



Stream Team Academy Fact Sheet Series

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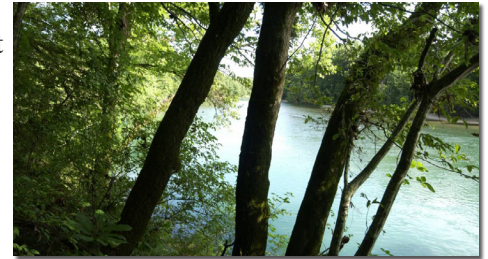
Collect this entire educational series for future reference! Contact us at 1-800-781-1989 if you'd like copies of previous Fact Sheets and a binder for storing them.

MISSOURI'S RIPARIAN FORESTS

An Educational Series For Stream Teams To Learn and Collect

By Sam Daugherty, MDC Water Quality Assistant

Streams and their adjacent floodplains generally have an assemblage of plant species that are quite different from the surrounding upland areas. Because of this, forests growing along watercourses are referred to as “riparian forests” and their composition and ecology are closely tied to the nature of the stream they grow along. These forests often contain species that are well-adapted to having their roots temporarily submerged during floods, and are resilient to the high rates of erosion and deposition associated with floods and river meandering. Others are species that require or thrive on the rich, moist alluvial soils of floodplains and bottomlands. These kinds of forests abound in Missouri along its many streams, from small springs to the Mississippi River, and they offer a wide variety of tree species and ecological services.



Current River, Shannon County
Photo by MDC

The most obvious of Missouri’s riparian trees are those that are growing on or close to streambanks. This usually includes pioneer species like willows, eastern cottonwood, sycamore, river birch, silver maple, red maple, and boxelder maple. These fast-growing and sun-loving trees can tolerate several weeks of flooding, especially during late winter and spring, and rapidly establish themselves on new sand or gravel bars and bare streambanks, making them key to natural streambank stabilization.

Cottonwoods and willows, as well as many other members of the Salicaceae family are very specialized at growing in riparian areas. The fluffy seeds they produce in spring can only germinate if they land on a very sunny patch of moist bare soil that has been naturally scoured or deposited from spring floods. Once established though, they are some of the fastest growing trees, with 50-year-old cottonwoods sometimes attaining 100-ft. heights. These traits make willows and cottonwoods ideal at colonizing and stabilizing the exposed soil left in the wake of floods. Unsurprisingly, these species are a major component of forests along rivers both in Missouri and across the continent.

While sycamores can live up to 300-400 years, most of the other riparian pioneer species are fairly short-lived, which is common among fast-growing trees. Cottonwoods begin to decline around 70-100 years, while species such as river birch and silver maple may only live 50-70 years. In addition, these pioneer tree species also have rather soft, weak wood that is prone to rot and breaking, which contributes woody material into our streams to serve as important aquatic habitat, while standing trees often have cavities and hollow trunks that are important habitats for terrestrial animals.

Several other tree species inhabit Missouri’s riparian forests, which start to take hold after the pioneer species mature or occur in less flood-prone areas. Many also produce abundances of nuts and fruits to benefit wildlife. Green ash, hackberry, American and red elm, black gum, pawpaw, and persimmon are all

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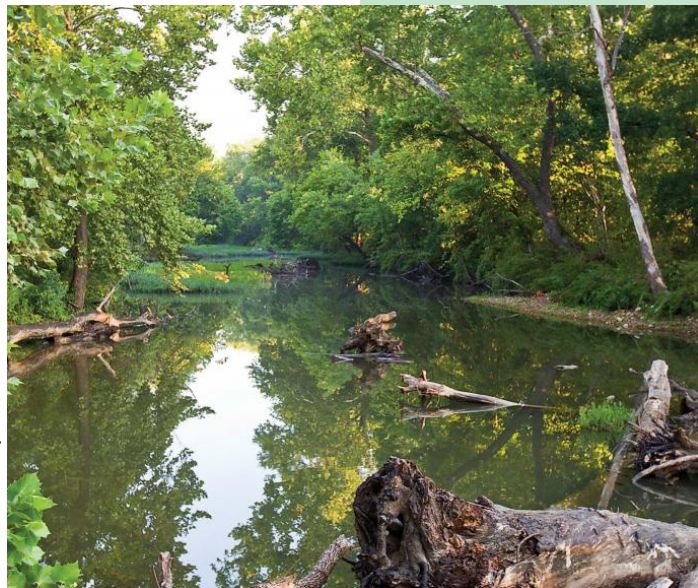
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common in bottomland forests across much of the state and are quite tolerant of early spring floods. They can also be found in more upland sites, but they attain their greatest sizes in riparian forests. Pin oak, bur oak, and swamp white oak are common bottomland species found across the state. Pecans, a native hickory, are also adapted to the rich soil of bottomlands. Other species typically found in the rich soils along smaller streams and valleys where the flood risk is minimal include black walnut, Kentucky coffee tree, red mulberry, honey locust, and Shumard oak.

Perhaps the most magnificent of Missouri's riparian forests once occurred in southeastern Missouri. Here the land is mostly flat and the Mississippi and St. Francis drainages would regularly overtop their banks and inundate much of the entire region for several months a year, creating a myriad of swamps and backwater habitats that stretched from Scott and Stoddard counties south across much of eastern Arkansas and into Louisiana with a suite of tree species found nowhere else in the state. Bald cypress and water tupelo dominated the wettest areas, capable of surviving in standing water for months on end. A wide variety of bottomland oaks, including willow oak, cherrybark oak, and water oak also inhabited the region. Other southern species such as sweetgum, swamp cottonwood, water hickory, water locust, and pumpkin ash also thrived. These forests were in turn home to many animals found nowhere else in Missouri such as swamp rabbits, mud snakes, and snowy egrets.

Unfortunately, only a tiny fraction of Missouri's boot heel swamps remain. The deep, rich soil made prime land for agriculture. After forests were logged, the land was drained via the construction of many ditches and canals. Massive levee and channelization projects helped prevent flooding and allowed the area to be converted into soybean, rice, and cotton fields. Many of the species adapted to these swamps are now quite rare in the state. A similar story has played out along much of Missouri's rivers and riparian forests, especially along the wide floodplains of the Missouri and Mississippi Rivers and the larger streams of northern Missouri's prairie region. Riparian forests were systematically cleared and converted to row crops while the streams they grew along were dammed, channelized, and leveed, effectively cutting them off from their floodplains. Even in the heavily forested Ozarks, the deep soil and flat terrain of stream valleys made them the most ideal sites for row crops and pasture, and the construction of large reservoirs have permanently flooded huge areas of riparian forests.

Without these forests, streambanks quickly erode, causing massive amounts of sediment to enter our waterways along with excess nutrients and other pollution carried by runoff from agricultural or urban areas in the floodplain. Flood intensity can also increase as trees are no longer present to slow and absorb runoff and floodwaters. Because of this, it is important to leave a riparian buffer along our streams to mitigate the effects of development on water quality and provide habitat for riparian species. Letting some of the most flood prone areas revert back to forest or avoiding further development in floodplains is another way to help preserve these amazing ecosystems and the services they provide.



Brush Creek, St. Clair County
Photo by MDC

Don't forget to send your questions to streamteam@mdc.mo.gov or call 1-800-781-1989.