



2012

INVASIVE SPECIES CALENDAR

Minnesota Invasive Species Advisory Council

INVASIVE SPECIES

Threats to Minnesota

Invasive species are non-native plants, animals, and pathogens that cause environmental damage, economic loss, or harm to human health. These pests displace native species, harm habitats, and degrade natural, managed, and agricultural landscapes.

Minnesota is presently battling a number of invasive pests such as faucet snails, Asian carp, and Japanese beetles. There are also many new invasive species that could arrive and cause problems. The list of potential invaders includes Khapra beetles and European frogbit.

In addition to harming the recreational value of our natural resources, invasive pests pose serious economic threats to major Minnesota industries such as agriculture, tourism, and forestry. Nationwide, some estimates peg the economic damage of invasive pests at more than \$130 billion a year.

Public awareness and action are the keys to preventing the spread of invasive species. Please use the information in this calendar to help inform Minnesotans about the invasive species problem and what they can do to take action in the challenge to reduce invasive species spread and harm.

Information Sources

The Minnesota Invasive Species Advisory Committee (MISAC) website provides additional information about invasive species in Minnesota. This website is a gateway to invasive species information including many invasive species profiles, contact information for invasive species experts in Minnesota, and links to other related websites.

MISAC website www.mda.state.mn.us/misac

The following websites of MISAC members also have information about invasive species.

DNR www.mndnr.gov/invasives

MDA www.mda.state.mn.us/plants

Minnesota Sea Grant www.seagrants.umn.edu/ais

National Invasive
Species Information
Center (USDA) www.invasivespeciesinfo.gov

National Park Service www.nps.gov

USDA-APHIS www.aphis.usda.gov

USDA-Forest Service www.fs.fed.us/invasivespecies

U.S. Fish and
Wildlife Service www.fws.gov/midwest/fisheries/topic-ans.htm

Contact information for six agencies with invasive species responsibilities in Minnesota is included on the back of this calendar. These agencies, as well as other MISAC members, can provide informational products such as brochures, species identification cards, and videos about invasive species.

Minnesota Invasive Species Advisory Council

This calendar was produced and distributed by the Minnesota Invasive Species Advisory Council (MISAC). MISAC is a statewide entity formed to help:

- facilitate statewide coordination and cooperation on invasive species—including the review of information concerning the current status, management, and spread of terrestrial and aquatic invasive insect, plant, animal, and pathogen species into and within Minnesota;
- work cooperatively to prevent new introductions, identify and locate invasive species;
- contain established introductions; to manage invasions and take other actions in order to minimize invasive species impacts within Minnesota; and
- address these and other existing needs by maximizing available resources.

MISAC's co-chairs from the Minnesota departments of Agriculture and Natural Resources represent the state agencies that are responsible for coordinating the management of invasive species in the state. The Council also includes these members: Bailey Nurseries, Leech Lake Band of Ojibwe, Minnesota Association of County Agricultural Inspectors, Minnesota Board of Water and Soil Resources, Minnesota Crop Improvement Association, Minnesota Department of Transportation, Minnesota Farm Bureau, Minnesota Forestry Association, Minnesota Nursery and Landscape Association, Minnesota Shade Tree Advisory Committee, National Park Service, The Nature Conservancy, USDA-Animal and Plant Health Inspection Service, USDA-Natural Resources Conservation Service, U.S. Fish and Wildlife Service, U.S. Forest Service, University of Minnesota-College of Food, Agricultural and Natural Resource Sciences and University of Minnesota Sea Grant Program.

Help Report Locations of Invasive Species

One of the keys for a rapid response to invasive species is the early identification of new occurrences. Please help report occurrences of invasive species in Minnesota at the following:

- MISAC website at: www.mda.state.mn.us/misac and click on "Reporting Invasive Species."
- "Arrest the Pest" Hotline at: (651) 201-MOTH (metro) or 1-888-545-MOTH (toll free). Please call the hotline to report suspicious pest species arriving on plants or articles from foreign countries or other states and for the latest updates on invasive species such as the gypsy moth, soybean rust, sudden oak death, Asian longhorned beetle, emerald ash borer, bark beetles, and other destructive insect, plant, and disease pest species.
- DNR Invasive Species Program at: (651) 259-5100 (metro) or 1-888-MINNDNR (elsewhere) to report invasive aquatic plants or wild animals such as Eurasian watermilfoil, zebra mussels, Asian carp, round goby, non-native deer, and mute swans.
- Or as specified for individual species in the invasive species calendar.

MINNESOTA INVASIVE SPECIES REPORTING FORM

Observation Date: _____ Association: _____

Observer's Name: _____ State: _____ Zip: _____

Address: _____ City: _____

Phone: () _____ Email: _____

Species and Location Information

Common Name: _____ Scientific (if known): _____

Locality Name (site or tent): _____ County: _____

City: _____ Zip: _____

Site Address (if any): _____

Property Ownership (e.g., Private, county, state, federal, etc.): _____

If known, provide one or both of the following location methods:

Legal Description: Twp _____ Range _____ Sec _____ 1/4 Sec _____ 1/4 1/4 Sec _____

UTM Coordinate (if existing): _____



Brown Marmorated Stink Bug

Halyomorpha halys



Aggregation of BMSB adults and nymphs on crab apple.



Adult BMSB showing alternating black-and-white color pattern on the margins of the abdomen, and the dark-colored antennae with light-colored bands.

Inset photos: George Hamilton, Rutgers.



Keys to ID: Adult BMSB are ½-inch long, shield-shaped, and "marbled" brown in color. To distinguish BMSB from similar insects, look for the alternating black-and-white color pattern on the margins of the abdomen and the dark-colored antennae with light-colored bands.

Brown Marmorated Stink Bug

Halyomorpha halys

January



Species: The brown marmorated stink bug (BMSB) belongs to the stink bug family Pentatomidae.

Origin: Native to eastern Asia, BMSB was first discovered in North America in Pennsylvania in 2001 and likely arrived as a stowaway on international cargo.

Impacts: BMSB is a pest of many types of plants, including fruit, vegetable, and field crops. Its feeding can reduce crop yields and quality. BMSB is also a home invader, much like the multicolored Asian lady beetle and boxelder bug.

Status: Currently, BMSB is present in most states east of the Mississippi River and has also been detected on the West Coast. In Minnesota, as of September 2011, BMSB has been found in Ramsey, Washington, Anoka, Hennepin, and Winona counties.

Where to look: During the growing season, BMSB can be found in a variety of agricultural settings including, but not limited to, apple orchards, vineyards, soybean fields, and corn fields. People are most likely to encounter this insect as it invades homes in the autumn looking for a place to spend the winter.

Regulatory classification (agency): BMSB is currently not regulated at the federal or state level.

Means of spread: Long-distance spread is by movement of nearly any type of vehicle, as this insect has a tendency to aggregate on/in vehicles, buildings, or similar structures. Short-distance spread is by flight.

How can people help? Report potential sightings to MDA at arrest.the.pest@state.mn.us or 1-888-545-6684.

Further information: Visit www.mda.state.mn.us/plants/insects/stinkbug.aspx

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 <i>New Year's Day</i>	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16 <i>Martin Luther King, Jr. Day</i>	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Oriental Bittersweet

Celastrus orbiculatus



Keys to ID: Leaf shape is highly variable and not a good characteristic for distinguishing American bittersweet (native) vs. Oriental bittersweet (non-native). American bittersweet has orange capsules around red fruits and flowers and fruits are found only at terminal ends of stems. Oriental bittersweet has yellow capsules around red fruits and flowers and fruits are found all along the stem at leaf axils.

Oriental
Bittersweet
Celastrus orbiculatus

February



Species: Oriental bittersweet is a deciduous vine that grows up to 66 feet long.

Origin: Native to China, Korea, and Japan, it was introduced to North America as an ornamental plant.

Impacts: Vines can girdle trees, shade the understory and prevent the growth of other plants, and the weight of the vines can break trees. Oriental bittersweet outcompetes and hybridizes with American bittersweet which is native to Minnesota.

Status: It has limited distribution in Minnesota with the largest known populations in southeastern Minnesota.

Where to look: Forested areas, fields, right-of-ways, and residential landscapes.

Regulatory classification (agency): Listed as a *prohibited noxious weed* on the *Eradicate List* in Minnesota (MDA). All of the above and below ground parts of the plant must be destroyed and no transportation, propagation, or sale is allowed. The *Eradicate List* is a new noxious weed category that aims to control emerging invasive plants before they become widespread.

Means of spread: Oriental bittersweet reproduces by seed and rhizome. Fruit is dispersed by birds and mammals. People move it by using fruiting stems in flower arrangements or by planting it.

How can people help? Report infestations to MDA at arrest.the.pest@state.mn.us or 1-888-545-6684. Remove Oriental bittersweet from your property. If you have planted it, determine whether it is American or Oriental bittersweet. Do not purchase or distribute Oriental bittersweet floral arrangements.

Management information: For small populations, pull or dig up plants. For chemical control, cut stems and apply herbicide to the cut stem. Additional information can be found at www.mda.state.mn.us/en/plants/badplants/orientalbittersweet.aspx

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 <i>Groundhog Day</i>	3	4
5	6	7	8	9	10	11
12	13	14 <i>Valentine's Day</i>	15	16	17	18
19	20 <i>Presidents' Day</i>	21	22	23	24	25
26	27	28	29			
<p><i>National Invasive Species Awareness Week Feb. 26–Mar. 3 Washington, DC</i></p>						

Faucet Snail

Bithynia tentaculata



Dr. Rebecca Cole, USGS

Keys to ID: Adults reach up to ½-inch in length, are light brown to black, with 4 to 5 whorls and a cover on the shell opening.

Faucet Snail

Bithynia tentaculata

Species: This is an aquatic snail species.

Origin: Native to Europe, it was introduced through ship ballast water or unintentionally with the solid ballast used in large timber transport ships or with vegetation used in packing crates.

Impacts: This snail is an intermediate host for intestinal parasites that have caused the mortality of tens of thousands of ducks and coots in the Big Winnibigoshish area and on the Mississippi River near Winona. They also outcompete native snail species and may clog intake pipes and other submerged equipment.

Status: It is found in a number of lakes and rivers including Big and Little Winnibigoshish, the Mississippi River downstream of Winnibigoshish, and the Mississippi River near Winona. It is also found in the Crow Wing River, Shell River, 1st Crow Wing Lake, and Upper and Lower Twin Lakes in north-central Minnesota.

Where to look: It is found on rocky shorelines, river and lake bottoms, and aquatic vegetation.

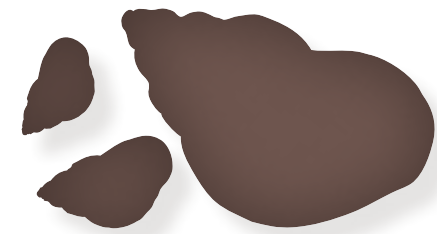
Regulatory classification (agency): They are not regulated in Minnesota, but are being proposed as *prohibited invasive species* (DNR).

Means of spread: They can spread by attaching to aquatic plants, boats, anchors, decoy anchors, and other recreational gear and equipment. Faucet snails can survive out of water for several days, so precautions should be taken when transporting boats and equipment from infested waters.

How can people help? Inspect and remove visible faucet snails, other animals, aquatic plants, and mud from boats and equipment before transporting from one waterbody to another. Report new infestations.

Further information: Contact DNR Invasive Species Program or visit www.dnr.state.mn.us/invasives

March



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11 <small>Daylight Saving Time Begins</small>	12	13	14	15	16	17
18	19	20 <small>Spring Begins</small>	21	22	23	24
25	26	27	28	29	30	31

Felt-soled Wader Pathway



Didymo
Didymosphenia geminata
U.S. Environmental Protection Agency



Laura Van Riper, MNDNR



Zebra Mussel *Dreissena polymorpha*
Gary Montz, MNDNR



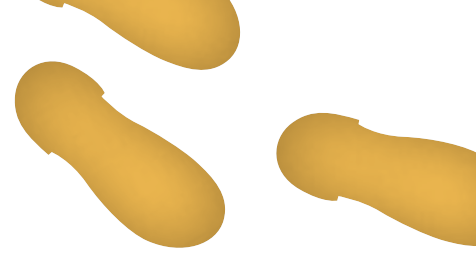
Spiny Waterflea
Bythotrephes longimanus
Gary Montz, MNDNR



VHS *Viral hemorrhagic septicemia*
Dr. Muhammed Faisal, University of Michigan-Ann Arbor

Felt-soled Waders and Boots Pathway

April



Species: These are examples of invasive species that can be transported in felt-soled waders and boots.

Origin: Didymo is native to parts of North America including Lake Superior. Zebra mussels and spiny waterfleas are native to Eurasia. VHS likely arrived from the Atlantic Ocean.

Impacts: Didymo forms thick blooms in streams, smothering other organisms. Zebra mussels can kill native mussels, clog water intakes, cause cuts, and foul beaches. Spiny waterflea eat other zooplankton, a food source for native fishes. VHS can cause large fish kills.

Status: Didymo is spreading to inland waters in other states. Zebra mussels continue to spread in Minnesota. Spiny waterfleas are established in the Great Lakes and northern Minnesota lakes. VHS is found in Lake Superior.

Where to look: Lakes, rivers, and wetlands.

Regulatory classification (agency): Felt-soled waders are not regulated in Minnesota but are prohibited in several states. Didymo is not regulated in Minnesota; zebra mussels are *prohibited invasive species* (DNR); spiny waterfleas are *regulated invasive species* (DNR); a federal order restricts the transport of VHS-infected fish (USDA-APHIS).

Means of spread: The spaces between felt fibers and the wet, mud-incrusted soles that do not dry or clean easily, carry life stages of invasive species such as spores, cysts, larvae, microscopic organisms, and pathogens.

How can people help?

- Buy or replace your felt-soles with a slip-resistant alternative.
- If you use felt-soled waders designate them to a single body of water.
- Dry waders for no less than two weeks or freeze for 24 hours if you must reuse them in another body of water.

Further information: Contact DNR Invasive Species Program or visit www.dnr.state.mn.us/invasives/felt.html

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8 <i>Easter</i>	9	10	11	12	13	14
15	16	17	18	19	20	21
22 <i>Earth Day</i>	23	24	25	26	27 <i>Arbor Day</i>	28
29	30					

European Frogbit

Hydrocharis morsus-ranae



Keys to ID: Usually free-floating, sometimes rooted, aquatic plant that resembles a small water lily. Leaves are heart shaped, smooth, leathery, 1-2 inches wide. Flowers have three white petals with a yellow center. Dangling roots are unbranched. Leaf stem *without* mid-line groove distinguishes it from American frogbit (*Limnobium spongia*), which has a mid-line groove.

European Frogbit

Hydrocharis morsus-ranea

May



Species: European frogbit is a free-floating aquatic plant.

Origin: Native to Europe, it escaped from cultivation in Ontario in 1932 and spread along the shorelines of lakes Ontario, Erie, St. Clair, and Champlain, and a few inland lakes in Washington, New York, Vermont, and Michigan.

Impacts: Dense mats of interlocking plants and dangling roots choke waterways, thereby interfering with swimming, boating, fishing, and waterfowl hunting. It displaces native aquatic plants and depletes dissolved oxygen levels, impacting fish and aquatic life.

Status: Considered a “watch” species, it has not been found in Minnesota.

Where to look: Open marshes, shallow ponds, ditches, and shorelines of lakes and rivers.

Regulatory classification (agency): It is a *prohibited invasive species* (DNR).

Means of spread: European frogbit can spread through improper disposal by water gardeners and accidental transport by boaters on watercraft, trailers, and equipment. It spreads when turions sink in fall and float back to the water’s surface in spring to sprout. It can also spread naturally when plant pieces break off and float on water currents.

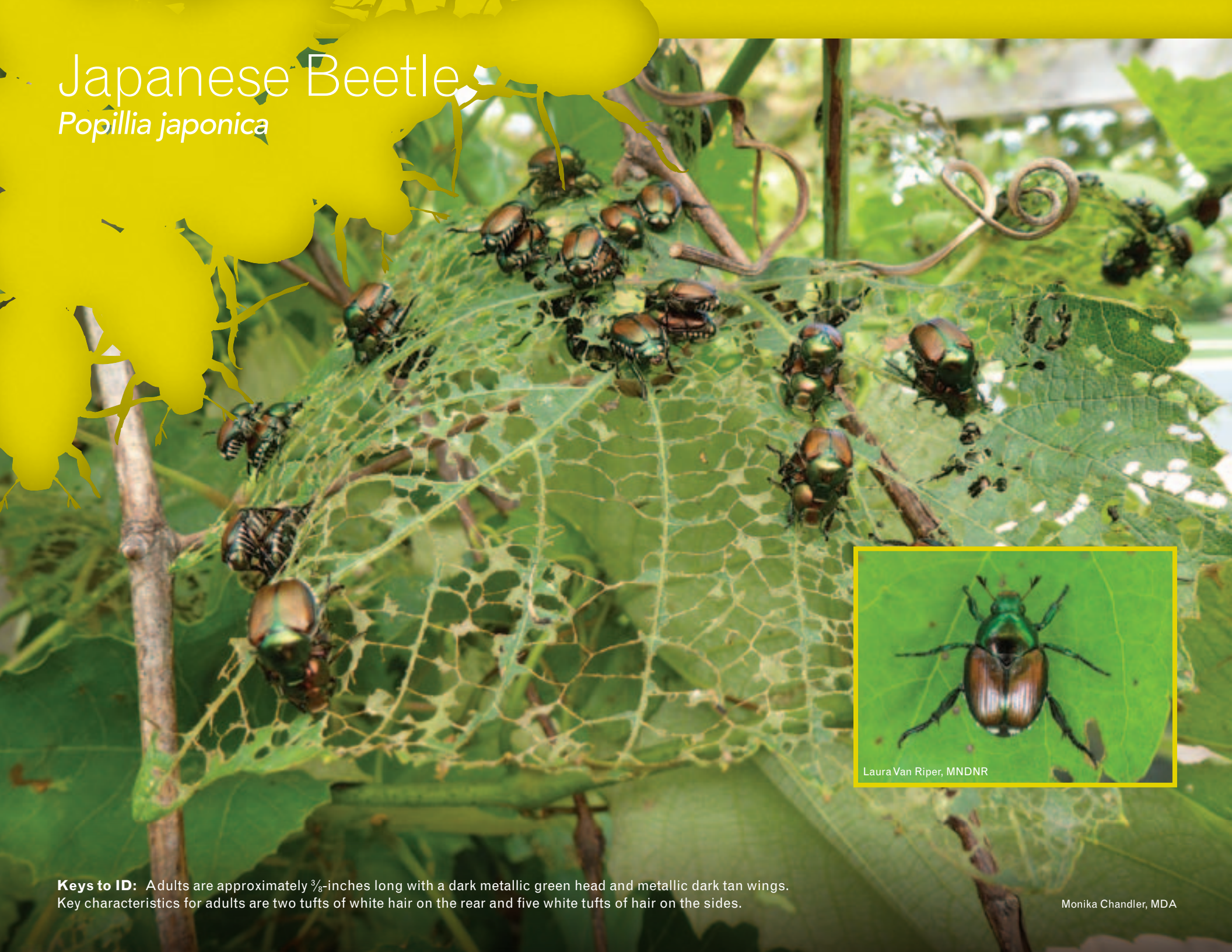
How can people help? Dispose of unwanted aquatic plants in sealed plastic bags in the trash. Remove aquatic plants from recreational watercraft, trailers, and equipment before transport to other waters.

Further information: Contact the University of Minnesota Sea Grant Program or DNR Invasive Species Program.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13 <i>Mother's Day</i>	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28 <i>Memorial Day Observed</i>	29	30	31		

Japanese Beetle

Popillia japonica



Laura Van Riper, MNDNR

Keys to ID: Adults are approximately $\frac{3}{8}$ -inches long with a dark metallic green head and metallic dark tan wings. Key characteristics for adults are two tufts of white hair on the rear and five white tufts of hair on the sides.

Japanese Beetle

Popilla japonica

June



Species: Japanese beetles are insects that impact turf and a number of plants. The adults and grubs (larval stage) are pests.

Origin: Native to northern Japan, Japanese beetle was accidentally introduced to New Jersey in 1916.

Impacts: Adult Japanese beetles feed on more than 300 species of plants, including apple, birch, elm, and linden trees, as well as grapes, roses, and Virginia creeper. Adults feed from late June through August. The larvae (grubs) of Japanese beetles feed on plant roots, especially grasses and can damage turf grass in lawns.

Status: Japanese beetles had an outbreak in parts of the Twin Cities in 2011 and have been trapped in a number of counties throughout the state.

Where to look: Yards and on the plants that they are known to eat.

Regulatory classification (agency): There are no regulations for movement of Japanese beetle within Minnesota.

Means of spread: Japanese beetles can fly and disperse. Adults can be moved on plant material and the larvae can be transported in the soil of nursery stock and sod.

How can people help? Keep a lookout for Japanese beetles and other invasive insects. Avoid moving potentially infested soil and plants to new sites.

Management information: A variety of control methods can be used including hand picking, protecting plants with insecticides, and biological control. Contact University of Minnesota Extension for additional information.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14 <i>Flag Day</i>	15	16
17 <i>Father's Day</i>	18	19	20 <i>Summer Begins</i>	21	22	23
24	25	26	27	28	29	30

Bighead Carp and Silver Carp

Hypophthalmichthys nobilis and *H. molitrix*



Bighead Carp *Hypophthalmichthys nobilis*



Silver Carp *Hypophthalmichthys molitrix*

Inset photos: David Riecks and Illinois-Indiana Sea Grant.

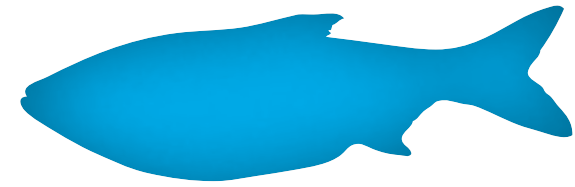
Keys to ID: Both species have low-set eyes below the mouth and large upturned mouths without barbels. Bighead carp weigh up to 110 pounds; silver carp weigh up to 60 pounds.

Water samples taken in 2011 from the St. Croix River and Mississippi River downstream of the Ford Dam (Lock and Dam #1 in Minneapolis) tested positive for the DNA of silver carp. Deborah Rose, MNDNR.

Bighead Carp and Silver Carp

Hypophthalmichthys nobilis and *H. molitrix*

July



Species: Large filter-feeding fishes.

Origin: Native to China, they were imported for use in aquaculture ponds to control plankton. Both species have escaped into open waters in southern states.

Impacts: They eat massive amounts of plankton that are also eaten by young native fish, adult paddlefish, and mussels. This competition for food could result in fewer and smaller sport fish. Silver carp can leap up to 10 feet out of the water when disturbed by sounds of watercraft, injuring boaters, personal watercraft operators, and water skiers.

Status: Bighead and silver carp are well established in the Mississippi River in southern Iowa, in the Lower Missouri River, and in the Illinois River. In Minnesota, there are no known reproducing populations. Individual adult bighead carp have been captured by commercial fishermen in the St. Croix and Mississippi rivers. Adult silver carp have been captured near La Crosse in the Mississippi River. In 2011, water samples from the St. Croix and Mississippi rivers tested positive for the DNA of silver carp. Subsequent commercial fishing did not collect any live bighead or silver carp.

Where to look: They often feed in schools at the water's surface.

Regulatory classification (agency): They are a *prohibited invasive species* in Minnesota (DNR).

Means of spread: Juveniles resemble gizzard shad and other baitfish, so they could be spread through the use or release of live bait.

How can people help? Do not use bait taken from infested waters. Report sightings to DNR.

Further information: Visit www.dnr.state.mn.us/aquaticanimals/asiancarp/index.html

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4 <i>Independence Day</i>	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Grecian Foxglove

Digitalis lanata



Keys to ID: First-year basal rosette has lance-shaped leaves. Cream colored flowers are about the size of a child's finger and similar in shape to those of a snapdragon.

Grecian Foxglove

Digitalis lanata

Species: Grecian foxglove is a broadleaf perennial plant that produces digitalis, a cardiac stimulant.

Origin: It is native to scrub oak forests of southeastern Europe.

Impacts: Grecian foxglove can be toxic or fatal to livestock and humans if ingested or if it comes in contact with human skin.

Status: It escaped from cultivation and is spreading in residential landscapes, fields, and along river and road corridors. In Minnesota, it is currently found in Dakota, Wabasha, and Washington counties.

Where to look: Grecian foxglove grows best in well-drained, loamy-sand soils in sunny locations.

Regulatory classification: It is listed as a *prohibited noxious weed* on the *Eradicate List* in Minnesota (MDA). All of the above and below ground parts of the plant must be destroyed and no transportation, propagation, or sale of these plants is allowed. The *Eradicate List* is a new noxious weed category that was introduced in 2011 and aims to control emerging invasive plants before they become widespread.

Means of spread: Seed can be spread by wind, water, vehicles, humans, wildlife, and by moving soil containing seed. Seeds develop in hooked pods that may attach to clothing or animal fur and can be transported long distances.

How can people help? Report infestations to MDA at arrest.the.pest@state.mn.us or 1-888-545-6684. Control infestations on your land.

Management information: Hand-pull wearing rubber gloves, mow, or treat with herbicide. For more information, visit www.mda.state.mn.us/plants/badplants/foxglove.aspx

August

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

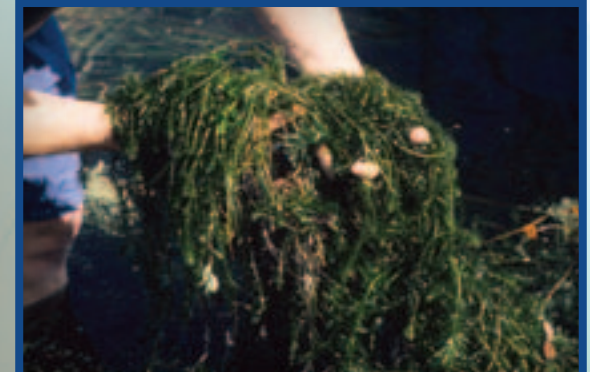
Live Study Specimen Pathway



Red Swamp Crayfish
Procambarus clarkii

Missouri Department of Conservation

Keys to ID: Red swamp crayfish look similar to native crayfish, except they are dark red with raised bright red spots covering their body and claws.



Brazilian Elodea
(also known as Anacharis)
Egeria densa

Ann Murray, University of Florida, Bugwood.org

Keys to ID: The submersed plant forms mats in shallow water. Typically have whorls of four or more spear-shaped leaves around the stem. Small white flowers appear in spring into late summer.



Mosquito Fish
Gambusia affinis

Robert McDowall, USGS

Keys to ID: Mosquito fish are small, stout, and dull gray, with rounded tail, and upturned mouth resembling tropical guppies.

Deborah Rose, MNDNR

Live Study Specimen Pathway

September



Species: These are examples of species released by students and teachers as discarded live study specimens.

Origin: They are native to Brazil, Argentina, and Uruguay; southern United States; and Gulf of Mexico, respectively.

Impacts: They can impact shallow lakes, ponds, wetlands, and rivers. Brazilian elodea forms mats that impede swimming, boating, waterfowl hunting, and fishing. Red swamp crayfish can lead to declines in native crayfish and can carry crayfish fungus plague. Mosquito fish severely damage native fish communities and other aquatic life.

Status: While invasive in many states, red swamp crayfish and mosquito fish are not found in Minnesota. Brazilian elodea infests Powderhorn Lake, Hennepin County.

Where to look: These harmful species can live in lakes, ponds, rivers, and wetlands.

Regulatory classification (agency): Brazilian elodea is a *regulated invasive species* (DNR). Red swamp crayfish is a *prohibited invasive species* (DNR). Mosquito fish is an *unlisted species*, which may not be released into a free-living state.

Means of spread: Live study specimens are sometimes discarded or intentionally planted following use in classrooms. While these examples can spread along connected waterways, red swamp crayfish can crawl several miles at night and during wet weather.

How can people help? Do not use prohibited species or release plants and animals into the wild. Check plant orders for seed, plant fragments, snails, and fish. Give or trade unwanted live study specimens with another school, environmental learning center, aquarium, or zoo. Seal aquatic plants in a plastic bag and dispose in the trash. Contact a veterinarian or pet retailer for guidance on humane disposal of animals.

Further information: Visit www.dnr.state.mn.us/Habitattitude

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 <i>Labor Day</i>	4	5	6	7	8
9 <i>Grandparents' Day</i>	10	11	12	13	14	15
16	17	18	19	20	21	22 <i>Fall Begins</i>
23	24	25	26	27	28	29
30						

Khapra Beetle

Trogoderma granarium

Keys to ID: Correct identification of this pest requires an expert as similar species occur commonly in Minnesota.

Ministry of Agriculture and Regional Development, Bugwood.org



Pest and Disease Image Library, Bugwood.org

Khapra Beetle

Trogoderma granarium

October



Species: This beetle is considered one of the most damaging pests of stored grain in the world.

Origin: Studies indicate the Khapra beetle is native to India, and is generally established in a zone stretching from the Mediterranean Sea to southeastern Asia. Khapra beetle does not currently occur in the U.S.

Impacts: Khapra beetles consume and foul stored grains. They will feed upon virtually any type of dried grain as well as other dried vegetation or animal matter. They are messy eaters, damaging many more kernels of grain than they actually consume. The presence of Khapra beetle also has significant impacts on a country's ability to export grains.

Status: Khapra beetle has never been found in Minnesota. It has been detected in other parts of the U.S., but has been successfully eradicated in each case.

Where to look: The climate in Minnesota would only allow Khapra beetle to exist in a grain storage facility. They do not consume live plants and prefer warm, dry climates.

Regulatory classification (agency): This is a federally *regulated pest* (USDA-APHIS). Countries where Khapra beetle occurs cannot export grain to the U.S. unless the shipment is proven to be free of Khapra beetle.

Means of spread: This pest is spread through the importation of grain. Due to a surge in detections this year, USDA has recently tightened restrictions on rice imported for personal use.

How can people help? Potential sightings can be reported to MDA at arrest.the.pest@state.mn.us or 1-888-545-6684.

Further information: Visit www.pest.ceris.purdue.edu/pest.php?code=INATANA

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8 <i>Columbus Day</i>	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29 <i>Upper Midwest Invasive Species Conference Oct. 29-31 La Crosse, WI</i>	30	31 <i>Halloween</i>			

Mute Swan

Cygnus Olor



Jim Occi, BugPics, Bugwood.org

Keys to ID: Adult mute swans have all white plumage, vibrant orange bills, and a black knob above the bill. Young birds have grayish bills. Native swans have entirely black bills.

Rebekah D. Wallace, University of Georgia, Bugwood.org

Mute Swan

Cygnus olor

Species: Mute swans are a very large white species of waterfowl.

Origin: Native to Europe and Asia, they were brought to the United States from the mid-1800s through the early 1900s. Populations of mute swans have established in numerous states due to release or escape of individuals from captive flocks.

Impacts: Mute swans are very aggressive, even toward people. They chase water birds including loons, and can keep those birds from nesting. Mute swans consume or uproot about 20 pounds of submersed aquatic vegetation daily.

Status: A few birds have been reported annually in the wild, but there are no known populations in Minnesota. However, populations in other Great Lakes states have been increasing.

Where to look: They live on lakes and in wetlands.

Regulatory classification (agency): It is a *regulated invasive species* (DNR). Mute swans must be kept confined in Minnesota and those in possession of these birds must have a game farm license. It is also an *unprotected* species.

Means of spread: Mute swans have escaped from captivity or were intentionally released on ponds for ornamental purposes. They have sometimes been used as ineffective and illegal means to deter geese from an area.

How can people help? Report observations to the DNR. Don't purchase and release mute swans.

Further information: Contact the DNR Invasive Species Program.

November



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4 <i>Daylight Saving Time Ends</i>	5	6	7	8	9	10
11 <i>Veterans' Day</i>	12	13	14	15	16	17
18	19	20	21	22 <i>Thanksgiving Day</i>	23	24
25	26	27	28	29	30	

Purple Loosestrife

Lythrum salicaria



Adult *Galerucella californiensis*, one of two leaf-eating beetles that have been successfully used as biocontrol on known purple loosestrife infestations in Minnesota.

Bernd Blossey, Cornell University, Bugwood.org

Keys to ID: Leaves are lance shaped with smooth edges and arranged opposite on a four-sided stalk, alternate on a five-sided stalk, or whorls of three leaves on a five-sided stalk. Individual flowers have five or six pink-purple petals surrounding small, yellow centers. Each flower spike is made up of many individual flowers.

Purple Loosestrife

Lythrum salicaria

December



Species: Purple loosestrife is an emergent perennial forb.

Origin: It is native to Europe and Asia.

Impacts: Purple loosestrife invades marshes and lakeshores, replacing cattails and other wetland plants. The plant can form dense, impenetrable stands, which are unsuitable as cover, food, or nesting sites for a wide range of native wetland animals. Rare and endangered wetland plants and animals are also at risk.

Status: There are more than 2,400 known loosestrife infestations in Minnesota covering over 63,000 acres. Two leaf-feeding beetles, *Galerucella pusilla* and *G. californiensis* have been released as biocontrol insects on more than 850 of the known infestations. To date, many of the release sites are experiencing exceptional control. Populations of beetles and purple loosestrife can fluctuate and cycle over time.

Where to look: It can be found in any wet habitat including wetlands, lakeshores, stream banks, ditches, and roadsides.

Regulatory classification (agency): Purple loosestrife (*Lythrum salicaria*, *L. virgatum* and any combination thereof) is listed as a *prohibited noxious weed* (MDA) and a *prohibited invasive species* (DNR).

Means of spread: Purple loosestrife is distributed mainly by seed in water, or by animals in their feathers or fur.

How can people help? Report new, small infestations to DNR. Contact DNR to release purple loosestrife biocontrol insects.

Management information: Biological control is now the main method used to manage purple loosestrife in Minnesota. For management recommendations, visit www.dnr.state.mn.us/invasives/aquaticplants/purpleloosestrife/index.html

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8 Hanukkah Begins
9	10	11	12	13	14	15
16	17	18	19	20	21 Winter Begins	22
23	24	25 Christmas Day	26	27	28	29
30	31					

For information about
invasive species in
Minnesota, contact:

Aquatic Plants and Animals

Minnesota Department of Natural Resources—
Invasive Species Program
651-259-5100

University of Minnesota—Sea Grant Aquatic
Invasive Species Information Center
218-726-8712

U.S. Fish and Wildlife Service
612-713-5114

Terrestrial Plants and Insects

Minnesota Department of Agriculture—
Pest Detection and Response Unit
651-201-6328

USDA—Animal and Plant Health Inspection
Service
612-725-1722

Minnesota Department of Natural Resources—
Division of Forestry
651-259-5300

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Calendar design: Brandy Peterson, Department
of Natural Resources

Contributing authors: Mark Abrahamson, Robert
Koch, Minnesota Department of Agriculture;
Darrin Hoverson, Tim Schlagenhaft, Laura
Van Riper, Minnesota Department of Natural
Resources; Doug Jensen, Minnesota Sea Grant

Editors: Susan Balgie, Jay Rendall, Laura
Van Riper, Minnesota Department of
Natural Resources

ECO-23r-11



Brown Marmorated Stink Bug



Oriental Bittersweet



Faucet Snail



Felt-soled Wader Pathway



European Frogbit



Japanese Beetle



Bighead Carp and Silver Carp



Grecian Foxglove



Live Study Specimen Pathway



Khapra Beetle



Mute Swan



Purple Loosestrife