

JACKS FORK

WATERSHED

INVENTORY AND ASSESSMENT

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EXECUTIVE SUMMARY

The Jacks Fork Watershed occupies a land area of 445 square miles in portions of Howell, Shannon, and Texas Counties. The Jacks Fork River drains directly into the Current River which drains land to the North and East of the Jacks Fork Watershed. The Jacks Fork Watershed is bounded to the South by the Eleven Point Watershed and to the West and Northwest by the North Fork and Big Piney Watersheds.

The Jacks Fork River is formed by the confluence of two streams: the North Prong and South Prong of the Jacks Fork. The North Prong has its beginnings approximately 9 miles south of Raymondville, Missouri, while the headwaters of the South Prong are located approximately 5 miles east of Cabool, Missouri. Both streams join to form the Jacks Fork River northwest of Mountain View, Missouri. From this point, the Jacks Fork flows in an easterly direction for 49.1 miles before joining the Current River northeast of Eminence, Missouri.

The Jacks Fork Watershed occurs within the Ozarks Soil Region and includes five soil associations. The geology of the Jacks Fork Watershed consists primarily of dolomites and sandstone/dolomites of Ordovician age. A significant exposure of Cambrian Dolomite is present in the lower portion of the watershed. In addition small areas of Mississippian limestone and Precambrian igneous rock are exposed in the lower portion of the watershed. Caves, springs, losing streams, and sinkholes are common in the watershed due to the karst nature of its topography. Analysis of USGS 7.5 minute topographical maps

indicate that there are 22 springs within the watershed. However preliminary results of surveys performed within National Park Service boundaries indicate that many more springs exist within the watershed. Alley spring is the largest spring within the watershed with an average discharge of 125 cubic feet per second.

Horton orders for streams within the Jacks Fork Watershed have been obtained from a 1:24,000 scale Geographic Information System hydrography coverage. There are 44 third order and larger streams within the watershed. These streams account for a total of approximately 311 stream miles or 26% of the total stream miles within the watershed. The Jacks Fork River is 49.1 miles long and becomes sixth order at the confluence of the North Prong and the South Prong of the Jacks Fork. Permanent stream mileage data obtained from a 1:24,000 scale GIS hydrography coverage for the Jacks Fork Watershed indicates that approximately 152 stream miles (13%) within the watershed have permanent water.

Channel gradient was determined using data digitized from USGS 7.5 minute topographic maps for all fourth order and larger streams within the Jacks Fork Watershed. Composite gradient graphs were constructed for all fifth order and larger streams within the watershed. The Jacks Fork River has an average gradient of 7.1 feet/mile.

Land use/land cover data indicates estimated combined forest/woodland cover within the Jacks Fork Watershed at 76% while grassland/cropland comprises 23% of the total land cover. The watershed has two urban areas with a population of over 500 persons. These are the cities of Eminence, Missouri (573 persons) and Mountain View, Missouri (2,036). The population density of the watershed is approximately 15 persons per square mile. One U.S. Highway and four major state routes intersect the watershed. In addition, one rail line intersects the watershed for a short distance on the watershed's western edge. Approximately 19% of the watershed is in public ownership, most of which is managed by the Missouri Department of Conservation.

Average annual precipitation within the Jacks Fork Watershed is 43.21 inches. The USGS currently (2000) has two active surface discharge gauge stations within the watershed. Data from these stations indicate average daily flows for the Jacks Fork River at Eminence and Jacks Fork River at Alley Spring are 466 cubic feet per second (cfs) and 304 cfs respectively.

Water quality concerns within the Jacks Fork Watershed include gravel dredging, indiscriminate land clearing, high levels of recreational river use, municipal waste water discharges, and the presence of livestock in riparian zones for extended periods. In addition, the potential contamination of the ground water system by poorly constructed and/or maintained septic systems as well as municipal discharges to losing streams is also of concern. There are two municipal waste water discharges within the watershed one of which discharges to a losing stream. Three additional National Pollution Elimination System discharges are also located within the watershed. Water quality within the Jacks Fork Watershed has been negatively impacted by periodically high fecal coliform levels in the past. Five miles of Jacks Fork River from T29N, R3W, section 9 to T29N, R4W, section 26 are currently included in the 1998 303(d) list of impaired waters. Fecal coliform is the pollutant resulting from organic wastes.

Within the Jacks Fork Watershed there are currently two dams which have records within the Dam and Reservoir Safety Program Database. One is a reinforced earth structure located on a tributary of the South Prong of the Jacks Fork River. The height of this dam is 27 feet. The other dam is a reinforced earth structure with a height of 41 feet located on a tributary of Shawnee Creek. It appears that there have been no significant channel alterations anywhere throughout the Jacks Fork Watershed. Small

channelization projects have probably occurred on private and municipal property and also during road and bridge construction. Riparian corridor land cover/land use within the watershed consists of more forest/woodland (78%) than grassland/cropland (20%).

The biotic community of the Jacks Fork Watershed is diverse. Sixty seven species of fish, 19 species of mussels, and 5 species of crayfish have been collected within the watershed. Several species of sport fish occur within the watershed including chain pickerel, shadow bass, smallmouth bass, largemouth bass, and warmouth. In addition, a total of 51 "species of conservation concern" are known to occur within the watershed. These include 32 species of plants (flowering plants, ferns, fern allies, and mosses); 2 species of insects; 1 species of crayfish; 4 species of mussels; 5 species of fish; 2 species of amphibians, 3 species of birds; and 2 species of mammals. One species, the gray bat, has both federal and state endangered species status. In addition, the Bachman's Sparrow is a state endangered species as well as a former federal candidate for listing.

The management goals, objectives, and strategies for the Jacks Fork Watershed were developed using information collected from the Jacks Fork Watershed Inventory and Assessment (WIA) and direction provided by the Missouri Department of Conservation Strategic Plan, the Fisheries Division Five Year Strategic Plan (1995-2000), and the Ozark Regional Management Guidelines. Objectives and strategies were written for instream and riparian habitat, water quality, aquatic biota, and recreational use. All goals are of equal importance. These goals include: (1) Improve riparian and aquatic habitats in the Jacks Fork Watershed, (2) Improve surface and subsurface water quality and quantity in the Jacks Fork Watershed, (3) Maintain the abundance, diversity, and distribution of aquatic biota at or above current levels while improving the quality of the sport fishery in the Jacks Fork Watershed, (4) Increase public awareness and promote wise use of aquatic resources in the Jacks Fork Watershed. The attainment of these goals will require cooperation with private landowners, other divisions within the Missouri Department of Conservation, as well as other state and federal agencies.

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