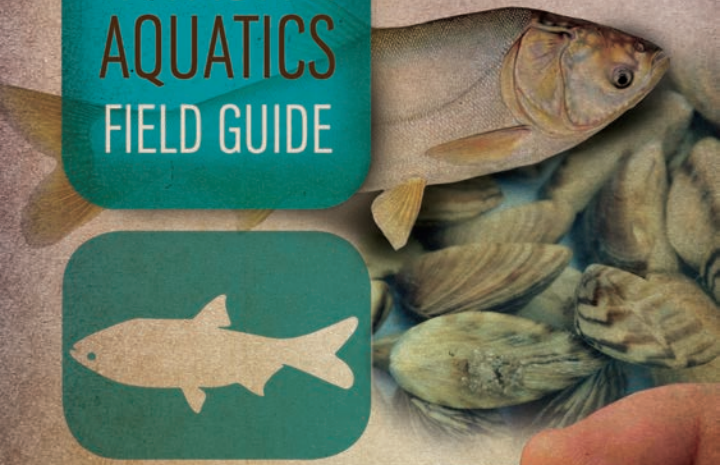
NEBRASKA INVASIVE AQUATICS FIELD GUIDE

NEBRASKA
Invasive Species Program



Helping you identify harmful species in Nebraska.

REPORT A SIGHTING!
neinvasives.com

TABLE OF CONTENTS

INTRODUCTION.....3

ALGAE

DIDYMO.....6

AMPHIBIANS

BULLFROG.....8

FISH

ASIAN CARP.....10
ROUND GOBY.....12
RUDD.....14
NORTHERN SNAKEHEAD.....16
WHITE PERCH.....18

INVERTEBRATES

ASIAN CLAM.....20
CHINESE MYSTERYSNAIL.....22
NEW ZEALAND MUDSNAIL.....24
RED SWAMP CRAYFISH.....26
RUSTY CRAYFISH.....28
SPINY WATERFLEA.....30
WHITE RIVER CRAYFISH.....32
ZEBRA/QUAGGA MUSSEL.....34

PATHOGENS.....36

PLANTS

BRITTLE NAIAD.....38
COMMON REED.....40
CREEPING WATER PRIMROSE.....42
CURLY LEAF PONDWEED.....44
ELODEA.....46
EURASIAN WATERMILFOIL.....48
FLOWERING RUSH.....50
GIANT REED.....52
HYDRILLA.....54
PURPLE LOOSESTRIFE.....56
REED CANARY GRASS.....58
SALTCEDAR.....60
YELLOW FLOATING HEART.....62

REFERENCES.....64

Throughout this guide, each species will be labeled with an orange or blue ribbon, which indicates the species presence in Nebraska:

Orange ribbon: the species is present in Nebraska.

PRESENT

Blue ribbon: The presence of the species in Nebraska is unknown.

UNKNOWN

What are Aquatic Invasive Species?

Aquatic invasive species are organisms non-native to an aquatic ecosystem. They often have few to no natural predators, allowing their populations grow unimpeded. Once established, these species cause irreparable harm: introducing disease; out-competing native species; changing the physical characteristics of aquatic communities; damaging equipment; clogging water delivery systems; and negatively impacting local and national economies.

REPORTING
INVASIVE SPECIES

Silver Carp

If you think you have found an invasive species in Nebraska whose location is not already noted in this guide, please report it. Responding to these species quickly will allow us to better manage and protect our natural resources. If possible, please take a photo and document the location details (such as with a GPS).

Nebraska Invasive Species Program
402-472-3133

From any location, call:
1-877-STOP-ANS

Nebraska Game and Parks Commission
402-471-0641

What Can You Do?

Follow a general set of procedures every time you leave any waterbody. Clean, Drain, Dry. By doing so, you can protect waters that you use from introductions of harmful aquatic hitchhikers.

Clean

AFTER BOATING, BEFORE YOU LEAVE THE LAUNCH:
Remove all visible plants, animals, fish, and mud from your boat, trailer, or other equipment and dispose of in a suitable trash container or on dry land.

Drain

AFTER BOATING, BEFORE YOU LEAVE THE LAUNCH:
Drain water from bilge, live wells, ballast tanks, and any other locations with water before leaving the launch.

Dry

BEFORE YOU ARRIVE AT THE LAUNCH TO GO BOATING:
Dry your boat, trailer, and all equipment completely. Dry watercraft and equipment for **5 days** before launching into another waterbody.

Don't Dump Bait!

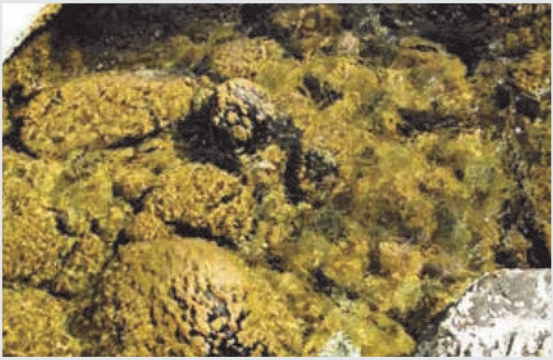
Follow these important guidelines:

- Buy bait from reputable bait dealers and follow State regulations regarding bait.
- Don't move bait from one waterway to another.
- Dispose of unused bait, dead fish, and fish parts in a secure trash area away from the water. And remember: freezing bait doesn't kill viruses or disease.
- Empty all water from boats, buckets, bilges, live wells, and other equipment. Remove all mud, plants, and aquatic life from equipment before moving it to another body of water.

- Thoroughly clean and dry all fishing and boating equipment including bait buckets, boots, boats, and trailers before moving them to another body of water.
- Don't release fish, plants, or animals into a body of water unless they came out of that waterbody.

Aquatic Invasive Species Regulations

Following the approved legislation in 2012 (LB391), it is illegal to possess, import, export, purchase, sell, or transport aquatic invasive species in Nebraska. When encountering a check station, please be prepared to present a Clean, Drain, Dry boat to expedite the inspection process. Complete regulations can be found at the Nebraska Game and Parks Commission: *outdoornebraska.ne.gov*



Photos: Grand Teton National Park

UNKNOWN

DIDYMO

COMMON NAME: Rock snot
SCIENTIFIC NAME: Didymosphenia geminate

DESCRIPTION – Freshwater algae that attaches to rocks, plants, or other stable underwater surfaces and can form large 'blooms.' Brownish yellow to white in color; colonies or mats of didymo look like sewage sludge or wet tissue paper. It appears slimy, but to the touch it feels like wet wool.

HABITAT – Shallow waters of freshwater streams and rivers; sunny open areas with stable water flows of moderate to high current; and below outlets of lakes and reservoirs.

LOCATION IN NEBRASKA – Not known to exist in Nebraska. Found primarily in streams in western states and some in the northeastern states.

PATHWAY OF INTRODUCTION AND SPREAD

A single cell can multiply to form new colonies. Spreads by attaching to boats, trailers, and other equipment like fishing and diving gear and waders (especially neoprene and felt-soled waders).

IMPACTS – "Blooms" out-compete other stream organisms, such as aquatic plants, insects, and trout. Its range is expanding and forming growths in streams and the potential impacts on new waters is a concern. Economic impacts include fouling of water pipes and a potential link to a decline in fisheries. The growths become snagged in fishing gear and make swimming areas unappealing.

Photo: Jeffery Lovich, USGS

Photo: Gary Nafis, California Herps.com

PRESENT

NORTH AMERICAN BULLFROG

COMMON NAME: Bullfrog
SCIENTIFIC NAME: Rana catesbeiana

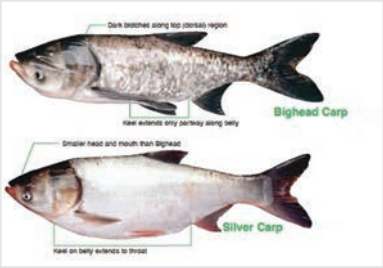
DESCRIPTION – The largest frog in the U.S. with a distinctive fold of skin extending from the eye to the ear. Adults weigh up to 1 lb. and can be over 7 in. long. Color varies from dull green or olive to brown with dark blotches on back and legs. Underbelly is cream or yellow.

HABITAT – Warm lakes, ponds, cattle tanks, bogs and sluggish portions of streams and rivers.

LOCATION IN NEBRASKA – Native to eastern Nebraska. They are now wide spread throughout Nebraska.

PATHWAY OF INTRODUCTION AND SPREAD
Spread when they escape from aquaculture farms, ornamental ponds or when released from aquariums.

IMPACTS – Adults have an enormous appetite and can eat anything they can catch and swallow, including birds, fish, crustaceans, bats, snakes, turtles, and other frogs. A high reproduction rate and limited predation allow it to quickly establish itself and dominate a variety of native species causing their decline. They have been found to carry Chytrid fungus which kills amphibians including native frog and salamander species.



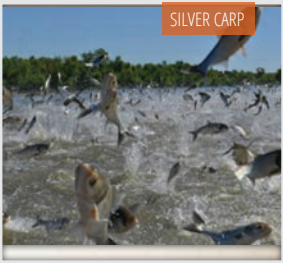


Photo: Kevin Irons, Illinois Department of Natural Resources

Photo: Leo G. Nico

ASIAN CARP:

PRESENT

Silver carp, Bighead carp, Black carp

SCIENTIFIC NAME: Hyopophthamichthys molitrix, Hyopophthamichthys nobilis, Mylopharyngodon piceus

DESCRIPTION – Silver and bighead carp have scale-less heads with low-set eyes and upturned mouth. Others have darker scales; adults can be > 60 lbs. Black carp are dark in color, have very large scales, a somewhat pointed snout and large pharyngeal teeth similar in apperance to human molars.

HABITAT – Quiet waters, usually shallow lakes, ponds, rivers impoundments, channels, and sand pits.

LOCATION IN NEBRASKA – Silver and bighead carp are found in the Missouri, Platte, and Elkhorn rivers. Black carp have not been detected in Nebraska but are found in the Mississippi River bordering Missouri and in the Illinois River.

PATHWAY OF INTRODUCTION AND SPREAD

Personal aquarium dumping, escape from aquaculture pens, bait bucket release, ship ballast water, and other activities. They are strong swimmers and often migrate upstream.

IMPACTS – Most carp are filter feeders that compete with larval fishes, paddlefish, bigmouth buffalo, and freshwater mollusks. Boaters have been injured by jumping silver carp. Black carp consume almost exclusively mussels and snails which may further threaten imperiled native freshwater mussels.

Photo: Eric Engbretson—U.S. Fish and Wildlife

Photo: Dave Jude, Center for Great Lakes Aquatic Sciences

UNKNOWN

ROUND GOBY

SCIENTIFIC NAME: Neogobius melanostomus

DESCRIPTION – Adults 4-10 in.; gray-green and brown markings; greenish dorsal fin lacks spines; black spot on front dorsal fin. From Black and Caspian Seas.

HABITAT – Prefer rock, sand, gravel, and hide in crevices; can tolerate wide temperature and oxygen ranges; can live in slightly brackish or low quality water; nocturnal feeders.

DON'T DUMP YOUR AQUARIUMS INTO LAKES OR STREAMS

LOCATION IN NEBRASKA – Not known to exist in Nebraska. Found in the Mississippi River near St. Louis, MO. Also found in Illinois, Ohio, Michigan, Pennsylvania and New York. Large infestations in the Great Lakes and its tributaries.

PATHWAY OF INTRODUCTION AND SPREAD

Personal aquarium dumping, escape from aquaculture pens, bait bucket release, ship ballast water, and other activities. They often migrate upstream from infested areas.

IMPACTS – Out-compete native fishes for food, prey on darters, sculpin, eggs/fry of lake trout and sturgeon. Aggressive behavior drives fish from spawning areas.

For more information go to: *www.seagrant.umn.edu*

Photos: Steve Schainost, Nebraska Game and Parks Commission

PRESENT

RUDD

SCIENTIFIC NAME: Scardinius erythrophthalmus

DESCRIPTION – Similar to golden shiner; dark grey back, silver sides, blood red fins (shiner fins are yellow); up to 14 in.; forked tail.

HABITAT – Found in lakes, rivers, marshland and ponds with little current and prefer large weed beds; usually fresh-water but can acclimate to brackish conditions. Native to Eurasia.

LOCATION IN NEBRASKA – Present in Nebraska. Low densities have been identified in Harlan, Enders, McConaughy, Calamus, Sherman, Box Butte and Johnson Reservoirs (and likely others). Found throughout the midwest and in the eastern U.S.

PATHWAY OF INTRODUCTION AND SPREAD

Personal aquarium dumping, escape from aquaculture pens, bait bucket release, ship ballast water, and other activities.

IMPACTS – Out-compete native fishes for food, can also feed on vegetation, tolerates eutrophic or polluted waters. Can hybridize with native golden shiner.

Photo: American Fisheries Society

Photo: US Geological Survey

UNKNOWN

NORTHERN SNAKEHEAD

SCIENTIFIC NAME: Channa argus

DESCRIPTION – Long, thin body up to 47 in.; flattened head; adults dark brown with dark blotches, young are lighter in color; scaled, snake-like head with sharp teeth. Air bladder acts as lungs; can live out of water for up to 4 days.

DON'T DUMP YOUR AQUARIUMS INTO LAKES OR STREAMS

HABITAT – Survives in a wide range of habitats including wetlands, vegetated ponds, swamps, and slow-moving streams with water temperatures ranging from 32°F to 86°F.

LOCATION IN NEBRASKA – Not known to exist in Nebraska. Found in several tributaries in the north and southeastern U.S.

PATHWAY OF INTRODUCTION AND SPREAD

Previously popular pet; personal aquarium dumping, escape from aquaculture pens, bait bucket release, ship ballast water, and other activities.

IMPACTS – Can devastate populations of native fish and wildlife. At all stages of their lives will compete with native fish for food. Juveniles eat zooplankton, insects, crustaceans, and young fish. Adults are voracious predators, eat other fish, crustaceans, reptiles, birds and mammals.

Photo: Kansas Department of Wildlife and Parks

Photo: Douglas Facey, nas.er.usgs.gov

PRESENT

WHITE PERCH

SCIENTIFIC NAME: Morone americana

DESCRIPTION – Variable coloring, generally silvery-green on sides, no stripes or lines; usually less than 10 in. long; is in the same family and closely resembles white bass, spiny and soft dorsal fin connected in white perch but not in white bass.

HABITAT – Common in shallow portions of inland lakes, ponds and rivers. Native to the Atlantic coastal regions.

LOCATION IN NEBRASKA – Found in the Platte River from southeastern Nerbaska to Hall county in central Nebraska. They have been found in the southeastern Nebraska in the Missouri river, the Salt Creek watershed, and other lakes including Branched Oak Lake.

PATHWAY OF INTRODUCTION AND SPREAD

Popular bait fish - often spread by dumping left-over bait into waterbodies. Also, personal aquarium dumping, escape from aquaculture pens, bait bucket release, ship ballast water, and other activities.

IMPACTS – Out-compete native fishes for food; feed heavily on baitfish used by other species; have been associated with declines in walleye and white bass. Can hybridize with white bass.

Photo: USGS

Photo: Kansas Department of Wildlife and Parks

PRESENT

ASIAN CLAM

SCIENTIFIC NAME: Corbicula fluminea

DESCRIPTION – Small freshwater clam that is triangular in shape; color is yellowish to blackish-brown. Shell is incredibly thick and difficult to break compared to native clams.

HABITAT – Found in freshwater at the sediment surface or slightly buried; prefers fine clean sand, clay, and coarse sand, although this species may be found on most any underwater surface.

LOCATION IN NEBRASKA – Found in the Platte River to the Wyoming border and in the Missouri River. Also in various reservoirs in the Salt Creek watershed. Widely distributed across the southern half of Nebraska.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced into the U.S. as a food item for humans. Spread by the aquaculture industry and aquarium dumping. Bait buckets, live wells, bilge water, boat hulls/motors/trailers, and other equipment like fishing or diving equipment could potentially be contaminated with clams or free-floating microscopic larvae and transported between waters.

IMPACTS – Filters suspended matter from the water column, which significantly increases water clarity and leads to excessive plant growth and alters nutrients regimes. May compete with native clams; can infest and interfere with irrigation systems and canals, and block water flow through industrial water intake pipes.

Photo: Oregon Department of Fish & Wildlife

Photo: Nebraska Cooperative Research Unit

PRESENT

CHINESE MYSTERYSNAIL

SCIENTIFIC NAME: Cipangopaludina chinensis

DESCRIPTION – Freshwater snail that has an operculum that acts as a lid or trapdoor and seals the shell's opening; typically has dark green covering similar to moss; color is brownish to olive-green. They are also called oriental mystery snails, chinese applesnail, and trapdoor snails.

DON'T DUMP YOUR AQUARIUMS INTO LAKES OR STREAMS

HABITAT – Found in freshwater at the sediment surface or slightly buried; prefers fine clean sand, clay, and coarse sand, although this species may be found on most any underwater surface.

LOCATION IN NEBRASKA – Identified in several southeastern Nebraska reservoirs (Wehrspann, Pawnee, Walnut Creek, Holmes, Wagon Train, Wild Plum, Branched Oak, Mahoney State Park, Hitchcock Park, Biology Pond - Crete, Hedgefield, Halleck Park - Papillon), Big Blue River, wetland off South Loup River, and the Missouri River near Sioux City.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced through aquarium and Asian food trade, aquarium dumping and accidental release from aquaculture farms. Spread if transported in bait buckets, live wells, bilge, boat hulls/motors/engines, and other equipment. They are sold online for use in ponds and aquariums.

IMPACTS – Can compete with native snail species. Potential vectors for the transmission of parasites and diseases. Shells can clog screens and water intake pipes. Recent research suggest they are filter feeders which can lead to competition with native mollusk and fish species.

Photo: Dan Gustafson, USFWS

Photo: R. Draheim

UNKNOWN

NEW ZEALAND MUDSNAIL

SCIENTIFIC NAME: Potamopyrgus antipodarum

DESCRIPTION – Small, slender, freshwater snail with an operculum that acts as a lid or trapdoor and seals the shell's opening; color is usually light to dark brown.

HABITAT – Prefers disturbed watersheds, fresh and somewhat saline lakes, rivers, and slow-moving streams on hard or woody debris, rock and gravel surfaces and vegetation in areas with high silt and organic matter. Tolerates temperatures from near freezing to 82°F.

LOCATION IN NEBRASKA – Not known to exist in Nebraska. Found in the Great Lakes and many streams and rivers in the western U.S.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced through ballast water and in the water shipped from infested waters. Spread via bait buckets, live wells, bilge water and boat hulls, motors and trailers. Recreational equipment and shoes/clothing can spread snails to new waters. Can become established with the introduction of a single individual.

IMPACTS – Populations can reach high densities that dominate the food source, competing with native snails and other species. Can displace native species that other species, including fish, depend on for food.

Photos: US Geological Survey & M. Scott

UNKNOWN

RED SWAMP CRAYFISH

SCIENTIFIC NAME: Procambarus clarkii

DESCRIPTION – Large (up to 5 in.), Dark red in color with raised bright red spots covering the body and claws and a black wedge-shaped stripe on the top of the abdomen. Occasionally, a genetic mutation may turn the body and/or claws blue.

HABITAT – Freshwater marshes, swamps, ponds and slow moving rivers and streams, but have also become established in lakes.

LOCATION IN NEBRASKA – Have been found in Nebraska but there are no known established populations. They have been released into Missouri River in the Gavin's Point reservoir area.

PATHWAY OF INTRODUCTION AND SPREAD

They are used as live bait and can escape or be released into the wild. Schools have used them in classes and they could be released into the wild. The species is used for human food and sold live in markets.

IMPACTS – Feeding on aquatic plants, snails, insects and fish and amphibian eggs and young. They have been found to reduce amphibian populations through direct predation and competition for habitat. Populations have also led to declines in native crayfish species through competition and because they often carry the crayfish fungus plague.

Photo: Jeff Gunderson, Minnesota Sea Grant

Photo: Steve Schainost, Nebraska Game and Parks Commission

PRESENT

RUSTY CRAYFISH

SCIENTIFIC NAME: Orconectes rusticus

DESCRIPTION – Large (up to 4 in.), aggressive crayfish whose color is variable, but consistently has large, rust-colored spots on either side of the shell and black bands on the claw tips.

HABITAT – Found in freshwater lakes, rivers, and streams with rock, gravel, clay or silt bottoms. Prefers deep pools and fast currents with cover such as rocks, logs and debris to protect from predators.

LOCATION IN NEBRASKA – Found in a couple of lakes in Omaha, and in the Gavin's Point tailwater area and the Missouri River downstream.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced via aquarium dumping, release or escape of unwanted crayfish from bait buckets and fishing lines, releases of those used in science classrooms.

IMPACTS – Eats and damages stands of aquatic plants, reducing food sources and aquatic habitat for aquatic invertebrates and fish. Often out-competes native crayfish for food and habitat and negatively impacts fish populations through competition for food and predation on fish eggs. With their strong claws and aggressive nature, they can also pose a menace to swimmers.

SPINY WATERFLEAS ON A FISHING LINE

Photos: A. Miehls, USGS

PRESENT

SPINY WATERFLEA

SCIENTIFIC NAME: Bythotrephes longimanus

DESCRIPTION – Spiny waterfleas are cladoceran (tiny crustaceans) with a long straight tail spine that is twice as long as its body and has one to three pairs of barbs.
Adults range from 1/4 to 5/8 inch long.

HABITAT – Occurs in estuaries, lakes, marine habitats and wetlands. During the daytime, they can sink up to 50 to 60 meters. During the night, they accumulate in the surface layer. In its native range it shows a preference for large, deep, clear lakes with relatively low summer bottom temperatures.

LOCATION IN NEBRASKA – They have been found in Harlan Reservoir and Lake McConaughy. There are large infestations in the Great Lakes.

PATHWAY OF INTRODUCTION AND SPREAD

Native to Europe and Asia, they were introduced into the Great Lakes by ballast water discharged from ships. They were first discovered in Lake Ontario in 1982 and spread to Lake Superior in 1987. They can be unitentially transported in bilge water, bait buckets or live wells.

IMPACTS – Spiny waterfleas eat zooplankton, including Daphnia, which are an important food for native fishes. They can clog eyelets of fishing rods interfering with fishing. They can produce eggs that resist drying and freezing, and can establish a new infestation.

Photos: US Geological Survey

UNKNOWN

WHITE RIVER CRAYFISH

SCIENTIFIC NAME: Procambarus acutus acutus

DESCRIPTION – Large (up to 5 in.) they have a space called an areola separating the sides of the back, forming a gap in the middle. Color is usually brown, with pink or purple in some adults. Usually have white or tan walking legs.

HABITAT – Found in sloughs, marshes, temporary pools and other standing water.

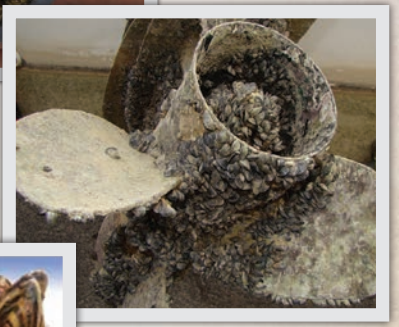
LOCATION IN NEBRASKA – Have been found in Nebraska but there are no known established populations. They have been found being sold as bait.

PATHWAY OF INTRODUCTION AND SPREAD

They are used as live bait and can escape or be released into the wild.

IMPACTS – They compete with native crayfish, feeding on aquatic plants, snails, insects and fish.

Photo: TIME & LIFE Images, Getty Images



CLEAN
DRAIN
DRY

CLEAN, DRAIN AND DRY WATER CRAFTS, EQUIPMENT AND TRAILERS TO PREVENT THE SPREAD OF MUSSELS

ZEBRA & QUAGGA MUSSEL

PRESENT

SCIENTIFIC NAME: Dreissena polymorpha, Dreissena rostiformis

DESCRIPTION – Small freshwater mussel up to 1.5 in. Zebra is striped with zigzagged yellowish striped patterns, and flat side that can stand up on edge. Quagga is usually pale and may have colored bands or bars, sometimes with a few stripes - no flat edge to stand on.

HABITAT – Found in freshwater lakes, ponds and slow-moving or sluggish streams/rivers. Attaches to hard surfaces such as rocks, docks, cement, wood, debris, and vegetation. Quaggas can bury into soft sediments.

LOCATION IN NEBRASKA – In 2015 an established population of zebra mussels was confirmed in Lewis and Clark Lake (on both the South Dakota and Nebraska sides). Offutt Air Force Base Lake in Bellevue has an infestation of zebra mussels. Private motorboats are not allowed on the lake. It was treated with Copper Sulfate in 2008 and 2009. A new infestation was found in 2014. They are in the Missouri River but they do not have a significant infestation due to water flows. Lake Zorinsky was drawn down 20 feet in 2010 and zebra mussels were frozen to eradicate the infestation. Since then zebra mussels (larva and adults) have not been found in the lake. Zebra mussels are found in many of the states bordering Nebraska.

PATHWAY OF INTRODUCTION AND SPREAD
Introduced into the U.S. via ballast water in commercial shipping vessels from lakes in Southern Russia. They were introduced into the Great Lakes in 1988. Larval stage and adults can spread between waters when transported in bait buckets, live wells, bilge water or attached to hull, motors and trailers and other equipment. Adult mussels can survive ~3 weeks out of water with the right conditions. Larva can be invisible to the naked eye.

IMPACTS – Forms dense colonies and filters large quantities of plankton from water, decreasing the food supply for native species. Increases water clarity causing increases in unwanted vegetation. Pollute swimming areas with sharp shells. Clog water intake pipes for power and treatment facilities, irrigation pipes, etc.

BOREAL TOAD BEING TESTED AND MONITORED FOR CHYTRID FUNGUS

Photo: Donald H. Campbell, USGS

FISH INFECTED WITH VHS

JUVENILE FISH INFECTED WHIRLING DISEASE

Photo: Mohammed Fasal / USGS, Trout Unlimited, Whirling Disease Foundation

PATHOGENS

A pathogen is a microscopic organism, such as a bacteria, fungus, parasite or virus that can be highly contagious and may cause disease and/or death. Spread of fish/amphibian pathogens generally occurs through movement of organisms or water from infested waters - such as via bait bucket.

COMMON NAMES: Chytrid fungus, chytrid
SCIENTIFIC NAME: Batrachochytrium dendrobatidis
DESCRIPTION – Fungal skin disease that infects amphibians, including frogs, toads, and salamanders.
LOCATION IN NEBRASKA – Eastern and Central NE.

COMMON NAME: Largemouth Bass Virus
DESCRIPTION – A virus that attacks the swim bladder, causing bass to lose their equilibrium and appear bloated.
LOCATION IN NEBRASKA – Not known in Nebraska.

COMMON NAME: Heterosporosis
DESCRIPTION – A protozoan that infects and degrades muscle of yellow perch and other species.
LOCATION IN NEBRASKA – Not known in Nebraska.

COMMON NAME: Viral Hemorrhagic Septicemia (VHS)
DESCRIPTION – Virus that infects fish, including cutthroat trout.
LOCATION IN NEBRASKA – Not known in Nebraska.

COMMON NAME: Whirling disease
SCIENTIFIC NAME: Myxobolus cerebralis
DESCRIPTION – Parasite that infects fish in the trout and salmon families.
LOCATION IN NEBRASKA – Not known in Nebraska.

Photo: Leslie J. Mehrhoff, University of Connecticut

Photo: Graves Lovell, Alabama Department of Conservation and Natural Resources

PRESENT

BRITTLE NAIAD

SCIENTIFIC NAME: Najas minor

DESCRIPTION – Submersed annual aquatic plant; stems of brittle naiad are highly branched and may grow to 4 ft. or more. Stems fragment very easily ("brittle" naiad). Leaves are opposite or whorled, often recurved, with noticeable teeth on edges; a bushy appearance to the plant.

BEFORE YOU TRANSPORT YOUR BOAT OR EQUIPMENT

HABITAT – Found in freshwater lakes, streams, rivers, ponds.

LOCATION IN NEBRASKA – Was found in a lake in Blair, NE in 2014. Found in Iowa, South Dakota, and most states in Eastern and Central U.S.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced through the dumping of aquarium contents. It can spread between waters via plant fragments that attach to boats, trailers, and other equipment, which can give rise to new plants.

IMPACTS – Thick infestations of can inhibit the growth of native aquatic vegetation and make fishing and recreational boating difficult. Brittle naiad plants are extremely brittle and have an increased risk of breaking apart, increasing the likelihood for it to spread via boats, waterfowl, and water movement.

Photo: Karie Decker, Nebraska Invasive Species Project

Photo: Nebraska Weed Control Association

COMMON REED

SCIENTIFIC NAME: Phragmites australis

PRESENT

DESCRIPTION – State designated noxious weed; often forms dense stands, grow up to 20 ft., yellow-green leaves contrast with gray-green foliage of many native grasses; seed heads appear July through September. *Native Phragmites exists in Nebraska; native have loosely attached leaf sheaths while the non-native species has tightly adhered leaf sheaths.

HABITAT – Marshes, floodplains, ditches, ponds, water-ways.

LOCATION IN NEBRASKA – Found throughout Nebraska., particularly along the Platte River.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced from Europe for erosion control. Spreads by extensive rhizomes and seed dispersal. Can easily be inadvertently transported by boats and other recreational equipment such as duck blinds and decoys. Also spread by seed and rhizome fragmentation.

IMPACTS – Forms dense stands over very large areas, restricting water movement, trapping sediment and causing changes in water quality. Severe infestations will dominate waters in single monoculture. Adapts to many environments and competes with native vegetation.

Photo: Graves Lovell, Alabama Department of Conservation and Natural Resources

Photo: John Randall, Nature Conservancy

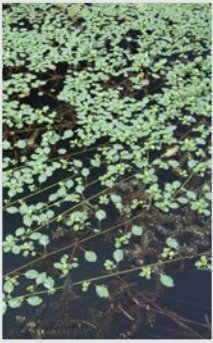


Photo: Robert Vidéki, Doronicum Kft

PRESENT

CREEPING WATER PRIMROSE

SCIENTIFIC NAME: Ludwigia peploides

DESCRIPTION – Perennial plant that stands erect along shorelines but also forms long runners (up to 16 feet) that creep across wet soil or float out across the water surface. Bright, yellow flowers normally with 5 petals and the flowers are generally 2 inches in diameter. Alternately-arranged, slightly hairy, willow-like leaves, it forms dense sprawling, tangled mats of vegetation. Perennial herbs found creeping along the shoreline, floating on the water surface, or growing upright. They have bright yellow, showy flowers and willow-like leaves.

HABITAT – Still or slow moving water bodies. Stands erect along shorelines but also forms long runners (up to 16 feet) that creep across wet soil or float out across the water surface. It will grow along shorelines, floating on the water surface, or growing upright.

LOCATION IN NEBRASKA

Found in several locations in southeastern Nebraska most of which have been treated in an attempt of eradication.

PATHWAY OF INTRODUCTION AND SPREAD

Nurseries and online dealers have sold this species for to be planted in ponds.

IMPACTS – It is able to double its mass every 15 days and reproduce from fragmentation, roots and seed make this a highly invasive plant. It can cover the top of water bodies cutting off sunlight from the water body affecting aquatic species habitat.

Photo: Ann Bove

Photo: Vic Ramey, University of Florida/IFAS Center for Aquatic and Invasive Plants

PRESENT

CURLY LEAF PONDWEED

SCIENTIFIC NAME: Potamogeton crispus

DESCRIPTION – Submerged, perennial, rooted aquatic plant; green to red brown in color; leaf edges are wavy, flowers between May and June that are red-brown in color.

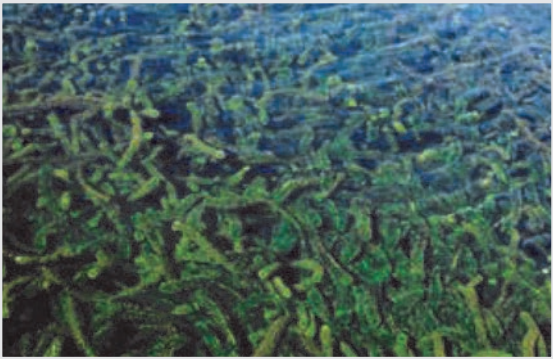
HABITAT – Freshwater lakes, rivers, streams, ponds, ditches, and canals, but also brackish waters. Rooted in silt or clay and sometimes sand and gravel.

LOCATION IN NEBRASKA – Large, dense colonies in some small lakes and ponds. Most concentrated in the east portion of the state, but widely scattered.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced intentionally when planted for waterfowl and wildlife habitat. The plant can spread between waters via plant material such as plant fragments or fruit that are transported with boats, trailers or other aquatic equipment.

IMPACTS – Forms dense stands over very large areas, crowding out other species, restricting water movement, and altering oxygen levels which impacts fish. Can impact water recreational activities when colonies restrict access to docks, fishing areas, and piles of dying curly leaf pondweed cover shorelines.



UNKNOWN

ELODEA

COMMON NAME: Brazilian waterweed, Elodea
SCIENTIFIC NAME: Egeria densa

DESCRIPTION – Submerged perennial rooted aquatic plant, generally bright green, white flowers emerge during summer and fall. Native Elodea also exists in Nebraska. Our native waterweed has three leaves per whorl, whereas hydrilla and Brazilian elodea almost always have more than three leaves whorl. Brazilian elodea is also a much larger, bushy plant with longer leaves.

DON'T DUMP YOUR AQUARIUMS INTO LAKES OR STREAMS

per

HABITAT – Found in shallow waters of freshwater lakes, streams, ponds, and ditches.

LOCATION IN NEBRASKA – Collected in Hall County in 1943 but has not been found in the wild since. May not be winter hardy in Nebraska. Found in most U.S. states except the upper Great Plains and midwest.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced through the dumping of aquarium contents. It can spread between waters via plant fragments that attach to boats, trailers, and other equipment, which can give rise to new plants.

IMPACTS – Forms dense stands over very large areas, restricting water movement, trapping sediment, and causing changes in water quality. Severe infestations may impair recreational activities including boating, swimming, fishing, etc. It can also infest water intake structures in hydropower reservoirs and irrigation pipes.

Photo: Alison Fox, University of Florida, www.bugwood.org

Photo: Graves Lovell, Alabama Department of Conservation and Natural Resources

PRESENT

EURASIAN WATERMILFOIL

SCIENTIFIC NAME: Myriophyllum spicatum

DESCRIPTION – Submerged, perennial, aquatic plant; green feather-like leaves and stem brownish-red to light green; flowers between late July and August with pink petals. *Native milfoil also in Nebraska - has fewer than 12 leaf segments on each side (Eurasian milfoil leaves have 14+ leaf segments). Native milfoil also has toothed leaves and the plant feels rough.

BEFORE YOU TRANSPORT YOUR BOAT OR EQUIPMENT

HABITAT – Freshwater lakes, ponds, and slow moving areas of rivers and streams. Can tolerate brackish waters.

LOCATION IN NEBRASKA – First collected in Hall and Lancaster counties in 1980, has since spread to Merrick, Fillmore, Dakota, Greeley, Wheeler and likely others.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced through the dumping of aquarium contents. Motorboat traffic contributes to natural fragmentation and the distribution of fragments throughout lakes. Can also spread via attaching to boats, trailers and other aquatic equipment.

IMPACTS – Competes aggressively to displace and reduce the diversity of native aquatic plants. Spring growth begins earlier than other plants and quickly grows to the surface, forming dense canopies that overtop and shade the surrounding plants. Dense beds restrict swimming, fishing, boating and clog water intake pipes of industries and irrigators.

Photo: Mandy Tu / The Nature Conservancy / Global Invasive Species Database

Photo: Ann Bove

PRESENT

FLOWERING RUSH

SCIENTIFIC NAME: Butomus umbellatus

DESCRIPTION – Perennial aquatic plant partly submerged in water, partly above surface. Green linear leaves up to 4 ft. long; pink flowers emerge in a whorl on a tall stalk during summer and fall. Native to Europe and Asia.

HABITAT – Shallow, freshwater lakes, rivers, marshes, ponds and ditches.

BEFORE YOU TRANSPORT YOUR BOAT OR EQUIPMENT

LOCATION IN NEBRASKA – Identified in Pawnee, Sarpy, and Knox counties and likely others.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced as a garden plant for ornamental purposes. It can spread between waters via dispersal of seeds, root fragments, and bulbils transported with boats, trailers and other aquatic equipment. Any of this plant material is capable of growing into a new plant.

IMPACTS – Can displace native riparian vegetation. Its very wide range of hardiness makes it capable of being widely invasive. It can hinder recreational uses of water.

PRESENT

GIANT REED

SCIENTIFIC NAME: Arundo donax

DESCRIPTION – Tall, perennial grass that can grow to over 20 ft. in height. Its fleshy, creeping rootstocks form compact masses from which tough, fibrous roots emerge that penetrate deeply into the soil. Leaves are elongate, 1-2 in. wide and a foot long. The flowers are borne in 2 ft. long, dense, plume-like panicles during August and September.

HABITAT – Becomes established in moist places such as ditches, streams, and riverbanks, growing best in well drained soils where abundant moisture is available. It tolerates a wide variety of conditions, including high salinity, and can flourish in many soil types from heavy clays to loose sands.

LOCATION IN NEBRASKA – Few isolated locations in Lancaster County.

PATHWAY OF INTRODUCTION AND SPREAD

Native to Asia. Was introduced into the U.S. for erosion control in the 1800's. It is spread through reproduction through rhizomes which root and sprout readily. Can float miles downstream where root and stem fragments may take root and initiate new infestations. Can also be spread when attached to boats and other aquatic equipment.

IMPACTS – Chokes rivers and streams, crowds out native plants, interferes with flood control, increases fire potential, and reduces habitat for wildlife. Root mats form dams behind bridges, culverts, and other structures.

Photo: Chris Evans, Illinois Wildlife Action Plan

Photo: Robert Vid, Doronicum Kft.

Photo: bugwood.org

UNKNOWN

HYDRILLA

SCIENTIFIC NAME: Hydrilla verticillata

DESCRIPTION – Federal Noxious Weed. Submerged, perennial, rooted aquatic plant; green leaves with serrated edges grow in a circular pattern. Flowers during summer and fall that are either whitish to reddish in color or light green with red streaks.

BEFORE YOU TRANSPORT YOUR BOAT OR EQUIPMENT

HABITAT – Rivers, lakes, ponds, streams, and wet ditches in shallow waters, but also at depths greater than 23ft; found in freshwater but can tolerate mild salinity.

LOCATION IN NEBRASKA – Not known to exist in Nebraska. Found mostly in the southeast and west U.S. Also identified in Iowa.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced by dumping of aquariums. Can spread between waters via plant material such as plant fragments or buds that are transported with boats, trailers and other aquatic equipment.

IMPACTS – Forms tall and dense stands in the water column, blocking sunlight penetration potentially displacing other aquatic organisms and impeding water flow. Heavy growth commonly obstructs boating, swimming, fishing and other activities and blocks withdrawal of water used for power generation and irrigations.

Photo: Leslie J. Mehrhoff, University of Connecticut

Photo: John D. Byrd, Mississippi State University

PRESENT

PURPLE LOOSESTRIFE

SCIENTIFIC NAME: Lythrum salicaria L.

DESCRIPTION – State designated noxious weed; pink to purple flowers bloom July-September; leaves are heart-shaped; height to 8 ft.

HABITAT – Marshes, river and creek banks, ditches and wet meadows. Can withstand flooding up to 18 inches deep.

LOCATION IN NEBRASKA – Throughout Nebraska, especially in the east, and along the Platte and Niobrara rivers.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced from Europe as an ornamental for landscaping. Has been found to be sold in nurseries and online as an ornamental. Can spread by re-sprouting from stem cuttings and from regeneration of pieces of root stock. Seeds are long-lived and can disperse by wind, water, and can be spread by adhering to wildlife, livestock, people, tires, boats, etc.

IMPACTS – Forms dense stands over very large areas, restricting water movement, trapping sediment and causing changes in water quality. Severe infestations will dominate wetlands in a single monoculture. Adapts to many environments and competes with native vegetation.

Photo: Chris Evans, River to River CWMA

Photo: David J. Moorhead, University of Georgia

PRESENT

REED CANARY GRASS

SCIENTIFIC NAME: Phalaris arundinacea

DESCRIPTION – Cool-season perennial grass that grows to 6 ft.; flat leaf blades; green brown to purple flower/seed heads May to July; hairless stems.

HABITAT – Wetlands, ditches, prairie potholes, banks of streams, ponds, lakes.

LOCATION IN NEBRASKA – First collected in Sarpy County in 1875. Found throughout Nebraska, especially in the eastern portion of the state.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced from Europe, spread can occur through various management techniques in wetland areas; ditching wetlands, stream channeling, overgrazing and intentional planting promote its spread. Aggressively invades disturbed areas. Also spread by attaching to livestock, people, tires, boats, etc.

IMPACTS – Competes with native species for limited resources; forces out other grasses, reduces biodiversity, and can quickly form monotypic stands. The dense growth of this plant can affect hydraulic characteristics by clogging shallow streams and ditches. Grows in such dense stands in wetland areas that it provides little value as wildlife cover and poor nesting habitat for waterfowl and other native birds. Few wildlife species eat this grass.

Photo: Leslie J. Mehrhoff, University of Connecticut

Photo: Eric Coombs, Oregon Department of Agriculture

PRESENT

SALTCEDAR

SCIENTIFIC NAME: Tamarix ramosissima L.

DESCRIPTION – State designated noxious weed; grows up to 20 ft.; white to pink flowers April to September; leaves are green scales, similar to a juniper.

HABITAT – Salt marches and flood plains, shore lines of lakes, ponds, rivers, and streams.

LOCATION IN NEBRASKA – Various locations in Nebraska; Occurs along the Platte River, and especially in the southern and western parts of the state.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced from Eurasia for erosion control. Spreads by rhizomes and by wind/water dispersal.

IMPACTS – Pulls heavy amounts of water from the soil with long taproot; competes with native vegetation; pulls salt from the water and deposits it on soil; standing vegetation can increase risk of fire. Dense roots and rhizomes spread out and slow river flow, which increases deposition.

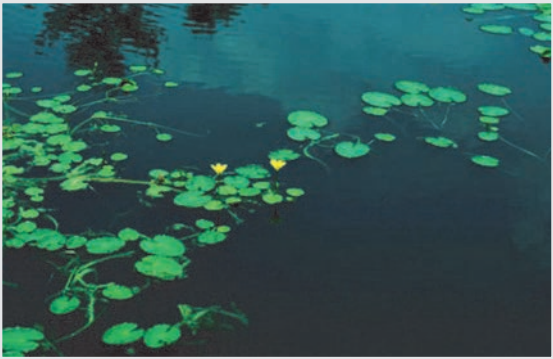


Photo: Edward W. Chester, Univ. of Tennessee

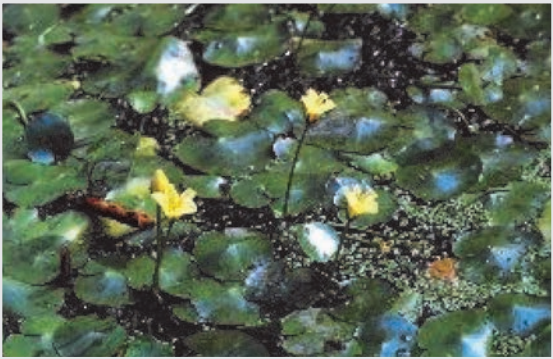


Photo: G.A. Cooper, USDA-NRCS PLANTS Database

YELLOW FLOATING HEART

PRESENT

SCIENTIFIC NAME: Nymphoides peltata

DESCRIPTION – Rounded to heart-shaped floating leaves emerge on long stalks from rooted stems each with several leaves; yellow flower with five petals.

HABITAT – Shallow, slow-moving swamps, rivers, lakes and ponds, in various substrates (sand, mud, gravel, etc.), ranging from the damp mud along the water's edge to water depths of 4 meters.

LOCATION IN NEBRASKA – Established in Benson Park Lagoon in Omaha.

PATHWAY OF INTRODUCTION AND SPREAD

Introduced as an ornamental aquatic plant from eastern Asia; propagates by seeds, spreading rhizomes, and fragmentation if stem parts are attached.

IMPACTS – Aggressive plant that is capable of rapid growth and spread; seen as dense floating mats on the water which restricts light for organisms below; inhibits recreational activities.

Publication in Nebraska was made possible by the Nebraska Invasive Species Program. Special thanks to the Nebraska Invasive Species Advisory Council, the Nebraska Environmental Trust, the Nebraska Cooperative Fish and Wildlife Research Unit and the Nebraska Game and Parks Commission.

This guide was adapted from the Greater Yellowstone Area Aquatic Nuisance Species Pocket Guide.

Published in 2016.

PROGRAM PARTNERS

The information in this guide was obtained from a number of sources, including:

CENTER FOR INVASIVE SPECIES AND ECOSYSTEM HEALTH
invasive.org

EARLY DETECTION AND DISTRIBUTION MAPPING SYSTEM (EDDMAPS)
eddmaps.org

GLOBAL INVASIVE SPECIES DATABASE
issg.org

GULF STATES MARINE FISHERIES COMMISSION
www.gsmfc.org

NATIONAL INSTITUTE OF INVASIVE SPECIES SCIENCE
www.niiss.org

NATIONAL INVASIVE SPECIES COUNCIL
invasivespecies.gov

100TH MERIDIAN INITIATIVE
100thmeridian.org

PROTECT YOUR WATERS
protectyourwaters.net

SEA GRANT – MICHIGAN
miseagrant.umich.edu

SEA GRANT – MINNESOTA
seagrant.umn.edu

SEA GRANT – OREGON
seagrant.oregonstate.edu

UNIVERSITY OF FLORIDA/IFAS CENTER FOR AQUATIC AND INVASIVE PLANTS
plants.ifas.ufl.edu

USGS NONINDIGENOUS AQUATIC SPECIES
nas.er.usgs.gov

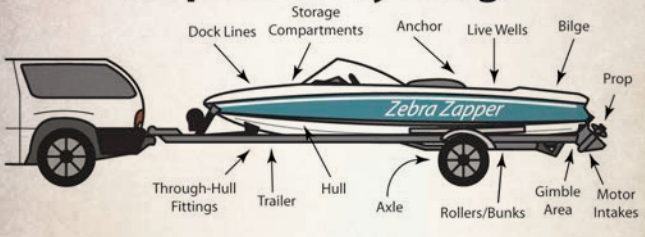
For a complete list of Nebraska invasive species, visit

NEINVASIVES.COM

PROTECT NEBRASKA'S WATERBODIES

Before leaving and before launching...

inspect everything!



DON'T MOVE A MUSSEL!

Clean, drain and dry your watercraft!

DON'T DUMP BAIT!

Dispose your bait on land!

REPORT A SIGHTING!
neinvasives.com

Contact the Nebraska Invasive Species Program at:
402.472.3133
invasives@unl.edu

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