

# LAND USE

## Historic and Recent Land Use

The area including the Crooked River basin has been frequented by people for thousands of years based on archeological records. French and Spanish explorers were in the area as early as the 1500's. The first settlers reportedly arrived from Tennessee in 1815 and lived at what they called "Buffalo" which would be near present day Hardin, Missouri. Most of the early settlers were from Tennessee, Kentucky and Virginia. The Indians inhabiting the area at this time were primarily Sac and Iowa, although Osage Indians were occasionally encountered. Ray County (included the area that is currently divided into Carroll, Clay, Clinton, Dekalb, Gentry, Grundy, Harrison, Mercer, Ray and Worth counties) came into being as an officially recognized part of Missouri in 1821 (Ray County History 1881). The county seat was originally Bluffton (near present day Camden), but was relocated to Richmond in 1828. Ray County as well as Caldwell, Clinton and Clay counties, were assigned their current configuration in 1836. The area was subject to troop movements, skirmishes, battles, and raids during, and for a brief period after, the Civil War (Preston 1986).

In the 1800's, flora and fauna were reportedly diverse and abundant. Along the streams and rivers, forests were dense and varied with species including oaks, elms, hickory, pecan, black walnut, maples, linden, cottonwood and others. The hilltops and ridges were for the most part timbered. Areas of prairie were interspersed between wooded areas. Estimates indicate about 35% of the Crooked River basin was historically prairie (Schroeder 1982). In the 1980's, the upland forests were of the oak-hickory type with white oak, black oak, northern red oak, hickory, white ash, winged elm, hackberry and post oak being the most commonly encountered species. Flood plain forests were narrow corridors restricted to creek and river margins, consisting primarily of cottonwood, green ash, silver maple, box elder, elms and hackberry. In the early 1980's, forest covered only ten percent of Ray County and was decreasing (Preston 1986).

Wildlife reported to be found in Ray County in the 1800's included "panther, bear, jackal, lynx, wildcat, catamount, wolf, fox, turkey, bison, elk, deer, bobwhite quail, prairie chicken, ducks, geese, snipe, plover, rail, fox squirrel, grey squirrel and rabbit" (History of Ray County 1881). Large quantities of meat from game animals (specifically mentioned were deer and barrels of prairie chickens) were sent to St. Louis and from there to the eastern markets from this area (History of Ray County 1881). The fishes reported from the area were "black bass, perch, catfish, buffalo fish, suckers, and pike" (History of Ray County 1881). Fishing in the streams was conducted from a canoe using wooden torches and gigs at night. The water was considered clear and the fish numerous (History of Ray County 1881).

Early agricultural activities were confined to the fertile valleys and Missouri River flood plain (mentioned as being about 5 miles wide) which was considered to have good natural drainage favorable to cultivation. Floods occurred in June 1827, June 1844, and April 1881 but were considered to be infrequent and not a problem (History of Ray County 1881). In 1979, 125,500 acres were cultivated in Ray County for soybean and corn production (Preston 1986).

Land use estimates for the Crooked River basin (based on Missouri River basin statistics) is 42% cropland, 25% grassland, 21% urban, and 12% forest lands (Missouri Resource Assessment Partnership [MoRAP] phase 2 landcover map - Figure 1u). These percentages are probably higher for agriculture/forest and lower for urban in the Crooked River basin as Kansas City is figured into the

Missouri River basin statistics. In 1998, the basin remains predominantly rural and agriculturally oriented, but encroachment of urban sprawl from the Kansas City metro area is beginning to impact the western edge. Future threats are probably going to be urbanization and development in the western areas of the basin, increased agricultural row crops on marginal farmland, and concentrated animal feeding operations.

### **Soil Conservation Projects**

The Ray County Soil and Water Conservation District (SWCD) was formed in 1945 (Preston 1986). There are several conservation programs, both state and federally sponsored, that provide technical and/or financial assistance to land owners in the basin.

Two of the available programs are Special Area Land Treatment (SALT) and EARTH projects, sponsored by the Missouri Department of Natural Resources (MDNR). These programs are coordinated through local Soil and Water Conservation Districts and make resources available for land owners in each target watershed. There are no EARTH projects in the basin at this time.

SALT projects focus on particular watersheds, and through landowner cooperation strive to improve soil conservation. The SALT programs use total resource management planning to treat land so that all resources are used effectively, while being protected from excessive soil erosion. Other goals of the program include: improved water quality and reduced sedimentation, increased use of conservation oriented agricultural practices, improved grassland establishment, better management of animal waste, increased timberland productivity, and improved wildlife habitat. The only completed SALT project in the basin is Little Muddy, and it was active from 1986 through 1993 (NRCS personal communication). Soil conservation practices used were steep back terraces, diversions, broad base terraces and waterways. The erosion has dropped from over twenty tons per acre per year to 5 tons per acre per year in the Little Muddy SALT area (MU Agronomy Technical report vol. 7 no. 6).

The USDA has worked with farmers to enhance soil conservation with their Conservation Reserve Program (CRP). This program was enacted Dec. 23, 1985 as part of the Food Security Act of 1985, in an effort to reduce crop farming on highly erodible cropland. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover such as native grasses, wildlife plantings, trees, filterstrips, or riparian buffers. Bids are ranked according to the National Environmental Benefits Index which has seven ranking factors. These include: wildlife habitat, water quality, erosion reduction, long-term retention (primarily based on trees), air quality, conservation priority area, and cost. Farmers receive an annual rental payment for the term of the multi-year contract (usually 10 years). Cost sharing is provided to establish the vegetative cover practices. The program has been extended several times since the original contracts expired in 1996. Some land has reverted and some new land has been enrolled with each new contract period. In the Crooked River basin the cropland acreage enrolled has remained at approximately 21,000 acres from 1997 through 1999 (J. Rehmsmeyer, NRCS pers. comm.).

Another source of aid for watershed projects is the Public Law 83-566 (PL-566) program. These partnerships require local and state funding contributions in addition to federal resources. Watershed projects that can qualify under this program may include those whose purpose are: watershed protection, flood prevention, water quality improvements, soil erosion reduction, water supply, irrigation water management, sedimentation control, fish and wildlife habitat enhancement and creation/restoration of wetlands and wetland functions. These projects can be large in scale with congressional committee

approval required only on projects where federal funding expenditures exceed five million dollars for construction, or construction of a single structure with a capacity in excess of 2,500 acre feet. As of 1998 there are over 1,600 of these projects in operation nationwide. The entire Crooked River basin is an approved PL-566 watershed project (active approved application for 214,790 acres). However, active operations are not occurring at this time (1998) and local NRCS officials do not predict any activity for the near future (J. Rehmsmeyer, NRCS, personal communication).

Cropland acreage is increasing in the Crooked River basin and pasture acreage is decreasing. Pasture is steadily being converted to row crops. The major row crops are soybeans and corn. Wheat is sometimes double cropped with soybeans. Wheat and grain sorghums are minor agricultural row crops (Preston 1986).

### **Public Areas**

There are 2,182 acres (1% of watershed total) of public land in the Crooked River basin. Table 1 contains specific information for public areas in the basin. Figure 2 shows the location of public lands within the basin. With the exception of the boat ramp west of Hardin (managed by Hardin Special Road District), all of the Crooked River basin public lands (2,182 acres; Table 1) are managed by the Missouri Department of Conservation (MDC). Areas range from fishing lakes to moderately managed upland and natural areas with both consumptive and non-consumptive uses.

There are 5 stream access sites in the basin. The four sites located above the East Fork Crooked River and Crooked River confluence on the mainstem Crooked River offer bank fishing and non-improved boat access. A small area on the lower Crooked River just west of Hardin has a concrete boat ramp and dirt parking lot. An area along the upper Crooked River near Elmira (T54N, R29W, sec 3 to T54N, R29W, sec 13) was rated as a high priority area for frontage acquisition by MDC to preserve remnant or high quality habitat and provide both bank and wade fishing access (McPherson 1994).

Within the basin there are 2 public fishing impoundments, Ray County Community Lake and Lawson City Lake (Table 1). The lakes are both about 25 acres in size, have boat ramps and are disabled user accessible. Ryck (1991) lists Crooked River Conservation Area (CA) as a low priority for lake and pond construction. The northeast corner of the Crooked River basin (headwaters area of the East Fork Crooked River) is a potential small public lake acquisition area (Ryck 1991).

### **Corps of Engineers Jurisdiction**

Most instream and some stream-side projects require 404 permits. Applications for permits should be directed to the U.S. Army Corps of Engineers office. The Crooked River basin in Missouri is under the jurisdiction of the Kansas City District.

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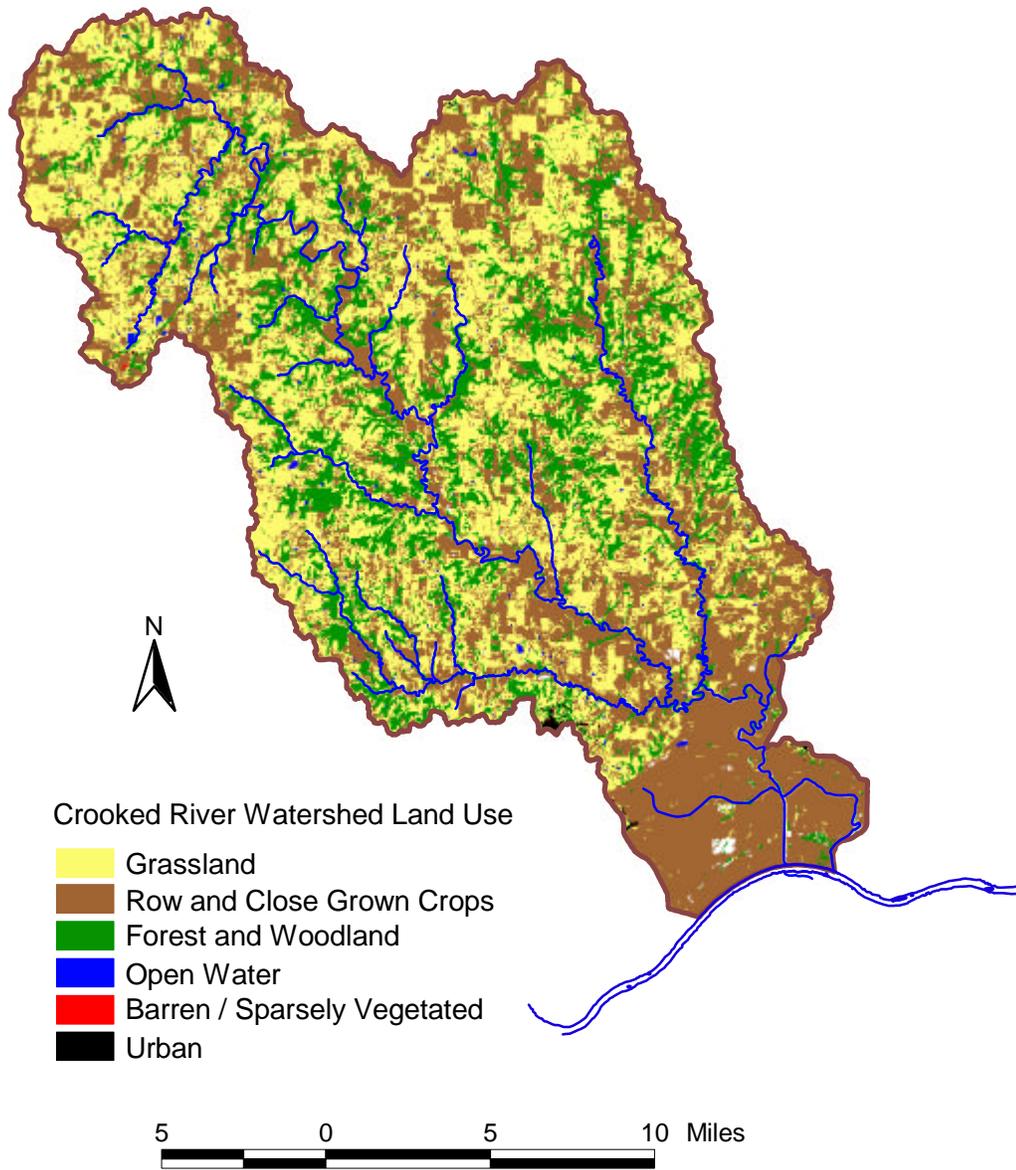


Figure 1u. Land use/land cover within the Crooked River basin (MORAP 1999, preliminary data).

Table 1. Crooked River basin public areas.

Area Name	Size	Activities Permitted	Features	Ownership
Crooked River CA	1420 acres	Hunting, Fishing, Camping, Hiking	Crooked River (3 miles frontage) and 22 acres of ponds, sloughs, and oxbows	MDC
Hardin CA	238	Fishing	Crooked River (1/4 mile frontage) 40 acre scour hole	MDC
unknown	unknown	Fishing	Boat ramp on Crooked River, West of Hardin	HSRD
Foxglove CA	54 acres	Hiking, Nature Observation	Rare species protection, non-consumptive use area	MDC
Wagner CA	130 acres	Hunting, Fishing	Cropland and forest, no stream frontage	MDC
Ray County Community Lake	159 acres	Fishing, Camping		
Blue Jay Trail Access	30 acres	Fishing, Camping		
James Bridge Access	22 acres	Fishing, Camping		
Bolinger CA	80 acres	Donated area, (still occupied 1998)	Will become MDC property when current owners de cease	MDC
Lawson City Lake	25 acres	Fishing	CAP <sup>2</sup> lake, disabled access, boat ramp, fishing berm	25 acre lake, disabled access, boat ramp, fishing berms
Morton Bridge Access	24 acres	Fishing, Camping	East Fork Crooked River/ Crooked River (1/3 mile frontage total)	Crooked River (3/4 mile frontage)

<sup>1</sup> - MDC, Missouri Department of Conservation; HSRD, Hardin Special Road District

<sup>2</sup> - Community Assistance Program (MDC provides assistance and manages the fishery)

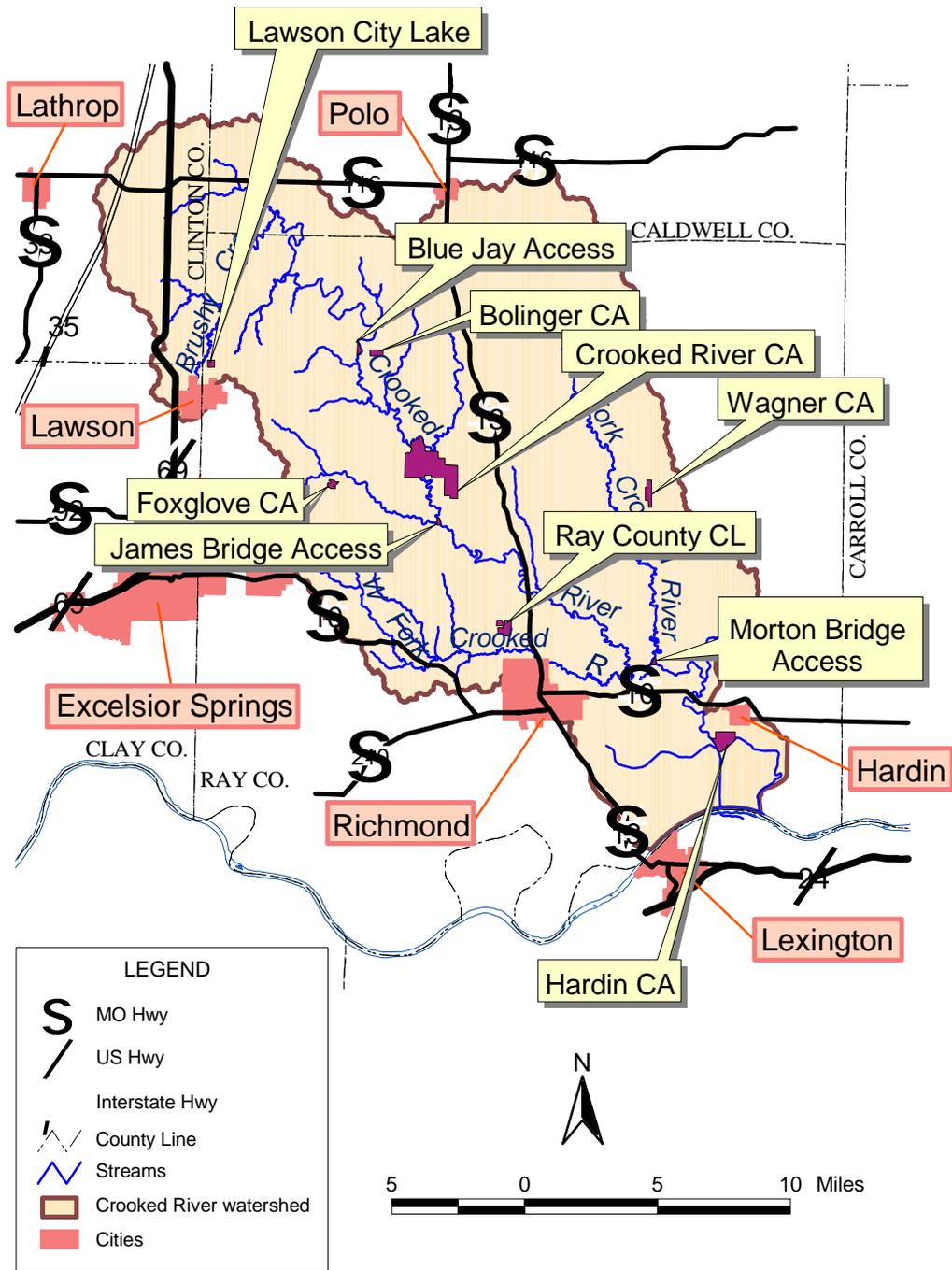


Figure 2. Public land within the Crooked River basin.