

# Aquatic Invasive Species Identification Guide

Species – code

*(Scientific name)*

**Red picture border** – prohibited

**Orange picture border** – restricted

**Yellow picture border** – split listed

## Map Descriptions



**NR 40 Prohibited**



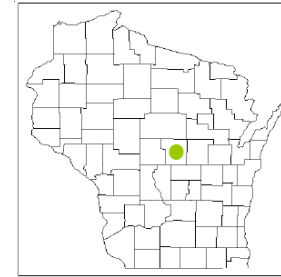
**NR 40 Restricted**



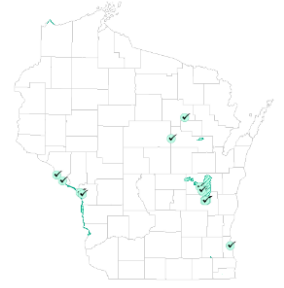
**NR 40 Split Listed**



**Herbarium Voucher**



**Historical Record**  
(most are no longer observed)




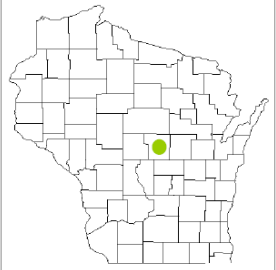




**SWIMS Records**

Staff should complete report new AIS on the Early Detection Report Form when specifically conducting AIS monitoring.

Incident Report Forms should be used when AIS are observed when not conducting AIS monitoring, but during other fieldwork or travelling.

---

## SUBMERGED AQUATIC

Species	Identification	Distribution/Notes
<p><b>Brazilian waterweed - BWW</b> <b>(<i>Egeria densa</i>)</b></p>  <p>Photos: ? (left); Washington State Department of Ecology (right)</p>	<p><b>Leaves:</b> Finely serrated (under magnification); 1-3 cm (0.4-1.2 in) long and up to <b>5 mm (0.2 in) wide</b>; occur in <b>whorls of 4-8</b>.</p> <p><b>Flowers:</b> Small (1.8-2.5 cm; 0.7-1.0 in); three white petals with yellow center; float on or rise above the surface of the water.</p> <p><b>Fruits &amp; seeds:</b> Seeds are not known to be produced outside of its native range. Spreads through vegetative reproduction - plant fragments containing double nodes can produce new plants.</p> <p><b>Roots:</b> Slender, and white or pale. Adventitious roots are freely produced from double nodes on the stem.</p> <p><b>Similar species:</b> Common and slender waterweed (<i>Elodea</i> spp.) have leaves in whorls of 3, and leaf edges appear smooth to the naked eye. <i>E. densa</i> is overall more robust than native <i>Elodea</i> spp. Non-native hydrilla (<i>Hydrilla verticillata</i>), often produces tubers and has small teeth on the underside of the leaf midrib, while <i>E. densa</i> does not produce tubers and the leaf underside is smooth.</p>	 
<p><b>Brittle naiad – BN</b> <b>(<i>Najas minor</i>)</b></p> 	<p><b>Leaves:</b> Opposite (paired), sometimes appearing whorled, and usually <b>bunched at leaf axils</b>. The leaves are typically stiff, curled and pointed, and have spines along the margins that are visible to the naked eye, if not a hand lens. Leaves are about 1 mm wide and 0.5 to 3.5 cm long (Haynes 1979).</p> <p><b>Flowers:</b> Reduced, imperfect flowers 1-2 per axil, with separate male and female flowers on the same plant (monoecious) (Haynes 1979).</p> <p><b>Fruits &amp; seeds:</b> Slightly recurved, purplish, fusiform <b>seeds</b> with tiny pits wider than long around the girth (Haynes 1979).</p> <p><b>Stems:</b> Brittle and branched towards the upward section of the plant. Internodes on the stem have conspicuous, brown, prickly teeth.</p> <p><b>Similar species:</b> Other native naiad species (<i>N. flexilis</i>, <i>N. gracillima</i>, <i>N. guadalupensis</i>) exist in Wisconsin, but can be easily distinguished as they do not have the prickles or easily visible teeth that spiny naiad has. Another invasive naiad, <i>Najas marina</i> or spiny naiad, has the visible teeth along the leaf edges and spines along the back of the leaf.</p>	 

**Curly leaf pondweed - CLP**  
**(*Potamogeton crispus*)**



Photos: Frank Koshere, Paul Skawinski

**Leaves:** Submersed and alternate; attached directly to stem; oblong leaves (1.2-9 cm [0.5-3.5 in] long, 4-10 mm [0.16-0.4 in] wide) have **distinctly wavy edges with finely serrated teeth** and 3-5 veins. Sheaths (stipules) up to 0.5 cm (0.2 in) long are free of the leaf base and disintegrate with age.

**Flowers:** Tiny, with 4 petal-like lobes; in terminal spikes (1-3 cm; 0.4-1.2 in) on stalks up to 7 cm (2.75 in) above the water surface.

**Fruits & seeds:** Seed-like achene (4-6mm; 0.16-0.24 in) including 2-3 mm [0.08-0.12 in] beak, back ridged).

**Roots:** Fibrous, from slender rhizomes.

**Similar species:** There are many native pondweed (*Potamogeton*) species found in Wisconsin. They vary considerably in leaf width, shape, and overall size, although none of them have a visibly serrated leaf margin or produce a similar pine-cone like turion. Curly-leaf pondweed emerges early in the growing season and typically dies back by mid-summer, although in cold water systems (such as spring fed trout streams) it can persist year-round.

Widespread



**Eurasian water-milfoil - EWM**  
**(*Myriophyllum spicatum*)**



Photo: Paul Skawinski

**Leaves:** Feather-like; leaves with **12 or more pairs of leaflets**; typically arranged in whorls of 4 leaves around the stem; leaves fall limp when pulled out of water; whorls of leaves spaced 1-3 cm (0.4-1.2 in) apart on stem.

**Flowers:** Small, yellow or reddish, 4-parted on a spike that projects 5-10 cm (2-4 in) above the water surface.

**Fruits & seeds:** A hard, segmented capsule containing four seeds.

**Roots:** Fibrous, often developing on plant fragments.

**Similar species:** There are several native water-milfoils (*Myriophyllum* spp.) which may be confused with EWM, however these milfoils generally have fewer than 12 pairs of leaf segments, whereas Eurasian water-milfoil leaves have 12 or more. *M. spicatum* can cross with native *M. sibiricum*, forming a viable hybrid with intermediate characteristics. Non-native parrot feather (*M. aquaticum*) often produces more than 4 leaves in a whorl and has emergent leaves. Native coontail (*Ceratophyllum demersum*) has leaves that are forked like a wishbone (not feather-like) and toothed, giving the plant a rough feel when pulled through the hand.



**European frog-bit - EFB**  
**(*Hydrocharis morsus-ranae*)**



Photo: Erich Haber

**Leaves:** Usually floating; heart-shaped with long stems; 1.2-6.3 cm (0.5-2.5 in) in diameter; smooth margins; often dark purple beneath; lateral veins are arching and make a 75-90° angle with the midvein; tissue containing airpockets are located mostly along the midvein.

**Flowers:** Three white petals with yellow center; blooms mid-summer.

**Fruits & seeds:** Rarely produces viable seeds and instead relies on vegetative stolons and turions for reproduction.

**Similar species:** Often confused with American frog-bit (*Limnobium spongia*; not known in WI), whose leaves have lateral veins that make a 30-80° angle with the midvein, and whose leaf tissue contains large air pockets throughout. White water lilies (*Nymphaea odorata*) have circular leaves with a triangular slit, and large, multi-petaled white flowers. *Nuphar* spp. have yellow cup-like flowers.

Not reported in Wisconsin



**Fanwort - FW**  
**(*Cabomba caroliniana*)**



Photos: Paul Skawinski



**Leaves:** Submersed leaves are finely divided and fan-shaped, 1.0-3.5 cm (0.4-1.4 in) long, 1.5-5.5 cm (0.6-2.2 in) wide; arranged in opposite pairs; leaves have petioles up to 4 cm (1.5 in) long; floating leaves (when present) are 0.6-3 cm (0.25-1.2 in) long, diamond-shaped with stem attached in the center, and alternate on stems.

**Flowers:** White to purplish with yellow centers; 6-15 mm (0.24-0.6 in) in diameter; at the end of 2.5-10 cm (1-4 in) long peduncles; floating; blooms May to September.

**Roots:** Short rhizomes with fibrous roots.

**Similar species:** Water marigold (*Bidens beckii*) has finely divided leaves which attach directly to the stem (non-petioled), and produces an 8-petaled yellow flower. White water crowfoot (*Ranunculus aquatilis*) has finely divided leaves which are alternative (not opposite) along the stem. Milfoils (*Myriophyllum* spp.) have feather-like leaves arranged in whorls, and inconspicuous flowers arranged on a spike which sticks out of the water.

Not reported in Wisconsin



**Hydrilla - HYD**  
**(*Hydrilla verticillata*)**



Photos: Paul Skawinski

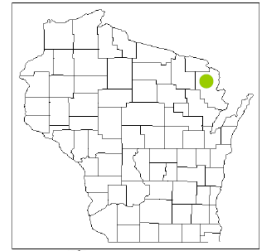
**Leaves:** Occur in whorls of 3-8; 6-20 mm (0.2-0.8 in) long and 1-4 mm (0.04-0.16 in) wide; small spines give leaf margins a visible toothed appearance; midrib on underside of leaf is often reddish and has visible spines; rough to the touch.

**Flowers:** Tiny (4-8 mm; 0.16-0.31 in); female flowers are white, have 3 petals and 3 sepals, and are located on threadlike stalks emerging from the leaf axils; male flowers are white to red/brown.

**Fruits & seeds:** Monoecious variety can set viable seed although primarily propagates through vegetative means; fruit are cylindrical, 5-10 mm (0.2-0.4 in) long, smooth or with several irregular spines; seeds are 2-3mm (0.8-0.12 in) long, smooth, brown.

**Roots:** Reproduces primarily by rhizomatous tubers and turions

**Similar species:** Common and slender waterweed (*Elodea* spp.) have leaves in whorls of 3 and the leaf edges and undersides appear smooth. Non-native *Egeria densa* is also similar, however this species does not produce tubers and the underside of the leaf midrib does not have spines.



**Parrot feather - PF**  
**(*Myriophyllum aquaticum*)**



Photos: ???, Paul Skawinski

**Leaves:** Feather-like; emergent leaves are bright blue-green, stiff and 2-5 cm (0.8-2 in) long, arranged in whorls of 4-6 leaves, and divided into 6-18 leaflet pairs; underwater leaves are often decayed, but if present, they are limp, 1.5-3.5 cm (0.6-1.4 in) long, and are divided into 20-30 leaflet pairs per leaf.

**Flowers:** Tiny (1.5mm; 0.06 in) flowers with 4 white sepals occur individually on short stalks in the axils of the emergent leaves; male and female flowers are on separate plants, but only female plants are known in North America.

**Fruits & seeds:** Because there are only female plants in North America, no fruits are produced here. Spreads through fragmentation of the stems and rhizomes.

**Roots:** Many, thin, from rhizomes

**Similar species:** Similar to other milfoils (*Myriophyllum*) species. Non-native Eurasian watermilfoil (*M. spicatum*) typically has 4 leaves in a whorl, and does not produce any emergent leaves. Other native milfoils generally have less than 12 leaflet pairs.

Documented in Pool 5 of the Mississippi River in 2012



**Starry Stonewort – SSW**  
**(*Nitellopsis obtusa*)**



Photos: Paul Skawinski

**Leaves:** Whorls of 4-6 branchlets (leaves) with blunt tips, irregular length branchlets are arranged along the main thallus (stem)

**Fruits & seeds:** Only male individuals in North America have been documented and reproduction is via fragments or vegetative structures called "bulbils" which is the main identifying characteristic. Bulbils are produced at nodes and most are found on the rhizoids. These bulbils are 3-6 mm wide, star-shaped with 5 or more points (see image below). Male specimen may produce orange-to –brown colored antheridia in branchlet axils.

**Roots:** Clear rhizoids

**Similar species:** Similar characteristics to other charophytes like *Nitella* and *Chara* species and may be difficult to distinguish from Starry Stonewort. Star-shaped bulbils are a unique feature to this species.



**Water chestnut – WCH**  
**(*Trapa natans*)**



**Leaves:** Upper leaves are alternately arranged in clusters up to 50 cm across, shiny on the upper side and dull with fine hairs underneath, and diamond-shaped with toothed edges; submersed leaves are oppositely arranged, long and narrow, with green feather-like structures that often replace the linear underwater leaves. Upper leaves are attached to the stem with an inflated petiole, which keeps them afloat.

**Flowers:** Small and solitary, four white or light-purple petals on short, thick stalks that float among the upper leaves; the four sepals turn into the spines of the fruit. Begin to flower in mid to late July.

**Fruits & seeds:** Large (2.5 cm.), variously-shaped nuts are swollen at the middle and have 2-4 sharp spines. Each nut contains a single, fleshy seed. Mature nuts sink to the bottom when dropped and may be able to produce new plants for up to 12 years.

**Roots:** Develop on shoots. Lower roots are unbranched and thread-like, while upper roots are sparsely branched and fibrous.

**Similar species:** *Trapa bispinosa* is considered a variant of *T. natans*. The nuts have two to four short spines compared to the two large spines of *T. natans*.

Not reported in Wisconsin



**Water hyacinth WH**  
**(*Eichhornia crassipes*)**



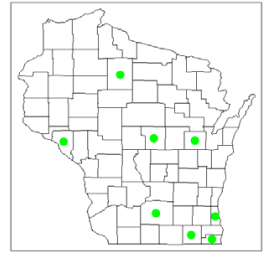
**Leaves:** Free-floating; thick green waxy leaves, rounded, circular or elliptical in shape with gently incurved sides. Leaves are formed in rosettes up to 15 cm (6 in) wide and can rise 0.3-1 m (1-3 ft) above the water.

**Flowers:** Lavender blue with a yellow blotch. Flowers have 6 petals and are 5 cm (2 in) wide.

**Fruits & seeds:** Three celled capsule with many seeds.

**Roots:** Submersed roots blue-black to dark purple, feathery, dense near root crown, tips with long dark root caps.

**Similar species:** Native pickerelweed (*Pontederia cordata*) is a rooted emergent plant with numerous tiny bluish-purple flowers densely packed into 7.5-15 cm (3-6 in) spikes atop flower stalks which rise 0.3-0.6 m (1-2 ft) above the water surface. May also be confused with emergent form of American frog-bit (*Limnobium spongia*; not known from WI). Non-native anchored water hyacinth (*E. azurea*) has leaves which are alternate rather than in a rosette, and is typically found rooted in mud rather than free-floating.



**Water lettuce - WL**  
**(*Pistia stratiotes*)**



**Leaves:** Free-floating; light green to grayish green; soft and spongy, formed in rosettes; leaves 2-20 cm (0.8-8 in) long; raised parallel ridges (veins); covered in short hairs; leaf margins slightly wavy, top margins scalloped.

**Flowers:** Inconspicuous; nearly hidden in the center amongst the leaves; on small stalk, single female flower below and whorl of male flowers above; flowers in late summer to early winter.

**Fruits & seeds:** Seeds cylindrical, light brown, and 1-2 mm (0.04-0.08 in).

**Roots:** Hang submersed beneath floating leaves; feathery, numerous.

**Similar species:** Not likely to be confused with any other plant.

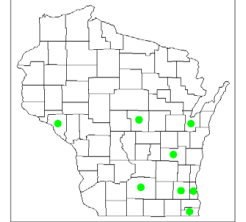


Photo: Paul Skawinski

**Yellow floating heart - YFH**  
**(*Nymphoides peltata*)**

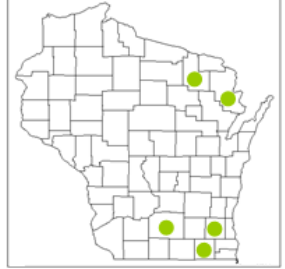


**Leaves:** Floating; heart-shaped with slightly wavy margins; 3-15 cm (1.2-6.0 in) in diameter; alternately arranged near the stem base and oppositely arranged near the top; frequently have purplish undersides.

**Flowers:** 2-5 bright yellow flowers arise from erect flower stalks; 3-4 cm (1.2-1.6 in) in diameter; 5 petals arranged like the spokes of a wheel, each with a distinctive fringe along the edge.

**Fruits & seeds:** Fruit is a pod-like capsule (1.2-2.5 cm; 0.5-1.0 in) that splits on one side. One fruit is produced from each flower, and contains many smooth, oval seeds with winged margins.

**Similar species:** Spatterdocks (*Nuphar* spp.) have much larger leaves, and cup-like flowers without fringed petals. Watershield (*Brasenia schreberi*) has small oval floating leaves often with a jelly-like covering on the undersides, and small purple flowers. Other species of *Nymphoides* such as *N. aquatica* and *N. cordatum* (native to the southern U.S.), and *N. cristata* and *N. indica* (non-native and sold as ornamental plants) are also similar in appearance.





## RIPARIAN AQUATIC

### Cattail, Broadleaf (*Typha latifolia*)

**NATIVE SPECIES**



Photo: ?

**Leaves:** 14-23 mm wide, shorter than flower spike

**Stems:** 1-3 m tall

**Flowers:** Male and female portions of spike typically together; spike < 6"

**Similar species:** *Typha angustifolia*, *Typha x glauca*

### Cattail, Narrowleaf - NLC (*Typha angustifolia*)



Photos: Robert Freckmann (left) Elizabeth J. Czarapata (right)

**Leaves:** 4-10 mm wide, taller than flower spike.

**Stems:** 1-3 m tall

**Flowers:** Male and female portions of spike separated by 2-4 cm gap; spike < 6"

**Similar species:** *Typha latifolia*, *Typha x glauca*



**Cattail, Southern – SC**  
**(*Typha domingensis*)**



**Leaves:** Pale yellow-green leaves are alternate, long, linear, flat and sheathing. There are 6-9 leaves per stem, up to 5/8 inch wide, flat on one side and convex on the other.

**Flowers:** Numerous tiny flowers densely packed into a cylindrical spike at end of a stem that can grow up to 8 feet. It is divided into an upper section of yellow, male flowers and lower cinnamon brown, sausage-shaped section of female flowers. There is a gap around 2.5-5cm between male and female flowers.

**Fruits & seeds:** Seeds are tiny (about 1 mm), dispersed by wind with the aid of numerous hairs.

**Roots:** Plants reproduce vegetatively by means of starchy underground rhizomes to form large colonies.

**Stems:** Stems are pithy, simple, erect and 5-13 feet tall.

**Similar species:** There are other species of cattail in Wisconsin that may be confused with Southern cattail. Broad leaved cattail (*Typha latifolia*) is native to WI, while narrow-leaved (*T. angustifolia*) and hybrids (*T. glauca*) are also considered invasive. Southern cattail has beige or cinnamon-colored fruiting bodies, compared to the darker auburn or brown coloration of the broad and narrow-leaved cattail fruiting spikes. Southern cattail is usually taller and has flattened and more numerous leaves than narrow-leaved cattail.

Reported in Dane County



**Cattail, Hybrid – HC**  
**(*Typha x glauca*)**



**Leaves:** Variable width and height, usually between broadleaf and narrowleaf in width.

**Stems:** 2-3 m tall

**Flowers:** Male and female portions of spike typically separated by 2-4 cm gap; spike 6" or longer

**Similar species:** *Typha angustifolia*, *Typha latifolia*

Photos: ?



**Graceful Cattail**  
(*Typha laxmannii*)



**Leaves:** Narrow green leaves grow linear and sword-like up to 5 feet tall.  
**Flowers:** Yellowish male flowers are located at the top of a flower stalk and greenish female flowers are located up to 2 inches underneath.  
**Fruits & seeds:** After pollination the female flowers turn brown similar to other cattail species as the seeds mature. The seeds are tiny (about 1 mm), dispersed by wind with the aid of numerous hairs.  
**Roots:** Plants can spread vegetatively by means of starchy underground rhizomes to form large colonies.  
**Similar species:** There are other species of cattail in Wisconsin that may be confused with graceful cattail. Broad leaved cattail (*Typha latifolia*) is native to WI, while narrow-leaved (*T. angustifolia*) and hybrids (*T. glauca*) are also considered invasive. Graceful cattail is smaller than the other species of cattail and its fruiting spike is smaller than other species (typically around 4 inches).

Has been verified in Milwaukee and Waukesha Counties



**European Marsh Thistle – EMT**  
(*Cirsium palustre*)



**Leaves:** First-year rosettes are spiny, long, deeply lobed and **hair on the underside**. On second year flowering plants, leaves are 6 to 8 inches long near the base and shorter toward the top and tipped with spines.  
**Stems:** flowering stems are **4-5' tall**, erect, thick, sometimes reddish in color, branched at the top and bristling with **spiny wings aligned with the stem**. Much of plant covered in long, sticky hairs.  
**Flowers:** Clusters of 12 or more spiny purple flower heads up to 0.75" wide; bracts have spineless tips. Typically bloom in June and July.  
**Fruits & seeds:** Small, hard and elongated with a tuft of feathery bristles at the top. Dispersed by wind.  
**Roots:** Fibrous.  
**Similar species:** Canada thistle (*Cirsium arvense*; invasive) has spiny leaves, but non-spiny stems and flower heads. Bull thistle (*Cirsium vulgare*; invasive) and plumeless thistle (*Carduus acanthoides*; invasive) have sharply spined leaves, stems and flower heads. Native marsh thistle (*Cirsium muticum*), occurs in similar habitats as European marsh thistle, but has non-spiny stems and flower heads.



Photos: ?

**Flowering rush - FR**  
**(*Butomus umbellatus*)**



Photos: Paul Skawinski

**Leaves:** Emergent leaves are stiff and **triangular** in cross-section; up to 1 m (3 ft) tall and 1.3 cm (0.5 in) wide. May remain submerged and/or floating if water level is too deep.

**Flowers:** White to pink-rose in color; **3 petals, 3 sepals**, and red anthers; terminal umbels on stalks bloom June-August; will not flower in deep waters.

**Fruits & seeds:** Clustered follicles with long beaks containing many seeds that are generally not viable.

**Roots:** Rhizomes that aid in vegetative growth also produce small bulbs, or bulblets, that are easily dispersed by water.

**Similar species:** Native bur-reeds (*Sparganium* spp.) are another shallow-water emergent that is roughly the same height as flowering rush, however, bur-reeds have V-shaped leaves and the female flower parts look like small, spiked balls. Flowering rush leaves also lacks cross veins which are evident in bur-reeds and arrowheads (*Sagittaria* spp.)



**Hairy Willow Herb**  
**(*Epilobium hirsutum*)**



**Leaves:** **Opposite and stalkless**, with sharply toothed edges and a prominent central vein. They are **oblong-lance shaped**, 2-5" long and widest below the mid-point.

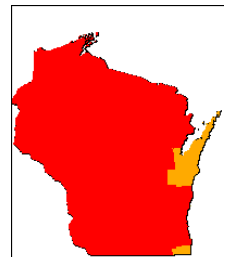
**Stems:** tall and branching; grows **3-6' tall**, with fine, **soft hairs** covering the entire plant.

**Flowers:** Numerous, 0.75" wide, **rose-colored flowers** arise from the leaf axils. Each flower has **4 notched petals**, 4 sepals and a white four-lobed stigma rising above the bloom. Blooms mid-late summer.

**Fruits & seeds:** Fruit is a 2-3" long, tubular capsule, containing many small, oblong, flattened seeds, each with a tuft of silky white hairs that aids in wind dispersal.

**Roots:** Large root system with branching rhizomes that grow up to 2' long.

**Similar species:** Native fireweed (*Epilobium angustifolium*) can be distinguished from hairy willow herb by its alternate leaves and multiple stalked flowers arranged in a terminal raceme



**Giant Hogweed – GH**  
**(*Heracleum mantegazzianum*)**



**Leaves:** Compound, 1-5' wide, palmate, deeply lobed, and pointed. Undersides of leaves are covered in coarse white hairs and the leaf stalk also has purple mottling. Immature rosette leaves often not lobed, resembling large violet leaves

**Stems:** Reaches up to 8-20' when in flower and has hollow, ridged stems covered in coarse white hairs and reddish-purple mottling.

**Flowers:** Large umbels, up to 20" wide across its flat top, with many white, 5-petal flowers that bloom from May-July.

**Fruits & seeds:** Fruits are 2 winged mericarps that each contain 1 flattened, oval to elliptical seed. On average, plants produce approximately 20,000 seeds with a germination rate of more than 50%. Seedlings germinate after exposure to cold temperatures.

**Roots:** Large, deep taproot.

**Similar species:** American cow parsnip (*Heracleum lanatum*; native) is 3-7' tall with non-mottled flower stems and pinnately divided leaves. Great angelica (*Angelica atropurpurea*; native) is smaller with a smooth, purplish stem, spherical umbel and pinnately compound leaves. Glade mallow (*Napaea dioica*; native) is 3-6' tall with leaves 4-12" with 5-9 deep lobes that are coarsely toothed. Poison hemlock (*Conium maculatum*; invasive) has similar stem and coloring, but is hairless and 3-10' tall.



**Japanese hops**  
**(*Humulus japonicus*)**



**Leaves:** Opposite, 5-12.5 cm (2-5 in) long, with serrated edges and palmately divided into 5 or more lobes; petioles are as long as or longer than length of leaves.

**Flowers:** Originate in leaf axils, are dull green with 5 petals on spikes; male and female flowers are on separate plants; male flowers are upright while female flower clusters droop; blooms from July-September.

**Fruits & seeds:** Achenes are yellow-brown in color.

**Stems:** annual, herbaceous vine up to 35 feet long with downward pointing prickly hairs and no tendrils.

**Similar species:** Native hops (*H. lupulus*) have 3-lobed leaves with petioles shorter than the length of the leaf. Native wild cucumber is 5-lobed but has tendrils and no prickly hairs on its stem.



**Japanese stilt grass - JSG**  
**(*Microstegium vimineum*)**



**Leaves:** annual grass resembling a small, delicate **bamboo**; mature plants grow to 2-3 ft. in height

**Flowers:** fruits and seeds: hidden (cleistogamous), self-fertilizing flowers in axils and/or exposed (chasmogamous) flowers in terminal racemes of paired, **hairy spikelets** that open and are wind-pollinated; fruits awned and bristly; late summer to fall

**Fruits & seeds: ?**

**Similar species:** Virginia cutgrass (*Leersia virginica*), hairy jointgrass or small carpetgrass (*Arthraxon hispidus*), and possibly other delicate grasses and wildflowers like Pennsylvania knotweed (*Polygonum persicaria*).

-Source: <https://www.nps.gov/plants/alien/pubs/midatlantic/mivi.htm>

Not reported in Wisconsin



**Java waterdropwort – JWD**  
**(*Oenanthe javanica*)**



Photos by Graham and Steckart

**Leaves:** Lush green pinnate leaves resemble large flat parsley or celery foliage. A popular cultivar ‘Flamingo’ has white to pink edges to the leaves.

**Flowers:** Tiny white flowers bloom in umbels at the ends of stalks in late summer/early autumn.

**Fruits & seeds:** Similar to other members of the carrot family they form small oval seeds at the top of the flowering stalks. Controlling the seed heads will not prevent this plant from spreading.

**Roots:** Fibrous roots that can form from parts of stem touching the ground or in water.

**Stems:** The jointed stems are hollow and often grow spreading along the ground. They are fairly brittle and can break off easily and take root.

**Similar species:** Very similar in appearance and habit to *Aegopodium podagraria* (bishop's weed); a similarly invasive ground cover plant. In general, there are many white-flowered look-alikes in the parsley family. One example is Queen Anne’s lace (*Daucus carota*; non-native), a widespread weed in Wisconsin, with fern-like leaves, but leaves and stems are hairy. When crushed, it smells like carrots. Other look-alikes include wild chervil (*Anthriscus sylvestris*; invasive), caraway (*Carum carvi*; non-native), poison hemlock (*Conium maculatum*; invasive), Chinese hemlock parsley (*Conioselinum chinense*; native), native sweet cicely (*Osmorhiza* spp.).

Has been verified in Green, Milwaukee and Waukesha Counties



**Knotweed, Bohemian – BKW**  
**(*Fallopia x bohemica*)**



**Leaves:** Simple, alternate, 3-4" wide and 4-6" long. Leaves are spade-shaped and more heart-shaped on young shoots. They have long petioles that are broad at the base and narrow to a fine point. The upper surface is dark green while the lower surface is pale green.

**Stems:** erect, arching stems (resembling bamboo). Stems are round, smooth, and hollow with reddish-brown blotches. Plants reach up to 15' and the dead stalks remain standing through the winter.

**Flowers:** Creamy white or greenish; tiny 0.125" wide; borne in plume-like clusters in upper leaf axils near the end of stems. Bloom August through September.

**Fruits & seeds:** Seeds are small, triangular, shiny, black produced by female plants; rare since colonies seldom have both male and female plants. The seed is enclosed in a winged calyx that contributes to its buoyancy. The seeds have no dormancy requirement and germinate readily. Seeds are not always produced in hybrids.

**Roots:** Roots are white and present along the rhizome. Plants can also produce adventitious roots on lower stems. Roots extend deeply into the soil creating a dense impenetrable mat.

**Similar species:** It has hollow stems with distinct raised nodes that give it the appearance of bamboo, though it is not related. Bohemian knotweeds morphology can be varied, resembling either parent to a degree across a spectrum. The best way to tell them apart is by their leaf bases, Japanese knotweed is squared off while Giant knotweed (*Polygonum sachalinense*) is heart shaped and with much larger leaves.



**Knotweed, Giant – GK**  
**(*Fallopia sachalinense*)**



**Leaves:** Alternate, simple, dark green. Leaves are 6-14" long and have a heart-shaped base coming narrow to a point.

**Flowers:** Numerous small, greenish-white flowers appear in the leaf axils of the upper stems. Blooms are up to 4" long and occur during August-October. Giant knotweed blooms have both male and female parts in the same flower.

**Fruits & seeds:** Fruits are papery and broadly winged. Each fruit contains a 3-sided achene that is small, shiny and brown. Small amounts of seed are viable and have no dormancy requirement.

**Roots:** Rhizomes that extend deeply into the soil creating a dense impenetrable mat.

**Similar species:** Japanese knotweed (*P. cuspidatum*) and Bohemian (hybrid) knotweed (*P. cuspidatum* x *P. sachalinense*) look very similar but can be distinguished by the type of hair on the veins on the undersides. Each species are equally as invasive. Japanese knotweed leaves are abruptly squared at base and the flowers are dioecious. It has hollow stems with distinct raised nodes that give it the appearance of bamboo, though it is not related. Young plants are most commonly mistaken for rhubarb, and referred to as donkey rhubarb.



**Knotweed, Japanese – JK**  
**(*Fallopia japonica*)**



**Leaves:** Simple, alternate, 7.5-10 cm (3-4 in) wide and 10-15 cm (4-6 in) long; **spade-shaped** to more heart-shaped on young shoots; long petioles are broad at the base and narrow to a fine point; upper surface is dark green while the lower surface is pale green.

**Flowers:** Creamy white or greenish; tiny 3 mm (0.125 in) wide; borne in **plume-like clusters** in upper leaf axils near the end of stems; blooms August to September.

**Fruits & seeds:** Seeds are small, triangular, shiny, and black; rare since colonies seldom have both male and female plants; seed is enclosed in a **winged calyx** that contributes to its buoyancy.

**Roots:** Roots are white and present along the rhizome; plants can also produce adventitious roots on lower stems; roots extend deeply into the soil creating a dense impenetrable mat.

**Similar species:** Japanese knotweed has **hollow stems** with distinct raised nodes that give it the appearance of **bamboo**, although it is not related. Also similar in appearance to Giant knotweed (*Polygonum sachalinense*; invasive); which can hybridize with Japanese knotweed. Japanese knotweed has a leaf base which is squared off while Giant knotweed is heart shaped.



**Lesser celandine - LC**  
**(*Ranunculus ficaria*)**



**Leaves & stems:** Leaves are dark-green, shiny, and **kidney to heart-shaped** on **short stalks**. Leaves emerge from a basal rosette in **early spring** before canopy trees leaf out.

**Flowers:** Flowers are bright **butter-yellow**, glossy, and usually have **8 petals** (although sometimes up to 12), arranged around central disk. Numerous 1" flowers are borne singly on stalks. Flowers open in early spring, March to April.

**Fruits & seeds:** This species does produce viable seed, up to 70 seeds per plant. After flowering, aerial vegetation dies back and entire plants can be dead by June.

**Roots:** **Above-ground whitish bulblets** are produced on the stem axils, usually forming after flowering. Below-ground rhizomes are thick, finger-like tubers. These storage organs keep the plant alive through summer-fall when above-ground portions of the plant have senesced.

**Similar species:** Lesser celandine resembles marsh marigold (*Caltha palustris*. Marsh marigold is a native wetland plant found throughout eastern United States. Marsh marigold contains 5-9 yellow "petals" (actually sepals), while lesser celandine often contain 8 petals. Marsh marigold also does not produce tubers or bulblets.

Lesser celandine varieties include 'Pencarn' and 'Buttered Popcorn'. Notable traits of these varieties are leaves variegated with silver markings and double flower heads. These varieties are considered equally as invasive.

This species is unrelated to greater celandine (*Cheidonium majus*).





**Low or waxy mannagrass  
(*Glyceria declinata*)**



**Currently not NR40 listed (2019).**

From John G. Zaborsky, PhD

Low-growing, spreading habit, long spikelets, and lemmas with three apical teeth

From [https://wric.ucdavis.edu/information/natural%20areas/wr\\_G/Glyceria.pdf](https://wric.ucdavis.edu/information/natural%20areas/wr_G/Glyceria.pdf)

**Stems:** 4" to nearly 20" long, often lay close to the ground or are decumbent (lying along the ground or along a surface, with the extremity curving upward)

**Leaf:** blade surface is glabrous with scabrous margins. The ligule is 4-9mm and membranous with a ciliate tip.

**Flower:** an open panicle, 1-12" long and is linear or lanceolate. Spikelets can be ascending, appressed or nodding on the stem.

Has been reported in Dane (Fitchburg) and Winnebago (Menasha) Counties.

**Manchu tubergourd  
(*Thladiantha dubia*)**



**Currently not NR40 listed (2019) Description from**

<https://www.minnesotawildflowers.info/flower/manchu-tubergourd>

**Leaves & Stems:** Leaves are alternate, heart-shaped, 2 to 6 inches long, 1½ to 4 inches wide, minutely toothed around the edge, on a stalk up to 2½ inches long. Opposite a leaf is a long, unbranched, hairy tendril that winds around other vegetation to help the vine climb. Stems are light green and weakly angled. Leaves, stalks and stems are all covered in a mix of long straight and short hooked hairs, the hooked hairs sticking like Velcro™ to anything and everything, even skin.

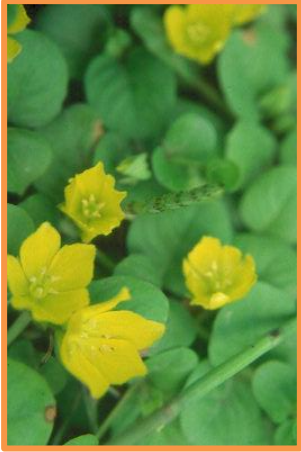
**Flower:** One to a few stalked flowers arising from leaf axils all along the stem, with separate male and female flowers on different plants (dioecious). All flowers are about 1 inch long, yellow, bell-shaped with 5 recurved lobes. Male flowers have 5 short yellow stamens inside the tube; female flowers have a 3-parted style with disc-shaped stigma. The calyx surrounding the flower has 5 oblong, recurved lobes, is light green and covered in long, white hairs on the outer surface. Flower stalks are covered in a mix of long straight and short hooked hairs.

**Fruit:** Fruit is berry-like, oval-elliptic, up to 2 inches long, with a hairy, green to red rind around fleshy pulp containing numerous gray to black seeds. Plants also reproduce by below ground tubers, similar to small potatoes.

Can spread by below-ground tubers connected by rhizomes.



**Moneywort – MW**  
**(*Lysimachia nummularia*)**



**Leaves:** Simple; opposite, round, 0.5 to 1" long; shiny have short leaf stems, remain green most of the year.

**Stems:** **Trailing**; low-growing, smooth; 6-24" long; branch frequently to form mat-like growth. Stems can grow to 2 feet long.

**Flowers:** **Yellow with small dark red dots**; arise from leaf axils; wheel-shaped; 5 petals; 1" in diameter; have slender stalks; bloom June to August.

**Similar species:** Ground ivy (*Glechoma hederacea*)



**Narrow-Leaf Bittercress – NLB**  
**(*Cardamine impatiens*)**



**Leaves:** Basal rosettes are deeply divided. Leaves contain 3-11 round-lobed leaflets. Stem leaves are opposite. Leaves and stems are hairless.

**Flowers:** Self-pollinating. Small white flowers bloom in late spring through late summer.

**Fruits & seeds:** Long slender siliques (seed pods), produce prolific amounts of seeds (over 5,500 seeds on an individual plant) that eject when mature.

**Roots:** Taproot with shallow fibrous rootlets.

**Similar species:** Narrow leaf bittercress can be mistaken for many other species in the mustard family.

Not reported in Wisconsin



**Non-native Phragmites - PHRG**  
**(*Phragmites australis* ssp. *australis*)**



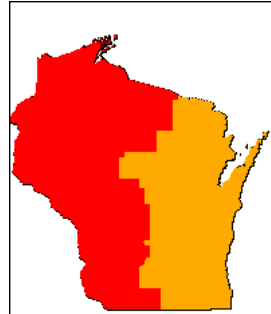
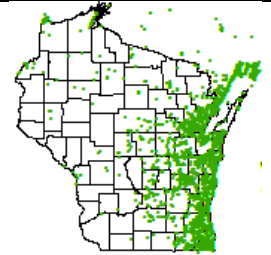
**Leaves:** Smooth, linear leaves are 15-60 cm (6-24 in) long, 1-6 cm (0.4-2.4 in) wide, and blue-green in color; leaf sheaths tightly clasp the stem, are difficult to remove, and stay on throughout winter; black line and long, white hairs (ligule) are present at the junction of leaf and sheath.

**Flowers:** Bushy, light brown to purple plumes are composed of spikelets that bloom July-September; plumes are 19-38 cm (7.5-15 in) long and resemble feather dusters.

**Fruits & seeds:** Small and tan with many white hairs attached.

**Roots:** Stout oval rhizomes can reach up to 1.8 m (6 ft) deep and 3 m (10 ft) horizontally.

**Similar species:** Native Phragmites (*Phragmites australis* ssp. *americanus*) has smooth, flexible stems, often with shiny, round, black spots (a fungus). Its inflorescence is usually sparser than non-native Phragmites, as are most patches where it grows. Several species of ornamental grasses (*Miscanthus* spp.) can be confused with Phragmites due to their showy, feathery plumes. However, they have smaller diameter stems, narrower and longer leaves, sometimes with a white mid-rib and white inflorescences.



**Perennial or Broadleaved**  
**Pepperweed**  
**(*Lepidium latifolium*)**



**Leaves:** Rosette leaves are up to 12" long with serrated margins and 1-6" long petioles. Cauline leaves are waxy, gray-green, and senesce as the top of the plant develops. Also, cauline leaves are alternate, sessile, elliptical and much smaller than basal leaves. They are tapered at the base and have weakly serrate margins.

**Stem:** An herbaceous, multi-stemmed perennial can reach to 5' tall, but remains as a rosette for several weeks before bolting. Stems die back by late summer and the plants have a horseradish taste and odor.

**Flowers:** Small, white flowers form dense cluster at the tops of the stems. Flowers have 4 small green sepals and 4 small petals.

**Fruits & seeds:** Each flower produces a 2-chambered capsule with one somewhat flattened red-brown seed in each chamber.

**Roots:** Thick taproots can be up to 6' deep, form semi-woody crowns, and have creeping rhizomes.

**Similar species:** Hoary cress (*Cardaria draba*; non-native) looks slightly like perennial pepperweed but is only up to 3' tall and leaves clasp the stem.



**Poison Hemlock**  
**(*Conium maculatum*)**



**Leaves:** Pinnately compound, toothed, 8-16" long and broadly triangular. Leaf veins end at the tips of the tooth margins. Leaves are shiny, green, and emit an unpleasant odor when crushed.

**Flowers:** Numerous, small, 5-petaled white flowers in umbels 4-6" across, are at the end of an individual stem that extends from a common stalk. Bloom May-August.

**Fruits & seeds:** Seeds are ridged and flat. A single plant produces over 30,000 seeds.

**Roots:** Thick, white taproot.

**Similar species:** Water hemlock (*Cicuta maculate*; native) has leaf veins that end in the notches between the tooth margins of the leaflets. Giant hogweed (*Heracleum mantegazzianum*; invasive) has a hairy stem and larger, less divided leaves.



**Policeman's Helmet**  
**(*Impatiens glandulifera*)**



**Leaves & stems:** Fleshy, smooth, hollow stems with a reddish color. Stems are multi-branching with distinct swollen nodes. Leaves are large, simple, and toothed, with a pointed tip. Leaves are arranged opposite or are often whorled in groups of three.

**Stems:** Hollow stems and swollen nodes, growing up to 8-10 feet tall.

**Flowers:** Flowers resemble an English policeman's helmet, giving this plant its common name. Flowers are spurred, five parted, and pink to white to purple in color. Flowers arise from the leaf axils.

**Fruits & seeds:** Seeds eject from mature seedpods when touched. Seeds are viable in the soil for 12-18 months.

**Roots:** Fairly shallow, fleshy roots.

**Similar species:** Policeman's helmet could be mistaken for other members of the genus *Impatiens*. This species pinkish-purple flowers, swollen nodes and serrated leaves distinguish it from two native Wisconsin jewelweed species (*Impatiens capensis*, *Impatiens pallida*).



**Purple loosestrife – PL**  
**(*Lythrum salicaria*)**



**Leaves:** Simple, lance-shaped and attached directly to the stem; usually opposite and rotated 90° from those below, but are sometimes whorled.

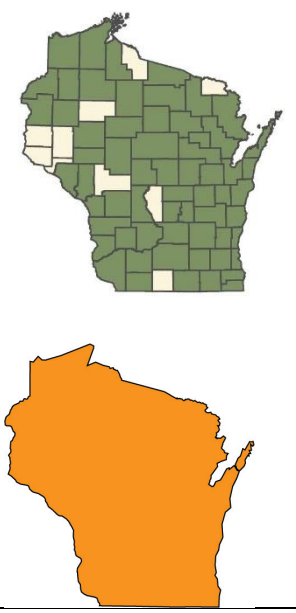
**Flowers:** Closely attached to the stem with 5-6 purple-pink colored petals; blooms from the bottom of the flower spike to the top from late June to September; plants can bloom the first year after seeds germinate.

**Fruits & seeds:** Capsules burst open when mature in late July-September.

**Roots:** Large woody taproot and many side roots; plants intertwine to form dense clumps.

**Stems:** Green, sometimes tinged purple, stiff, erect, and generally 4-sided (older stems, 5 or 6 sided).

**Similar species:** Garden loosestrife (*Lysimachia vulgaris*) is a non-native, wetland garden escapee with yellow flowers. Smaller, native winged loosestrife (*L. alatum*) is found in moist prairies and wet meadows, has winged, square stems, solitary flowers in separated leaf axils, paired lower leaves and alternate upper leaves. Swamp loosestrife (*Decodon verticillatus*) arches out from shorelines, has mostly whorled leaves, and flowers in well-separated leaf axils.



**Queen of the Meadow – QM**  
**(*Filipendula ulmaria*)**



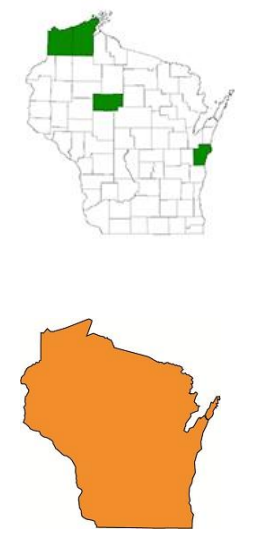
**Leaves & stems:** Pinnately compound dark-green leaves with 5 pairs of leaflets, coarsely toothed and deeply veined. Leaves are hairy and whitish on the undersides. Stems are woody at the base. Tiny leaflets occur on stems between the leaves.

**Flowers:** Showy and fragrant. Branching panicles or cymes (erect clusters) of small, white-cream colored flowers. Individual flowers have 5 petals and numerous stamens, giving the flowers a "fuzzy" appearance.

**Fruits & seeds:** Spherical, irregular and twisting. Resembles cultivated garden Nasturtium seeds.

**Roots:** Produces rhizomes (stem-roots), which aid in their spread.

**Similar species:** *Filipendula rubra* is a common ornamental plant native to southeastern United States. Leaves are palmately compound and flowers are pink in color.



**Tall Manna Grass – GLY**  
**(*Glyceria maxima*)**



Photo from top clockwise: Jason Granberg, unknown, Brock Woods, Leslie J. Merhoff, L. Merhoff

Other names for this plant include:

- Common names: reed sweetgrass, reed manna grass, English water grass
- Scientific names: *G. aquatica*; *G. spectabilis*; *Molinia maxima*; *Panicularia aquatic*

**Leaves:** Leaves protrude at angle from white base, with broad, flat, rough-edged blades, but strongly “V” shaped at their base. Leaf sheaths fused inches below juncture with blade (in wetlands unique to *Glyceria* grasses).

**Flowers:** Erect, sturdy panicle with spikelets several-flowered (1-2.5 mm wide). Spikelet ovate, 5 to 10 mm long with lateral compression. Lemmas with conspicuously raised veins, awnless, and upper glumes with 1 vein.

**Fruit & seeds:** Seeds are dark brown (1.5 to 2 mm long)

**Stems:** Unbranched up to 8 feet tall. Often lays down and appears shorter. 5-10 leaves per stem.

**Similar species:** *Glyceria grandis* is shorter (to 5 feet); has smooth leaf edges; a weak, nodding panicle; 4 to 6 mm spikelets, and only 3-6 leaves per stem.



**Seaside Goldenrod – SG**  
**(*Solidago sempivirens*)**



**Leaves & stems:** Perennial plant base is woody. Plants have narrow basal leaves. Leaves on stem are alternate and sessile (attaching without leaf stalks). Stalks are thick and fleshy with wings.

**Flowers:** Deep yellow- golden colored composite flowers have disk and ray florets. Inflorescence is pyramidal in shape. Flowering occurs from top to bottom.

**Fruits & seeds:** Prolific seed producer.

**Roots:** Thick, fleshy, spaghetti-like roots.

**Similar species:** Numerous goldenrods (*Solidago spp.*) are native to Wisconsin. Visit the [Robert W. Freckmann Herbarium](#) webpage for more information.



**Yellow flag iris**  
**(*Iris pseudacorus*)**



Photo: Granberg

**Leaves & stems:** Broad, sword-shaped leaves grow upright, tall and stiff; green with a slight blue-grey tint.

**Flowers:** Showy and variable in color from pale to **dark yellow**; need flowers to know ID, but should still take pictures of plant is suspected. 7.5-10 cm (3-4 in) wide and on a stem which can be 1.0-1.2 m (3-4 ft) tall; blooms from April to June; three upright petals are less showy than the larger three downward pointing sepals, which may have brown to purple colored streaks.

**Fruits & seeds:** Fruits are 6-angled capsules, 5-10 cm (2-4 in) long; each fruit may have over 100 seeds that start pale before turning dark brown; each seed has a hard outer casing with a small air space underneath, which allows the seeds to float.

**Roots:** Thick, fleshy pink-colored rhizomes spread extensively in good conditions, forming thick mats that can float on the surface of water.

**Similar species:** When not flowering, yellow flag iris could be easily confused with native blue flag irises (*I. versicolor* and *I. virginica*) as well as other ornamental iris that are not invasive. Blue flag irises are usually smaller and do not tend to form dense monocultures. Yellow flag iris which is not in flower may also be confused with other emergent plants such as cattails (*Typha spp.*), sweet flag (*Acorus spp.*), or bur-reeds (*Sparganium spp.*).



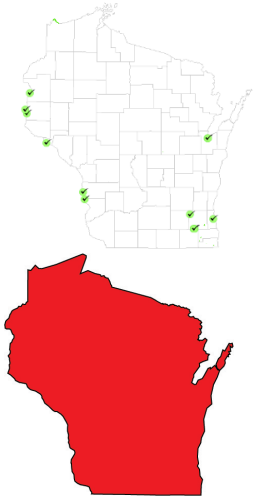
## INVERTEBRATES

### Asian Clam - AC (*Corbicula fluminea*)

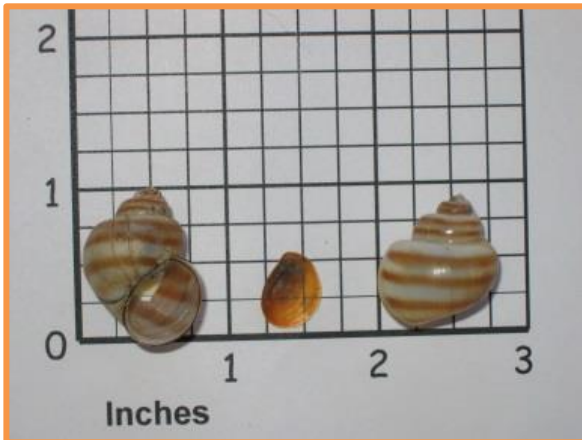


Photo: WDNR

Asian clam is a freshwater bivalve mollusk. The outside shells are yellow-green to brown with **elevated concentric rings**. If the color chips away, white spots can be seen underneath. The inside of the shells may be **light purple**. Adults are small, usually less than 1 1/2" in length.



### Banded mystery snails - BMS (*Viviparus georgianus*)



Often smaller than Chinese mystery snails  
Adult snails can get up to 1.5 inches in length  
Operculum (trap door) present  
Shells have distinct **reddish-brown bands** circling the shell. This feature is obvious in empty shells, but more subtle on living snails.





**Bloody red shrimp**  
**(*Hemimysis anomala*)**



From Minnesota DNR

<https://www.dnr.state.mn.us/invasives/aquaticanimals/bloody-red-shrimp/index.html>

Bloody red shrimps are small animals that look like miniature shrimps. Adults range from one-fourth to one-half inches in size and are translucent to yellow-white in body color with red spots of pigment. It looks similar to the native opossum shrimp (*Mysis diluviana*) but can be identified by the red pigment spots and the shape of the telson (tail end of the abdomen). However, under some conditions the pigmented spots may be indistinct. Its small size and similarity to the native opossum shrimp make this a difficult animal for non-specialists to conclusively identify.



**Chinese mystery snails - CMS**  
**(*Cipangopaludina chinensis malleata*)**



Photo: Paul Skawinski, ???

Adult snails are often **greater than 1.5 inches** in length.

They have a width to height ratio of 0.74–0.82, the shell has 6–7 whorls.

Operculum (trap door) present

Shell is typically light to dark olive green

Uniform coloring on the shell (no banding)

Chinese mystery snail is often wider than the native brown mystery snail.

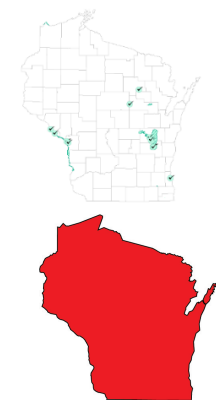


**Faucet snail - FS**  
**(*Bithynia tentaculata*)**



Photo: Paul Skawinski

The faucet snail has a shiny pale brown shell, oval in shape, with a relatively large and rounded spire consisting of 5–6 somewhat flattened dextral whorls (right-handed coiling), no umbilicus, and a very thick lip. The **aperture is less than half the height of the shell**. Adult *B. tentaculata* possess a white, calcareous, tear-drop to oval-shaped **operculum with distinct concentric rings**.



**New Zealand mudsnail - NZMS**  
**(*Potamopyrgus antipodarum*)**



Photos: Paul Skawinski

The New Zealand mudsnail has a dextral (right-handed coiling), elongated shell with 7-8 whorls (twirls) separated by deep grooves. The shell color can range from gray to light or dark brown. In the Great Lakes the New Zealand mudsnail typically measures **4 to 6 mm** in length, but grows to 12 mm regularly in its native range.

Has been vouchered in Dane, Douglas, and Columbia Counties



**Red Swamp Crayfish - RSC**  
**(*Procambarus clarkii*)**



Photo:???

**Color:** The Red swamp crayfish are **dark red** in color with raised bright red spots covering the body and claws and a black **wedge-shaped** stripe on the top of the abdomen. Occasionally, a genetic mutation may turn the body and/or claws blue.  
**Size:** They may vary in length between 2 to 5 inches.

Has been verified in Kenosha, Milwaukee and Racine Counties



**Rusty crayfish - RC**  
**(*Orconectes rusticus*)**



Photo: Jeff Gunderson, MN Sea Grant

This crayfish measures two and one-half inches (not including claws) in length. Look for their large claws with **black bands on the tips** and dark, **rusty spots** on each side of their carapace (hard outer body covering). Their claws are grayish-green to reddish-brown and smoother than most other crayfish. The rusty spots may not always be present or well developed on rusty crayfish from some waters.

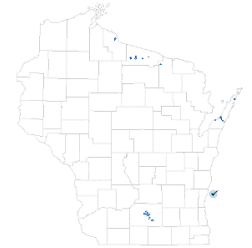
Widespread



**Spiny waterflea – SWF**  
**(*Bythotrephes longimanus*)**



**Body:** The Spiny Water Flea has a **1/4"-1/2" long**, translucent body, making it hard to spot unless gathered in a large cluster. The species is also characterized by a **long spine** that extends from its abdomen, giving reason for its name. In addition, the Spiny Water Flea has a **dark black eye** that can easily be seen against its contrasting light body.

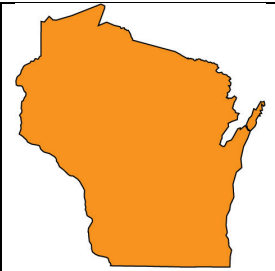


**Zebra Mussel - ZM**  
**(*Dreissena polymorpha*)**  
**& Quagga Mussel – QM**  
**(*Dreissena bugensis*)**



**Zebra mussels** have a yellowish or brownish **D-shaped** shell, usually with alternating dark- and light-colored stripes. They can be up to 5 cm (2 inches) long, but most are under 2.5 cm (1 inch). The ventral (bottom side) of the shell is flat, allowing the mussel to sit flat on a surface.

**Quagga mussels** have black narrow stripes or blotchy lines on white to light tan shells. Unlike the zebra mussel, the quagga mussel shell has a **rounded ventral side**, and will not sit upright if placed on a flat surface. The quagga is no bigger than an adult's thumbnail.



Zebra mussels-  
restricted



Quagga mussels-  
prohibited