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Cornell Cooperative Extension | Saratoga County



**INVASIVE SPECIES
MANAGEMENT**
CAPITAL REGION



Aquatic Invaders of the Capital Region

**Guide to the identification of aquatic
invasive plants and animals threatening
the region**

Map Invasives



Invasive species are any plant, animal, insect, bacterium, or fungus that is non-native and causes harm to the environment, economy, and/or human health. Some species have been in the area for a very long time and other are still arriving. Identifying new species in the area is very important for preventing the harmful effects. This guide is meant to help identify aquatic invasive species in the area and provide recommendations for management and control.

MapInvasives is an online and mobile application that is used to map the location of invasive species across the state. If any of the following species are found, please report the sighting into MapInvasives. This can help the Capital Region Invasive Species Management network in developing control measures and prevent them from spreading.

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Color Code

Animals	
Emergent	
Floating	
Submerged	

Definitions

- ◆ Alternate: One leaf per plant node, leaf direction alternates with each node.
- ◆ Apex: Tip of leaf
- ◆ Axil: Point where leaf emerges from stem.
- ◆ Basal: Grows from lowest part of stem
- ◆ Benthic mat: Mats installed on body of water-body to prevent plant growth.
- ◆ Brackish: Mix of fresh and salt water.
- ◆ Bract: Specialized leaf, typically associated with reproduction, that is different color, shape, texture, etc. from other leaves.
- ◆ Compound: Multiple small parts (leaflets) emerging from the same leaf stem.
- ◆ Entire: Leaf margins are smooth.
- ◆ Monoculture: Single species growing in dense stand.
- ◆ Petioles: Stalk that attached leaf to stem
- ◆ Rhizome: Continuous underground stem that sends out shoots at its nodes.
- ◆ Sepal: Part of flower that encloses petals, usu-

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Disclaimer

- ◆ Solarize: Process of killing off plant material by exposing it to heat from suns rays.
- ◆ Stolons: Continuous underground stem that forms roots at its nodes to form new plants.
- ◆ Tubers: Potato-like structures that form underground for energy storage and forming new plants.
- ◆ Turbidity: Cloudiness of water
- ◆ Turions: Winterring bud that separates from plant and remains dormant in sediment until conditions are favorable.
- ◆ Umbel: Cluster of flowers that emerge from common point, looks like umbrella.

Brazilian Elodea

Egeria densa

Hydrocharitaceae

Submerged Perennial





- Manual and mechanical removal cause fragmentation and can lead to new populations.
- Water quality and food chain.
- Grass carp may also be used, but can change.
- Herbicide can be effective.
- Once introduced spreads by fragmentation.

Spread and Management

- Impacts wildlife movement and recreation.
- Forms dense mats that crowd/shade out plants.
- best in with higher dissolved oxygen levels.
- range of temperatures and turbidity, but grows
- Lakes, ponds, and streams. Can tolerate wide

Habitat and Impacts

- has more leaves per whorl.
- non-visible serrations. Native *Elodea* spp. but
- **Look-a-likes:** Hydrilla but lacks tubers and has June-August, stems emerge above the water.
- **Flowers:** White, three petaled flowers, bloom to form dense surface mats. Up to 15 ft long.
- **Stems:** Stiff, cylindrical, rooted in sediment, grow vertically to the surface, then horizontally
- **Leaves:** Elongated, light green, whorls of 4-8 leaves. Finely serrated (only visible under magnification).

Identification

Brittle Naiad

Najas minor

Hydrocharitaceae

Submerged annual





- Clean, Drain, Dry!
- Herbicide can be effective.
- can form new infestations.
- increase chance of producing fragments that
- tions before it goes to seed. However, this can
- Hand-pull or mechanically harvest small popula-
- Spreads by fragmentation

Spread and Management

- Can form dense mats that impede recreation.
- to outcompete native species.
- Grows and spreads very quickly which allows it
- creates spread.
- Popular food source for waterfowl, which in-
- and pollution. Can grow in depths up to 15 ft.
- Prefers calm waters and can tolerate turbidity

Habitat and Impacts

- seeds that mature by fall.
- early summer. They then develop into oblong
- **Flowers:** Small flowers emerge at leaf axil in
- **Stems:** Reddish-brown stem up to 4 ft long.
- ment on highly branched stem.
- and have serrated edges. Opposite arrange-
- **Leaves:** Long, thin, stiff leaves that curl under

Identification

Carolina Fanwort

Cabomba caroliniana

Cabombaceae

Submerged Perennial





- Herbicide or water draw downs can be effective.
- Hand pulling or seining is typically not effective due to fragmentation. Can be effective if repeated annually on small populations.
- Once introduced, spreads by fragmentation

Spread and Management

- Changes pH, dissolved oxygen levels, and nutrient levels in the water column.
- Typically found in lakes and ponds. Grows well in high nutrient, low pH, and turbid waters.
- Dense populations can change flow of water, impede recreation and crowd out native species.

Habitat and Impacts

- Blooms May to September and self pollinate.
- **Flowers:** White to pale yellow, six petaled flowers, grow on emerging stalks off floating stems. can survive for up to 6 weeks free-floating.
- **Stems:** Reddish-green stems can reach 6-10 feet with white or reddish hairs. Stem is rooted but elliptic shaped.

- **Leaves:** Submerged leaves, fan shaped, deeply divided branching pattern, opposite branching on the stem. Floating leaves are smooth and

Identification

Curly-leaved Pondweed

Potamogeton crispus

Potamogetonaceae

Submerged Perennial





- Hand-pull small, shallow populations, with care to remove entire root stock. Bag and solarize all removed material.
- Benthic mats or mechanical harvesting can be effective at reducing population size.
- Herbicide can be effective.

Spread and Management

- Grows in lakes and ponds. Thrives in variety of conditions, including poor water quality and low temperatures.
- Early spring emergence outcompetes native aquatic vegetation and ease of spread can impede recreation and even change water flow patterns.
- Hand-pull small, shallow populations, with care to remove entire root stock. Bag and solarize all removed material.
- Benthic mats or mechanical harvesting can be effective at reducing population size.
- Herbicide can be effective.

Habitat and Impacts

- **Leaves:** Alternate, elongated leaves that are toothed and wavy, grow directly attached to stem and range from green to dark brown in color and are slightly translucent.
- **Stems:** Flattened, grooved stems. Yellow or red rhizomes have rooting at the nodes.
- **Flowers:** Produces small, leaf-like, brown-green flowers in spring. Reproduces using overwintering turions that appear in mid-summer.

Identification

Eurasian Water-Milfoil

Myriophyllum spicatum

Haloragaceae

Submerged Perennial





- Clean, Drain, Dry!
- Herbicide can be effective.
- Manual and mechanical harvesting can be effective for small populations, however be careful not to generate fragments as they can start new populations.

Spread and Management

- Found in lakes and ponds of varying water quality. Can be found in brackish water.
- Outcompete and displace native aquatic plants and fish communities.
- Can form dense mats that can impede recreational opportunities.

Habitat and Impacts

- **Leaves:** Feather-like leaves grow in whorls of 4 around the stem. Each leaf has between 9 and 21 leaflets that collapse out of water.
- **Stem:** Stem typically lighter brown-pink color and branch off near surface. Rooted, submerged aquatic plant that grows between 3-13 feet deep.
- **Flowers:** Spikes of small reddish green flowers appear above the surface of the water between June and July.

Identification

Flowering Rush

Butomus umbellatus

Butomaceae

Wetland Perennial





- Herbiicide can be effective.
- Digging can be effective for small populations in areas with shallow water levels.
- Cut plant at water level multiple times throughout the growing season. Bag and dispose of all cut fragments to prevent spreading.
- Once introduced spreads by fragmentation and rhizomatic growth.

Spread and Management

- Spreads quickly, can outcompete native wetland species, and can block shorelines for recreation.
- Found in fresh water marshes, wetlands, and along lake shores.

Habitat and Impacts

- Found in fresh water marshes, wetlands, and along lake shores.
- Spreads quickly, can outcompete native wetland species, and can block shorelines for recreation.
- Seeds typically non-viable.
- **Flowers:** White to pink flowers grow in an umbel, have 3 petals and 3 petal-like sepals. Bloom between June and September in shallow waters.
- **Stem:** Green, triangular stem is stiff when out of water and limp when submerged. Has extensive root and rhizome system.
- **Leaves:** Basal leaves have a triangular cross section and twist toward the tips. Can reach 3 ft tall.

Identification

European Frog-Bit

Hydrocharis morsus-ranae

Hydrocharitaceae

Floating Perennial





- Herbicide can be effective.
- can be effective for larger populations.
- Mechanical harvesting before turion production
- Place material on land or solarize in bags.
- Hand pulling from a boat can reduce spread.

Spread and Management

- levels in the water to drop, leading to fish kill.
- Mass die off in late summer can cause oxygen vegetation and make it difficult for recreation.
- monocultures which crowd and shade out native
- Vegetative reproduction allows the growth of
- Found in slow moving, calcium rich water.

Habitat and Impacts

- summer but rarely produce seeds.
- **Flowers:** White, 3-petaled flowers bloom in early overwintering turions.
- **Stems:** Roots are free-floating and can reach up to 12 inches long. Stolons running from the center of the plant produce juvenile plants and
- **Leaves:** Small (≤ 2 in.), heart shaped, leathery, green floating leaves. Underside of leaf is brown-ish-purple with spongy appearance for floating.

Identification

Hydrilla

Hydrilla verticillata

Hydrocharitaceae

Submerged Perennial





- Herbicide can be effective as well.
- Suction harvesters may be effective during season.
- Hand pulling and mechanical harvesting can be effective if performed several times within growing season.
- Once introduced, spreads by fragmentation

Spread and Management

- Early season growth and fast growth can out-compete native plants. Dense mats impede recreation, change water flow, and interfere with fish spawning.
- Found in fresh water and is very tolerant of varying water conditions. Especially tolerant of low light conditions.

Habitat and Impacts

- **Leaves:** Bright green, pointed and serrated leaves grow in whorls of 3-10 (avg. 5) directly from the stem. Sharp "tooth" on underside of leaves along the mid-rib.
- **Stems:** Grow horizontally at the surface, forming dense mats. Can reach 30 ft long. Roots form tubers for energy storage and annual growth.
- **Flowers:** Thin flowering stalks form near the surface and small white flowers float.

Identification

Parrot Feather

Myriophyllum aquaticum

Haloragaceae

Emergent Annual





- **Leaves:** *Emergent leaves:* whorls of 4-6, stiff, feather-like compound leaves with 10 leaflet pairs. *Submerged leaves:* reddish-orange, compound leaves with 4-6 leaflets in whorls of 4-6.
- **Stems:** Round, reddish-green to green stem, up to 5 ft tall. Surface growth is horizontal with vertical shoots that can reach 1 foot above the surface. Stolons grow for dispersal, energy storage, and overwintering.
- **Flowers:** Small white flowers on leaf axil of emerging stem.

Habitat and Impacts

- Prefers shallow wetlands, banks of slow moving streams, ponds, or lakes. Grows quickly in high water and nutrient levels.
- Fast growth and spread leads to dense mats that outcompete native species, serve as habitat for mosquito larvae, and impact recreation.

Spread and Management

- Once introduced, spreads by fragmentation and stolon growth.
- Hand pulling can be very labor intensive for large infestations. Best for small populations.
- Herbicide can be effective.

Variable Leaf Milfoil

Myriophyllum heterophyllum

Haloragaceae

Submerged Perennial





- Herbiicide may be effective in the growing season.
- Mechanical harvest has also proven to be effective for larger populations when performed early in the growing season.
- Manual removal can be effective for small populations. Take care to not create fragments that can start new plants.
- Spreads primarily by fragmentation.

Spread and Management

- recreation.
- Grows thick dense mats that decrease water quality, crowd out native species, and impede on slightly acidic water.
- Found in lakes, ponds, and streams. Tolerant of

Habitat and Impacts

- emerged bracts between July and August.
- **Flowers:** Small, white flowers bloom at base of reach heights of 15 ft.
- **Stems:** Heavy and stiff, reddish-green stems can much shorter than submerged leaves.
- **Leaves:** Whorls of 4-6 submerged feather like leaves densely packed on the stem. Stiff, elongated bracts grow above the surface but are

Identification

Water Chestnut

Trapa natans

Lythraceae

Floating Annual





- Herbicide can be effective.
- from waterbody to solarize.
- Place removed material in bags or on land away
- seed production can reduce population size.
- Hand pulling or mechanical harvesting before

Spread and Management

- Impedes on recreational opportunities.
- which impacts fish communities.
- plants and cause water temperature to rise,
- Dense mats block sunlight for submerged native
- streams.
- Found in lakes and ponds or slow moving

Habitat and Impacts

- fall by mid August.
- clusters beneath the surface in late July. Nuts
- turn black when mature, appear at center of
- **Fruits:** Green nuts with four sharp spines that
- feathery leaves similar to Eurasian water-milfoil.
- in depths up to 15 ft. Stem has submerged
- **Stems:** Rooted with flexible stem that can grow
- to bulges where stem meets leaf.
- tinct veining on the underside. Leaves float due
- leaves with toothed edges, stiff hairs, and dis-
- **Leaves:** Clusters of floating, shiny, triangular

Identification

Watercress

Nasturtium officinale

Brassicaceae

Perennial Herb





- Do not release water garden individuals or seeds into free-living state.
- Herbicide can be effective.
- Manual removal is effective for small populations. Be sure to remove plant before it goes into seed to reduce the risk of spreading.

Spread and Management

- Found along the edges of cold lakes, reservoirs and slow moving streams. Prefers gravel soil and areas with high sun and humidity.
- Alters nitrogen levels in the water and forms dense mats that can change the flow of water and decrease habitat for native species.

Habitat and Impacts

- **Leaves:** Compound with 3-7 leaflets. Leaflets have wavy margins and grow between 1-4 in. Terminal leaflet is largest. Distinct peppery taste.
- **Stem:** Hollow, succulent stems, roots at nodes.
- **Flowers:** Terminal flowering spikes emerge in late spring. Flowers are white, small, and have four petals.
- **Fruit:** Light green, elongated, curved fruit forms on spreading flowering spike. Each fruit has four rows of seeds.

Identification

Water Hyacinth

Eichhornia crassipes

Pontederiaceae

Floating Perennial





- Herbiicide can be effective.
- Water draw-downs and reducing nutrient load has been effective at reducing population size.
- Oxygen, which can be dangerous to fish. flowering. Cutting can cause drops in dissolved
- Small populations can be hand pulled before
- Spreads by stolons, fragmentation and seeds.

Spread and Management

- Dense mats can reduce dissolved oxygen, crowd out native vegetation, and alter flow.
- Found in slow moving fresh water. Prefers warmer temperatures.

Habitat and Impacts

- seeds.
- **Fruit:** Three-celled capsule with many (>100) dark blue.
- **Flowers:** Spikes emerge between August and September. Flowers are lavender with the top petal containing a yellow spot surrounded by
- **Stems:** Dark, feathery free floating roots.
- 6-8 leaves per plant that grow in rosettes.
- **Leaves:** Thick, glossy, oval to lance shaped leaves. Bulb shaped petioles keep leaves afloat.

Identification

Water Lettuce

Pistia stratiotes

Araceae

Floating Perennial





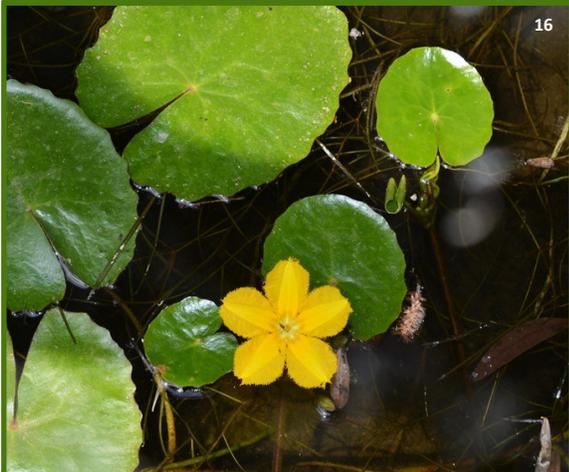
- Herbs: Feathery, dense roots reach down about 2 ft below the surface. Also produces stolons.
- **Leaves:** Grey-green leaves arranged in rosettes. Resembles head of lettuce but has distinct parallel veining and soft hairs. Leaf widens at apex.
- **Flowers and Fruit:** Small, inconspicuous flowers bloom in clusters on stalks that are hidden by the leaf axils. Several male flowers surround single female flower on a plant. Female develops into green fruit containing hundreds of seeds.
- **Habitat and Impacts**
 - Found in warm, slow moving water and is tolerant of salinity.
 - Dense mats can block access to the water for wildlife and recreation. Reduces dissolved oxygen levels and crowd out native species.
- **Spread and Management**
 - Seeds spread by water movement, wildlife, and humans.
 - Hand pulling small infestations can be effective. Mechanical harvesting is commonly used for large infestations. Both should be performed before going into seed.
 - Herbicide can be effective.

Yellow Floating Heart

Nymphoides peltate

Menyanthaceae

Floating Perennial





- Herbicide can be effective.
- going into seed and to monitor population.
- larger populations. Be sure to remove before
- ulations. Mechanical harvest can be used for
- Repeated hand-pulling is effective for small pop-
- Seeds spread by wildlife, water, and humans.

Spread and Management

- Found in slow moving streams, ponds, and lakes.
- Tolerant of anoxic environments.
- Thick mats outcompete native species, stop flow of water, and decrease dissolved oxygen in the water. Prevents recreation and harbors mosquito-
- tos.

Habitat and Impacts

- **Stems:** Stem is rooted in the ground and can grow up to 6 ft long.
- **Leaves:** Bright green leaves are round to heart shaped with wavy margins and float on the surface. Underside is purple and veiny.
- **Flowers:** Between May and October, 5-petaled yellow flowers bloom. Petals are distinctly fringed. Between 2-5 flowers grow per plant from nodes. Flowers develop into seed capsule that disperse flat, shiny.

Identification

Yellow Iris

Iris pseudacorus

Iridaceae

Perennial





- Herbiicide can be effective.
- can prevent seed production.
- Repeated mowing within the growing season protective equipment as sap can cause irritation.
- Small populations can be hand pulled or dug out, with care to remove entire root system. Wear which are spread by water.
- Seed pods burst open in fall to release seeds,

Spread and Management

- Toxic to livestock and other animals.
- Can also clog intake and drainage pipes.
- for waterfowl and other animals to get around.
- pushes out native plants and makes it difficult Rhizomes allow for dense monocultures which streams, ponds, and lakes.
- Found in wetlands and along banks of rivers,

Habitat and Impacts

- pod that can hold dozens of flat, round seeds.
- **Fruits:** Flower develops into large, green seed bloom on round stalks between May and June.
- **Flowers:** Bright yellow, three sepal flowers flowering stems are usually shorter.
- **Leaves:** Long, flat, erect leaves with sharp pointed tip. Can reach lengths up to 2 ft long, but

Identification

Asian Clam
Corbicula fluminea





- Clean, Drain, Dry.
- Bottom barriers and herbicide may be effective.
- Larvae easily spread by flowing water, boats and wildlife.

Spread and Management

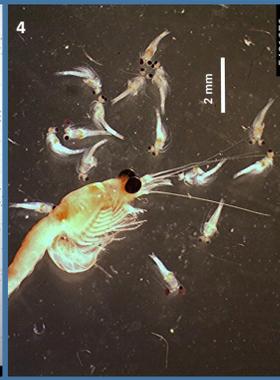
- Large infestations can clog intake pipes and other infrastructure.
- Outcompete native bivalves and high feeding efficiency can result in changes to water quality.
- Found in sandy areas of fresh waterbodies. Able to feed in the water column and substrate. Low tolerance for cold water temperatures or rapid changes in water temperature.
- Outcompete native bivalves and high feeding efficiency can result in changes to water quality.

Habitat and Impacts

- Oval-triangular shaped bivalve with dorsal beak at the peak of the shell.
- Less than 4 in. long.
- Yellowish to dark brown coloration, 1-3 brown radial bands, white bands near the beak. Interior of shell is white or purple.
- Adults can produce up to 100,000 juveniles per year. Juveniles are microscopic and free floating. Between 3-6 months, juveniles develop a shell and become docile.

Identification

Bloody Red Shrimp
Hemimysis anomala





- Do not use as live bait.
- Clean, Drain, Dry!
- Adults and juveniles spread by standing water in watercraft and possibly the aquarium trade.

Spread and Management

- a good food source for larger game fish.
- prete small fish. However, bloody red shrimp are omnivorous behavior give potential to outcompete.
- Found in slow moving fresh and brackish waters.
- Free-floating but prefers rocky or hard substrate.

Habitat and Impacts

- ter.
- the summer months in shaded areas of the water.
- Swarming behavior during the day, especially in the summer months in shaded areas of the water.
- Females carry eggs in pouch and can produce up to 5 broods in their 9 month life span.
- Flat ended tail with two terminal spines (visible under microscope or hand lens).
- Large black eyes protrude from head.
- Color varies but mostly red with areas of white.
- pairs of legs.
- Small (<0.5 in.) shrimp-like crustacean. Eight

Identification

Chinese Mystery Snail
Cipangopaludina chinensis





- Do not release aquaria or live bait into the wild.
- Clean, Drain, Dry. watercraft.
- Spread by aquaria releases and standing water in

Spread and Management

- Carry parasitic worms that can be deadly to waterfowl and outcompete native snails for food and space. Can also clog water intake pipes.
- Found in slow moving fresh water in areas with soft, muddy substrate.

Habitat and Impacts

- Females give birth to live young. Average life span is 4 years.
- Dead snails lack operculum covering and float onto shore.
- Shell is olive to dark brown with 5-7 whorls and opening on the right.
- Small (up to 3 in. tall) coiled shell snail with closed operculum.

Identification

Chinese Mitten Crab
Eriocheir sinensis





- Do not transport or use as live bait.
- Clean, Drain, Dry.
- Larvae easily spread in standing water in water-craft.

Spread and Management

- Burying in sediment can increase erosion. Also outcompete native crustaceans and can impact recreational fishing.
- Eggs hatch in salt water then spend most of adult life in fresh water until ready to mate. Can survive on land for short periods of time. Usually found buried in sediment.

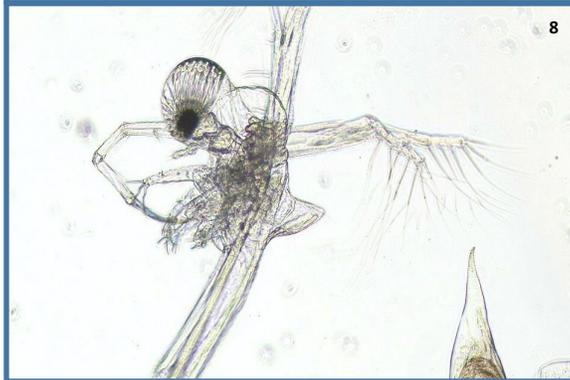
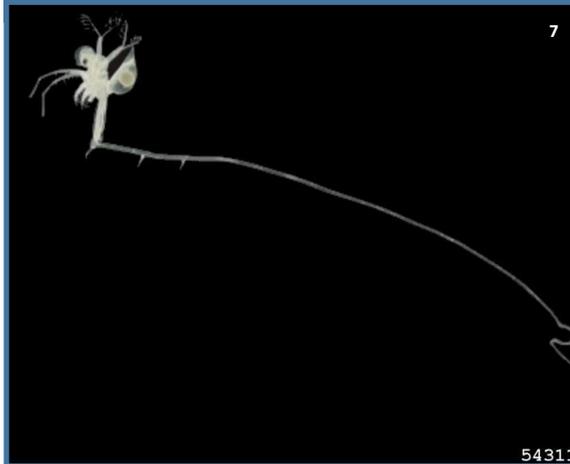
Habitat and Impacts

- Light brown to olive colored carapace that can reach 4 in. wide. Carapace is very uneven and has distinct notch between the eyes and four spines lining each side.
- Claws are equal in size and are coated in hair-like structures called setae.
- Lacks swimming legs. Has 8 pointed walking legs that double the length of carapace.

Identification

Fishhook Waterflea

Cercopagis pengoi





- Report to iMapInvasives.
- Clean, Drain, Dry.
- Spread in standing water of watercraft and on recreational gear, especially for angling equipment.

Spread and Management

- plankton and small fish.
- Fouls fishing line and outcompetes other zooplankton and small fish.
- Prefer deep waterbodies but can inhabit shallow systems. Typically found off shore. Low tolerance for changes in temperature.
- Foul fishing line and outcompetes other zooplankton and small fish.

Habitat and Impacts

- Reproduces sexually and asexually. Eggs laid in the spring are very fragile and often don't survive. Once conditions become poor for adult survival, females lay resting eggs that will hatch when favorable conditions return.
- Elongated tail with three pairs of barbs. Length can be greater than 1 cm.
- White to transparent appearance under the microscope
- Predatory zooplankton

Identification

Northern Snakehead
Channa argus



UGA1354058



11



- Piscivorous fish. Can reach lengths of up to 3 ft. Light brown to olive with dark brownish black striping pattern.
- Flattened head and mouth full of teeth.
- Single fin runs length of back. Also has elongated anal fin.
- Breed from April to August. Females can lay up to 50,000 free floating eggs in a year. Adults will protect young for several weeks.

Habitat and Impacts

- Prefers shallow ponds but can survive in lakes, rivers, and canals. Specialized chamber attached to gills allows survival outside of water for up to 4 days.
- Outcompete native fish and alter the aquatic food web. Impact recreational fishing.

Spread and Management

- Spread as bait fish and by aquarium releases. Can also travel between waterbodies on land due to ability to breath air.
- Do not release aquaria or bait fish.
- Trap nets, electric barriers, and pesticides may be effective.

Identification

Quagga Mussel

Dreissena rostriformis bugensis





- Rounded, asymmetrical shell. White coloration with brown bands that fade near the hinge. Convex ventral side causes it to tip over on flat surfaces.
- Can grow up to 1.5 in. long.
- Spawn up to 6 times per year, larvae are free-floating for 5 weeks until they attach to substrate. Average lifespan is 5 years.
- Habitat and Impacts**
- Found in freshwater at varying depths. Attach to both hard and soft substrate.
- Filter feeding can change water chemistry and impact food web. Outcompete native bivalves and can clog intake pipes and other infrastructure.
- Spread and Management**
- Spread on watercraft and fishing equipment. Larvae can be found in standing water of live wells and bilges.
- Clean, Drain, Dry.
- Pesticide can be effective.

Round Goby

Apollonia melanostomus





- Clean, Drain, Dry.
- If caught, do not release back.
- Do not use as live bait.
- Spread by ballast water of ships and natural migration.

Spread and Management

- Found in fresh and brackish water. Inhabit rocky areas, but can also survive in sandy areas and macrophyte beds. Tolerant of poor water quality.
- Feed on eggs and young of native fish. Consumption of zebra mussels allows contaminants to re-enter the food web. Vector for avian toxin.

Habitat and Impacts

- Small (3-6 in.) piscivorous fish. Light grey with black and brown speckling throughout.
- Single black dot on dorsal fin. Fused pelvic fins create suction that allow the fish to attach to rocky substrate.
- Frog-like raised eyes and large lips.
- Aggressively guard spawning and nesting sites. Prolific breeders spawn every 20 days.

Identification

Rusty Crayfish
Faxonius rusticus





- Greenish-brown carapace with distinct dark red spots on the side near the base of the tail.
- Average length is 1.5 in. but can reach lengths of up to 4 in.
- Claws have black tips.
- Mating occurs in late summer or early fall, but eggs are not laid until spring. Females lay up to 600 eggs and juveniles stay with the mom for several weeks. Average lifespan is 3-4 years.

Habitat and Impacts

- Found in fresh water lakes, streams, and ponds with rocks or debris for shelter. Must have clear, well oxygenated water for survival.
- Outcompetes native species for resources. Also linked to increases turbidity due to destruction of aquatic plant beds.

Spread and Management

- Spread by anglers using as live bait and aquaria releases.
- Clean, Drain, Dry.
- Trapping and pesticide may be effective for reducing population size.

Spiny Water Flea
Bythotrephes longimanus





- Easily spread in standing water of boat and by recreational equipment.
- Clean, Drain, Dry!
- Dump bait buckets on land, away from water-body.

Spread and Management

- Typically found in cold, deep, fresh water lakes, but can tolerate shallow water.
- Feed on small plankton that are important for fish diet. Can impact recreational fishing by collecting on equipment.

Habitat and Impacts

- Small (0.25-0.5 in.) predatory zooplankton.
- Distinct single black eye that is visible to naked eye. Usually found clumped together.
- Elongated straight tail with 1-3 spines. Makes up 60% body length.
- Cloning in spring and sexual reproduction in fall. Females have balloon-like egg pouch that can hold up to 24 eggs. Eggs overwinter in sediment and hatch when conditions are favorable, usually in spring.

Identification

Zebra Mussel

Dreissena polymorpha





- Larvae easily spread in standing water in boats and recreational gear.
- Clean, Drain, Dry.
- Pesticides may be effective for small populations.

Spread and Management

- Found in large, freshwater rivers and lakes. Attach to sediments, rocks, plants, etc.
- Filter feeding can cause dramatic changes to the food web and the water quality. Large infestations can also clog intake pipes and other infrastructure.

Habitat and Impacts

- Small, D-shaped bivalve. Can grow up to 1.5 in. long.
- Alternating dark brown and yellowish-tan bands appear as they age.
- Average lifespan is 3 years. Reproduction begins during year 2 and females can produce up to a million eggs in one year. Free floating microscopic larvae settle on sediment or surface after 3 weeks.

Identification

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For more information, visit: www.capitalregionprism.org

Ruler

Metric System

U.S. Customary



Tips on Reporting

1. Record your location.
2. Take a clear photo with an object for scale, such as a pen, your finger, or ruler.
3. Beware of native look-alikes. If you aren't sure on your identification, still report the sighting! The experts can confirm or deny.
4. Include your name, the date, and contact information on any samples.
5. Have fun! Looking for species of any kind is a great way to connect with your environment!

