

Aquatic Invasive Species Prevention in the Middle Fork of the Salmon River

An invasive species is defined as a plant, animal, or microbe, including its seeds, eggs, spores or other biological material that is non-native to the ecosystem. The goal of the Salmon-Challis National Forest invasive species program is to reduce, minimize or eliminate the potential for introduction, establishment, spread, and impact of invasive species.

Aquatic invasive species that are of the most concern to the Middle Fork of the Salmon River are: **New Zealand mudsnails, Hydrilla, curlyleaf pond weed, zebra mussels, quagga mussels and whirling disease.**

Preventing these invasive species that are of most concern will also prevent other species.

How can you prevent the spread of aquatic invasive species?

The small size of some of these species make them very easy to overlook and accidentally transport to new locations. To minimize the potential spread, follow these simple steps.

- **CHECK** all recreational gear and clothing that has come in contact with water for any visible signs of sand, mud, or plant fragments which may indicate a tiny hitchhiker.
- **CLEAN** all gear before leaving a site by scrubbing with a brush and rinsing with water.
- **DRAIN** all of the water from your boat, trailer, tackle and gear before leaving the area.
- **DISINFECT** your gear (especially waders and boots) before traveling to a different water body. Freeze your gear for a minimum of 6 hours (< 26°F), soak gear in a hot water bath for 5 minutes (≥ 120°F) (not recommended for Gortex), or soak gear in undiluted Formula 409 for at least 10 minutes.
- **DRY** your gear completely (at least 48 hours) after each use.
- **NEVER** transport live fish or any other aquatic plant or animal from one water body to another – it is illegal!
- **Research** aquatic invasive species in areas you have been recreating to understand what species could potentially be on your boat or gear.

For more information about aquatic invasive species, please visit:

<https://stopaquaticitchhikers.org/>

New Zealand Mudsnail

- Very small aquatic snail with an elongated shell; 5-6 right handed whorls ; Usually less than ¼ inch in length; Light to dark brown in color .
- New Zealand mudsnail populations are comprised almost entirely of self-cloning parthenogenetic females (no need for fertilization here).
- The brood size of an individual female ranges from 20-120 embryos, each of which may mature to produce an average of 230 offspring per year
- A single female mudsnail can result in a colony of 40 million snails in one year.
- Have been found in the Salmon River near the Pahsimeroi.



Image from: <http://invasivespecies.idaho.gov/invasivespecies-overview>

Hydrilla

- Leaves are pointed in whorls of 4-8 (most often 5); Leaf margins are saw-toothed with one or more “teeth” on the underside of leaf midrib; Flowers are small and white in color; Scaly winter buds (turions) produced at leaf axils; Tubers are produced from roots
- Spreads through fragmentation and reproductive structures (tubers and turions)
- Currently found in the Snake River in Idaho.



Image from: <http://invasivespecies.idaho.gov/invasivespecies-overview>

Curlyleaf Pond Weed

- Submerged perennial; sprouts late in fall and can grow throughout winter
- Leaves are slightly translucent, stiff, have wavy margins, and are 3 inches long to 0.5 inches wide
- Flowers are small, brown, arranged on a terminal spike, and occur in the summer to early fall
- Reproduces by fragments and turions; high germination and viability rate of turions
- Decaying plant material can decrease oxygen levels
- Currently found across Idaho



Image from: <http://invasivespecies.idaho.gov/invasivespecies-overview>

Zebra Mussels



Image from: <http://invasivespecies.idaho.gov/invasivespecies-overview>

- Small freshwater bivalve with a triangular shape; Striped and zig-zag shell with colors that vary from dark to light to none; Stable flattened ventral side; will sit flat, unlike the Quagga Mussel; Byssal threads protrude from shell
- Usually found attached to objects in the water by means of byssal threads
- Efficient filter feeders (1 liter of water per day)
- Competes for food with other species
- Currently not found in Idaho.

Quagga Mussels

- Small freshwater bivalve with a triangular shape; Rounded shell margin; Shell halves are asymmetrical; Byssal threads protrude from shell; Brownish-yellow to black in color; Some with varying stripes
- Attaches to substrates with byssal threads
- Live in depths up to 400'
- Prolific breeder; 1 million eggs per year, per female



Image from: <http://invasivespecies.idaho.gov/invasivespecies-overview>

Whirling Disease

- A parasite that causes disease in salmonid fishes.
- Can persist for years in a dormant form as a spore.
- Myxospores can remain alive for more than 20 years in the sediment
- Penetrates the head and spinal cartilage of salmonid fish where it multiplies very rapidly, putting pressure on the organ of equilibrium. This causes the fish to swim erratically (whirl) and have difficulty feeding and avoiding predators
- Other physical signs of the disease include darkened tail, twisted spine, or deformed head.



Image from: <http://suncruisermedia.com/the-sport-fishing-guide/fishing-news/trout-whirling-disease-found-in-alberta/>