

LAND USE

Historic Land Use

Pre-settlement conditions indicate that Ozark uplands were mostly prairie and oak savannah, while steep valley slopes and bottoms were dominated by thick deciduous and pine forests. Early settlers cleared trees off valley bottoms and uplands for pasture and row crops. From 1880 to 1920, the Ozarks were subject to heavy timber cutting, leaving large expanses of eroding uplands and valley slopes. This was followed by increased pasture grazing and row cropping. Woodland grazing and seasonal burning became popular, further increasing soil erosion and suppressing young trees. Cutting of the second growth forest began in the mid-1950s (Jacobson and Primm 1994).

Lead was initially discovered in the upper Big River Basin in the early 1700s (Jennet et al. 1981) with the discovery of the Old Lead Belt in St. Francois, Madison, Washington, and Jefferson counties (Figure me). Minimal surface mining began shortly thereafter and continued until 1864 when St. Joseph Lead Company (now St. Joe Minerals Corp.) began advanced lead mining and milling. Since 1920, Missouri has been a leading producer of lead for the United States. Lead mining in the Old Lead Belt ceased in 1972 after over 8 million tons of lead were mined (Kramer 1976). In the early 1970s, barite mining began, primarily in Washington County. By 1978, over 20,000 acres (3%) of Big River watershed was affected by mining (USDA 1980).

Beginning in the 1940s, clusters of cottages and club houses were built on the lower 70 miles of Big River. Most were constructed on top of stilts to avoid flooding. Many of these riverfront dwellings began as vacation cabins, but were transformed into full-time residences in the 1960s and 1970s.

Recent Land Use

Big River basin land uses (Figure lu) are currently dominated by forest (48%) and pastures (26%), with lesser amounts of urban areas (9%), row crops (7%), old fields (3%), roads (1%), reservoirs and streams (1%), and other (5%) (USDA 1992).

All counties within the basin are experiencing population growth, which is especially rapid in Jefferson and Franklin counties (Figure pc). Populations within basin counties are expected to increase by as much as 44% by 2020 (Missouri Office of Administration 1994). Urbanization of the watershed (home building, paving, etc.) will increase with population growth, which will reduce forest and agricultural use. This land use change is already happening. In just 10 years, urban land use has increased by 117%, while row crop land has dropped by 320% (USDA 1992).

Buildings in the lower Big River floodplain (RM 0-29) are susceptible to flood damage, especially in the Morse Mill, Cedar Hill, and House Springs areas. "The Great Flood of '93" damaged 102 properties, of which 47 were approved for a flood buy-out program offered by the

Federal Emergency Management Agency (FEMA). Most of the damaged dwellings have been removed and current land use consists of park-like developments or have been allowed to revegetate. However, many club houses still persist along the lower 70 miles of Big River.

All lead and most barite mining activities within the basin have ceased, but 45 mine dams and numerous piles of mine waste (Figures md) remain. Despite the cessation of mining activity, lead contamination of the Big River basin continues (Czarnecki 1987; MDNR 1994; Missouri Department of Health 1999). The most significant lead source is a 500-acre lead tailings pile, at Desloge, which is bordered on three sides by Big River. Progress on stabilizing the Desloge pile was recently made with the announcement of an estimated \$12.1 million plan to stabilize the dam and mine waste. Doe Run Company began work in November, 1995 and is financing the 3-year project to stabilize the base with rock rip-rap, as well as grade and plant the pile slopes. In addition, the Leadwood tailings pond dam was stabilized with rip-rap and had its spillway upgraded in 1996 (J. Czarnecki, personal communication). Also, a plan for stabilization of the St. Joe State Park dam has been approved. Stabilization of its lead tailings began in 1997.

Recent attempts have been made to obtain approval for landfills in the Washington County portion of the basin. Some applications have been for land within 700 feet of Big River. Intense public opposition and potentially unsuitable geology have led to denial of all applications.

Soil Conservation Projects

There is one on-going Special Area Land Treatment (SALT) project within the 12,463-acre Saline Creek watershed (Iron County). One thousand acres out of the 3,780-acre Bellview Valley SALT Project area have been treated (NRCS, personal communication). There are no completed, ongoing, or scheduled Public Law 566 or EARTH watershed projects in the Big River Basin. Only 782 acres (0.1% of the basin) are enrolled in the Conservation Reserve Program (NRCS, personal communication).

Public Areas

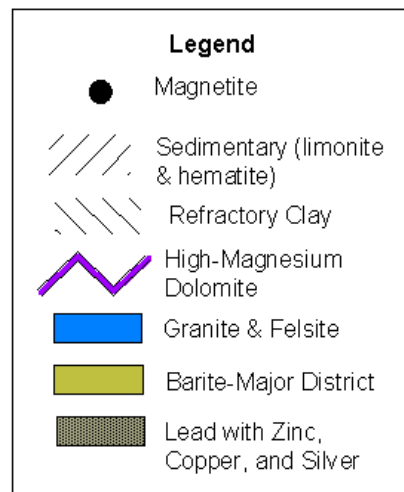
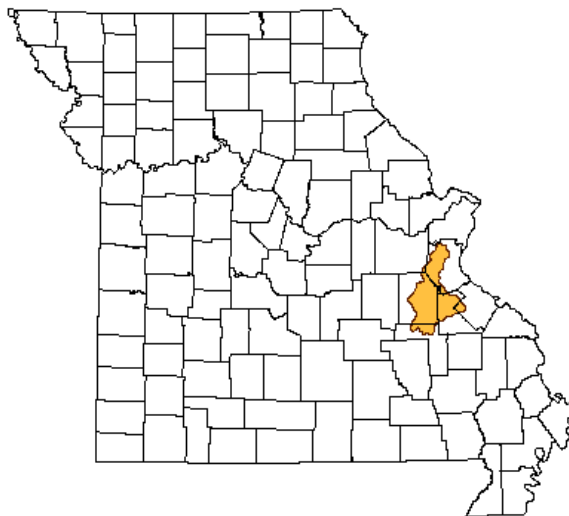
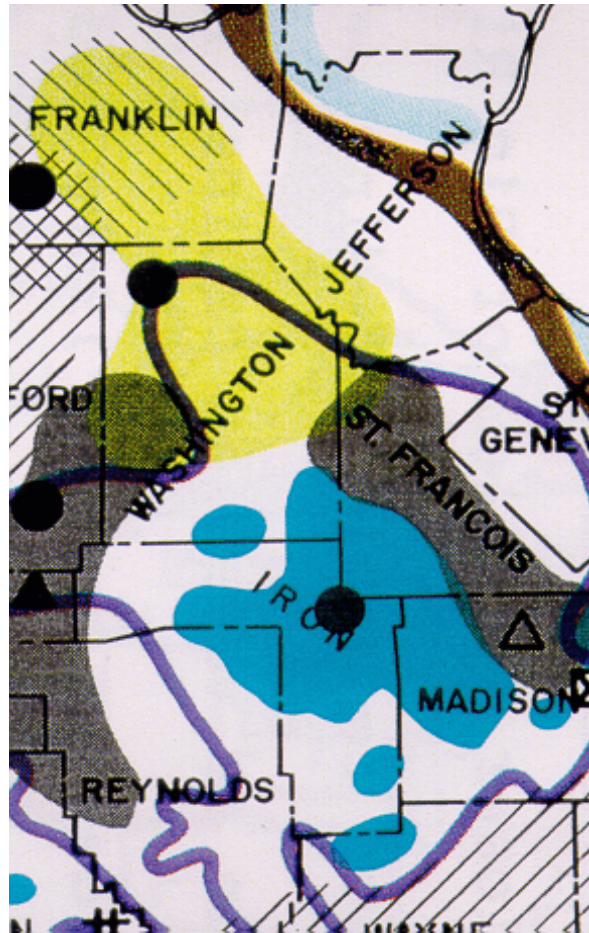
The Big River basin contains 20 areas owned by governmental agencies (Figure pa) equalling 5% (32,339 acres) of all basin land. The largest tract is a 17,742-acre portion of the Mark Twain National Forest in Iron and Washington counties. Eighteen areas offer a combined 15.5 miles of stream frontage (74% on Big River), including 14 access areas on floatable streams and four boat ramps (Table 2). About 75% of this stream frontage is along streams with permanent flow.

Additional access to basin streams is needed and more is planned along Big River, Mineral Fork, and Fourche a Renault Creek (McPherson 1994). Trailered-boat access at Cedar Hill, Morse Mill, House Springs, Washington State Park, and St. Francois State Park is poor or non-existent. Blackwell Access has a vertical 12-foot-tall streambank which does not allow for bank angling or canoe/boat launching. In addition, wade and bank fishing access is somewhat limited, especially along larger tributary streams and Big River (above RM 63). Missouri STREAM TEAMS have helped improve bank access along Big River frontage in Washington State Park.

Corps of Engineers 404 Jurisdiction

The Big River basin is under the jurisdiction of the United States Army Corps of Engineers-St. Louis District. Applications or inquiries regarding 404 permits should be directed to the St. Louis office: 1222 Spruce St., St. Louis, MO 63103-2833; (314) 331-8141.

Figure me. Various mineral and energy locations within the Big River Basin. Portion taken from "Mineral and Energy Resources in Missouri", compiled by Ardel W. Rueff, Missouri Department of Natural Resources, Division of Geology and Land Survey.



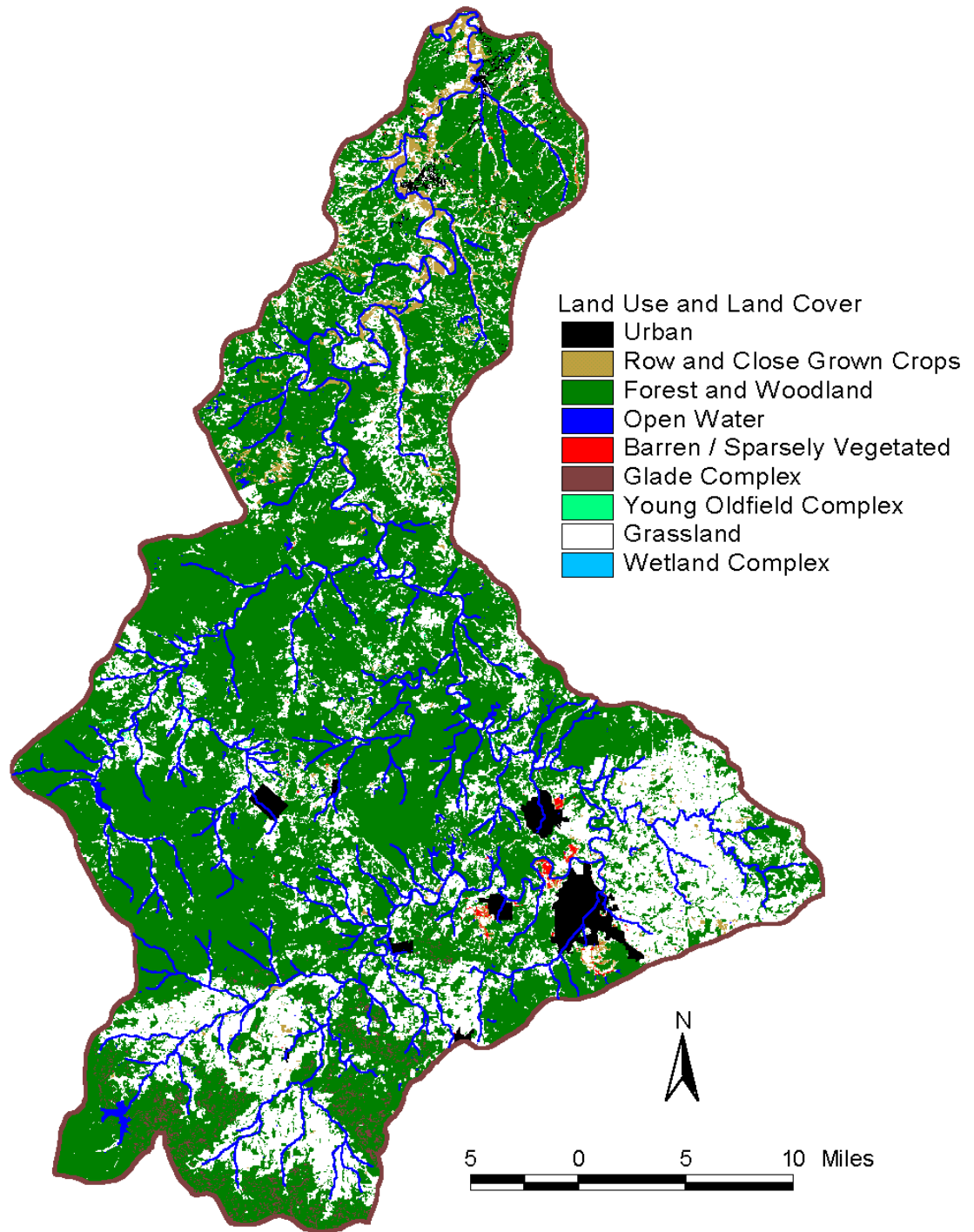
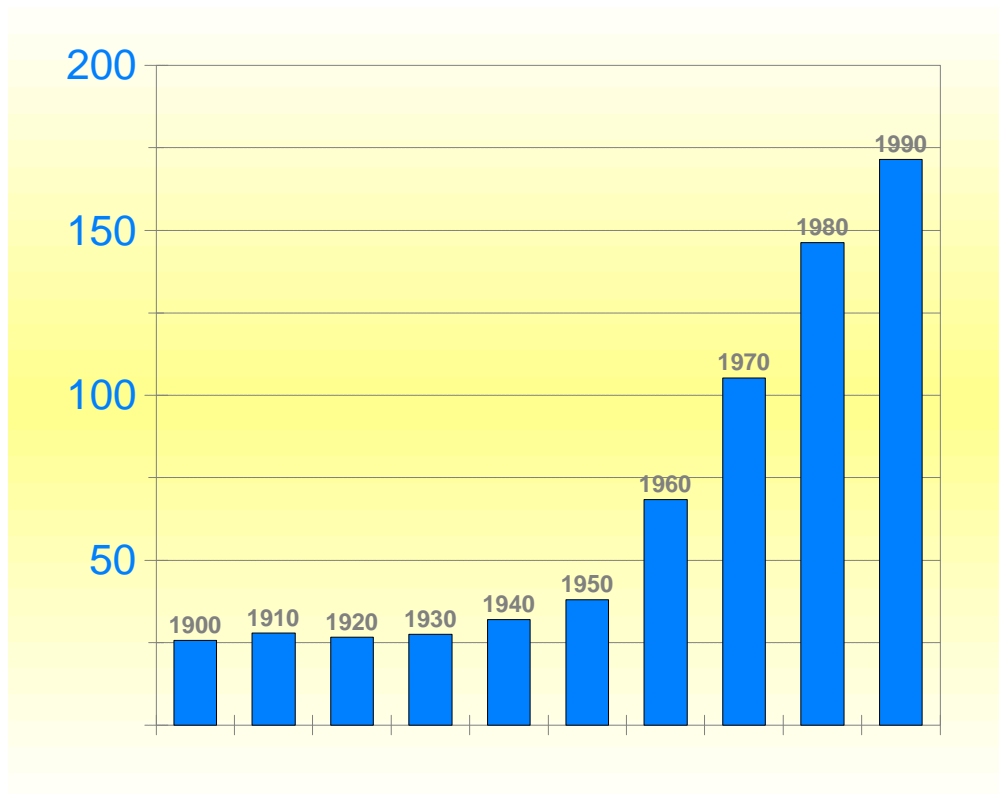


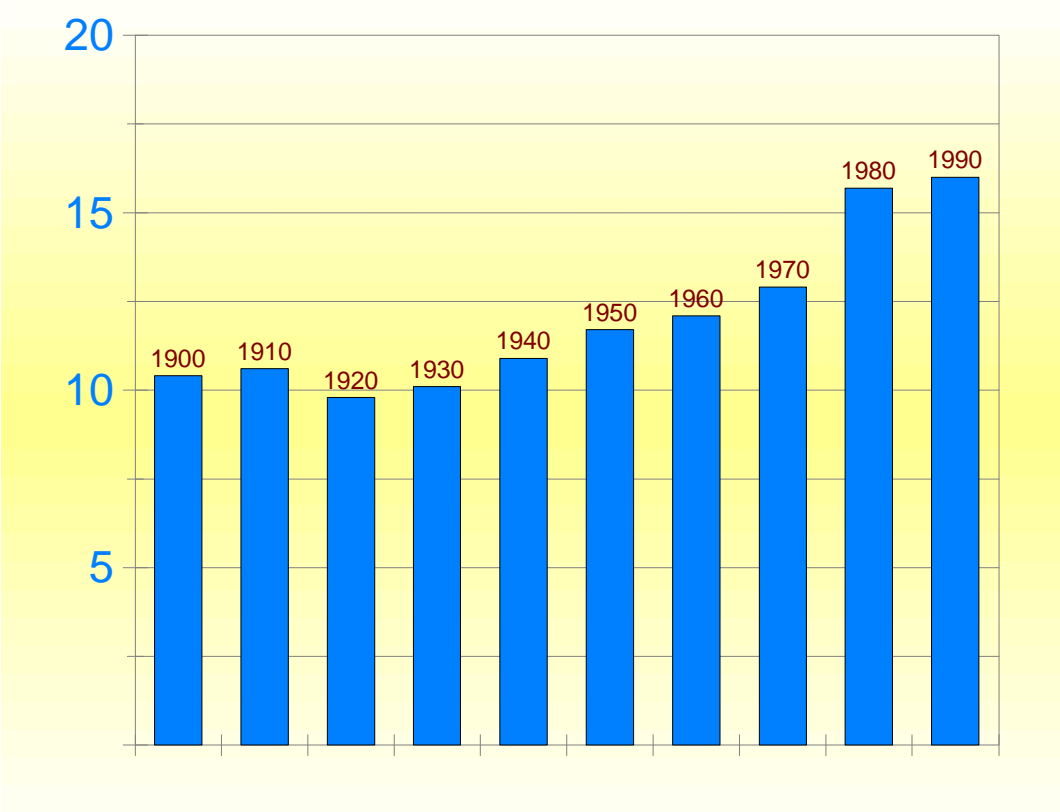
Figure 1u. Land use in the Big River basin, Missouri

Figure pc. County populations from 1900 to 1990. Numbers are in thousands.



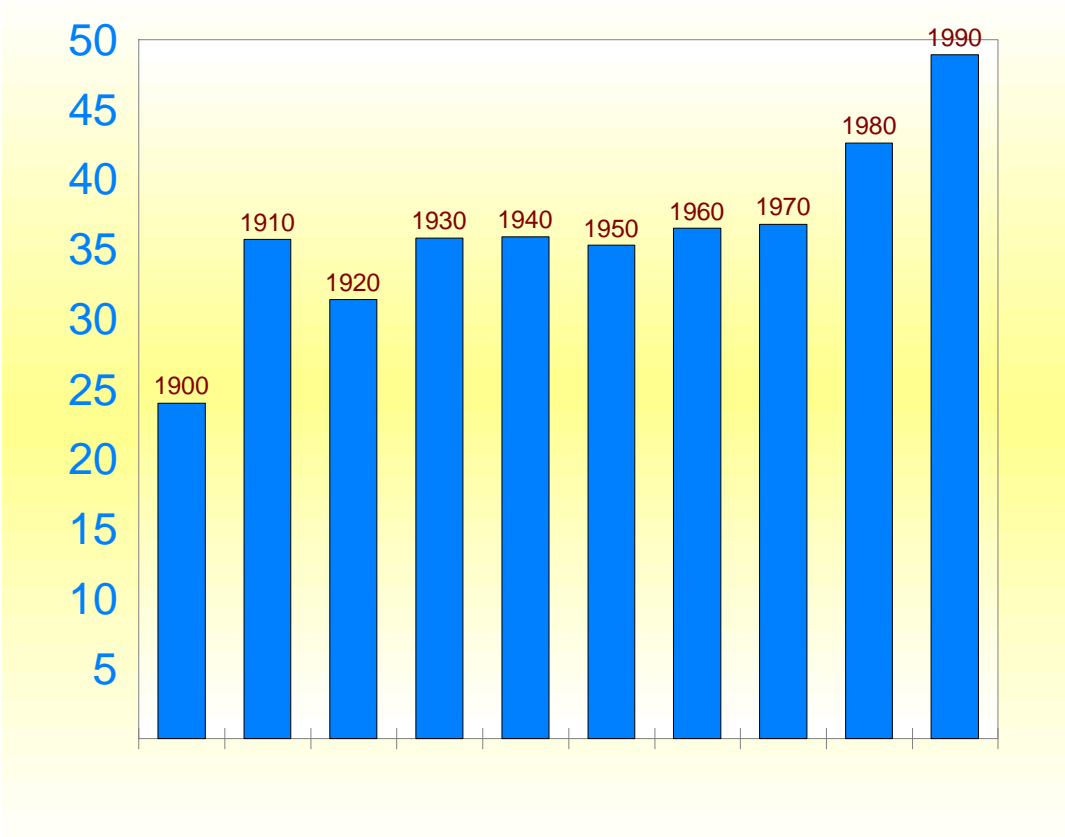
Jefferson County

Figure pc continued.



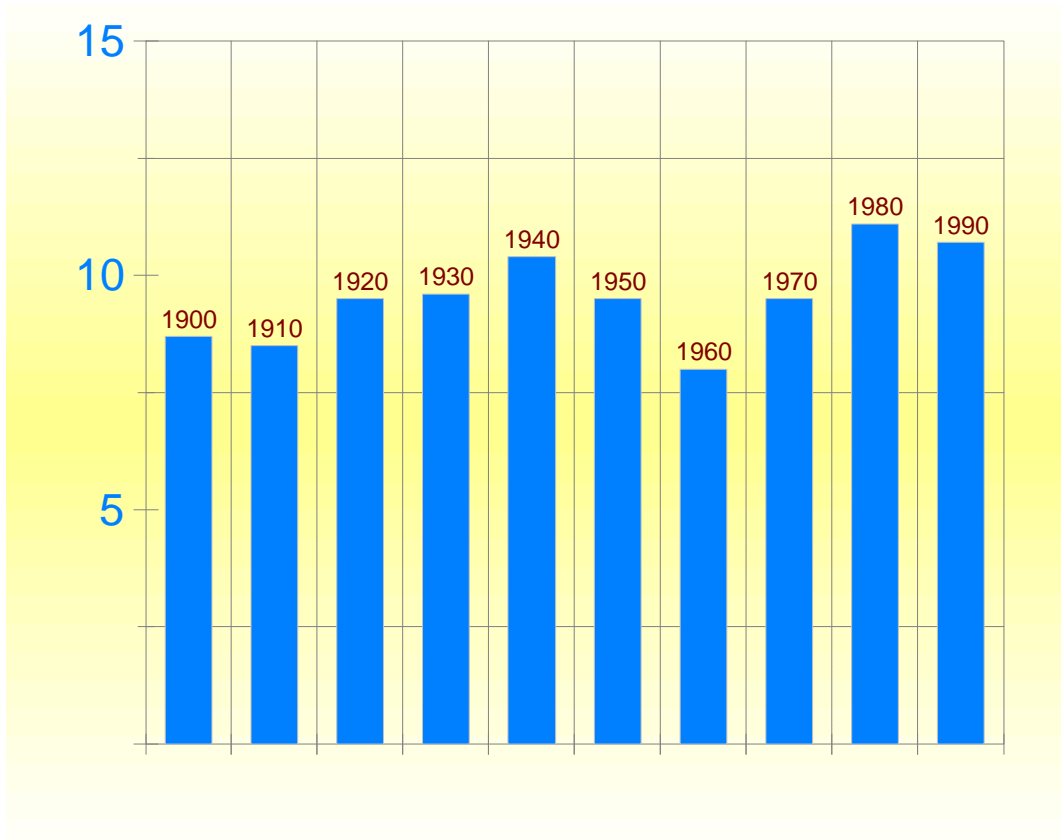
Ste. Genevieve County

Figure pc continued.



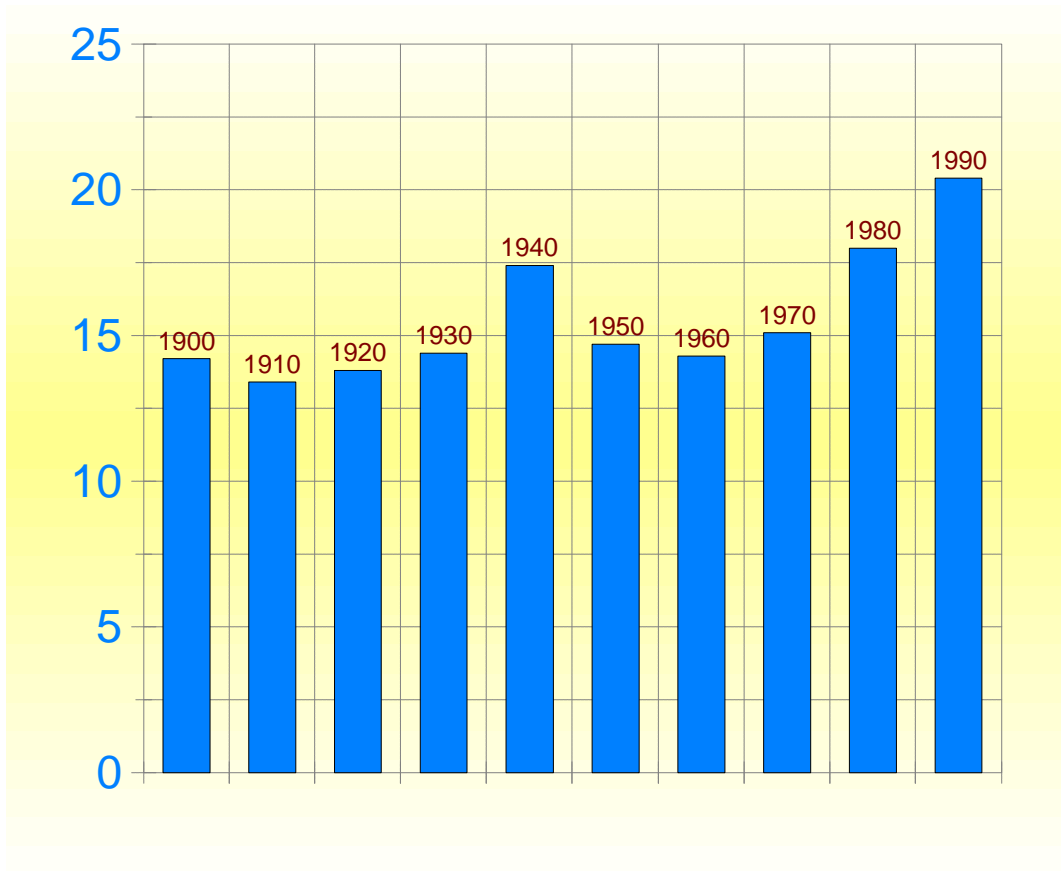
St. Francois County

Figure pc continued.



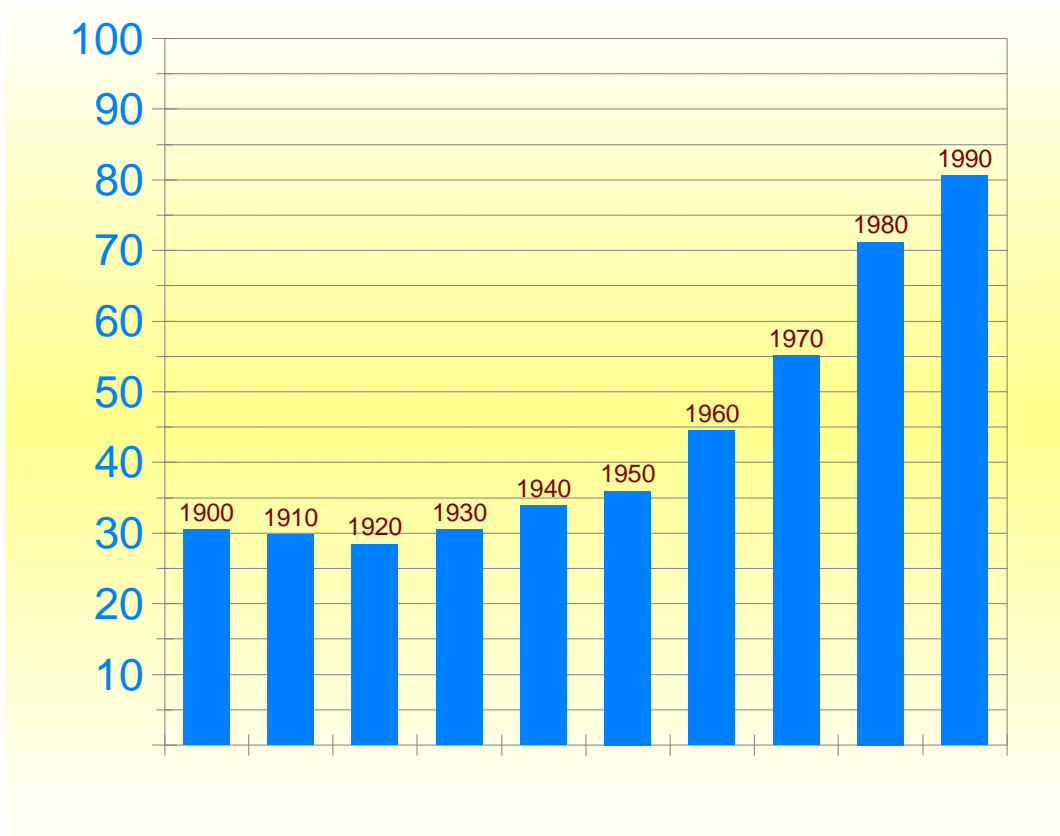
Iron County

Figure pc continued.



Washington County

Figure pc continued.



Franklin County

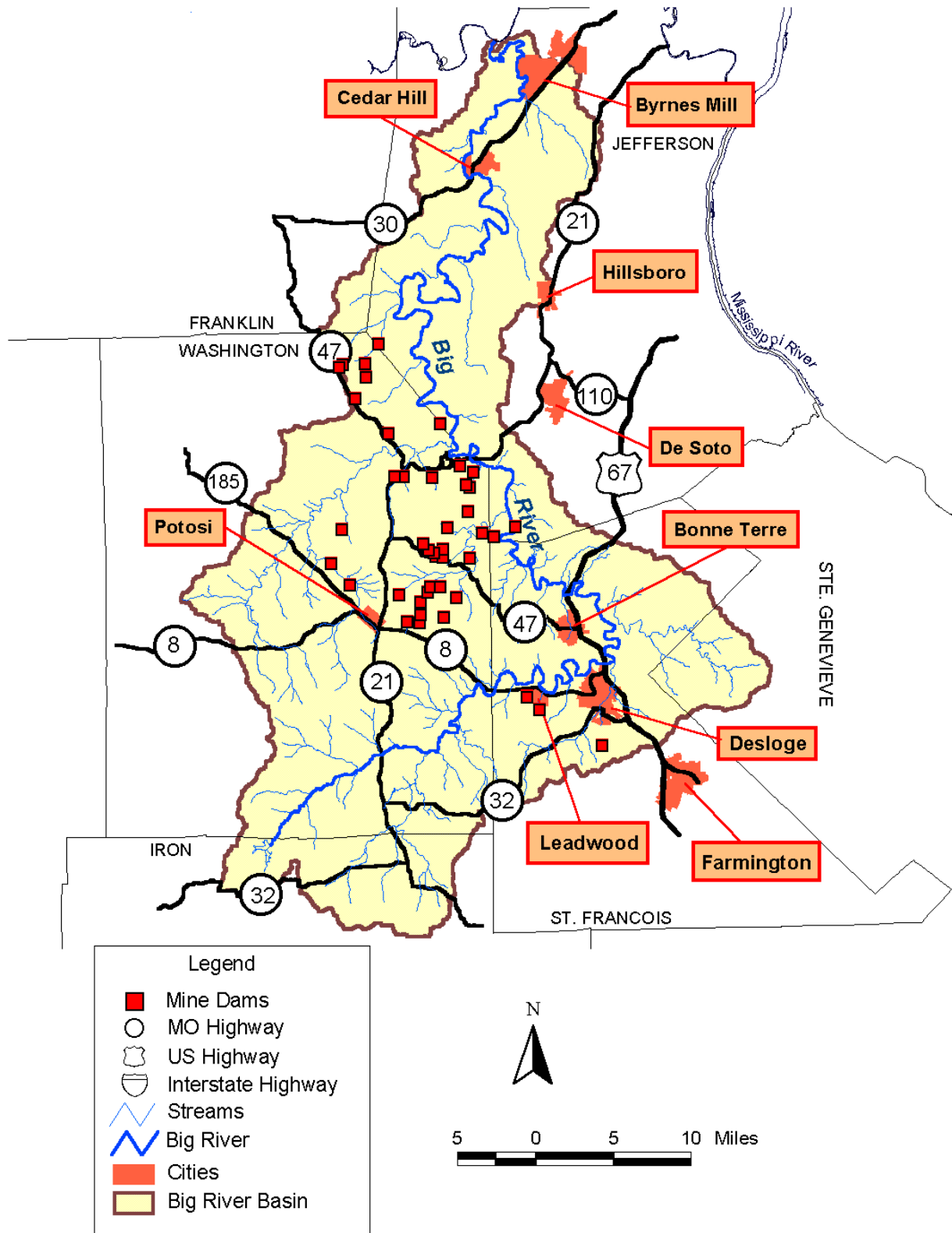


Figure md. Mine dams within the Big River basin, Missouri.

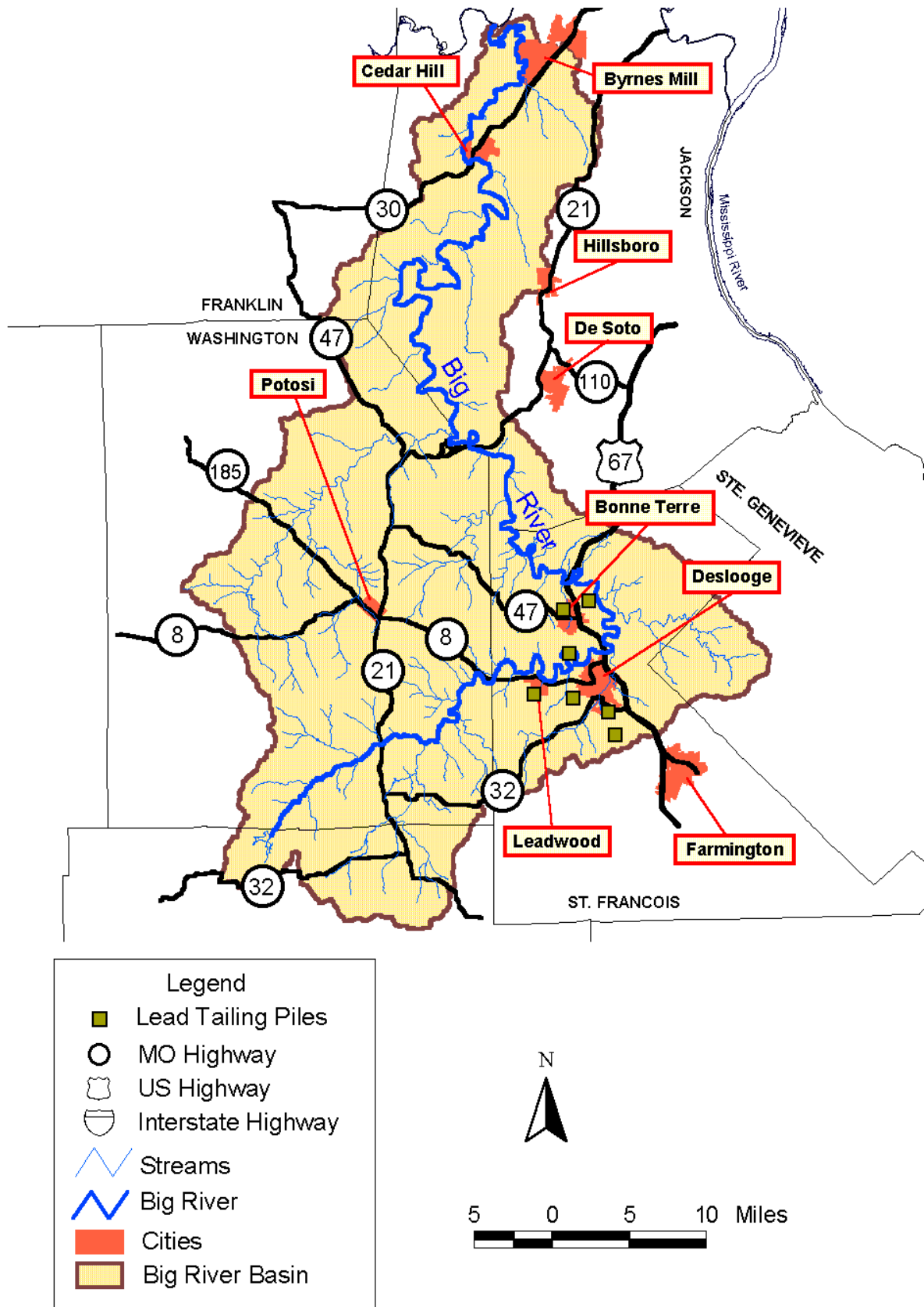


Figure 1t. Lead tailing piles within the Big River basin, Missouri.

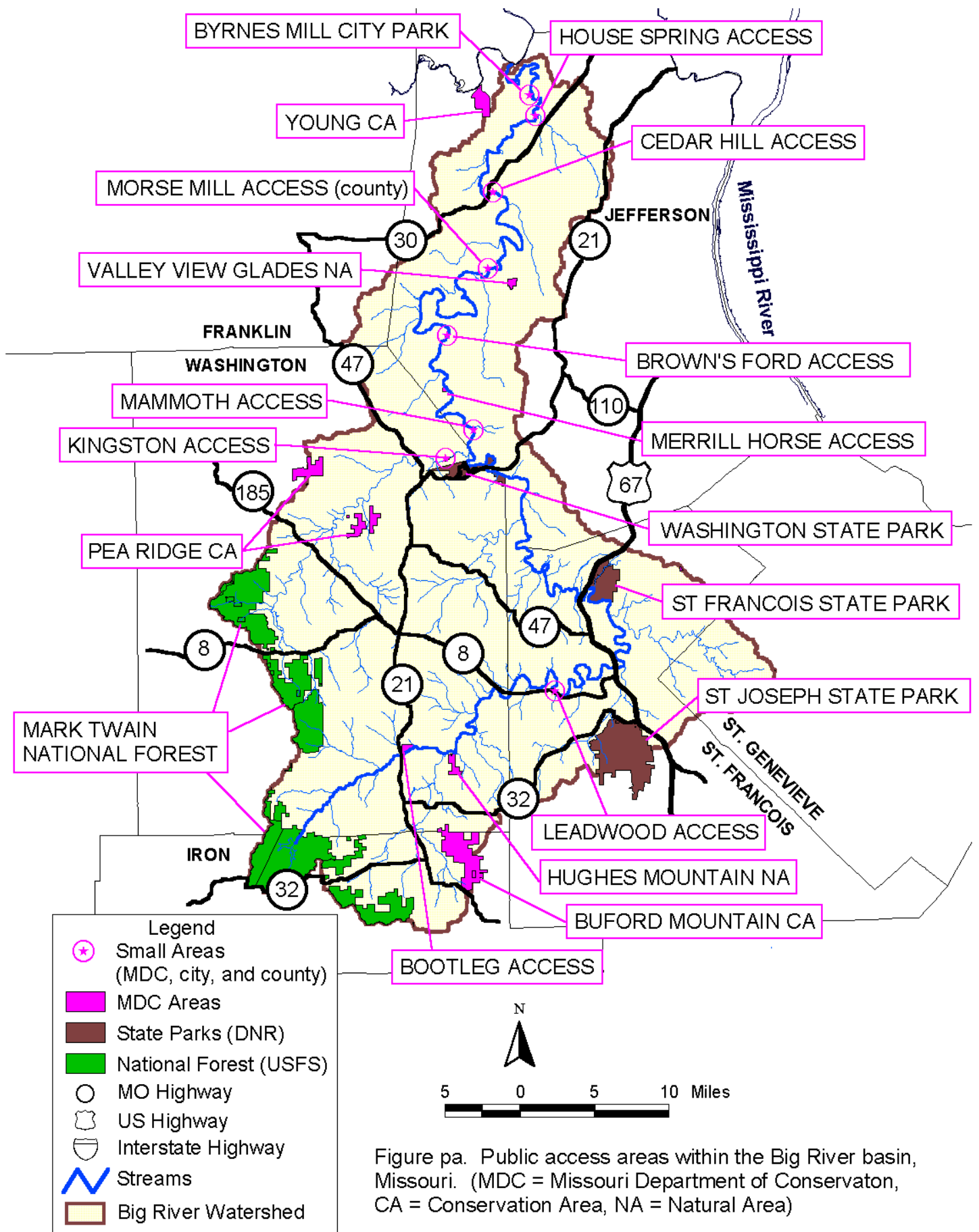


Table 2. Public areas in the Big River basin.

| County | Area Name (Ownership) | Acres | Frontage (Miles) | Stream | Boat Ramp |
|---------------------|----------------------------------|--------------|-----------------------------|---------------|----------------------|
| Jefferson | Brown's Ford Access (MDC) | 1.5 | 0.05 | Big River | X |
| | Byrnesmill City Park (City) | 28.0 | 0.1 | Big River | - |
| | Cedar Hill Access (County) | 7.0 | 0.2 | Big River | - |
| | House Springs Access (County) | 8.0 | 0.22 | Big River | X |
| | Mammoth Access (MDC) | 4.8 | 0.2 | Big River | X |
| | Merrill Horse Access (MDC) | 74.0 | 0.3 | Big River | X |
| | Morse Mill Access (County) | 10.0 | 0.3 | Big River | - |
| | Valley View Glades CA (MDC) | 227.2 | - | - | - |
| Iron | Buford Mountain CA (MDC) | 2248.3 | 0.7 | Chambers Cr. | - |
| | Mark Twain NF (USFS) | 15784.4 | 1.1 | Big River | - |
| St. Francois | Leadwood Access (MDC) | 6.3 | 0.2 | Big River | - |
| | St. Francois SP (DNR) | 2458.0 | 3.2 | Big River | - |
| | St. Joseph SP (DNR) | 5606.8 | 2.9 | Harris Branch | - |
| Washington | Bootleg Access (MDC) | 303.2 | 1.2 | Big River | - |

Table 2 continued

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|--|--------------------------|--------|-----|------------------|---|
| | Buford Mountain CA (MDC) | 230.5 | - | - | - |
| | Hughes Mountain NA (MDC) | 330.0 | 0.2 | Wallen Cr. Trib. | - |
| | Kingston Access (MDC) | 58.5 | 1.0 | Mineral Fork | - |
| | Mark Twain NF (USFS) | 1957.9 | - | - | - |
| | Washington SP (DNR) | 1359.0 | 3.1 | Big River | - |
| | Pea Ridge CA (MDC) | 1595.0 | - | - | - |