BOURBEUSE RIVER WATERSHED

INVENTORY AND ASSESSMENT

Prepared by:

Todd J. Blanc

Fisheries Biologist

Missouri Department of Conservation

Sullivan, Missouri

December 1999

Primary contributors include:

George Kromrey, Michael Smith, Andrew Austin, Ron Burke

Approved: Date:

George B. Kromrey, Fisheries Regional Supervisor

Executive Summary

The Bourbeuse River watershed is located within the northeastern quarter of the Ozark Highlands. The main stem of the Bourbeuse River winds northeasterly through Phelps, Gasconade, and Franklin counties to join the Meramec River, and its watershed additionally encompasses portions of Maries, Osage, and Crawford counties. The Bourbeuse River is 147 miles from mouth to headwaters, and the lower 132 miles have permanent flow. The Bourbeuse River watershed drains 843 square miles and is composed of a number of smaller watersheds including Spring Creek, Boone Creek, Brush Creek, Red Oak Creek, Dry Fork, Little Bourbeuse River, and the Lower Bourbeuse River. The gradient of the main stem is low compared to other streams of the Ozark Highlands, and gradients of the tributaries are slightly higher in the lower watershed compared to the upper watershed. The Bourbeuse River has fewer springs with smaller discharges than the Meramec River.

Cropland and pasture are the land uses for 45% of the Bourbeuse River watershed. According to 1992 NRCS estimates, approximately 16,600 acres were cultivated, another 59,100 acres of farmland were uncultivated, and 140,900 acres were pasture. These areas are found primarily within stream floodplains. Fifty-one percent of the total land area within the watershed is deciduous forest. Other forest types are evergreen and mixed forest land. Successional areas, such as shrub and brush rangeland, are small in total acreage, reflecting the high grazing rates and hay production in the watershed. Most of the urban-type land use is found in the lower watershed near Union.

Although some exceptions are present and improvement are needed, water quality in the Bourbeuse River watershed is generally good. Sewage treatment plants for St. James, St. Clair, and Cuba have not always met water quality standards for their treated discharge. In general, non-point pollution in the form of sediment from erosion and organic wastes from livestock impair water quality. In particular, organic wastes from livestock contribute to excessive algal production in watershed streams. Contaminant sampling for pesticide bioaccumulation in fish indicates that Bourbeuse fish are safe for human consumption.

Stream habitat conditions within the Bourbeuse River and its tributaries are variable. The main stem has no channelized segments, and old mill dams located near Beaufort and Union provide channel grade controls. A number of tributaries are impounded, with the largest impoundment being Indian Lake (326 acres) in the Brush Creek subwatershed. In many streams, the lack of adequate riparian corridors, excessive nutrient loading, streambank erosion, excessive runoff and erosion, and the effects of extensive instream gravel mining are among the problems observed. Grazing practices along many streams contribute to streambank instability, nutrient loading, and poor riparian corridor conditions.

The Bourbeuse River watershed has a diverse assemblage of 90 fish species collected from 1941 through 1996. In historic fish collections, prior to the 1995-96 collections, fisheries biologists found 81 fish species. In the 1995-96 survey, nine additional fish species were added to the list; these included freshwater drum, highfin carpsucker, fantail darter, chestnut lamprey, smallmouth buffalo, bigmouth buffalo, warmouth, western redfin shiner, and freckled madtom. However, some fish species found in earlier collections were not taken in the 1995-96 collections; these included least brook lamprey, goldeye, red shiner, pallid shiner, bigmouth shiner, suckermouth minnow, bullhead minnow, stippled darter, and orangespotted sunfish. The highfin carpsucker, a state listed species, occurred at several locations within the watershed in the 1995-96 collections.

The Bourbeuse River is home to most of the popular sport fish found in Missouri. The river tends to be turbid, and because of the relatively low gradient, is slower moving than other Ozark streams. Most float anglers fish the Bourbeuse in the spring, before base flows limit their ability to move between access points. Smallmouth bass, largemouth bass, spotted bass, rock bass, channel catfish, flathead catfish, walleye, redhorse and suckers, longear sunfish, bluegill, black crappie, and white crappie are among the most popular species sought by anglers.

A total of 39 mussel species have been collected prior to 1977 in various surveys of the Bourbeuse River and three of its tributaries. Thirty-seven of the 39 species were collected in the 1977-78 survey, but *Cumberlandia monodonta*, spectaclecase mussel (a Missouri species of conservation concern), and *Cyclonaias tuberculata*, purple wartyback, were collected in previous surveys but not in the 1977-78 survey. In a more recent survey of the Bourbeuse River and two of its tributaries during 1994-97, 31 living and five dead species of mussels were collected. Habitat disturbances are the suspected cause of the decline in the number of mussel species present in the Bourbeuse River watershed.

Our major goals for the basin are improved water quality, better riparian and aquatic habitat conditions, the maintenance of diverse and abundant populations of native aquatic organisms and sport fish, and increased public appreciation for the stream resources. Periodic fish population samples will be collected and appropriate habitat surveys will be conducted. Fishing regulations will be adjusted if needed to maintain quality fishing. Cooperative efforts with other resource agencies on water quality, habitat, and watershed management issues will be critical. Enforcement of existing water quality and other stream

related regulations and necessary revisions and additions to these regulations will help reduce violations and lead to further water quality improvements. Working with related agencies to promote public awareness and incentive programs and cooperating with citizen groups and landowners will result in improved watershed conditions and better stream quality.