NORTH FORK RIVER

WATERSHED

INVENTORY AND ASSESSMENT

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EXECUTIVE SUMMARY

The North Fork of the White River Watershed, henceforth referred to in this document as the North Fork Watershed, in Missouri occupies approximately 1,389 (888,960) square miles in parts of six counties in the Southern Missouri Ozarks. These counties include Douglas, Howell, Ozark, Texas, Webster, and Wright. The North Fork Watershed in Missouri constitutes approximately 76% of the total area of the North Fork Watershed with the remainder in Arkansas. The watershed is bound on the north by the Gasconade and the Big Piney Watersheds; on the east by the Jack's Fork, Eleven Point, and Spring River Tributaries Watersheds; and to the west by the White River Tributaries (Bull Shoals Reservoir) Watershed and the James Watershed. For the purposes of this document, the Missouri/Arkansas State Line represents the southern boundary of the watershed. Two major streams drain the North Fork Watershed. These are the North Fork of the White River and Bryant Creek. The North Fork of the White River originates in the vicinity of Mountain Grove in southeastern Wright County. The river flows in a general southerly direction across Douglas and Ozark counties for 67 miles before emptying into Northfork Reservoir near Tecumseh, Missouri. Northfork Reservoir is a 22,000 acre (at conservation pool) United States Army Corps of Engineers reservoir. The North Fork of the White River is joined by

Bryant Creek approximately one half mile north of Tecumseh, Missouri. Bryant Creek, the largest tributary to the North Fork of the White River, originates near Cedar Gap in southwestern Wright County. Bryant Creek flows southeasterly across Douglas and Ozark counties for 71 miles before emptying into the North Fork River.

The geology of the North Fork Watershed is composed primarily of sandstones and dolomites of Ordovician and Mississippian age. Caves, springs, losing streams, and sinkholes are common in the watershed, due to the highly karst nature of its topography. There are 283 springs within the watershed as determined from USGS 7.5 minute topographic maps. The largest of these springs are Double (Rainbow) and North Fork Springs which emerge close together on the North Fork River. The watershed lies within the Ozark Soils Region. Using United States Geological Survey (USGS) 7.5 minute topographic maps, a total of 139 third order (Horton) and larger streams were identified within the North Fork Watershed. The North Fork River, a seventh order stream, is the highest order stream within the watershed. Approximately 276 miles of third order and larger streams have permanent flow. Stream channel gradients were determined for all fourth order and larger streams within the watershed. The North Fork River has an average gradient of 12.8 ft. per mile.

Land use/land cover within the North Fork Watershed primarily consists of grassland/cropland (37.5%) and forest/woodland (61.9%). Urban areas make up 0.4% of the watershed. The watershed has two urban areas with a population of over 1,000 persons. These are Ava, Missouri (population 2,938) and Mansfield, Missouri (population 1,429). The population density of the watershed is approximately 43 persons per square mile. The North Fork Watershed is dissected by several transportation routes. These include six major state routes and one U.S. highway. In addition, one rail line intersects the watershed for a short distance on the watershed’s eastern edge. Approximately 13.1% of the watershed is in public ownership; 88% of which is managed by the United States Forest Service.

Average annual precipitation within the North Fork Watershed is 43.26 inches. The United States Geological Survey (USGS) currently (1999) has two active surface discharge gauge stations within the watershed. Data from these stations indicate average daily flows for the North Fork River near Tecumseh and Bryant Creek near Tecumseh are 756 cubic feet per second (cfs) and 534 cfs respectively.

Water quality within the North Fork Watershed is relatively good; however periodically high fecal coliform levels, nutrient loading, and sediment/gravel deposition are threats to water quality. Gravel dredging, indiscriminate land clearing, and the presence of livestock in riparian zones for extended periods of time are some causes of the water quality problems. In addition, the potential contamination of the ground water system by septic systems as well as municipal discharges to losing streams is also of concern. There is one municipal waste water discharge within the watershed. Eight additional National Pollution Elimination System discharges are also located within the watershed.

Four minor, but notable, water control structures exist within the watershed. The only water control structure on the North Fork River in Missouri is Dawt Mill Dam. This is a relatively low structure (less than eight feet high) located approximately 1.8 mile above Tecumseh Missouri. Condition of stream habitat within the North Fork Watershed is relatively good in most areas. Analysis of quantified Stream Habitat Assessment Device (SHAD) results from 13 sites within the watershed indicates that habitat at these sites range from ‘fair’ to ‘excellent’. Riparian corridor land cover/land use within the watershed consists of more forest/woodland (64.9%) than grassland/cropland (34.2%). Small channelization projects have probably occurred on private and municipal property and also during road and bridge

construction.

The biotic community of the North Fork Watershed is diverse. Seventy-six species of fish, 21 species of mussels, 15 species of snails, 5 species of crayfish, and 106 taxa of benthic invertebrates have been collected within the watershed. Several species of sport fish occur within the watershed including grass pickerel, chain pickerel, rainbow trout, brown trout, Ozark bass, smallmouth bass, largemouth bass, channel catfish, warmouth, walleye, spotted bass, flathead catfish, black crappie, white crappie, striped bass, and white bass. In addition, a total of 65 "species of conservation concern" are known to occur within the watershed. Three species have federal endangered and state endangered species status. These include the gray bat, Indiana Bat, and running buffalo clover. An additional 4 species have state endangered species status. These are the mountain lion, black-tailed jackrabbit, Bachman's Sparrow, and Swainson's Warbler. The bald eagle is listed as a federal threatened species and a state endangered species. It is currently proposed for delisting.

The management goals, objectives, and strategies for the North Fork Watershed were developed using information collected from the North Fork Watershed Assessment and Inventory (WAI). 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 North Fork Watershed, (2) Improve surface and subsurface water quality and quantity in the North 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 North Fork Watershed, (4) Increase public awareness and promote wise use of aquatic resources in the North Fork Watershed. The attainment of these goals will require the acceptance and cooperation of private landowners, other divisions within the Missouri Department of Conservation, as well as other state and federal agencies.

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