

# ***HABITAT CONDITIONS***



## **Channel Alterations and Habitat Problems**

Channelization not only includes straightening the stream, but also bank clearing, and widening of the channel. This results in a loss of total stream area and usable habitat, increased streambank and streambed erosion, and a homogenous habitat that supports far less aquatic life.

While most of the North Fabius River has been channelized, the Middle and South Fabius rivers remain largely unaltered. The North Fabius River has been completely channelized upstream of Monticello, Missouri, resulting in ongoing, severe headcutting in upper reaches of the watershed. The South Fabius River has an 8.5-mile channelized reach downstream from Newark, Missouri. The Middle Fabius River has no extensive channelized reaches. Each of these streams has several very short channelized sections usually associated with bridge crossings. Small sections of several tributary streams have been altered also, usually by private landowners and local governments. Durgens Creek was once a tributary of the North Fabius River, but it was diverted and now drains directly into the Mississippi River.

Even on reaches of stream not impacted by channelization, accelerated streambank erosion occurs where protective forested corridors have been removed. In such cases, vertical banks up to 15 feet high have developed. Maintaining diversity of water depth is difficult, if not impossible, in areas where streambanks are unstable. Stream fish habitat in many small tributaries has been severely degraded by grazing livestock that trample streambanks and streambeds, increasing turbidity and erosion and destroying instream cover. Problems stemming from instream sand and gravel removal are locally significant but minor compared with problems resulting from stream channelization and watershed erosion.

Turner (1978) summarized morphological information collected at 57 sites throughout the North, Middle, and South Fabius rivers. These data include river width, channel width, water depth, and substrate composition and are available from the Missouri Department of Conservation, Columbia, Missouri.

## **Unique Riparian Habitats**

Even though all streams in the basin have been degraded by agricultural encroachment, some still provide excellent aquatic habitat. The Middle and South Fabius rivers are two of only a few northern Missouri streams that have not been channelized extensively. These streams offer a wide variety of habitat types since they both flow through two distinct regions--one of glacial till with sand and silt substrates and another of rock outcroppings with gravel, cobble, and bedrock substrates. Compared to most other northern Missouri streams, the banks of the Middle Fabius River are relatively low, and the streambed is stable.

Due to the diversity of available habitats, the basin is home to 58 species of fish. Because of its species-rich fish fauna, Pflieger (1997) classified the Fabius River system as Ozark border--a transition zone where the Ozark and Prairie faunal regions overlap. Parts of the Middle Fabius River, South Fabius River, Troublesome Creek, and the Little Fabius River were named as Significant Aquatic Areas in the Missouri Natural Features Inventory (Anderson 1983).

There are other notable habitats located in the basin. Among these are the numerous limestone bluffs that border the lower reaches of several streams. Several of these were listed in Anderson's Natural Features Inventory. The basin also provides seasonally important habitat for the Indiana bat (*Myotis sodalis*), a federally endangered species. During the breeding season Indiana bats roost beneath the loose bark of old, large decaying hardwood trees. They are especially attracted to shagbark hickory trees (R. Clawson, MDC, personal communication).

### **Habitat Conservation Projects**

Five rock barbs (dikes) were spaced along 600 feet of eroding bank at the Soulard Access on the Fabius River in 1992. Each dike was angled slightly upstream to divert the energy of the water toward mid channel and away from the eroding bank and concrete boat ramp. These structures have significantly reduced bank erosion at the site. Sediment accretion is occurring between the dikes, and what was a steep, 12-foot-high streambank eroding at a rate of 10-15 feet per year, is becoming a more naturally sloping bank with established vegetation. Deep scour holes (7-10 feet) are developing off the tips of the dikes, adding depth diversity to the formerly uniform channel bed. However, no detectable changes in the fish community were observed immediately following completion of the project.

A cedar tree revetment was installed in 1997 along approximately 450 feet of eroding bank at the McPike Access on Troublesome Creek. Due to previous removal of the forested riparian corridor, this site was likely to erode rapidly during high flows. After establishing a 2:1 bank slope, a single-row revetment was installed using 20-foot tall cedar trees. Bottomland tree species were planted along the reach to reestablish a 100-foot wide forested corridor. This project is expected to stabilize the streambank, increase habitat diversity for fish and invertebrates, and improve stream access.

The Missouri Department of Conservation has permanent easements called "Stream Stewardship Agreements" with four private landowners in the basin. All are located along the South Fabius River in Marion County. Combined, these contracts permanently conserve 88 acres of high-quality forested riparian corridor along 2.4 river miles. Landowners retain the right to control trespass and manage their easement zones to produce forest products, but activities destructive to the streams or riparian corridors are restricted. Existing easements are located at sw22 T59n R8w, se21 T59n R8w, e25 T59n R8w, and 20 T59n R8w.

### **Corps of Engineers 404 Jurisdiction**

The Fabius River basin is under the jurisdiction of the Rock Island District of the U.S. Army, Corps of Engineers (COE). Most activities involving the deposition or stockpiling of

material in stream channels require a Section 404 Permit from COE. As of January 1, 1999, applications for 404 permits should be sent to: Clock Tower Building, P.O. Box 2004, Rock Island, IL 61204-2004, attention NCROD-S. Phone (309) 794-4200.

