Invasive Species

Threats to Minnesota

2006 Calendar

Minnesota Invasive Species Advisory Council

Invasive Species

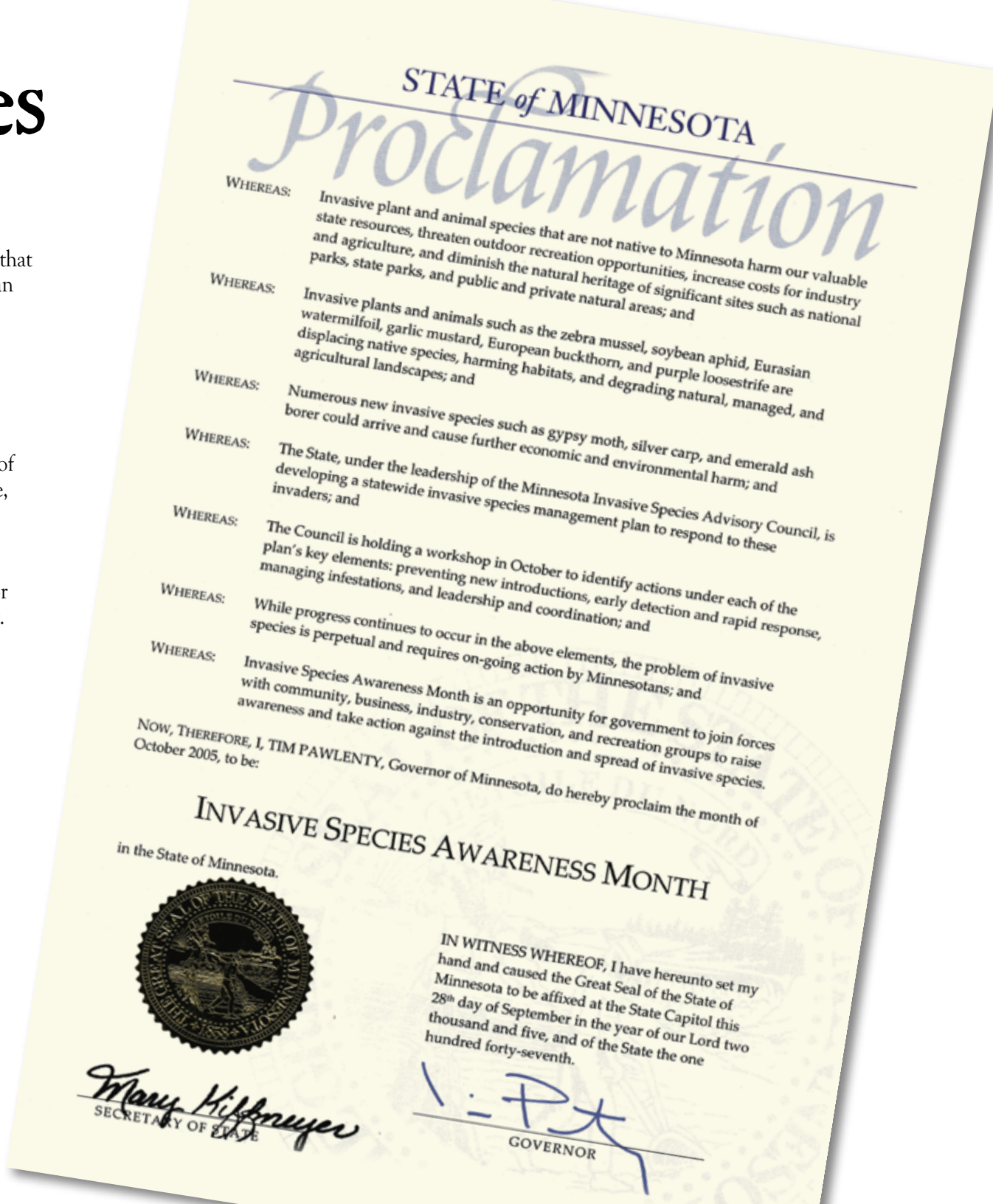
Threats to Minnesota

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 many invasive pests including common carp, glossy buckthorn, purple loosestrife, and sea lamprey shown in this calender. There are also many new invasive species that could arrive and cause problems. The list of numerous potential invaders includes Asian longhorned beetle, soybean rust, bighead carp, silver carp, hydrilla, and kudzu.

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 $100 billion a year.

Public awareness and ongoing action are keys to preventing the spread of invasive species. Please use the information in this calender 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.



STATE of MINNESOTA

Proclamation

WHEREAS: Invasive plant and animal species that are not native to Minnesota harm our valuable state resources, threaten outdoor recreation opportunities, increase costs for industry and agriculture, and diminish the natural heritage of significant sites such as national parks, state parks, and public and private natural areas; and

WHEREAS: Invasive plants and animals such as the zebra mussel, soybean aphid, Eurasian watermilfoil, garlic mustard, European buckthorn, and purple loosestrife are displacing native species, harming habitats, and degrading natural, managed, and agricultural landscapes; and

WHEREAS: Numerous new invasive species such as gypsy moth, silver carp, and emerald ash borer could arrive and cause further economic and environmental harm; and

WHEREAS: The State, under the leadership of the Minnesota Invasive Species Advisory Council, is developing a statewide invasive species management plan to respond to these invaders; and

WHEREAS: The Council is holding a workshop in October to identify actions under each of the plan's key elements: preventing new introductions, early detection and rapid response, managing infestations, and leadership and coordination; and

WHEREAS: While progress continues to occur in the above elements, the problem of invasive species is perpetual and requires on-going action by Minnesotans; and

WHEREAS: Invasive Species Awareness Month is an opportunity for government to join forces with community, business, industry, conservation, and recreation groups to raise awareness and take action against the introduction and spread of invasive species.

NOW, THEREFORE, I, TIM PAWLENTY, Governor of Minnesota, do hereby proclaim the month of October 2005, to be:

INVASIVE SPECIES AWARENESS MONTH

in the State of Minnesota.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Minnesota to be affixed at the State Capitol this 28th day of September in the year of our Lord two thousand and five, and of the State the one hundred forty-seventh.

SECRETARY OF STATE

GOVERNOR

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 in response to Presidential Executive Order 13112 on invasive species and the national Invasive Species Management Plan that encouraged states to plan and take action on invasive species.

The purposes of MISAC are:

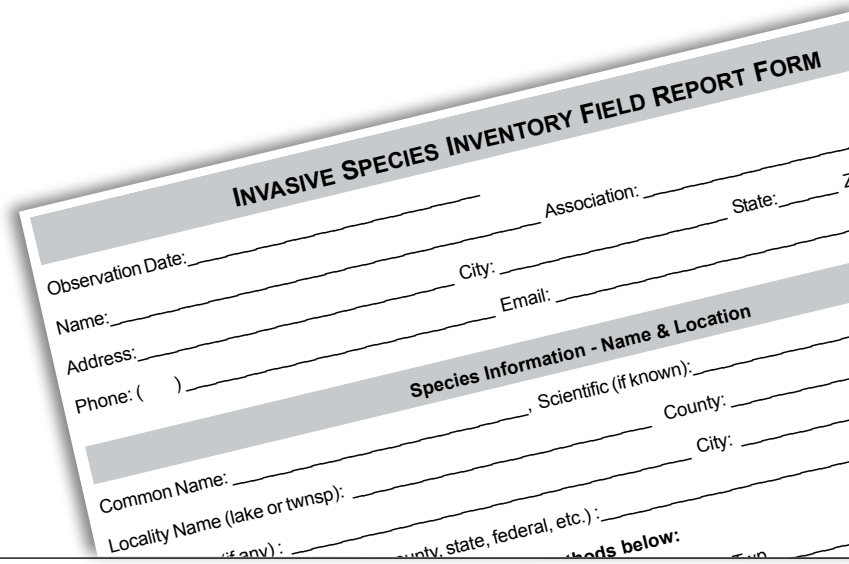
- to facilitate statewide coordination and cooperation on invasive species – including the review of information concerning the current status, management, and spread of terrestrial and aquatic invasive insect, plant, animal, and pathogen species into and within Minnesota;
- to work cooperatively to prevent new introductions, identify and locate invasive species;
- to contain established introductions; to manage invasions and take other actions in order to minimize invasive species impacts within Minnesota; and
- to 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. In addition, the Council includes these members: Bailey Nurseries, Hennepin County Environmental Services, Leech Lake Band of Ojibwe, Minneapolis Park and Recreation Board, Minnesota Board of Water and Soil Resources, Minnesota Crop Improvement Association, Minnesota Department of Transportation, Minnesota Farm Bureau, Minnesota Golf Course Superintendents' Association, Minnesota Native Plant Society, Minnesota Nursery and Landscape Association, Minnesota Sea Grant, The Nature Conservancy, Superior National Forest, USDA-APHIS, U.S. Fish and Wildlife Service, U.S. Forest Service, University of Minnesota–College of Agriculture, Food and Environmental Sciences and the College of Natural Resources.

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 Web site at: www.mda.state.mn.us/misac/ for a copy of the MISAC reporting form.
- "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-MINN-DNR (elsewhere) to report invasive aquatic plants or wild animals such as Eurasian water milfoil, zebra mussels, Asian carp, round goby, non-native deer, swans and mute swans.


INVASIVE SPECIES INVENTORY FIELD REPORT FORM

Observation Date:
Association:
Name:
City:
State:
Address:
Email:
Phone: ( )

Species Information - Name & Location

Common Name:
, Scientific (if known):
Locality Name (lake or twnsp):
County:
City:
, state, federal, etc.) :
if any) :
ods below:

Common Carp *Cyprinus carpio*

Photo: Konrad Schmidt

Keys to ID: A deep bodied fish with large scales, the common carp has a long dorsal fin base and two pairs of long barbels (whiskers) in its upper lip.

Common carp caught during a survey for non-native fish

Photo: Nick Proulx

Common Carp
(German carp, European carp)
Cyprinus carpio

Species: A large omnivorous fish in the minnow family.

Origin: Native to Europe and Asia, it was intentionally introduced into Minnesota waters as a game fish in the 1880s.

Impacts: Their feeding activity disrupts shallowly rooted plants and suspends bottom sediments, muddying the water and releasing phosphorus, increasing the growth of algae. As water clarity is reduced, aquatic plants needed by other species for food and cover also decline.

Status: They are distributed in hundreds of waters in the southern two-thirds, and a few waters in the northern third of Minnesota.

Where to look: They live in lakes, rivers, and wetlands and are often seen in spring when they spawn in shallow waters.

Regulatory classification (agency): Common carp is a *regulated invasive species* (DNR).

Means of spread: Spread has occurred due to its incidental inclusion in live bait and the connection of waters.

How can people help? Avoid spreading carp to other waters. Dispose of unwanted bait in the trash – don't release it into new waters.

Further information: Contact DNR Fish and Wildlife or the University of Minnesota.

January

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 *New Year's Day*	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16 *Martin Luther King, Jr. Birthday*	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Mute Swan *Cygnus olor*

Photo: Scott Goihl

Keys to ID: Adult mute swans have all white plumage, vibrant orange bills, and black knobs above the bill. Young mute swans and native swans have gray feathers and gray. pink, or mottled bills. Adult native swans have entirely black bills.

Mute swan on a Minnesota lake

Photo: Carrol Henderson

Mute Swan

Cygnus olor

Species: A 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 and escaped.

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

Status: Up to 29 have been reported annually in the wild in Minnesota, however, populations in the Great Lakes states are increasing about 10 to 20% annually.

Where to look: They are found on lakes and wetlands.

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

Means of spread: They move by escape from captivity, intentional release on ponds for ornamental purposes, and 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 release mute swans into the wild.

Further information: Contact the DNR Invasive Species Program.

February

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 *Groundhog Day*	3	4
5	6	7	8	9	10	11
12 *Lincoln's Birthday*	13	14 *Valentine's Day*	15	16	17	18
19	20 *Presidents' Day*	21	22 *Washington's Birthday*	23	24	25
26 *National Invasive Weed Awareness Week Begins*	27	28				

Asian Longhorned Beetle *Anoplophora glabripennis*

Photo: Steven Katovich

Keys to ID: The large beetle is distinctive with a black background and white or yellowish markings. Adults chew large round exit holes through the bark; females also chew v-shaped pits where they lay eggs. Larvae are very large, they are found in tunnels deep in the wood.

Highly magnified Asian longhorned beetle

Photo: Kenneth R. Law

Asian Longhorned Beetle

Anoplophora glabripennis

Species: A large longhorned beetle.

Origin: Native to China, Korea, and Japan. It was introduced into the U.S. via infested wooden pallets and crating.

Impacts: The larval stage tunnels into the wood of many common tree species including maple, poplar, elm, and birch. Heavily infested trees may die.

Status: It was initially reported in the New York City area in 1996. Since then, it has also been found in Chicago, New Jersey, and around Toronto. The Chicago populations appear to have been eradicated.

Where to look: Watch for the large distinctive beetles in the summer months. Infested trees have large round exit holes.

Regulatory classification (agency): It is a *federally quarantined pest* (USDA-APHIS).

Means of spread: It is spread by transport of infested wooden pallets, crating, and firewood.

How can people help? Report any suspicious beetles and unusual tree decline or mortality.

Further information: Visit www.aphis.usda.gov/ppq/ep/alb/.

March

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

Leafy Spurge *Euphorbia esula*

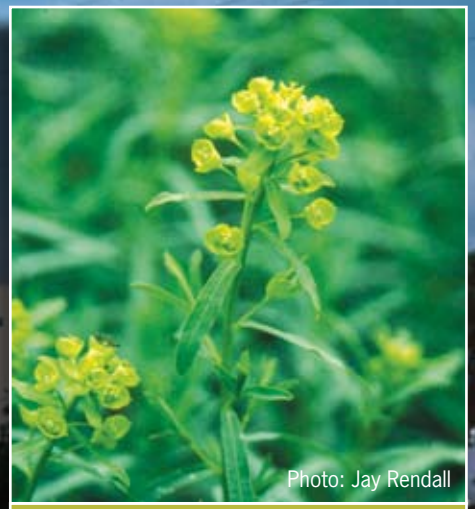


Photo: Jay Rendall

Keys to ID: The flowers are borne in distinctive terminal clusters that are surrounded by paired heart-shaped yellowish or bright green bracts. The stout stems arise from the root crown, and consist of many alternate leaves. Both stems and leaves exhibit a characteristic white milky sap when broken or injured.

A roadside infestation of leafy spurge

Photo: Jay Rendall

Leafy Spurge
Euphorbia esula

Species: A, deep-rooted, perennial plant.

Origin: It is native to Europe and parts of Asia and was introduced to Minnesota in the late 1800s as a contaminant of wool.

Impacts: Leafy spurge forms large monocultures, decreases biological diversity, and degrades grazing lands. This plant is known to be toxic to horses and cattle.

Status: It is present in 75 Minnesota counties.

Where to look: It is found in gravel pits, pastures, CRP, prairies and other grasslands, and along roadsides and other rights-of-ways. Look in late May and early June when it is easy to locate during peak flowering.

Regulatory classification (agency): It is a *prohibited noxious weed* in Minnesota (MDA).

Means of spread: It is often spread by seed and cut pieces in hay, by roadside mowing, and on farm equipment.

How can people help? Contact your county agricultural inspector to determine the best management option.

Further information: Contact the MDA Weed Integrated Pest Management Project or visit www.mda.state.mn.us/weedcontrol/lsmodule/.

April

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 *April Fool's Day*
2 *Daylight Savings Time Begins*	3	4	5	6	7	8
9	10	11	12	13	14	15
16 *Easter*	17	18	19	20	21	22 *Earth Day*
23 30	24	25	26	27	28	29

New Zealand Mudsnail *Potamopyrgus antipodarum*

New Zealand mudsnails attach to hard objects in water

Photo: Robert Pitman

Photo: Tom Cawley

Keys to ID: Adults are small, up to 1/8-inch long, light to dark brown, and elongate with 4 to 6 whorls. Has a cover on the shell opening.

New Zealand Mudsnail

Potamopyrgus antipodarum

Species: A tiny snail that reproduces asexually and bears live young.

Origin: Native to New Zealand, it was accidentally introduced with imported rainbow trout in Idaho in the 1980s.

Impacts: Densities can reach 100,000 to 500,000 per square meter. They outcompete species that are important forage for native trout and other fishes and provide no nutrition to fish that eat them.

Status: First discovered in the late 1980s in the Snake, Idaho, and Madison rivers, they quickly spread to other western rivers. They were discovered in Lake Ontario, and later in Thunder Bay, Lake Superior in 2001.

Where to look: Look on docks, rocks, and other hard surfaces along the shorelines of lakes, rivers, and streams.

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

Means of spread: They likely spread by attaching to recreational fishing gear, research equipment, or in fish shipments.

How can people help? Inspect and remove visible animals, plants, and mud from waders, recreational fishing equipment, research gear, and other field equipment. Rinse everything with 120° F water or dry equipment in heat or sun for several hours. Report suspected infestations.

Further information: Contact the U of M Sea Grant Program – Aquatic Invasive Species Information Center.

May

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8	9	10	11	12	13
14 *Mother's Day*	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29 *Memorial Day Observed*	30	31			

Wild Parsnip *Pastinaca sativa*

Photo: Chris Evans, University of Georgia

Keys to ID: The leaves alternate and are made up of 5 -15 eggshaped leaflets along both sides of a common stalk; leaflets are sharply-toothed or lobed at the margins; upper leaves are smaller. Its flat-topped broad flower cluster 2 - 6" wide, with numerous five-petaled yellow flowers; blooms from June to late summer.

Wild parsnip in bloom

Photo: Kathy Bolin

Wild Parsnip

Pastinaca sativa

Species: A perennial forb.

Origin: It is native to Europe and Asia.

Impacts: In the presence of sunlight, the sap of wild parsnip can cause a rash, blistering, and discoloration of the skin (phytophotodermatitis).

Status: Wild parsnip is found mainly in southeastern and central Minnesota, although it is spreading to other parts of the state.

Where to look: Wild parsnip readily invades open disturbed habitats such as streambanks, roadsides, and old fields.

Regulatory classification: It is not a regulated pest.

Means of spread: Seeds are small and light and can be transported by wind, water, wildlife, mowing equipment, etc.

How can people help? Remove wild parsnip, especially near areas with high human activity, such as walking trails.

Management information: For management recommendations, visit www.dnr.state.mn.us/invasives/terrestrialplants/herbaceous/wildparsnip.html.

June

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

Purple Loosestrife *Lythrum salicaria*

Photo: Luke Skinner

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.

Wetland invaded by purple loosestrife

Photo: Minnesota DNR

Purple Loosestrife

Lythrum salicaria

Species: An emergent perennial forb.

Origin: It is native to Europe and Asia and has been used as an ornamental in North America.

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 2,000 known loosestrife infestations in 68 Minnesota counties.

Where to look: Look for purple loosestrife 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: It is distributed mainly by seed in water, or by animals in their feathers or fur.

How can people help? Report new small infestations to the DNR.

Management information: For management recommendations, visit www.dnr.state.mn.us/invasives/aquaticplants/purpleloosestrife/index.html.

July

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

Asian Soybean Rust *Phakopsora pachyrhizi*

Photo: Lisa Behnken

Keys to ID: The earliest symptom of infection is a yellow mosaic discoloration on the lower leaves of maturing plants at or near flowering. Advanced symptoms include numerous tan or reddish brown surface lesions, necrosis, and eventual defoliation.

Asian soybean rust infested field

Photo: Lisa Behnken

Asian Soybean Rust

Phakopsora pachyrhizi

Species: A fungal disease that affects more than 30 species of legumes.

Origin: Soybean rust was first found in the United States in Louisiana in November of 2004, and was probably carried to the U.S. by Hurricane Ivan.

Impacts: Severe yield reductions of up to 70% have been documented

Status: Soybean rust is established in the southeastern part of the U.S. primarily on wild kudzu and soybeans. (It is an obligate parasite and needs living host material to survive. Temperatures below 28° F will effectively eliminate the pathogen from northern soybean areas.)

Where to look: Look for it on the underside of soybean leaves, primarily on the lower parts of the plant.

Regulatory classification (agency): Soybean rust is not regulated due to its wind borne capacity for dispersal.

Means of spread: The spores are carried by wind and deposited by rain or air deposition.

How can people help?
Scout fields regularly. Submit leaves with suspicious symptoms to the U of M diagnostics clinic.

Further information: Contact the MDA Invasive Species Program.

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		

Flowering Rush *Butomus umbellatus*

Photo: Peter Dziuk

Keys to ID: *Emergent form:* Three-angled fleshy leaves that may produce an umbel-shaped cluster of pink flowers on a round stem. *Submersed form:* Leaves limp, ribbon-like.

Flowering rush invading a shoreline

Photo: Peter Dziuk

Flowering Rush

Butomus umbellatus

Species: A perennial aquatic plant that grows in both emergent and submersed forms.

Origin: It is native to Europe and Asia and was first noted in Minnesota in 1968.

Impacts: Dense stands of flowering rush may impede water recreational activities, such as swimming and boating.

Status: Flowering rush is established in at least 15 lakes and rivers in Minnesota.

Where to look: It is found on shore, near shore, and shallow areas – less than 10 feet deep – of lakes and rivers.

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

Means of spread: The plant spreads primarily vegetatively from thick rhizomes and small tubers that break off, and also from small bulblets that form in the flowerhead; these parts drift within a body of water and could be incidentally trasported to others.

How can people help? Report new locations. Remove all aquatic plants before transporting boats and equipment from one waterbody to another.

Further information: Contact the DNR Invasive Species Program.

September

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

Grecian Foxglove *Digitalis lanata*

Photo: Jay Rendall

Keys to ID: First-year plants are a basal rosette with lance-shaped leaves. Flowers are similar in shape to that of a snapdragon and have purplish–brown veins.

Grecian foxglove infestation

Photo: Jay Rendall

Grecian Foxglove

Digitalis lanata

Species: A broadleaf biennial plant.

Origin: It is native to scrub oak forests of southeastern Europe and was introduced as an ornamental plant.

Impacts: Grecian foxglove produces digitalis, a cardiac stimulant that 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 currently is found in eastern Washington County.

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

Regulatory classification (agency): It is listed as a *secondary noxious weed* in Minnesota (MDA and counties).

Means of spread: Seeds develop in hooked pods that may attach to clothing or animal fur and can be transported long distances.

How can people help? Don't plant as an ornamental. Report infestations to MDA. Hand-pull wearing rubber gloves, mow, or treat with herbicide.

Further information: Contact the MDA Invasive Species Program.

October

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 *Daylight Savings Time Ends*	30	31 *Halloween*				

Glossy Buckthorn *Frangula alnus*

Photo: Deb Rose

Keys to ID: It has smooth, dark, glossy, and toothless edges with 8-9 pairs of leaf veins. Leaves stay green late into fall. Buds and leaves are alternate. No thorn at tip of twig.

Glossy buckthorn infested woodland

Photo: Deb Rose

Glossy Buckthorn
Frangula alnus

Species: A shrub or small tree.

Origin: It is native to Europe.

Impacts: Buckthorn outcompetes native plants for nutrients, light, and moisture and degrades wildlife habitat. It contributes to erosion by shading out other plants that grow on the forest floor. It lacks "natural controls" like insects or disease that would curb its growth.

Status: Glossy buckthorn became established in Minnesota in the 1930s, and is found statewide.

Where to look: It grows in the forest understory or along forest edges and can invade wet areas including bogs, fens, and sedge meadows.

Regulatory classification (agency): Buckthorn is a *restricted noxious weed* in Minnesota (MDA and counties).

Means of spread: Seeds are eaten by birds and deposited in new locations. Buckthorn was once sold as an ornamental plant.

How can people help? Remove buckthorn from your property; replace it with native plant species.

Management information: For management recommendations, visit www.dnr.state.mn.us/invasives/terrestrialplants/woody/buckthorn/control.html.

November

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

Sea Lamprey *Petromyzon marinus*

Photo: M. Gaden and R. Bergstedt

Keys to ID: This parasitic fish has a suctorial mouth with teeth in concentric circles. Adults are tubular, mottled brown or black with a grayish belly, scaleless, and usually 12-20 inches long.

Sea lamprey attached to a lake trout

Photo: M. Gaden and R. Bergstedt

Sea Lamprey

Petromyzon marinus

Species: A primitive eel-like fish that, as adults, feed on blood and tissue of many fish species.

Origin: Native to the Atlantic Ocean, Lake Ontario, and the St. Lawrence River, it was first found in Minnesota waters of Lake Superior in 1946.

Impacts: The most devastating invader of the Great Lakes, adult sea lamprey kill 85% of the fish they attack. They parasitize large sport and commercial fishes. Anglers might see wounds or scars on sportfish they catch.

Status: A U.S. and Canadian control program using lampricides, barriers, trapping and biological control has successfully reduced sea lamprey populations in the Great Lakes by 90%.

Where to look: Each spring, adults migrate upstream in tributaries of the Great Lakes where spawning pairs may be observed making nests.

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

Means of spread: It entered the other Great Lakes via the canals that bypassed natural barriers.

How can people help? Don't transport to new waters. Report findings in inland waters (Note: five native lamprey species exist in the state. See www.gen.umn.edu/research/fish/fishes/default.htm or www.wiscfish.org/fishid/frames.aspx).

Further information: Contact the U of M Sea Grant Program – Aquatic Invasive Species Information Center or DNR Invasive Species Program.

December

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 *Winter Begins*	23
24 31	25 *Christmas Day*	26	27	28	29	30

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-Invasive Species Unit
(651) 201-6328

USDA-Animal and Plant Health Inspection Service
(612) 725-1722

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Text by MISAC members

Edited by Susan Balgie and Jay Rendall, Minnesota Department of Natural Resources


Common Carp


Mute Swan


Asian longhorned Beetle


Leafy Spurge


New Zealand Mudsnail


Wild Parsnip


Purple Loosestrife


Asian Soybean Rust


Flowering Rush


Grecian Foxglove


Glossy Buckthorn


Sea Lamprey