at 888-326-2822 or [AIS@parks.ca.gov](mailto:AIS@parks.ca.gov)



### Coontail

*Ceratophyllum demersum*

### Submersed



Image Credit: Ron Vanderhoff

### Description

- Submersed annual to perennial with firm, forked, toothed, olive-green to dark green bottlebrush-like leaves
- Stems up to 2.5 m (~8.2 feet) long
- Plants lack roots, and are free-floating or anchored by specialized buried stems
- Turions that consist of clusters of scale-like leaves at stem tips
- Small, inconspicuous, water-pollinated flowers
- Can be confused with Eurasian watermilfoil and fanwort
- Native to California

**Growth Period:** germinates in spring, slow growth through winter; flowers June - October

**Habitat:** ponds, slow-flowing streams, ditches

### Fanwort

*Cabomba caroliniana*

### Submersed



Image Credit: Micheal Finnell, DBW

### Description

- Submersed, rooted to free-floating perennial, but can have floating leaves while flowering
- Opposite leaves on short stalks without toothed margins
- Finely divided, red to green fan-shaped leaves
- Floating leaves are 1-3 cm (~0.40-1.25 in) long
- Small white to pink to purplish flowers extend above the water surface
- Can be confused with Eurasian watermilfoil and coontail/hornwort
- Introduced from the Eastern United States

**Growth Period:** spring - early fall, flowers May - September

**Habitat:** ponds, slow-flowing streams, ditches

**Control Methods Currently Used By DBW:** Herbicide

### Ribbon Grass

*Vallisneria australis*

### Submersed



Image Credit: Michael Kwong, DBW

### Description

- Submersed herbaceous perennial plant
- Forms tall underwater dense meadows
- Long strap-shaped leaves grow in clusters
- Leaves generally 0.5-1.5" wide and can be over 10' long with rounded finely-serrated tips and raised veins
- Spread by underground runners connecting plants
- No male or female flowers have been observed in the Delta
- Introduced from Australia

**Growth Period:** spring - early fall

**Habitat:** ponds, slow-flowing streams, ditches

**Control Methods Currently Used By DBW:** Herbicide

### What Can You Do?\*

- Learn how to recognize invasive aquatic plants and report all sightings to DBW
- Clean all plant fragments from watercraft and equipment, ensuring that all fragments are disposed of on land
- Avoid purchasing and using plants for landscaping until you know the potential impacts associated with the plant
- Do not release non-native species into the wild

*\*Residents that opt to participate in these activities do so at their own risk. DBW does not assume any liability for injuries or damages that may occur while residents implement these activities. Only DBW and its partner agencies are legally authorized to use mechanical and biological control, and selected herbicides. Information on hand removal and diver-assisted control methods was referenced from Biology and Control of Aquatic Plants: A Best Management Practices Handbook, 3rd edition, Aquatic Ecosystem Restoration Foundation. <http://www.aquatics.org/bmp.html>.*



# Aquatic Invasive Plant Control Program

## California State Parks Division of Boating and Waterways (DBW)

### Floating Aquatic Vegetation Approved for Control (2023 Season)

#### Water hyacinth

*Eichhornia crassipes*

**Floating**



Image Credit: Michael Kwong, DBW

#### Description

- Free-floating perennial, sometimes rooted in mud
- Shiny leaves and spongy stalks
- Lavender to white flowers with a yellow “eye-spot”
- When non-flowering and more emergent, can be confused with South American spongeplant
- Native to South America

**Growth Period:** spring - late fall; flowers June - October

**Habitat:** ponds, sloughs, channels, canals, streams, rivers, lakes

#### Control Methods Currently Used By DBW:

- Herbicide
- Mechanical Removal
- Hand Removal

#### Uruguay water primrose

*Ludwigia hexapetala*

**Floating**

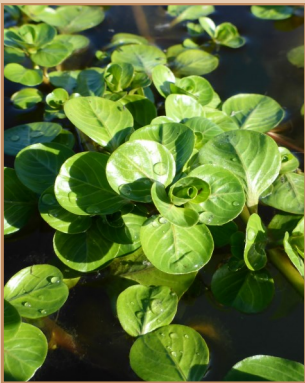


Image Credits: Left: Hoffman; Right: Janet Zipser Zipkin

#### Description

- Floating to emergent perennial with leaves and stems that creep onto land, float on the water surface, or grow upright (emergent); upright stems are slightly hairy
- Oval-shaped (surface) to willow-like (emergent) leaves
- Bright, showy yellow flowers
- When non-flowering and floating on surface, can be confused with South American spongeplant. When non-flowering and emergent, can be confused with alligatorweed, smartweed, and bur marigold
- Native to South America

**Growth Period:** spring - late fall; flowers May - December

**Habitat:** slow-flowing rivers, lake and reservoir margins, and in the shallow waters of canals and floodplains

#### Control Methods Currently Used By DBW:

- Herbicide
- Mechanical Removal

#### South American spongeplant

*Limnobium laevigatum*

**Floating**



Image Credits: Left: Michael Kwong, DBW; Right: Lars Anderson

#### Description

- Floating to rooted perennial
- Thick, spongy, floating ovate to spatula-shaped leaves; honeycomb-like spongy tissue on lower surfaces
- Juveniles develop into mature clumps up to 50 cm (~20 in) tall
- Small white flowers
- More emergent plants can be confused with water hyacinth. Floating ovate-leaved plants can be confused with water primrose
- Native to Central and South America

**Growth Period:** spring - late fall; flowers June - September

**Habitat:** ponds, sloughs, channels, canals, streams, lakes

#### Control Methods Currently Used By DBW:

- Herbicide
- Mechanical Removal
- Hand Removal

## Alligatorweed

*Alternanthera philoxeroides*



Image Credit: Top: Michael Palm, DBW; Bottom: Michael Kwong, DBW

### Description

- Aquatic to terrestrial perennial
- Aquatic form has hollow stems above and below the water, while terrestrial form has solid stems
- Lance-like to oval-shaped leaves that narrow at the base
- Leaves grow on opposite sides of each other along the stem and have distinctive midribs
- Fragrant pearly white clover-like flowers
- Stems are jointed, and can be light green, yellow, or brown to red
- Can be confused with water primrose, bur marigold, and smartweed, especially when not in bloom
- Native to South America

**Growth Period:** rapid growth in summer, survives cold winters without long periods of frost; flowers June - October

**Habitat:** shallow water in ditches, marshes, pond margins, and slow-moving waterways. May also be found terrestrially in wet soils

### Control Methods Currently Used By DBW:

- Herbicide



To report sightings of these invasive aquatic plants, contact the Division of Boating and Waterways (DBW) at (888) 326-2822 or [AIS@parks.ca.gov](mailto:AIS@parks.ca.gov)

For more detailed information about DBW's invasive aquatic plant control activities for the 2023 Season, please visit: [www.dbw.parks.ca.gov/WeedControlNotices](http://www.dbw.parks.ca.gov/WeedControlNotices)

For more general information, visit the our website: [www.dbw.parks.ca.gov](http://www.dbw.parks.ca.gov)

### What Can You Do?\*

- Learn how to recognize invasive aquatic plants and report all sightings to DBW
- Clean all plant fragments from watercraft and equipment, ensuring that all fragments are disposed of on land
- Avoid purchasing and using plants for landscaping until you know the potential impacts associated with the plant
- Do not release non-native species into the wild

#### \*Hand Removal

Pull plants from the roots. Ensure that the entire plant and all fragments are collected and removed to prevent vegetative regrowth.

#### \*Diver-assisted Hand Removal

For deeper waters and more intensive hand-pulling programs, SCUBA divers should be hired to remove plants. Divers should be followed by boats to capture escaping plant fragments.

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