ADIRONDACK PARK
INVASIVE PLANT
PROGRAM

INVASIVE PLANTS
OF THE ADIRONDACKS

INVASIVE SPECIES
MANAGEMENT
ADIRONDACKS

Protecting the Adirondack region from the negative impacts of nonnative invasive species.

WWW.ADKINVASIVES.COM

WHAT ARE INVASIVE PLANTS?

Nonnative invasive species are plants, animals, and other organisms either accidentally or intentionally introduced from other places. In recent years, the rate and risks of invasive species introductions have increased due to human population growth, movement of people and materials, and environmental alteration.

Once established, invasive species negatively impact agriculture, industry, recreation, forestry, human health, and the environment. Due to the lack of natural controls and high reproductive ability, invasives can quickly become widespread. Invasive plants, in particular, tend to grow faster, taller, or broader, robbing space, light, and nutrients from native flora.

Invasive species change not only the way an area looks but also the way it functions ecologically. Infestations can disrupt fire regimes, water absorption and circulation, nutrient cycling, or even create a toxic environment. They degrade habitat quality which can reduce the number and variety of fish and wildlife. Invasive species also pose risks to human health and safety by exacerbating allergies and introducing new diseases.




APIPP is a coalition of organizations and citizens taking action against invasive species in the Adirondack region.




IDENTIFICATION

When identifying invasive plants, be aware that they may look similar to native plants. Familiarize yourself with the invasive plants in your area. Pay close attention to leaves, flowers, and other plant structures to help distinguish among species.

MANAGEMENT

Management techniques are different for each species. By knowing a little bit about each invasive plant's biology, you can prevent well-intentioned control methods from doing more harm than good. Many aggressive invasives resprout from tiny roots, stems, or leaf fragments. Be informed about the appropriate control and disposal methods, and permits needed, before beginning any management program.

SPREAD PREVENTION

Each of us – from boaters to birders, and hikers to highway personnel – can help to prevent the spread of invasive species.

START NOW

Learn about invasive plants that are, or have the potential to become, especially detrimental to the health of our public and private lands and waterways.

NATIVE	HISTORICALLY FOUND IN AN AREA
NONNATIVE	INTRODUCED FROM SOMEWHERE ELSE
INVASIVE	CAUSES MEASURABLE HARM TO ENVIRONMENT OR ECONOMY
NUISANCE	INTERFERES WITH HUMAN ACTIVITY

TERRESTRIAL INVASIVE PLANTS

Many terrestrial invasive plants were introduced for ornamental purposes, but their expansion into natural areas now puts at risk the value of our upland, riparian, and wetland ecosystems. Infestations can increase erosion, clog drainages, reduce forage for wildlife, and alter soil composition. Best management practices provide guidelines for effectively and safely managing invasive species. They include field-tested control techniques and consider environmental and regulatory restrictions. Contact APIPP for best management practices and safe disposal methods.

QUICK TIPS FOR SPREAD PREVENTION

- Landscape with native, or noninvasive ornamentals
- Read labels when planting seed mixes; they may include problematic species.
- Remove invasive plants from your property.
- Never compost terrestrial invasive plants.
- Clean tread and tires of vehicles, gear, and equipment.
- Avoid picking roadside wildflowers, which may transport seeds.
- Know your source: use weed-free seed, mulch, topsoil, and fill.

JAPANESE KNOTWEED

Fallopia japonica ORIGIN: Asia

DESCRIPTION Japanese knotweed is a fast-growing, herbaceous perennial with jointed, hollow stems and alternate, leathery leaves that are broadly ovate. A cascade of white flowers blooms in August, and dormant reddish stems are visible in winter. Giant knotweed, ***Fallopia sachalinensis,*** is another nonnative knotweed in the Park.

HABITAT Japanese knotweed is found along forest edges and stream banks, as well as in disturbed and open areas such as roadways.

THREAT Knotweed's early spring emergence and dense growth give it an edge over native plants, enabling it to take over large areas. Its thick rhizomes can extend horizontally through soils for 60 feet or more.

MANAGEMENT Knotweed is very difficult to control. A cut stem or foliar treatment with systemic herbicide can be effective. Always read the label to ensure safe and appropriate use of any herbicide. Repeated controls are often necessary.

Photo: Tessa Hopsicker
Inset: Leslie Mehrhoff, IPANE

Always read and follow the label to ensure safe and appropriate use of any herbicide.

PURPLE LOOSESTRIFE

Lythrum salicaria ORIGIN: Europe, Asia

DESCRIPTION Purple loosestrife is an erect, herbaceous perennial that grows 3-7 feet. It is easily identified by its showy, magenta flowers from July to September. Linear shaped leaves grow oppositely along square stems. This aggressive plant spreads both vegetatively and by abundant seed dispersal.

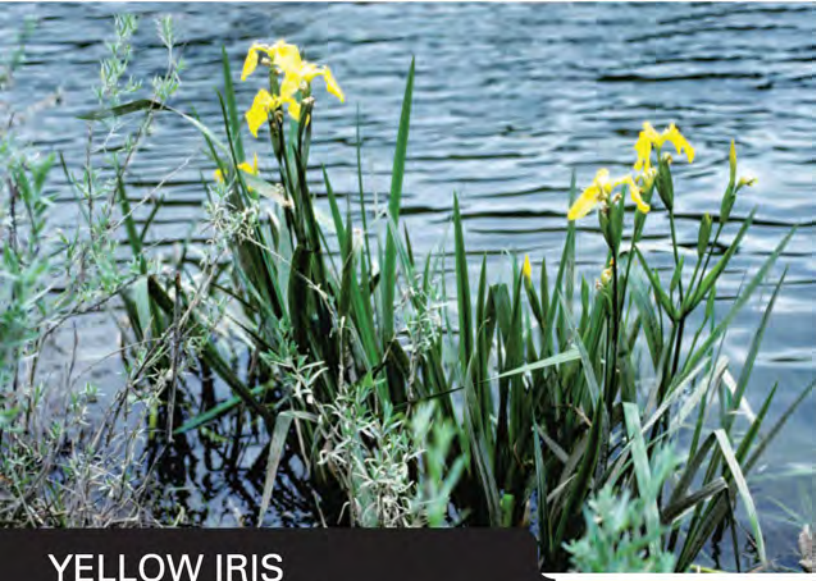
HABITAT Purple loosestrife grows in a variety of wet habitats, including wet meadows, marshes, river banks, and the edges of ponds and reservoirs. It tolerates a wide variety of moisture, nutrient, and pH conditions.

THREAT Loosestrife invades both natural and disturbed wetlands and alters their ecological structure and function.

MANAGEMENT Pull or dig out small plants or cut larger plants close to the ground in July and August when the plants are flowering but have not yet developed seed-heads.

Photo: Leslie Mehrhoff, IPANE
Inset: Barry Rice, TNC

Carefully remove flowers or seed-heads before removing the entire plant.



YELLOW IRIS

Iris pseudacorus ORIGIN: Europe, Asia, Africa

DESCRIPTION Yellow iris is an herbaceous perennial that can grow between 3-4 feet. The broad, lance shaped leaves are stiff and erect. The yellow, showy flowers bloom from April to June.

HABITAT Yellow iris is found along the edges of lakes, ponds, rivers, and streams. It grows well in freshwater wetlands and can tolerate high acidity.

THREAT This plant forms large, clonal populations that displace native species and offer nutrient-poor forage for wildlife.

MANAGEMENT Caution should be used when hand-pulling this plant, as it can cause skin irritation. Clip flower heads prior to seed development. Cutting stems or injecting systemic herbicide can be effective. Native blue flag iris is a good landscaping alternative to this ornamental, wetland invader.

Photos: John Randall, TNC

Native blue flag iris is a good landscaping alternative to this ornamental, wetland invader.

COMMON REED GRASS

Phragmites australis ORIGIN: Global

DESCRIPTION Common reed grass, or phragmites, is a tall, herbaceous perennial ranging in height from 3-15 feet. Leaves and stems are stiff and sharp. Large, feathery plumes of flowers change from purple-brown in July, to tan-grey by late in the season.

HABITAT Phragmites thrives in wetlands and disturbed and degraded soils, often along roadsides, ditches, or dredged areas. It can tolerate salt water and a pH range of 3.7-9. Both native and nonnative strains of phragmites occur. Generally invasive populations are nonnative, but it may be difficult to tell the two apart.

THREAT Plants can sprout from a rhizome fragment and form populations that overtake hundreds of acres and displace critical wetland species.

MANAGEMENT Longterm management is necessary for control of this persistent plant. Cutting and treating stems with systemic herbicides is generally the most effective method.

Photo: Paul Rischmiller
Inset: Sarah Small, LGLC

Longterm management is necessary for control of this persistent plant.

GARLIC MUSTARD

Alliaria petiolata ORIGIN: Europe

DESCRIPTION Garlic mustard is a biennial herb and grows as a rosette of kidney shaped leaves in the first year. The second-year plant can grow multiple stems up to four feet with triangular, sharply-toothed leaves. In May, four-petaled, white flowers grow in clusters at the top of the stem. Garlic mustard produces a multitude of seeds, which can remain viable for seven years or more.

HABITAT Garlic mustard thrives in deciduous forests and partially shaded, moist habitats.

THREAT With an early spring jump on native plants, this invader dominates forest understories. It releases chemicals harmful to soil fungus important to native trees.

MANAGEMENT Plants can be pulled or cut in late spring when flowers are in bloom. Monitor the site in the fall and pull any emerging first-year plants. Repeat every year until the seedbank has been depleted.

Photo: Leslie Mehrhoff, / PANE

Garlic mustard produces a multitude of seeds, which can remain viable for seven years or more.

GIANT HOGWEED

Heracleum mantegazzianum ORIGIN: Asia

DESCRIPTION Giant hogweed is a biennial herb that grows to 8-14 feet. Plants sprout in early spring from forked taproots or seeds. Stems are hollow, and leaves are lobed. The best time to identify giant hogweed is when it is in bloom in June.

HABITAT This plant colonizes rich, moist soils along roadside ditches, stream banks, waste areas, and forest edges.

THREAT Giant hogweed is on the federal noxious weed list because of its poisonous sap. It threatens riparian areas by displacing native plants and exacerbating soil erosion.

MANAGEMENT CAUTION - This plant has sap that can cause severe skin irritation, blistering, and scarring. There are also several native plant look-alikes. Call NYS Agriculture and Markets for management guidelines.

Photos: Steven Flint, TNC

CAUTION - This plant has sap that can cause severe skin irritation, blistering, and scarring.

WILD PARSNIP

Pastinaca sativa ORIGIN: Europe, Asia

DESCRIPTION Wild parsnip is a biennial herb that grows to 2-5 feet. Alternate, compound, branched leaves have serrated edges. First year rosettes have pinnately compound leaves. Adult plants bloom June through August with small, five-petaled, yellow flowers arranged in a flat-topped, broad umbel 2-6 inches.

HABITAT Wild parsnip thrives in full sun and grows along roadsides, fields, fence rows, and waste areas.

THREAT Skin contact with wild parsnip's caustic sap can result in severe blistering that lasts for several weeks. Infestations in agricultural fields can also degrade hay and other crop values.

MANAGEMENT Wear proper personal protective equipment when managing this plant. For individual plants, digging or root cutting can be effective. For larger infestations, mowing while in flower and before seed set can be effective as well as selective herbicide treatments.

Photos: Leslie Mehrhoff, IPANE

CAUTION – This plant has sap that can cause severe skin irritation, blistering, and scarring.

SWALLOW-WORTS

Cynanchum spp. ORIGIN: Europe

DESCRIPTION Black and pale swallow-worts are herbaceous, perennial, twining vines. Leaves are opposite and glossy. Small maroon to pale pink flowers are present in late May through late July. Seed pods are smooth, slender, and pointed and are abundant in late summer. Pods split open, releasing innumerable downy seeds that are easily carried miles by wind.

HABITAT This plant will thrive in a wide range of soil, moisture, and light conditions and is found in many habitats, including woodlands, fields, and roadsides.

THREAT Swallow-wort vines choke out large areas of favorable species and can interfere with forest regeneration. Toxic chemicals in the plant make it poor forage for deer and other wildlife.

MANAGEMENT When this plant is cut, it resprouts vigorously, making control difficult, and warranting the careful use of herbicide.

Photo: Bill Jacobs
Inset: Leslie Mehrhoff, /PANE

Black and pale swallow-worts are herbaceous, perennial, twining vines.

ORIENTAL BITTERSWEET

Celastrus orbiculatus ORIGIN: Asia

DESCRIPTION Oriental, or Asiatic, bittersweet is a perennial, deciduous vine that can grow to 60 feet. Stems have dark brown, striated bark. Elliptic to ovate leaves are alternate and spiral evenly around the stem. Axillary flowers bloom in May to early June yielding bright, reddish-orange fruit in the fall. Oriental bittersweet can be confused with American bittersweet, which has a terminal inflorescence and is native.

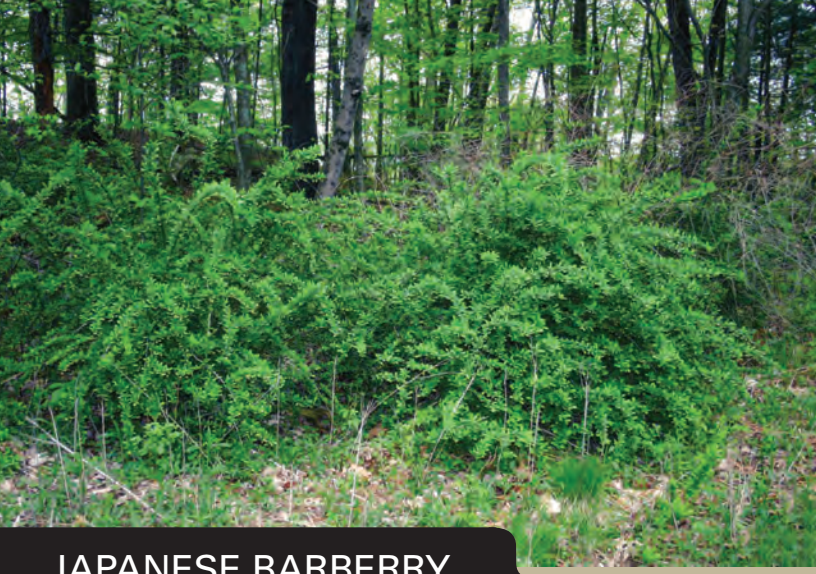
HABITAT Oriental bittersweet grows most profusely in the sun but can tolerate dense shade. It grows in disturbed woodlands, fields, and roadsides.

THREAT This plant causes major damage to native plants by girdling. Mechanical damage of trees and other plants is also caused by additional weight to the branches.

MANAGEMENT Where practical, individual vines should be pulled up by the roots and removed from the area by hand. Vines can also be cut by hand, and cut stems spot-treated with glyphosphate just after the last killing frost.

Photos: John Randall, TNC

Axillary flowers bloom in May yielding bright, reddish-orange fruit in the fall.



JAPANESE BARBERRY

Berberis thunbergii ORIGIN: Asia

DESCRIPTION Japanese barberry is a dense, spiny shrub that grows 2-8 feet. Small, oval leaves are green, yellow, or purple. The bark is grey with sharp, single thorns growing along each stem. The inner wood of roots and stems is vibrant yellow. In the fall, leaves turn red, and plants produce small, drooping, bright red berries.

HABITAT Japanese barberry grows well in full sun or shade. It is a common ornamental plant also found within and on the edges of forests.

THREAT Barberry spreads long distances into forests by birds dispersing fruit and seeds. It is also resistant to herbivory, enabling its spread. Barberry creates dense thickets, which provide excellent tick habitat.

MANAGEMENT For small plants, digging or grubbing up from the roots followed by drying or burning of plant material is effective. For larger plants or infestations, herbicide treatments via cut-stump or foliar spray are effective. Flame torching is also effective.

Photo: Leslie Mehrhoff, IPANE
Inset: Brendan Quirion, APIPP

Barberry has sharp, single spines on its stems.

BUSH HONEYSUCKLES

Lonicera spp. ORIGIN: Asia

DESCRIPTION Amur, Morrow's, and Tartarian honeysuckles are referred to as bush honeysuckles. Shrubs grow from 6-15 feet with opposite leaves, hollow stems, and grey, shreddy bark. Bush honeysuckles flower in May or June with pink, white, or yellow blooms. Later in July or August, they produce clusters of red, pink, or orange berries.

HABITAT Bush honeysuckles grow well in full to part shade. They are common ornamental plants that also grow well along field and road edges and woodland settings.

THREAT Bush honeysuckles can spread long distances into nearby forests by birds dispersing their fruit and seeds. Once established, bush honeysuckles form dense thickets that can inhibit forest regeneration.

MANAGEMENT For small plants, digging or grubbing up from the roots followed by drying or burning of the plant material is effective. For larger plants or infestations, herbicide treatments via cut-stump or foliar spray are also effective.

Photo: Paul Rischmiller
Inset: Chris Evans

Fruits and seeds can spread long distances into nearby forests.

AQUATIC INVASIVE PLANTS

Invasive aquatic plants are a real and serious threat to Adirondack lakes, ponds, rivers, and streams. These plants are not native to Adirondack waters. When introduced, they outcompete beneficial native plants, spread rapidly, and interfere with navigation and recreation. A small piece of just one plant can infest an entire lake. Once infestations are widespread, control efforts are difficult and costly. Prevention, early detection, and rapid response are keys to successful eradication.

QUICK TIPS FOR SPREAD PREVENTION

- Use native or noninvasive plants in ornamental ponds and water gardens.
- Check and remove all clinging plants from watercraft, gear, and equipment.
- Avoid boating, paddling, or swimming through dense plant beds.
- Never transport live baitfish between waters.
- Never release aquaria plants and animals into the wild.

EURASIAN WATERMILFOIL

Myriophyllum spicatum ORIGIN: Europe, Asia

DESCRIPTION Eurasian watermilfoil is a submerged perennial that looks like many native aquatic plants, including native milfoil species. Eurasian watermilfoil usually has four feathery leaves whorled around the stem. Each leaf is finely divided and has greater than nine leaflets. The plant can reach lengths of 20 feet and branches near the surface. Tiny pink flowers may occur on an emergent spike during late summer.

HABITAT This plant grows in a variety of depths, sediment types, and flowing conditions.

THREAT Plant fragments, which break off easily, can be transported from lake to lake on boat trailers or fishing gear. These fragments can start new populations, which form dense mats that degrade habitat and reduce recreational access.

MANAGEMENT Once milfoil becomes well-established within a waterbody, it is very difficult to remove. A variety of control methods used nationwide to manage milfoil infestations include physical, mechanical, biological, and chemical techniques.

Photo: Hilary Smith, APIPP
Inset: Gordon Keyes

Plant fragments can be easily transported from lake to lake on boat trailers or fishing gear.

VARIABLE LEAF WATERMILFOIL

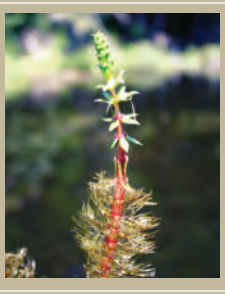
Myriophyllum heterophyllum ORIGIN: Throughout US

DESCRIPTION Variable-leaf watermilfoil is a submerged perennial that looks like many native plants, including native milfoil species. It has 4-6 feathery leaves whorled around the stem, but some leaves can be alternating. Leaves are divided into 7-14 pairs of leaflets. Dense leaf arrangement gives this plant a bottle brush appearance. Stems are thick and reddish-brown. In mid to late summer, blade-like, serrated leaves with small, reddish pink flowers form an erect spike that emerges from the water.

HABITAT This plant grows in a variety of depths, sediment types, and flowing conditions but typically is found in shallow bays and coves.

THREAT Plants are easily fragmented and can start dense infestations that form mats, degrading habitat and reducing access.

MANAGEMENT A variety of control methods to manage milfoil infestations include physical, mechanical, biological, and chemical techniques.



Photos: Meghan Johnstone, APIPP

Emergent spikes have small reddish pink flowers and blade-like leaves.

FANWORT

Cabomba caroliniana ORIGIN: Southern U.S.

DESCRIPTION Fanwort is a submerged perennial with fan-like leaves that are branched and attached to the stem on petioles, appearing whorled. Flowers are small, white, and emergent in late summer. Reproduction can occur by seed or fragmentation.

HABITAT Native to the southern United States, and a popular aquarium plant, fanwort is regionally invasive and found in 3-10 feet of water in acidic lakes, ponds, and quiet streams.

THREAT Fanwort can form extremely dense stands and clog waterways stifling water flow and impairing recreational activities.

MANAGEMENT There is little information on fanwort biology or management. Mechanical removal, water level manipulation, and chemicals have been tried in the Northeast with limited success.

Photo: Leslie Mehrhoff, IPANE
Inset: Hilary Smith, APIPP

Fanwort is a popular aquarium plant but should be avoided.

CURLYLEAF PONDWEED

Potamogeton crispus ORIGIN: Europe, Africa, Australia

DESCRIPTION Curlyleaf pondweed is a submerged perennial that resembles many native pondweeds. Care must be taken to correctly identify this species. Rigid, reddish-green, oblong leaves have distinct, finely toothed, wavy edges. The plant's flat, reddish-brown stem grows from one to 16 feet. Most reproduction is from winter buds, called turions.

HABITAT Curlyleaf pondweed is tolerant of low light and low water temperatures and invades shallow as well as deep water.

THREAT New plants form under ice cover during late winter, making curlyleaf pondweed one of the first plants to emerge in early summer. Plant die-offs in midsummer may cause a critical loss of oxygen.

MANAGEMENT Control methods for curlyleaf pondweed have included physical, mechanical, or chemical techniques. There are many native look-alike pondweeds. Please confirm identification before beginning any management program.

Photos: Leslie Mehrhoff, IPANE

Curlyleaf pondweed reproduces from winter buds, called turions.

WATER CHESTNUT

Trapa natans ORIGIN: Europe, Asia

DESCRIPTION Water chestnut is a fast-growing, floating annual that can grow to 16 feet. It has feathery, submersed leaves and triangular, toothed, floating leaves that are glossy. Floating leaf stalks have visible bulbous bladders and commonly form rosettes. Flowers with four white petals normally bloom in July. The most distinctive trait of this plant is its thorny nutlets which mature in late summer. Reproduction occurs from these very sharp nutlets and from fragmentation of the rosettes.

HABITAT Water chestnut is found in quiet, high nutrient waters with soft substrate and neutral to alkaline pH.

THREAT Impenetrable mats of water chestnut can cover large expanses of water, altering water quality and clarity, eliminating the growth of native aquatic plants, and making boating, fishing, and swimming hazardous.

MANAGEMENT Small populations can be controlled by hand pulling. Large infestations have been controlled in the Northeast by the use of mechanical harvesters or the application of aquatic herbicides.

Photos: Leslie Mehrhoff, PANE

Leaves are triangular and toothed, and stems have visible bulbous bladders.

EUROPEAN FROGBIT

Hydrocharis morsus-ranae **ORIGIN: Europe**

DESCRIPTION European frogbit is a free-floating annual. The leaves are leathery and round with undersides that may be dark purple. White flowers with yellow centers bloom in the summer. The leaf stem of European frogbit lacks a midline groove which distinguishes it from its native look-alike American frogbit, *Limnobium spongia.*

HABITAT This plant grows well in quiet, open water including marshes, ditches, swamps, and sheltered coves.

THREAT European frogbit has rapid vegetative spread and forms dense mats, which can limit light penetration and inhibit recreational use.

MANAGEMENT Limited information exists about control techniques for this species. Hand pulling may be suitable to control individual plants or small infestations.

Photo: Mark Ma/chaff, LCSG
Inset: Leslie Mehrhoff, /PANE

White flowers with yellow centers bloom in the summer.

YELLOW FLOATING HEART

Nymphoides peltata ORIGIN: Europe, Asia

DESCRIPTION Yellow floating heart is an herbaceous perennial that has stout, branching stems. The heart-shaped, almost circular, leaves are usually oppositely arranged and frequently purplish underneath. Bright yellow flowers have five petals and distinctively fringed edges. It spreads both vegetatively and by seeds.

HABITAT Yellow floating heart is found rooted in the mud of still bodies of water. It is also found in water gardens, which are oftentimes the source of its introductions.

THREAT This plant grows in dense patches, excluding native plant species, creating stagnant areas with low oxygen levels underneath the floating mats, and negatively impacting fish and wildlife habitat and recreational use.

MANAGEMENT Limited information is available on the control of yellow floating heart. Based on the plant's characteristics, mechanical and hand removal would most likely be effective.

Photos: Mark Ma/choff, LCSG

Yellow floating heart is found in water gardens, which are oftentimes the source of its introductions.

BRITTLE NAIAD

Najas minor ORIGIN: Europe, Africa, Asia

DESCRIPTION Brittle naiad is an herbaceous annual that grows in dense clusters. Its leaves have visible serrations and are long, pointed, and oppositely arranged on highly branched stems. The plant can reproduce from stem fragments or from small seeds which grow along its stem.

HABITAT Brittle naiad is most often found in ponds, lakes, reservoirs, and slow-moving streams typically in water of depths 2-15 feet.

THREAT Thick infestations of brittle naiad inhibit the growth of native aquatic plants and can make fishing or boating access difficult. This plant is extremely brittle and has the propensity to break off, increasing the likelihood for it to spread via boats, waterfowl, and water currents. Waterfowl readily eat and move this plant from waterbody to waterbody.

MANAGEMENT Limited information is available on the management of brittle naiad. Prevention is the most effective control!

Photo: Leslie Mehrhoff, /PANE
Inset: Robert Mohlenbrock, USDA-NRCS

This plant is extremely brittle and easily spread via boats, waterfowl, and water currents.

BRAZILIAN ELODEA

Egeria densa ORIGIN: South America

DESCRIPTION Brazilian elodea is a submerged perennial that looks similar to American waterweed *(Elodea canadensis),* a common native aquatic plant. Brazilian elodea has finely toothed leaves that are bright green, bushy, and usually arranged in whorls of four around the stem. The plant has round stems that can grow in water up to 20 feet deep and often branches near the surface. It reproduces via plant fragmentation.

HABITAT Brazilian elodea grows in lakes, rivers, and springs and is found in both still and flowing waters. It is commonly sold as an aquarium plant.

THREAT This plant forms dense monotypic stands that can cover hundreds of acres and can persist until the fall. Mats can displace native vegetation, restrict water movement, and interfere with recreational uses.

MANAGEMENT Control of this plant is very difficult and costly. Studies show that Brazilian elodea can outcompete Eurasian watermilfoil. Prevention is the most effective control!

Photo: Barry Rice, TNC
Inset: Leslie Mehrhoff, /PANE

Prevention is the most effective control!

HYDRILLA

Hydrilla verticillata **ORIGIN: Asia**

DESCRIPTION Hydrilla is a submerged perennial that looks similar to American waterweed *(Elodea canadensis),* a common native aquatic plant. Hydrilla has visibly toothed leaves that grow in whorls of 3-8. Undersides may have one spine, or more, and the midrib of each leaf is often reddish. Hydrilla spreads by seeds, tubers, plant fragments, and turions (overwintering buds).

HABITAT This plant is tolerant of a wide range of environmental conditions and can be found in lakes, ponds, reservoirs, rivers, canals, and drainage ditches. It has low light requirements and thrives in both high and low-nutrient waters.

THREAT Hydrilla spreads rapidly and can completely clog waterways and restrict water flow, posing significant threats to aquatic ecosystems and recreational resources.

MANAGEMENT A variety of techniques have been used in the U.S. to manage hydrilla including mechanical removal, physical habitat manipulation, herbicides, and biological agents. Prevention is the most effective control!

Photo: Amy Smagula, NHDES
Inset: David Spencer, USDA-ARS

Hydrilla has visibly toothed leaves that grow in whorls of 3-8.

WATER SOLDIER

Stratiotes aloides ORIGIN: Europe, Asia

DESCRIPTION Water soldier is a submerged perennial which becomes buoyant during the summer. Leaves are 15 inches long, sword-shaped, bright green, have sharp spines, and form a large rosette. In the fall, the plant sinks as the leaves mature and become saturated. Water soldier looks similar to an aloe plant or the top of a pineapple. Flowers are white with three petals, developing into long fleshy berries.

HABITAT Water soldier can grow to depths of 16 feet in small, nutrient rich, neutral pH lakes, or in sheltered bays in large lakes.

THREAT Water soldier forms dense stands, crowding out native plants, altering water chemistry, clogging waterways, and hindering recreation. The plant's sharp, serrated leaf edges can cut swimmers and individuals who handle the plant.

MANAGEMENT There is only one known wild population of water soldier in North America. Both physical and chemical controls are being used.

Photos: Francine MacDonald, Ontario Ministry of Natural Resources

Water soldier is used as an ornamental plant in water gardens but should be avoided.

INVASIVE SPECIES MANAGEMENT
ADIRONDACKS

GET INVOLVED

More than 70 nonnative invasive plant species have crept into the Adirondacks, including shrubby honeysuckles, common and glossy buckthorns, spotted knapweed, and others. They degrade important travel corridors and are extremely costly to control. They put scenic, natural, and recreational resources at risk - linchpins to the region's economic livelihood.

You can help protect our valuable resources by learning how to identify harmful plants in your community, spreading the word about their negative impacts, and joining the regional effort to put a stop to the growing threat invasive plants pose to the Adirondacks.

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CREDITS

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www.nature.org
www.dec.ny.gov