



## interior rivers and streams

### Characteristics

Rivers and streams are flowing waters contained within a channel. They may be classified as perennial (having water throughout the year) or intermittent (having water only part of the year). Most unaltered rivers are composed of pools, riffles, and runs. Pools are areas of deep, slow-flowing water. Riffles are shallow areas with swift water flowing over rock or gravel, which gives the water's surface a broken appearance, and runs are areas of flowing water with uniform depth and a smooth surface. Many Iowa rivers have channelized (straightened) stretches, and this straightening has resulted in the loss of some 3,000 miles of rivers and streams in the state. These channelized rivers lack pool and riffle habitats (lack diversity), flow faster, and carry heavy silt loads. The headwaters of streams are the upper most section of streams and form when water accumulates from the landscape (watershed) and forms a channel. The headwaters are important to the health of rivers because sediments, nutrients, and energy sources for aquatic food webs first enter river systems in these areas. Because of the nature of Iowa's soils, farm practices, and drainage, our rivers and streams are subject to sudden and violent fluctuations in water level. Intense rainfall or runoff from snowmelt can cause flooding of entire valleys, or lack of rain can reduce rivers and streams to a series of shallow pools joined by only a trickle.

The character of our rivers depends largely on the land where they form. Coldwater streams fed by groundwater usually have clear water, rocky substrate, and high levels of dissolved oxygen. Coolwater rivers have channels cut through timbered limestone bluffs and have areas of relatively fast flowing water with rubble and gravel bottoms. Iowa's warmwater rivers are more meandered (curving)

with slower moving water, wider channels, and sand and mud bottoms.

### Recreation

Boating, canoeing, fishing, hunting, swimming, trapping, water skiing, wildlife observation and/or photography

### What Lives Here?

What lives in our rivers and streams is largely dependent on the water flow, temperature, turbidity, water quality, and habitat conditions. A healthy stream should be home to a variety of aquatic organisms such as invertebrates (crayfish, clams, other bugs), fish, frogs, turtles, and aquatic plants. Rivers and streams which lack diverse habitat, have poor water quality, or suffer extreme temperature, cannot support as many species or individuals as a healthy stream.

Organisms found in this CD:

American brook lamprey, American eel, American lotus, American toad, American white pelican, anabaena, aquatic sowbug, Asian clam, backswimmer, bald eagle, banded darter, bank swallow, beaver, belted kingfisher, big brown bat, bigmouth buffalo, bigmouth shiner, black sandshell, blacknose dace, black bullhead, black crappie, black fly, black willow, Blanding's turtle, blue-winged teal, bluegill, blue flag iris, blue skullcap, blue sucker, bluntnose minnow, boneset, bowfin, broadleaf arrowhead, brook silverside, brook stickleback, brook trout, brown trout, bullfrog, bullhead minnow, bulrush, caddisfly, butterfly mussel, Canada goose, cardinal flower, cattle egret, central mudminnow, central newt, central stoneroller, channel catfish, chara, chlorella, clearweed, cliff swallow, common carp, common cattail, common shiner, Cope's gray treefrog, copepod, copperhead, cottonwood, crane fly, crawfish frog, crawling water beetle, creek chub, creek heelsplitter, cricket frog, curlyleaf pondweed, cylindrical papershell, damselfly, deertoed, deer fly, devil crayfish, diamondback water snake, diatoms, dobsonfly, double-crested cormorant, dragonfly, duckweeds, eastern hognose snake, eastern pipistrelle, earthworm, elktoe, ellipse, emerald shiner, euglena, evening bat, false map turtle, false nettle, fantail darter, fathead minnow, fatmucket, fawnsfoot, fingernailclams and peaclams, fisher spider, flathead catfish, fluted-shell, fog fruit, Fowler's toad, fox snake, fragile papershell, Franklin's ground squirrel, freshwater drum, freshwater shrimp, freshwater sponge, giant floater, giant water bug, gizzard shad, goldfish, golden redhorse, golden shiner, Graham's crayfish snake, gravel chub, great blue heron, great blue lobelia, great egret, great plains toad, greater yellowlegs, green frog, green heron, green sunfish, hickorynut, hooded merganser, hornyhead chub, horse fly, horsetail, hydra, Indiana bat, Johnny darter, killdeer, largemouth bass, leafy pondweed, least weasel, leech, left-handed snails, little brown bat, longnose dace, longnose gar, long-tailed weasel, Louisiana waterthrush, mallard, map turtle, mapleleaf, mayfly, meadow jumping mouse, microcystis, midge, mink, monkeyface, mosquito, mucket, mudpuppy, muskrat, northern hog sucker, northern leopard frog, northern pike, northern rock bass, northern rough-winged swallow, northern water snake, Norway rat, operculate snails, orangespotted sunfish, orangethroat

darer, osprey, Ozark minnow, paddlefish, paper pondshell, pickerel frog, pimpleback, pink heelsplitter, pink papershell, pistolgrip, plain pocketbook, plains garter snake, plains leopard frog, planaria, pondmussel, prairie crayfish, predaceous diving beetle, prothonotary warbler, protozoa, pumpkinseed, purple loosestrife, quillback, raccoon, rainbow darter, rainbow trout, red-eared turtle, red-sided and eastern garter snakes, red-winged blackbird, red bat, red shiner, redear sunfish, redfin shiner, riffle beetle, right-handed snails, ring-billed gull, river carpsucker, river darter, river otter, rosyface shiner, round pigtoe, rusty crawfish, sandbar willow, sauger, scud, semipalmated plover, semipalmated sandpiper, shortnose gar, shovelnose sturgeon, silver-haired bat, silver maple, slender madtom, slimy sculpin, smallmouth bass, smallmouth buffalo, smallmouth salamander, smooth earth snake, smooth softshell turtle, snapping turtle, southern leopard frog, southern redbelly dace, spike, spiny softshell, spirogyra, spotfin shiner, spottail shiner, spotted sandpiper, spotted touch-me-not, spring peeper, squawfoot, stinkpot, stonecat, stonefly, straw-colored nutsedge, suckermouth minnow, swamp sparrow, sycamore, tadpole madtom, threehorn wartyback, threeridge, tiger salamander, toad bug, Topeka shiner, tree swallow, trout-perch, trumpeter swan, virile crayfish, volvox, Wabash pigtoe, walleye, wartyback, washboard, water boatman, water flea, water hemlock, water milfoil, water mites, water parsnip, water penny beetle, water pepper, water scavenger beetle, water scorpion, water smartweed, water strider, watermeal, western chorus frog, western painted turtle, western ribbon snake, whirligig beetle, white amur, white bass, white heelsplitter, white pelican, white river crayfish, white sucker, wild millet, woodchuck, wood duck, Woodhouse's toad, wood turtle, yellow bass, yellow bullhead, yellow-crowned night-heron, yellow perch, yellow sandshell, yellow warbler

## Locations in Iowa

Coldwater streams in Iowa are limited to the Paleozoic Plateau and the eastern edge of the Iowan Surface in northeastern Iowa, where there are steep limestone slopes and coldwater springs. Coolwater rivers are associated with the Iowan Surface in northeastern Iowa which has gently rolling hills and river corridors that are often tree lined. Warmwater rivers and streams are found in the fairly flat Des Moines Lobe, the Northwest Iowa Plain, the valleys of the Southern Iowa Drift Plain, and the Alluvial Plains of the loess hills along the Missouri River.

## Bibliography

Iowa Department of Natural Resources. 2001. *Biodiversity of Iowa: Aquatic Habitats* CD-ROM.