

# Aquatic Invasive Species

A Guide to Identifying Threats to California Freshwater Environments



## Quagga and Zebra Mussels

*Dreissena rostriformis bugensis* and *D. polymorpha*



Quagga mussel showing 'threads.' Photo by Steve Wells, Portland State University



Zebra mussels attached to native mussel. Photo by USFWS

**Shell** – 2-shelled (bivalve), may have dark colored “threads” on one edge.

**Size** – From microscopic to up to 2” long. Free-floating (planktonic) larvae are microscopic and cannot be seen by the unaided eye.

**Color** – Usually alternating light and dark brown stripes, but can also be solid light brown to dark brown.

## Didymo or “Rock Snot”

*Didymosphenia geminata*



Clumps (early stage) of colonized didymo. Photo by Department of Conservation, NZ



Thick mat (advanced stage) of didymo attached to rock. Photo by Tim Daley, PA Department of Environmental Protection

**Algae** – Appears slimy, but feels coarse, like damp wool. Can look like wet toilet paper in streams.

**Size** – Starts as small clumps and grows to form thick mats that can cover river and streambeds.

**Color** – Pale yellowish-brown to white.

## New Zealand Mudsnail

*Potamopyrgus antipodarum*



Elongated shell with 5-6 whorls. Photo by Dan Gustafson



Dense colony of New Zealand mudsnails attached to the underside of a rock. Photo by Robyn Draheim

**Shell** – Single, elongated, right-handed coiling shell, usually consisting of 5-6 whorls, and an operculum (flap covering the shell opening).

**Size** – From microscopic up to 1/4” long.

**Color** – Variable, light to dark brown.

## Eurasian Watermilfoil

*Myriophyllum spicatum*



Flower spike. Photo by John Somerville, UK



Stems are densely branched. Photo by Alison Fox, University of Florida, Bugwood.org



Stems and flower spikes. Photo by Idaho State Department of Agriculture

**Stems** – Branched and 20-30” long, reddish-brown or whitish-pink.

**Leaves** – Arranged circularly around the stem in groups of 3-6 (usually 4). Each leaf is less than 2” long, soft, and feather-like.

**Flowers** – Form spikes 2-4” long that are held above the water. Individual flowers are 1/8-1/4” long, reddish.

**Roots** – Fibrous, often develop from small pieces broken off larger plant.

## Channeled Apple Snail

*Pomacea canaliculata*



Adult channeled apple snail shell. Photo by Georgia DNR, Wildlife Resources



Egg mass. Photo by Pete Corradino

**Shell** – Single shell with compact, deeply grooved whorls.

**Size** – Adult shells can reach up to 3” long.

**Color** – Yellowish to brown.

**Eggs** – Eggs laid in masses of 200-600, bright pink to reddish.

## Hydrilla

*Hydrilla verticillata*



Root tubers. Photo by Robert Vidéki, Doronicum Kft., Bugwood.org



Hydrilla stems. Photo by Vic Ramey, University of Florida/IFAS Center for Aquatic Invasive Plants



Saw toothed leaves. Photo by Robert Vidéki, Doronicum Kft., Bugwood.org

**Stems** – Slender, branched, up to 25’ long, and green.

**Leaves** – Arranged in groups of 2-8 around the stem, spear-shaped, 1/2-3/4” long and 1/16” wide. Often 1-2 sharp teeth along the underside of the leaf rib.

**Flowers** – Grow on long stalks and float on the surface of the water. Individual flowers are 1/8-1/4”, white or reddish brown.

**Roots** – 1/2” long, white, and may have yellowish, potato-like structures, or tubers, on the ends.