

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 Mudsail

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.