

Threatened & Endangered Species

Iowa Animal ID Guide



United States Department of Agriculture
Natural Resources Conservation Service

September 2011



Amphibians

Birds

Butterflies

Fish

Fresh Water Mussels

Land Snails

Mammals

Reptiles

A special thanks to the
Iowa Department of Natural Resources
for providing content to this guide.



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How to use the Threatened & Endangered Species Iowa Animal ID Guide:

- *Endangered species* are fish, plant life, or wildlife in danger of extinction throughout all or a significant part of its range.
- *Threatened species* likely become endangered within the foreseeable future throughout all or a significant part of its range.
- **Orange** color-coded species are Iowa's **endangered** animal species. They are listed in alphabetical order by common name.
- **Blue** color-coded species are Iowa's **threatened** animal species. They are also listed in alphabetical order by common name.
- The scientific name for each species is listed below the common name.
- Maps on each page highlight the species range in Iowa. Counties filled with a lighter color are only federally protected, while those with a darker color are both state and federally protected.

Categories for each species:

Amphibians



Fish



Mammals



Birds



Fresh Water Mussels



Butterflies



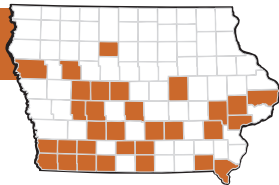
Land Snails



Reptiles



Endangered Animal Species



Barn owl

Tyto alba



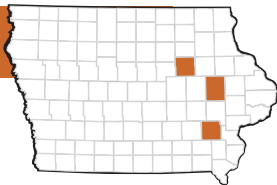
Habitat

Nests and roosts in dark, secluded places. Often found in old barns and abandoned buildings. Barn owls hunt in grassland habitats along field edges, fence rows, and wetland edges where prey is most available.

Appropriate practices

- Establish grassland to attract prey (200 acres adjacent to potential barn nesting sites can produce good results).
- Maintain old farmsteads with wooden barns, wood lots, and adjoining grasslands.
- Use nest boxes in place of cavity trees or abandoned buildings.
- Minimize rodenticide use in areas known to have barn owl populations.

Endangered Animal Species



Blue-spotted salamander

Ambystoma laterale



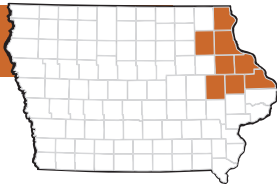
Habitat

Forest dweller; likes moist soils and small ponds. Blue-spotted salamanders are very secretive and take shelter under fallen, rotten logs, in leaf litter, moss, and other debris provided the soil is damp.

Appropriate practices

- Excavation to the original depth may be necessary if critical breeding pools have silted in and no longer retain water during the breeding season.
- Limit disturbance activities around woodland pools. Retain adequate habitat that is undivided from breeding pools to limit fatalities on the route from hibernating grounds to breeding pools.
- Preserve remaining woodlands, and limit logging.

Endangered Animal Species



Bluff Vertigo

Vertigo meramecensis



Habitat

Algific slopes and moderate cliffs (basically Algific slopes without a substantial talus). Generally, the eroded fissure and sink system is small. Fissures do not extend more than 500 feet into the rock, and surface feeder sinks are usually cryptic.

Appropriate practices

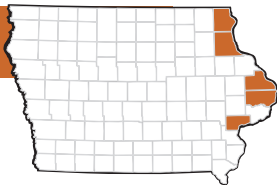
- Fencing to exclude grazing.
- Do not spray pesticides aerially within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Bluff vertigo.

Endangered Animal Species



Bluntnose darter

Etheostoma chlorosoma



Habitat

Slow moving streams with low gradients and mud bottoms

Appropriate practices

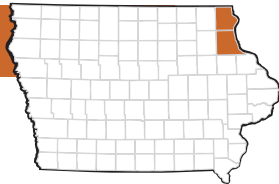
- Create buffers around water bodies to filter silt and nutrients from runoff before reaching streams, rivers and wetlands.
- Remove instream barriers that may interfere with fish passage.
- Allow lowland/floodplain streams to naturally meander.
- Maintain integrity of existing and future river backwaters and floodplain wetlands.

Endangered Animal Species



Briarton pleistocene vertigo

Vertigo brierensis



Jeff Nekola

Habitat

Cold, undisturbed, well-forested Algific slopes.

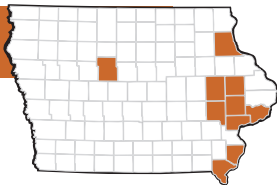
Appropriate practices

- Fencing to exclude grazing.
- Do not spray pesticides aurally within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Briarton pleistocene vertigo.



Buckhorn (pistolgrip)

Tritogonia verrucosa



Habitat

Found in medium to large rivers with gravel or sandy substrates.

Appropriate practices

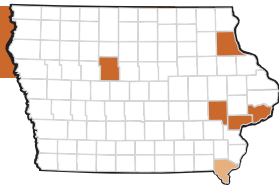
- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Endangered Animal Species



Bullhead (Sheepnose)

Plethobasus cyphus



Habitat

Medium to larger rivers in gravel or mixed sand and gravel.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

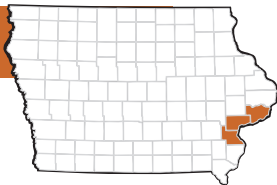
Endangered Animal Species



Federally Threatened

Copperbelly water snake

Nerodia erythrogaster neglecta



Habitat

Wetlands with mature timber. Large wetland complexes with extensive upland buffer areas.

Appropriate practices

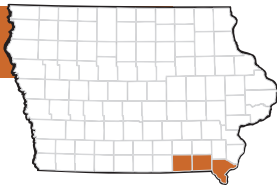
- Maintain landscapes with high densities of shallow wetlands with forested corridors between wetlands. Copperbellies frequently move between wetlands and may occupy areas over 30 acres.
- Timber harvests that affect areas greater than about one or two tree heights are probably not helpful. Forest should be left around wetlands.
- Woodlands surrounding wetlands should have limited disturbance during the snakes' active season (daytime average temperatures > 58 degrees F), roughly April-October.

Endangered Animal Species



Copperhead

Agkistrodon contortrix



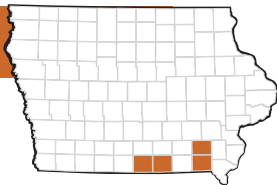
Habitat

Found in rocky, wooded river or stream valleys in southeastern Iowa.

Appropriate practices

- Leave any known snakes alone; copperheads tend to not be aggressive unless harassed.
- Maintain forest areas and limit timber harvest.
- Protect forest areas from heavy grazing.

Endangered Animal Species



Crawfish frog

Lithobates areolatus



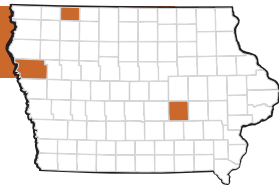
Habitat

Stream valley ponds.

Appropriate practices

- Excavation to the original depth may be necessary if critical breeding pools have silted in and no longer retain water during the breeding season.
- Fish prey on young frogs and frog eggs.
- Optimal breeding pools are 1-2 feet deep, hold water for 2-3 months in the spring, and include trees in surrounding areas.
- Avoid disturbing timber surrounding woodland pools.

Endangered Animal Species



Dakota skipper

Hesperia dacotae

Bryan E. Reynolds



Habitat

Tallgrass prairie

Appropriate practices

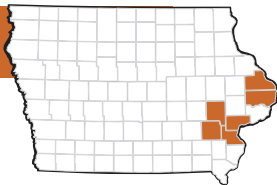
- Prairie preservation.
- When reconstructing new prairie, include forbs that bloom at different times throughout the summer for a constant food source.
- Prescribed burns should not occur more frequently than every 5-7 years. Fall burnings are important to promote forb growth. Early, rather than late, spring burns are better because larvae are still underground. Do not burn more than 1/3 of the habitat area.
- Remove woody vegetation to promote prairie grasses and forbs.
- In addition to burning, haying every 3-4 years may help to control undesirable trees and shrubs. Do not hay more than 1/3 of the habitat area.

Endangered Animal Species



Freckled madtom

Noturus nocturnus



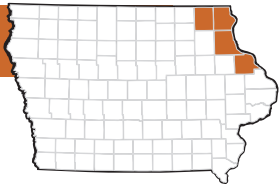
Habitat

Prefers riffle areas in moderate to large-sized streams. Often found in undercut banks near debris or tree roots.

Appropriate practices

- Cease channelization.
- Implement proper upland management, such as contour farming and other soil erosion control methods.
- Remove instream barriers that may interfere with fish passage.
- Create buffers along water bodies to filter sediment and nutrient runoff.

Endangered Animal Species



Frigid ambersnail

Catinella gelida



Habitat

Cold, undisturbed, well-forested Algific slopes.

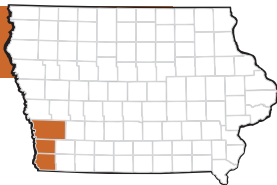
Appropriate practices

- Fencing to exclude grazing.
- Do not spray pesticides aerially within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Frigid ambersnail.



Great Plains skink

Plestiodon obsoletus



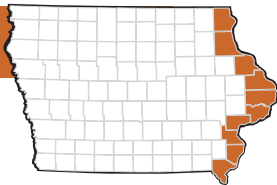
Habitat

Open, rolling grasslands with few trees and scattered rocks.

Appropriate practices

- Prescribed burning helps to keep grassland habitat healthy. Avoid burning during the skink's active season (daytime average temperatures > 58 degrees F), roughly late April through September.
- Remove encroaching woody species. Leave some debris to provide basking areas and escape areas from predators.
- Mowing, when possible, can create areas of open vegetation for basking. Do not mow during the active period.
- The use of moderate to light grazing according to a prescribed grazing plan may provide habitat benefits in some circumstances.

Endangered Animal Species



Higgin's-eye pearly mussel

Lampsilis higginsii



Habitat

Large, rapidly flowing rivers with gravel and stone substrates.

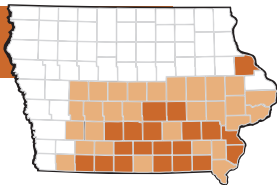
Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Endangered Animal Species



Federally Endangered



Indiana bat

Myotis sodalis



U.S. Fish & Wildlife Service

Habitat

Needs large diameter trees with loose bark; females and young roost under areas of loose bark. Indiana bats like to be close to water.

Appropriate practices

- Plant and maintain large trees with loose bark and cavities, especially in riparian areas.
- Maintain snag trees.
- Reduce insecticide use, since these bats are dependent upon insects for a food source.

Endangered Animal Species



Iowa pleistocene ambersnail

Novisuccinea sp 4

No
Photo
Available

Habitat

Moderate cliffs, which are essentially Algific slopes without a substantial talus. Generally, the dissected (eroded) fissure and sink system is small. Fissures do not extend more than 500 feet into the rock and surface feeder sinks are usually cryptic.

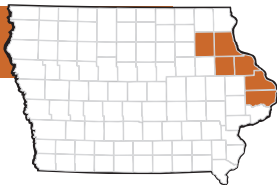
Appropriate practices

- Fencing to exclude grazing.
- Do not spray pesticides aerially within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Iowa pleistocene ambersnail.

Endangered Animal Species



Federally Endangered



Iowa pleistocene snail

Discus macclintocki



Habitat

Cold air talus slopes in leaf litter. These slopes are typically rocky around the cold air vents. The ice helps to maintain cool and moist soils.

Appropriate practices

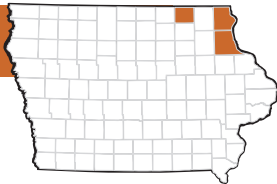
- Fencing to exclude grazing.
- Do not spray pesticides aerially within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Iowa pleistocene snails.

Endangered Animal Species



Iowa pleistocene vertigo

Vertigo iowaensis



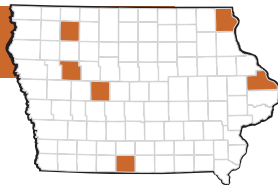
Habitat

Cold, undisturbed, well-forested Algific slopes.

Appropriate practices

- Fencing to exclude grazing.
- Do not spray pesticides aurally within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Iowa pleistocene vertigo.

Endangered Animal Species



King rail

Rallus elegans



Habitat

Wetland and grassland complexes; especially found in the sedge meadow zone at the edges of marshes.

Appropriate practices

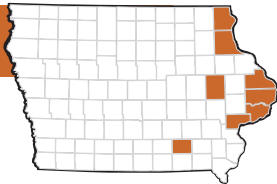
- Restore wetlands by re-establishing large wetland complexes, reducing cattails, conduct plantings to re-establish sedges.
- Re-establish grasslands/prairies in areas surrounding marshes.
- Maintain stable water levels during the summer to increase nesting success, preferably 4-18 inches deep.
- Eliminate the use of pesticides as much as possible to encourage crayfish and aquatic insects to inhabit marshes.

Endangered Animal Species



Lake sturgeon

Acipenser fulvescens



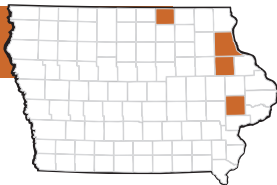
Distribution in Iowa

Lives in the Mississippi River and Des Moines River at Ottumwa

Appropriate practices

- Remove dams or create fish passages in areas important to lake sturgeon spawning.
- Create buffers along water bodies to filter sediment and nutrient runoff.
- Implement proper upland management, such as contour farming and other soil erosion control methods.
- Allow rivers to naturally meander.

Endangered Animal Species



Least darter

Etheostoma microperca



Habitat

Clear, slow moving streams with an abundance of vegetation with a gravel, sand, or silt bottom.

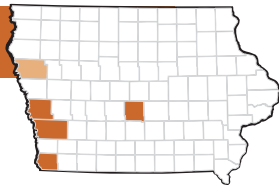
Appropriate practices

- Cease channelization; maintain natural riparian vegetation.
- Implement proper upland management, such as contour farming and other soil erosion control methods.
- Remove instream barriers that may interfere with fish passage.
- Create buffers along water bodies to filter sediment and nutrient runoff.

Endangered Animal Species



Federally Endangered



Least tern

Sterna antillarum



Habitat

Sandbars along large, slow moving rivers. With the loss of habitat along the Missouri River, nesting areas are limited to a power plant fly-ash site in Council Bluffs and an Iowa Public Service site near Sioux City – both sites are owned by MidAmerican Energy.

Appropriate practices

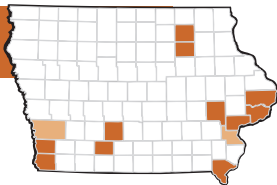
- Areas along the Missouri River with suitable sandy habitat need to be cleared of any vegetation that isolates the sandy area from open water.
- Maintain open, unvegetated habitat required for nesting.
- Limit disturbance from humans, free roaming dogs, and any other disturbances.

Endangered Animal Species



Massasauga rattlesnake

Sistrurus catenatus



Habitat

Prefer a variety of early successional habitats, including fens, marshes, old fields, prairies, sedge meadows, pastures and wet grasslands.

Appropriate practices

- During the inactive period (Nov. 1 - April 1), maintain early successional habitats by removing woody invasives, prescribed burning, disking, and mowing (set blade higher than 10 inches).
- Restore wetlands in close proximity to known source populations, and include large upland buffer areas of restored prairie.
- The use of moderate to light grazing according to a prescribed grazing plan may provide habitat benefits in some circumstances.
- Grazing keeps open areas for basking.

Endangered Animal Species



Minnesota pleistocene ambersnail

Novisuccinea sp 3

No
Photo
Available

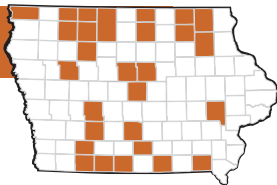
Habitat

Moderate cliffs, which are essentially Algific slopes without a substantial talus. Generally, the dissected (eroded) fissure and sink system is small. Fissures do not extend more than 500 feet into the rock and surface feeder sinks are usually cryptic.

Appropriate practices

- Fencing to exclude grazing.
- Do not spray pesticides aerially within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Minnesota pleistocene ambersnail.

Endangered Animal Species



Northern harrier

Circus cyaneus



Habitat

Large tracts of undisturbed, open grasslands with thatch used for nesting cover.

Appropriate practices

- Prescribed burns should not be conducted more than once every four years, since harriers will not nest in an areas that has been burned during that season. Burns should not be done during the nesting season, April-July.
- Repeated haying deters nesting use.
- Mowing should be done after the nesting season.
- Only lightly graze areas used by harriers, but should be limited to after the nesting season.
- Establish new tracts of grassland as habitat.

Endangered Animal Species



Ozark pigtoe

Fusconaia ozarkensis

No
Photo
Available

Habitat

Found in streams with substrate composed of medium-sized gravel several feet deep, with a moderate to rapid current.

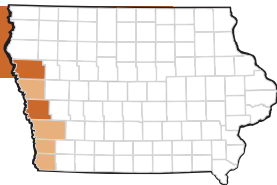
Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Endangered Animal Species



Federally Threatened



Pallid sturgeon

Scaphirhynchus albus



Habitat

Large turbid rivers with rocky or sandy bottoms. Prefers naturally meandering rivers with channels, backwater, diversity in water depths and flow velocities.

Appropriate practices

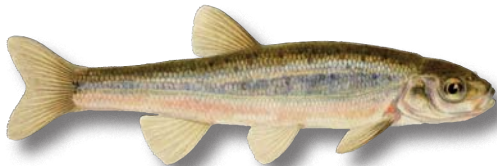
- Mimic a natural hydrologic flow in areas with flow controlled from dams.
- Limit new construction of dams in major rivers that harbor pallid sturgeon populations.
- Avoid additional channel modifications for commercial navigation; allow, to the extent possible, natural river processes (e.g., meandering, sandbar formation) to occur.

Endangered Animal Species



Pearl dace

Margariscus margarita



Habitat

Wetland and marshy areas of low gradient streams, unmodified small creeks with gravel bottoms and good water quality.

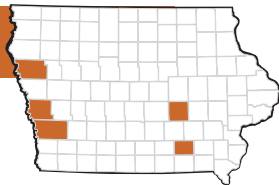
Appropriate practices

- Cease channelization.
- Implement proper upland management, such as contour farming and other soil erosion control methods.
- Remove instream barriers that may interfere with fish passage.
- Create buffers along water bodies to filter sediment and nutrient runoff.

Endangered Animal Species



Federally Endangered



Piping plover

Charadrius melodus



Habitat

Areas along rivers with suitable open, sandy habitat; with the loss of habitat along the Missouri River, nesting areas are limited to a power plant fly-ash site in Council Bluffs and an Iowa Public Service site near Sioux City – both sites are owned by MidAmerican Energy.

Appropriate practices

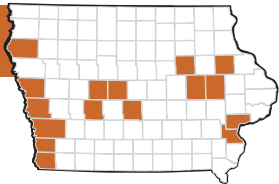
- Habitat areas need to be cleared of any vegetation that isolates the sandy area from open water.
- Keep nesting areas undisturbed during the nesting season.
- Maintain open, unvegetated habitat for nesting.

Endangered Animal Species



Plains pocket mouse

Perognathus flavescens

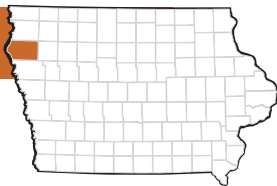


Habitat

Large open prairie with dry loess or sandy soils. Plains pocket mice prefer loose sand for burrows and grooming habits.

Appropriate practices

- Prescribed fire can help exotic invaders, such as woody plants, and keep grassland habitat healthy. Leave plenty of unburned vegetation in any given year to provide refuge. Burns should be a minimum of three years apart on any given area.
- Remove encroaching woody species.
- Establish native short grasses and forbs in close proximity to known populations.
- Grazing can help keep areas open, but as always, a good management plan needs to be prepared to ensure that overgrazing does not occur.



Prairie rattlesnake

Crotalus viridis



Habitat

Large open areas of grassland.

Appropriate practices

- Prescribed burns should be done to keep grassland habitat healthy, but avoid burning during the snake's active period (daytime average temperatures > 58 degrees F), roughly April-October.
- Remove encroaching woody species while snakes are inactive.
- Repeated haying will deter use by prairie rattlesnakes.
- Mowing should be conducted while snakes are inactive. These species can be found above ground at temperatures higher than 58 degrees Fahrenheit.
- The use of moderate to light grazing according to a prescribed grazing plan may provide habitat benefits in some circumstances.

Endangered Animal Species



Pugnose shiner

Notropis anogenus



Habitat

Clear, slow moving water of large streams or naturally glaciated lakes with an abundance of vegetation.

Appropriate practices

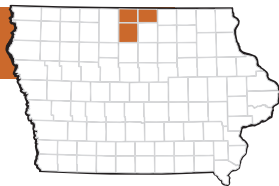
- Allow streams to naturally meander.
- Encourage the natural growth of vegetation in shallow areas.
- Implement proper upland management, such as contour farming and other soil erosion control methods.
- Create buffers along water bodies to filter sediment and nutrient runoff.
- Remove instream barriers that may interfere with fish passage.
- Avoid chemical renovation of fish populations in natural lakes that may harbor this species.

Endangered Animal Species



Red-backed vole

Clethrionomys gapperi



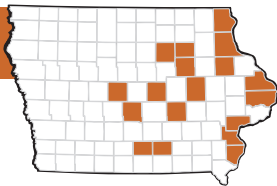
Habitat

Prefer old growth, boreal forest remnants in north central Iowa. Red-backed voles need classic understory with fallen rotting logs.

Appropriate practices

- Establish new trees on the periphery of timber known to house red-backed voles or close to bogs or wetlands.
- Limit grazing in timber.
- Minimize disturbance on small tracts of timber.
- Keep disturbance on large tracts of timber to less than 10 percent of the area at any one time.

Endangered Animal Species



Red-shouldered hawk

Buteo lineatus



Habitat

Requires at least 250 acres of medium to mature, even-aged floodplain forests dominated by maple and cottonwood trees that have not been logged in 45 to 55 years.

Appropriate practices

- Limit the disturbance of known nesting sites by providing 1/4 mile protective buffer zone around nests.
- Provide large, uniform mature tree stands.
- Create and/or protect large tracts of riparian forest areas.

Endangered Animal Species



Ringlet

Coenonympha tullia

David Haslam



Habitat

Prairie

Appropriate practices

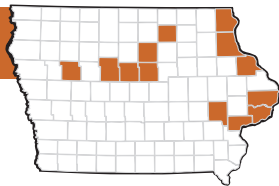
- Prescribed burns should not occur more frequently than every 5-7 years.
- Management areas should be broken into a minimum of three units, with management occurring on a rotational basis to provide refuge.
- Burning adjacent burn units in consecutive years should be avoided.
- No more than 1/3 of a habitat area should be burnt, mown, hayed, or grazed at one time.

Endangered Animal Species



Round pigtoe

Pleurobema sintoxia



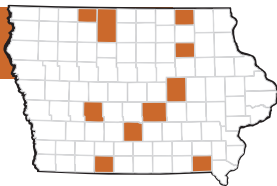
Habitat

Medium to larger rivers in gravel or mixed sand and gravel.

Appropriate practices

- Create buffers along water bodies to filter nutrients and sediment out of runoff before it reaches waterways. Buffers help cool water temperatures, too.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Limit the use of chemicals to control undesirable species.
- Limit new construction of dam structures and remove existing dam structures whenever possible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Endangered Animal Species



Short-eared owl

Asio flammeus



Habitat

Large tracts of undisturbed, open grassland. Large complexes of grassland and wetlands are ideal.

Appropriate practices

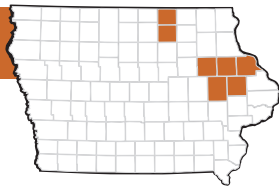
- Prescribed burns should be conducted no more than once every four years, and should not be done during the nesting season, April-July.
- Establish new tracts of grassland.
- Haying periodically will stimulate plant growth, but haying often will deter grassland use by short-eared owls.
- Limit or eliminate grazing.
- Restore wetlands to the greatest extent possible.
- Limit disturbing activities during the nesting season.

Endangered Animal Species



Slippershell

Alasmidonta viridis

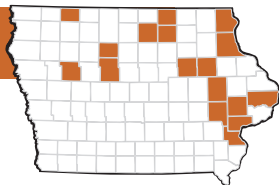


Habitat

Creeks and the headwaters of large rivers in sand, mud, or fine gravel. Slippershells require clean, clear water.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.



Slough sandshell

Lampsilis teres



Habitat

Muddy sloughs and pond-like areas of rivers where the water moves slowly.

Appropriate practices

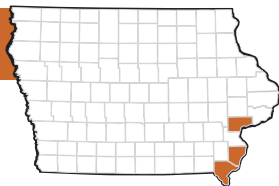
- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Endangered Animal Species



Spectaclecase

Cumberlandia monodonta



Ed Miller



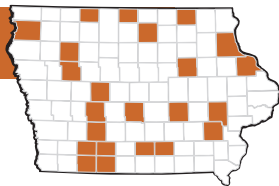
Habitat

Large rivers with swiftly flowing water, among boulders in patches of sand, cobble, or gravel in areas where current is reduced.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Endangered Animal Species



Spotted skunk

Spilogale putorius



Habitat

Prefer savanna habitat; areas with a combination of trees and grassland. Spotted skunks need rocky areas with coarse soils; and use rocky areas as den sites.

Appropriate practices

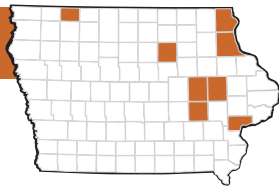
- Create rock piles to be used as dens.
- Maintain mature trees and hollow logs in areas with rocky out-cropping or coarse sandy soil.
- Maintain brushy fence lines and other corridors between larger tracts of habitat.
- Include hay in crop rotations.

Endangered Animal Species



Weed shiner

Notropis texanus



Habitat

Riverine, slough, and lake habitats with sand bottom and slow or no current.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control methods.
- Create buffers along water bodies to filter sediment and nutrient runoff.
- Remove instream barriers that may interfere with fish passage.
- Minimize the use of agricultural chemicals.
- Control industrial pollution.



Western hognose snake

Heterodon nasicus



Greg Lasley



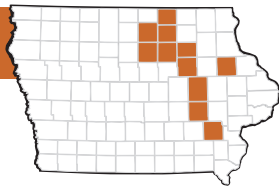
Habitat

Very open areas of sand prairies and sand dunes with minimal cover.

Appropriate practices

- Prescribed burns should be conducted to keep grassland habitat healthy. Avoid burning during the snake's active period (daytime average temperatures > 58 degrees F), roughly March-October.
- Remove encroaching woody species from sand dunes and grassland habitat.
- Establish grassland with a mix of tall grasses for shade and a high forb concentration to open up the grass stand for basking. Creating more grassland will help defragment existing tracts of grassland.

Endangered Animal Species



Wood turtle

Glyptemys insculpta



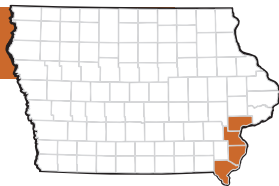
Habitat

From November through April wood turtles use rivers and streams with sandy or gravel bottoms; from May through October Wood turtles use grassland, lightly wooded areas, and agricultural field edges within 800 yards of river habitat. During summer, frequent trips to water are common, prompting movement through wooded or grassy corridors.

Appropriate practices

- Opening up woodland habitats should be done in certain cases, and mostly along forest/grassland edges.
- Remove woody species invading grassland habitat.
- Only burn when average night temperatures fall below freezing.
- Restore riparian forest buffers within 800 yards of streams to provide habitat and corridors between patches of riparian forest.
- Reconstruct prairie within 800 yards of river habitat.

Endangered Animal Species



Yellow mud turtle

Kinosternon flavescens



Habitat

Shallow, often ephemeral bodies of water adjacent to soils of nearly pure sand. These turtles spend nine months of the year burrowed about 35 inches in the ground under pools of shallow water. Yellow mud turtles emerge between late May and early June and move to areas of sand adjacent to the water bodies to lay eggs. The species returns to the water, eating and breeding for the next few weeks and return underground by August.

Appropriate practices

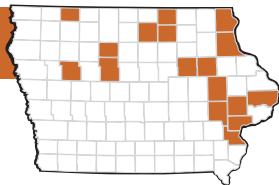
- Remove encroaching trees while turtles are inactive, between August-May.
- Excavation to the original depth may be necessary if critical breeding pools have silted in and no longer retain water during the breeding season.
- Remove woody vegetation within 60 meters of sandy nesting habitat during the turtles inactive season (day-time average temperatures < 58 degrees F).

Endangered Animal Species



Yellow sandshell

Lampsilis teres anodontoides



No
Photo
Available

Habitat

Medium to large rivers in sand or fine gravel.

Appropriate practices

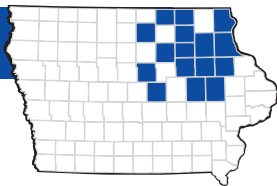
- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Threatened Animal Species



American brook lamprey

Lampetra appendix



Habitat

Small, high quality streams and mid-sized rivers.

Appropriate practices

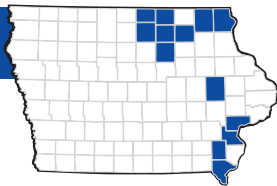
- Implement proper upland management practices, such as contour farming and soil erosion control methods.
- Avoid additional channel modifications for commercial navigation; allow, to the extent possible, natural river processes (e.g., meandering, sandbar formation) to occur.
- Remove instream barriers that may interfere with fish passage.
- Re-establish natural riparian vegetation.

Threatened Animal Species



Baltimore checkerspot

Euphydryas phaeton



Habitat

Sedge meadows and fens, as well as deciduous forest in extreme southeast Iowa.

Appropriate practices

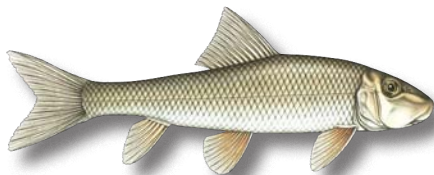
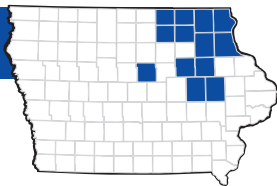
- Protect fens and sedge meadows with populations of turtlehead, which is the only first year food source for the caterpillars in northeast and east-central Iowa.
- Protect deciduous forest in extreme southeast Iowa with populations of yellow false foxglove, which may be the only first year food source for the caterpillars in this portion of Iowa.
- No more than 1/3 of a habitat area should be burnt, mown, or hayed at one time.
- Prescribed burns should not occur more frequently than every 5-7 years. Burning adjacent burn units in consecutive years should be avoided.

Threatened Animal Species



Black redhorse

Moxostoma duquesnei



Habitat

Require good water quality in mid-size streams with clean, coarse substrates with minimal disturbance of channel form or riparian vegetation.

Appropriate practices

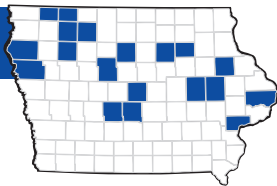
- Implement proper upland management practices, such as contour farming and other soil erosion control methods.
- Avoid additional channel modifications for commercial navigation; allow, to the extent possible, natural river processes (e.g., meandering, sandbar formation) to occur.
- Remove instream barriers that may interfere with fish passage.
- Re-establish natural riparian vegetation.

Threatened Animal Species



Blacknose shiner

Notropis heterolepis



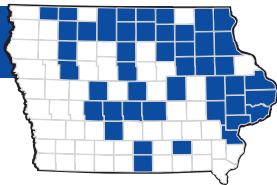
Habitat

Small creeks in weedy shallow areas. It needs clean, clear, cool water.

Appropriate practices

- Plant tall, native grass buffers to filter runoff before it reaches the stream, and create shade to cool water.
- Remove instream barriers that may interfere with fish passage.
- Exclude cattle from streams, creeks, and rivers. Fencing out cattle will reduce bank erosion and allow for better establishment of grass buffer areas.

Threatened Animal Species



Blanding's turtle

Emydoidea blandingii



Habitat

Inhabits large wetland complexes with slow-moving water, abundant vegetation, and a diversity of water depths and duration. Diverse vegetation is necessary to support populations. Suitable nesting sites include upland areas with well drained, sandy loam or sandy soils.

Appropriate practices

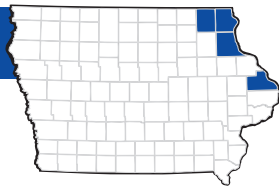
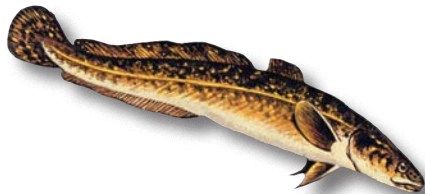
- Protect and restore wetlands with diverse vegetation and water depths, ranging from shallow sedge meadows to emergent marsh or open water areas $\geq 36"$ deep for overwintering.
- Restore uplands with suitable nesting areas less than 1/8 mile from wetlands, and with 60 percent grassland.
- During the turtles' inactive season (daytime average temperatures < 58 degrees F), remove encroaching woody species from grassland habitats and within a minimum of 60 meters of nesting areas.

Threatened Animal Species



Burbot

Lota lota



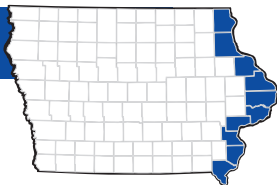
Habitat

Require cold water to complete lifecycle. Burbots are characteristic of large, cold, deep, rivers with rocks, roots, or holes to find refuge under.

Appropriate practices

- Implement proper upland management practices, such as contour farming and other soil erosion control methods.
- Avoid additional channel modifications for commercial navigation; allow, to the extent possible, natural river processes (e.g., meandering, sandbar formation) to occur.
- Remove instream barriers that may interfere with fish passage.
- Re-establish natural riparian vegetation.

Threatened Animal Species



Butterfly

Ellipsaria lineolata



Habitat

Found in large rivers in sand or gravel.

Appropriate practices

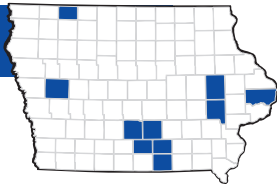
- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit further construction of impoundment structures and remove existing structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Threatened Animal Species



Byssus skipper

Problema byssus



Will Cook

Habitat

Tall grass prairie

Appropriate practices

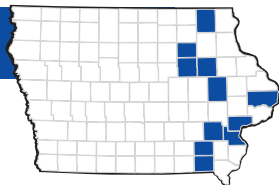
- Maintain prairie management techniques: mechanical tree removal, mowing, haying, grazing, prescribed burning.
- No more than 1/3 of a habitat area should be burnt, mown, or hayed at one time.
- Burn interval should be at least 5-7 years, and burning adjacent burn units in consecutive years should be avoided.
- Management techniques should be applied at various times of the year to eliminate continual impact of one stage of life.
- Caterpillars feed on grasses, such as eastern grama grass. Adults feed on nectar of forbs. When creating a new seeding, consider including forbs that bloom throughout mid-late summer to create a constant food source.
- The use of moderate to light grazing according to a prescribed grazing plan may provide habitat benefits in some circumstances.

Threatened Animal Species



Central newt

Notophthalmus viridescens



Habitat

Well-vegetated woodland ponds, roadside ditches and river-side pools.

Appropriate practices

Newts have three stages of life - larvae, eft, and adult. Each of these stages has a different habitat requirement.

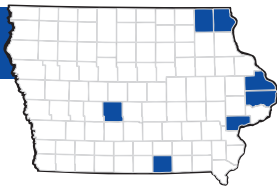
- Efts are terrestrial and require fallen logs, brush piles and other forest floor debris. These habitat elements should be provided.
- Adults and larvae are aquatic. Fishless woodland pools with abundant emergent vegetation need to be preserved. Woodland pools should hold water seasonally to semi-permanently to discourage fish inhabitation. Fish prey on newt eggs.

Threatened Animal Species



Chestnut lamprey

Ichthyomyzon castaneus



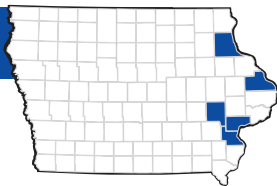
Habitat

Adults are parasitic on other fishes and are found in moderate-sized to large rivers. Larvae require a sand or muddy substrate in small streams. After an approximately 18-month lifespan, as adults, the chestnut lamprey come to spawn in smaller streams, and die shortly thereafter.

Appropriate practices

- Create buffers around water bodies to filter out sediment and nutrients.
- Remove instream barriers that may interfere with fish passage.
- Educate anglers to the difference between the native lampreys and the exotic sea lampreys.

Threatened Animal Species



Common musk turtle

Sternotherus odoratus



Habitat

Permanent water streams, backwaters, and spring-fed ponds. Sandy uplands adjacent to the pools are used for nesting and over wintering.

Appropriate practices

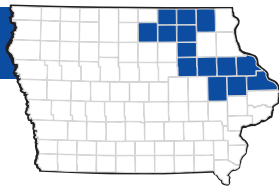
- Restore riparian wetlands whenever possible. These turtles need an abundance of clean open water.
- Maintain or recreate riparian habitats. Common musk turtles do not travel well across land and, therefore, are dependent upon riparian areas directly adjacent to water for successful nesting.
- Remove woody vegetation within 60 meters of sandy nesting habitat during the turtle's inactive season (day-time temperatures < 58 degrees F).

Threatened Animal Species



Creek heelsplitter

Lasmigona compressa



Habitat

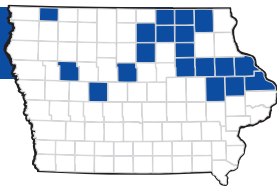
Creeks and the headwaters of small to medium rivers in fine gravel or sand.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Limit further construction of impoundment structures and remove existing structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.



Threatened Animal Species



Cylinder

Anodontoides ferussacianus



Habitat

Small creeks and the headwaters of larger streams in mud and sand.

Appropriate practices

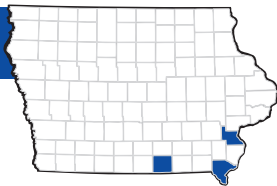
- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit new construction of dam structures and remove existing dam structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Threatened Animal Species



Diamondback water snake

Nerodia rhombifer



Habitat

Quiet pools, drainage ditches, and backwater sloughs with abundant basking sites. Overhanging vegetation appears to be important.

Appropriate practices

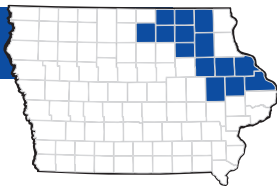
- Management to control wood invasion and promote plant diversity should be conducted in grassland habitat outside of the snake's active season (daytime average temperatures < 58 degrees F).
- Habitat should be broken into a minimum of three management units, with no more than 1/3 of the available habitat disturbed in any given year.
- Remove encroaching woody species by cutting or herbicide treatment. These snakes avoid wetlands and ponds that are heavily wooded.
- Logs or other basking areas should be left alone or created.
- Establish new grassland areas.

Threatened Animal Species



Ellipse

Venustaconcha ellipsiformis



Habitat

Small to medium clear streams with mixed sand and gravel substrate.

Appropriate practices

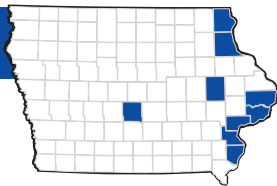
- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit further construction of impoundment structures and remove existing structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Threatened Animal Species



Grass pickerel

Esox americanus



Habitat

Clear, shallow, densely vegetated waters of low gradient streams, springs, marshes, oxbows, overflow and pothole ponds. Grass pickerel prefer clear waters, particularly areas that have not been ditched, dredged or channelized. Grass pickerels avoid turbid or muddy water with silt bottoms.

Appropriate practices

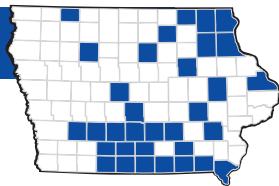
- Allow lowland/floodplain streams to meander naturally.
- Maintain integrity of existing and future floodplain wetlands.
- Remove instream barriers that may interfere with fish passage.
- Create buffers around water bodies to filter sediment and nutrient runoff.

Threatened Animal Species



Henslow's sparrow

Ammodramus henslowii



Greg Lavaty



Habitat

Tall, dense grass with a well-developed litter layer with little to no woody vegetation. These birds are primarily found in grasslands greater than 100 acres.

Appropriate practices

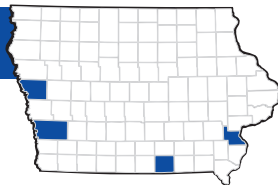
- Prescribed burning to control woody vegetation. Burning should be limited to early spring and late fall. Leave plenty of grassland that has not been disturbed for about 10 years.
- Periodically remove woody vegetation.
- Haying should take place after the breeding season.
- Limit mowing until after the nesting season (Aug. 15).
- Avoid heavy grazing.

Threatened Animal Species



Least shrew

Cryptotis parva



Habitat

Tallgrass prairie and forest edge.

Appropriate practices

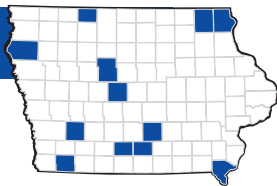
- Prescribed fire is an important tool to control exotic invaders and the encroachment of woody species. Leave plenty of unburned vegetation to provide refuge. Burns should be a minimum of three years apart.
- Remove encroaching woody vegetation.
- Establish native grasses and forbs in close proximity to known populations to create new habitat while minimizing fragmentation of existing habitat.

Threatened Animal Species



Long-eared owl

Asio otus



Terry Sohl

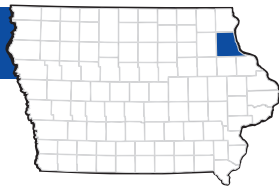
Habitat

Alternates time between dense woodland patches and adjacent grassland and prairie marshes. It typically nests and roosts in thick stands of conifer trees. Ideally, the trees are rank and the limbs reach the ground. These owls are often found in windbreaks, tree farms, or tree plantings.

Appropriate practices

- Establish grasslands or foraging adjacent to dense woodland patches for nesting.
- Protect large, old rank stands of cedar trees adjacent to woodland and grassland.
- Protect known winter roost sites from disturbance.
- Establish windbreaks using conifers in combinations with establishing adjoining grassland habitat.

Threatened Animal Species



Midwest pleistocene vertigo

Vertigo hubrichti



Jeff Nekola

Habitat

Cold, undisturbed, well-forested Algific slopes. Often found in or adjacent to cold air vents.

Appropriate practices

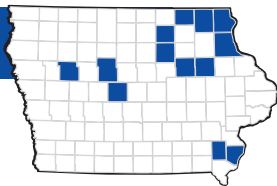
- Fencing to exclude livestock.
- Do not spray pesticides aerially within 100 yards of known habitat or ground spray within 20 yards of known habitat.
- Buffer sink holes to prevent them from filling with sediment.
- Limit human access to areas known to harbor Midwest pleistocene vertigo.

Threatened Animal Species



Mudpuppy

Necturus maculosus



ER Degginger



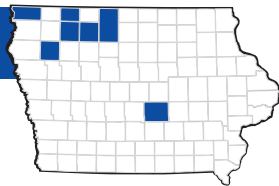
Habitat

Medium to large rivers and lakes. Found in permanent water bodies at least three feet deep. Prefer to live on the floor of its aquatic habitat under sunken logs or rocks.

Appropriate practices

- Install riparian buffers and erosion control practices to improve water quality.
- Cease use of chemicals for aquatic species control in mudpuppy spawning areas.
- Cease all collection of mudpuppies.
- Anglers should release mudpuppies if caught while fishing.
- Leave aquatic woody debris and other potential cover in place.
- Remove instream barriers that may interfere with fish passage.

Threatened Animal Species



Mulberry wing

Poanes massasoit

Tom Murray



Habitat

Tallgrass meadows or marshes with sedges. Mulberry wings favor wetland habitats.

Appropriate practices

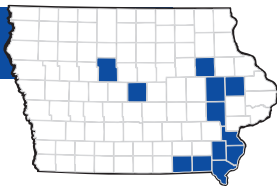
- Restore wetland habitat. These areas need to be a sedge component, which seems to be an important food source.
- No more than 1/3 of a habitat area should be burned at one time.
- Prescribed burns should not occur more frequently than every 5-7 years. Burning adjacent burn units in consecutive years should be avoided.

Threatened Animal Species



Orangethroat darter

Etheostoma spectabile



Lance Merry



Habitat

Prefer small to mid-sized, well-meandered streams and spring runs. These fish are usually associated with well-timbered riparian zones. Orangethroat darters are most tolerant of low flow and warmer water than most darter species found in Iowa.

Appropriate practices

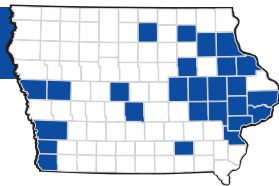
- Avoid additional channel modifications for commercial navigation; allow, to the extent possible, natural river processes (e.g., meandering, sandbar formation) to occur.
- Re-establish natural timber riparian vegetation.
- Remove instream barriers that may interfere with fish passage.
- Protect areas with orangethroat darter populations from development.

Threatened Animal Species



Ornate box turtle

Terrapene ornata



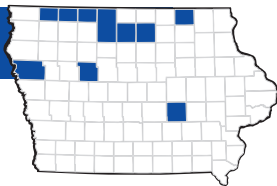
Habitat

Sand for nesting and over wintering. Sand dunes need to be open, shifting and unstable. The rest of the year the turtles will use tallgrass prairie when available. Ornate box turtles prefer shrubs over short grass to keep cool. Ornate box turtles eat fruits, such as blackberries, wild strawberries, and wild plums.

Appropriate practices

- Remove encroaching woody species from sand dunes, grassland habitat, and within 60 meters of sandy nesting habitats.
- Establish native grassland with a mix of tall grasses for shade and high forb concentration to open up the grass stands for basking.

Threatened Animal Species



Poweshiek skipperling

Oarisma poweshiek



Wisconsin Butterflies

Habitat

Undisturbed prairie remnants

Appropriate practices

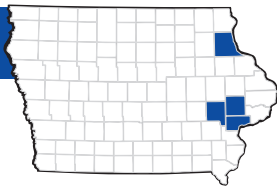
- Preserve prairies.
- Re-establish grassland habitat. Forb nectar is a very important food source for adults. When creating a new seeding, consider including forbs that bloom at all different times throughout the summer to create a constant food source for many different butterfly species.
- Fall burnings help promote forb growth. Do not burn areas more than every five years. Burn areas on a rotational basis to provide refuge. This species will not use an area that is grown up to trees.
- Do not disturb population areas regularly.

Threatened Animal Species



Purple Pimpleback

Cyclonaias tuberculata



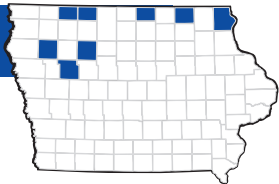
Habitat

Medium to large rivers in gravel or mixed sand and gravel.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Limit further construction of impoundment structures and remove existing structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Threatened Animal Species



Silvery blue

Glaucopsyche lygdamus



David Kleiman

Habitat

Tallgrass prairie

Appropriate practices

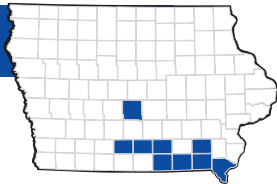
- Preserve prairies.
- Re-establish grassland habitat. Caterpillars feed on prairie species in the pea family. Adults feed on nectar. Silvery blue feed on nectar from early spring through early summer.
- Remove woody vegetation to promote prairie grasses and forbs essential for Silvery blue butterflies.
- Fall burnings help promote forb growth. Do not burn areas more than every five years. Burn areas on a rotational basis to provide refuge. This species will not use an area that is grown up to trees.

Threatened Animal Species



Slender glass lizard

Ophisaurus attenuatus



Habitat

Oak savannas, sand prairies, and old fields.

Appropriate practices

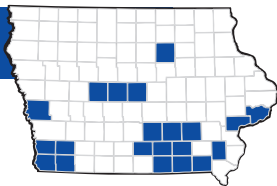
- Prescribed fires help maintain healthy grassland habitat. Avoid burning during the active period (daytime average temperatures > 58 degrees F, April - October).
- Remove undesirable trees mechanically, instead of chemically. Limit the use of chemicals in areas used by the slender glass lizard.
- Limit insecticide use.

Threatened Animal Species



Southern bog lemming

Synaptomys cooperi



Habitat

Tallgrass prairie

Appropriate practices

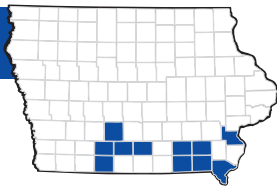
- Prescribed fire is an important tool to control exotic invaders and the encroachment of woody species. Leave plenty of unburned vegetation to provide refuge. Burns should be a minimum of three years apart.
- Remove encroaching woody vegetation.
- Establish native grasses and forbs in close proximity to known populations to create new habitat while minimizing fragmentation of existing habitat.

Threatened Animal Species



Speckled kingsnake

Lampropeltis getua



Jim Scharosch
HerpJournal.com



Habitat

Large open areas of grassland.

Appropriate practices

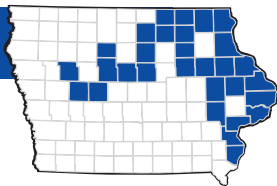
- Remove encroaching woody species while snakes are inactive by cutting and treating woody species.
- Prescribed burns should be conducted to keep grassland habitat healthy. Avoid burning during the active period (daytime average temperatures > 58 degrees F). Limit burning to every 3-5 years.

Threatened Animal Species



Strange floater

Strophitus undulatus



Habitat

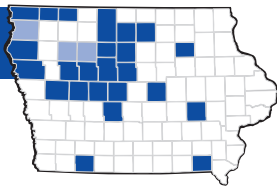
Small to medium clear streams and occasionally in large rivers. Strange floaters can be found in mud, sand, and gravel.

Appropriate practices

- Implement proper upland management, such as contour farming and other soil erosion control practices.
- Install riffles or other fish habitat components in areas where the mussel is not present.
- Cease channelization.
- Limit further construction of impoundment structures and remove existing structures when feasible.
- Create fish passageways over existing dams or other fish passage barriers.
- Limit dredging to previously disturbed areas or to areas of unsuitable habitat.

Threatened Animal Species

Federally Endangered



Topeka shiner

Notropis topeka



Kraig McPeck, USFWS

Habitat

Prairie streams with stable stream channels. Also found in off-channel oxbows with sandy or gravel bottoms.

Appropriate practices

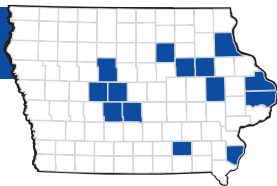
- Limit new construction of dam structures and remove existing dam structures whenever possible. Create fish passageways over existing dams.
- Restore stream channels.
- Implement upland management practices, such as contour farming and other soil erosion control methods.
- Re-establish grassy riparian corridors.
- Maintain oxbows and, in some cases, excavation to the original depth may be necessary if critical breeding pools have silted in and no longer retain adequate water depth or duration.
- Remove instream barriers that may interfere with fish passage.

Threatened Animal Species



Western sand darter

Ammocrypta clara



Konrad P. Schmidt

Habitat

Prefer large streams or rivers with slight to moderate current with a sandy bottom.

Appropriate practices

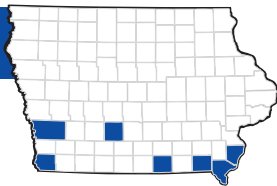
- Create buffers along water bodies to filter sediment and nutrients out of runoff.
- Improve management of nutrients and reduce nutrient delivery to streams and rivers.
- Allow streams and rivers to meander naturally.
- Remove instream barriers that may interfere with fish passage.

Threatened Animal Species



Western worm snake

Carphophis amoenus



Habitat

Damp woodland areas along streams with fallen logs or other debris. Western worm snakes spend most of their time below ground and, therefore, are rarely ever seen.

Appropriate practices

- Maintain woodlands in areas known to harbor western worm snakes.
- Maintain fallen debris in woodland areas.
- Limit grazing within woodland areas.



United States Department of Agriculture
Natural Resources Conservation Service