

Missouri Natural Resources Conservation Service

Rapid Watershed Assessment

Current River Sub-basin

HUC # 11010008



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1.0 Introduction

The Current River Sub-basin located in the southeastern region of Missouri, conveys drainage from its headwaters in the Ozark Highlands southward to its outlet in the Mississippi Embayment region in Arkansas. This sub-basin encompasses 2,621 square miles and covers portions of 9 Missouri counties as well as 2 Arkansas counties. Current River, the largest receiving stream in this watershed, and Jacks Fork, a major tributary, carry national river designations. The headwaters of Current River originate in Texas and Dent counties in Missouri near Montauk State Park. The Jacks Fork River is formed when the North and South Prong of the Jacks Fork River join in southeastern Texas County. The Jacks Fork River then flows east approximately 50 miles before merging with the Current River in Shannon County at Two Rivers Campground just east of Eminence, Missouri. Together, these rivers offer some of Missouri's best scenic beauty. The related tourism industry serves as a significant local economic factor and the region's greatest water quality threat. Considerable land is under public ownership, including the National Park Service who manages most of the Current and Jacks Fork River frontage.

Most of the land cover in this sub-basin is still timber, however grasslands for livestock production and cropland for food and fiber, are present. Grassland and cropland production are limited to the depositional areas along the narrow floodplains of the Ozark Highlands and the Delta regions of the Mississippi embayment near the state line. The sub-basin is laden with limestone and dolomite parent material that is soluble and characteristic of karst geologic features. Many streams lose flow and resurface as groundwater at various springs that contribute significantly to the surface flow of other streams. Sub-surface or inter-basin transfer of water has been historically documented by hydrologists. Successful dye traces for one world class spring have been recovered as far away as 40 miles. Gravel comprises stream bed loads in the headwaters. As Current River flows south into the Mississippi Embayment, bed loads transition into finer sediments, a function of the physiographic and associated land use change.

1.1 Scope and Purpose

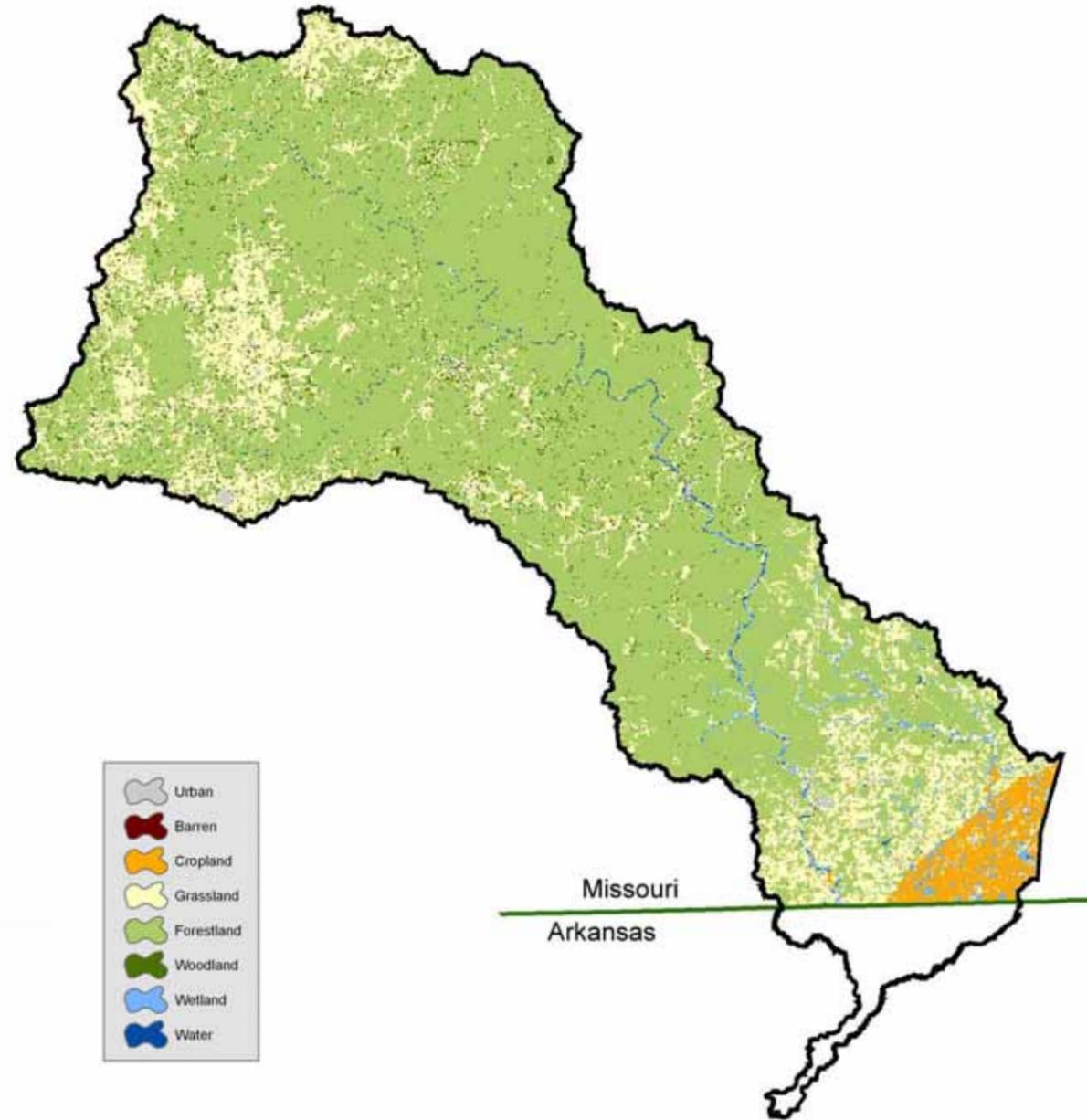
Rapid watershed assessments (RWA) provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals. The information contained in this RWA summarizes readily available data and provides a snapshot of natural resources, concerns, and conservation opportunities.

1.2 Major Realizations

The Current River Sub-basin faces unique management challenges including sensitive karst geologic features (e.g. caves, sinkholes, fens and springs) that offer little opportunity for pollution attenuation in the uplands, areas within the sub-basin that possess significant population below poverty levels, balancing tourism and water quality, and shallow groundwater protection in the Mississippi embayment.

2.0 Physical Description

2.1 Land Use/Land Cover



Land Use/Land Cover MoRAP ¹²	Urban	Cropland	Grassland	Barren	Open Woodland	Forest Land	Wetland	Water
2000 Acres	11,419.5	48,692.0	318,848.2	3,128.7	48,765.9	1,147,073.5	23,897.4	6,962.3
%	1%	3%	20%	0.2%	3%	71%	1%	0.4%

Land Use/ Land Cover NRI ¹¹	Developed Land	Cultivated Cropland	Conservation Reserve Program	Non-cultivated Cropland	Pasture-land	Forest land	Minor land cover/uses	Water	Federal land cover/use not recorded
1982 Acres	26,100	70,700	0	22,800	277,600	898,300	7,700	7,400	284,800
%	1%	4%	-	1%	17%	56%	0%	0%	18%
1987 Acres	27,200	78,700	0	10,700	285,800	892,800	7,800	8,300	284,100
%	1%	5%	-	1%	18%	56%	0%	0%	18%
1992 Acres	28,900	65,300	0	27,100	288,600	883,700	8,000	9,300	284,500
%	1%	4%	-	2%	18%	55%	1%	1%	18%
1997 Acres	32,900	62,300	0	26,800	290,300	880,200	8,500	9,900	284,500
%	2%	4%	-	2%	18%	55%	1%	1%	18%
Total Gain or Loss from 1982 to 1997	6,800	(8,400)	0	4,000	12,700	(18,100)	800	2,500	(300)
%	1%	0%	-	1%	1%	-1%	1%	1%	0%

2.1.1 Crop History ¹¹

Year	Close Grown Crops (acres)			Row Crops (acres)				General (acres)	
	Rice	Wheat	All Other	Corn	Sorghum	Soybeans	Double Cropped	Cultivated	Non-Cultivated
1982	8,400	2,500	0	1,500	22,400	29,700	4,000	70,700	22,800
1987	12,800	5,300	0	0	24,200	11,700	0	78,700	10,700
1992	14,100	3,600	0	0	22,000	23,500	2,200	65,300	27,100
1997	18,000	2,700	0	2,200	6,900	30,400	14,200	62,300	26,800

2.1.2 Grassland ¹¹

Year	Grassland (acres)						
	Hayland			Pastureland			Other Farmland
	Grass	Legume	Legume-Grass	Grass	Legume	Grass-Forbes-Legume Mix	CRP
1997	16,500	0	10,300	169,500	0	120,800	0

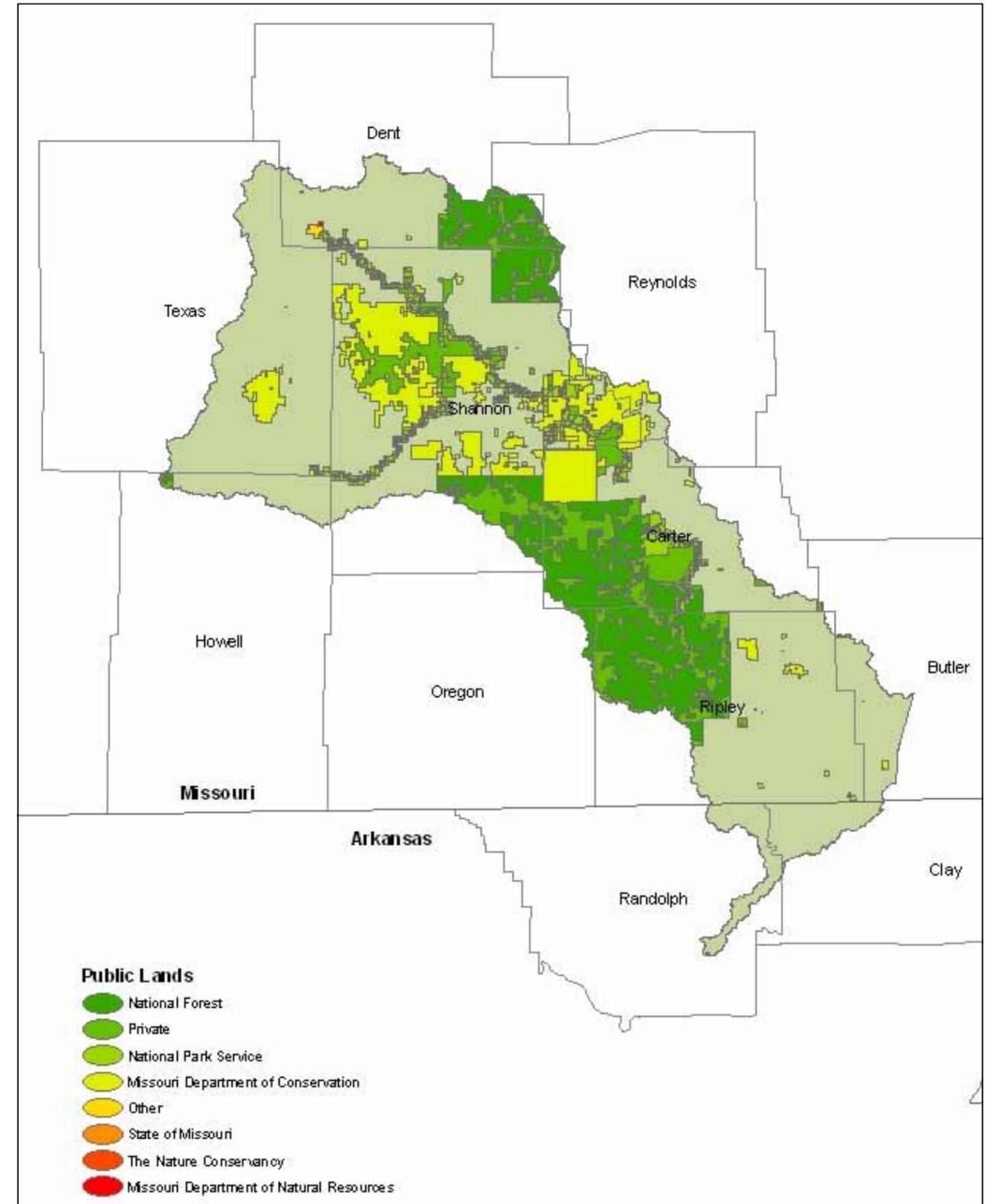
2.2 Public Land ¹³

Public lands in the Current River sub-basin account for approximately 38% of the total watershed. As early as the 1920's, land was acquired by various state and federal agencies for the purpose of pine reforestation. However, with the advent of the natural resource-tourism industry, most land is managed for multi-beneficial uses such as timber production, wildlife management, watershed protection and recreational purposes.

The Forest Service which holds the largest amount of publicly owned land originally acquired these areas for pine reforestation but currently manages for timber production and recreational opportunities. The State of Missouri owns land for states parks and conservation areas used for wildlife management and hunting and fishing activities. With the establishment of the Ozark Scenic National Riverways the National Park Service has since implemented research, restoration and educational efforts.

Though a large number of acres are privately owned, these landowners lease their land to public agencies through cooperative agreements. This private-public relationship is important in protecting and sustaining the economic, environmental and social resources of the Current River sub-basin.

Public Land Ownership (acres)			
Owner	Total Acres	% of Public Lands	% of Watershed
Missouri Department of Conservation	173,941	27.2	10.4
Missouri Department of Natural Resources	161	< 0.1	< 0.1
U.S. Forest Service (National Forest)	242,368	37.9	14.5
National Park Service	51,078	8.0	3.1
Nature Conservancy	934	0.1	< 0.1
Other *	4,479	0.7	0.3
Private **	163,569	25.6	9.8
State of Missouri	2,321	0.4	0.1
TOTAL	638,851		
* Municipal facilities (parks, accesses and easements)			
** Private/public land lease agreements			

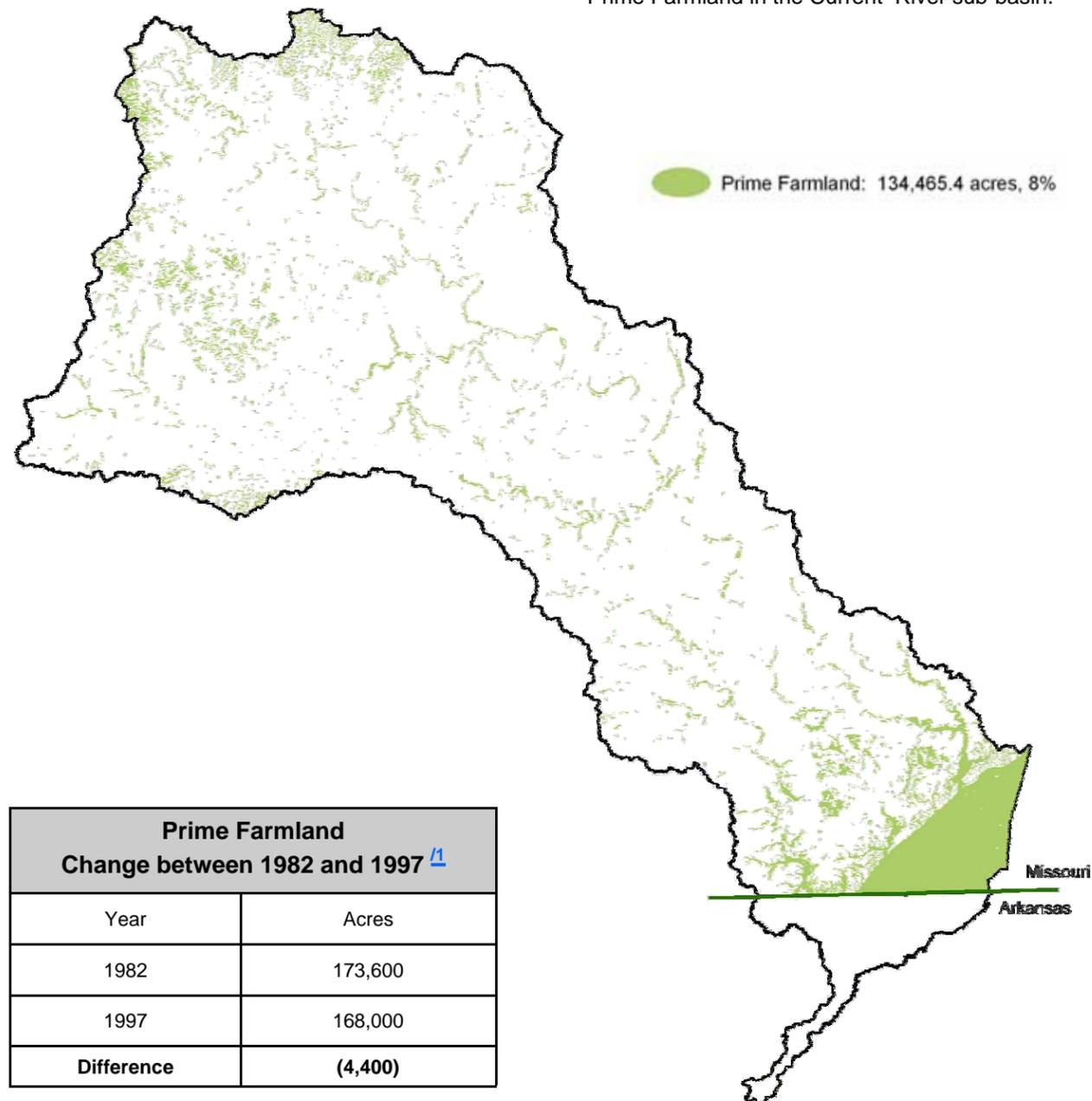


2.3 Soil Capacity

2.3.1 Prime Farmland ^{/28}

Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

Prime Farmland in the Current River sub-basin. ^{/11}



2.3.2 Land Capability ^{/1}

Land Capability is a classification system used to identify the erosion potential of farmland. For over forty years the USDA has used land capability classification as a planning tool in laying out conservation measures and practices to farm without serious deterioration from erosion or other causes. The current system includes eight classes of land designated by Roman numerals I thru VIII. The first four classes are arable land--suitable for cropland--in which the limitations and the need for conservation measures and management increase from I thru IV. The remaining four classes, V thru VIII, are not to be used for cropland, but may have uses for pasture, range, woodland, grazing, wildlife, recreation, and esthetic purposes.

Land Capability Class	Cultivated Cropland (acres)	Cultivated Cropland (%)	Non-cultivated Cropland (acres)	Non-cultivated Cropland (%)	Pastureland (acres)	Pastureland (%)
I - slight limitation	0	0%	2,300	9%	2,400	1%
II - moderate limitation	0	0%	5,900	22%	45,500	16%
III - severe limitations	16,500	26%	12,500	47%	104,100	36%
IV - very severe limitations	45,800	74%	2,200	8%	73,800	25%
V - no erosion hazard, but other limitations	0	0%	0	0%	0	0%
VI - severe limitations, unsuited for cultivation, limited to pasture, range, forest	0	0%	3,900	15%	25,500	9%
VII - very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	0	0%	0	0%	39,000	13%
VIII - misc. areas have limitations, limited to recreation, wildlife and water supply	0	0%	0	0%	0	0%
Total	62,300	-	26,800	-	290,300	-

2.4 Common Resource Areas ¹⁹

NRCS has divided the Nation into ecological type land regions called Major Land Resource Areas (MLRA). MLRAs are defined by their agricultural potential and soils capabilities and provide a spatial framework for addressing national and regional agricultural issues. A Common Resource Area is a geographic subdivision of an MLRA within which there are similar resource concerns and treatment requirements.

Missouri's CRAs are ecological subdivisions of its MLRAs. Each CRA is a grouping of Land Type Associations (LTA) taken directly from the state's ecological classification system (ECS). Missouri's LTAs are primarily differentiated on the basis of local climate, landforms and topography, geologic parent materials, soil types and potential vegetation.

The Current River sub-basin occupies portions of MLRA 116A and MLRA 131A.

Common Resource Areas in the Current River Sub-basin

116A.3 – Central Plateau:

The Central Plateau CRA consists of some of the least dissected portions of the Ozark Highlands. Dominated by carbonate lithology, it is strongly karst in many portions and is mantled by a very thick solution residuum. Lack of surface water and droughty soils are characteristics. Much of the land has been cleared for pasture although oak forests and brush dominate locally.

116A.7 – Current River Hills:

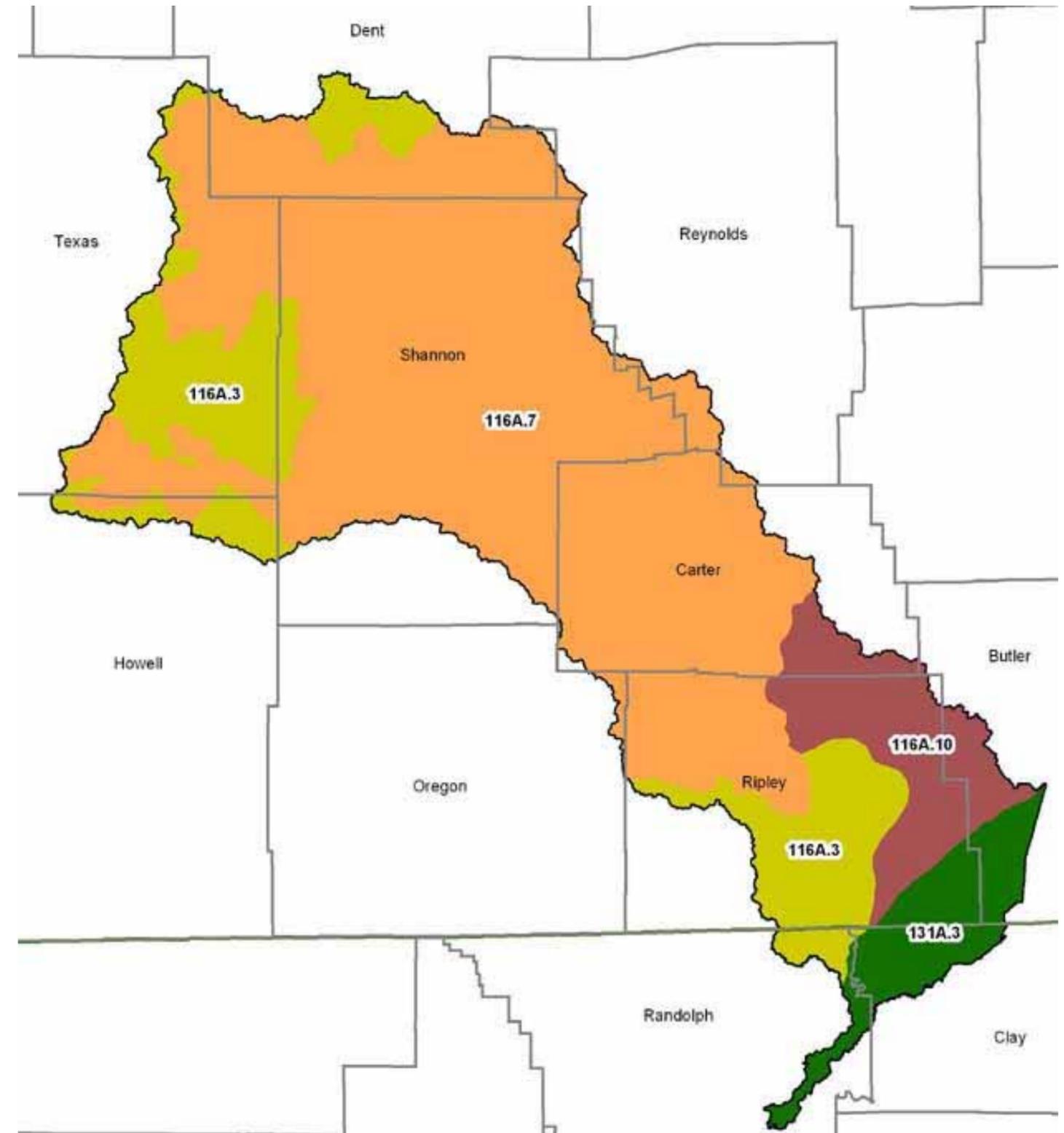
This CRA consists of the hilly to deeply dissected landscapes. Gently rolling interfluvies give way to steep slopes, narrow ridges, and narrow valley bottoms. Soils are rocky and formed mainly from carbonate and sandstone bedrock. Local karst, losing streams, and large springs are characteristic. Forests of oak and oak-pine dominate the landscape.

116A.10 – Black River Ozark Border:

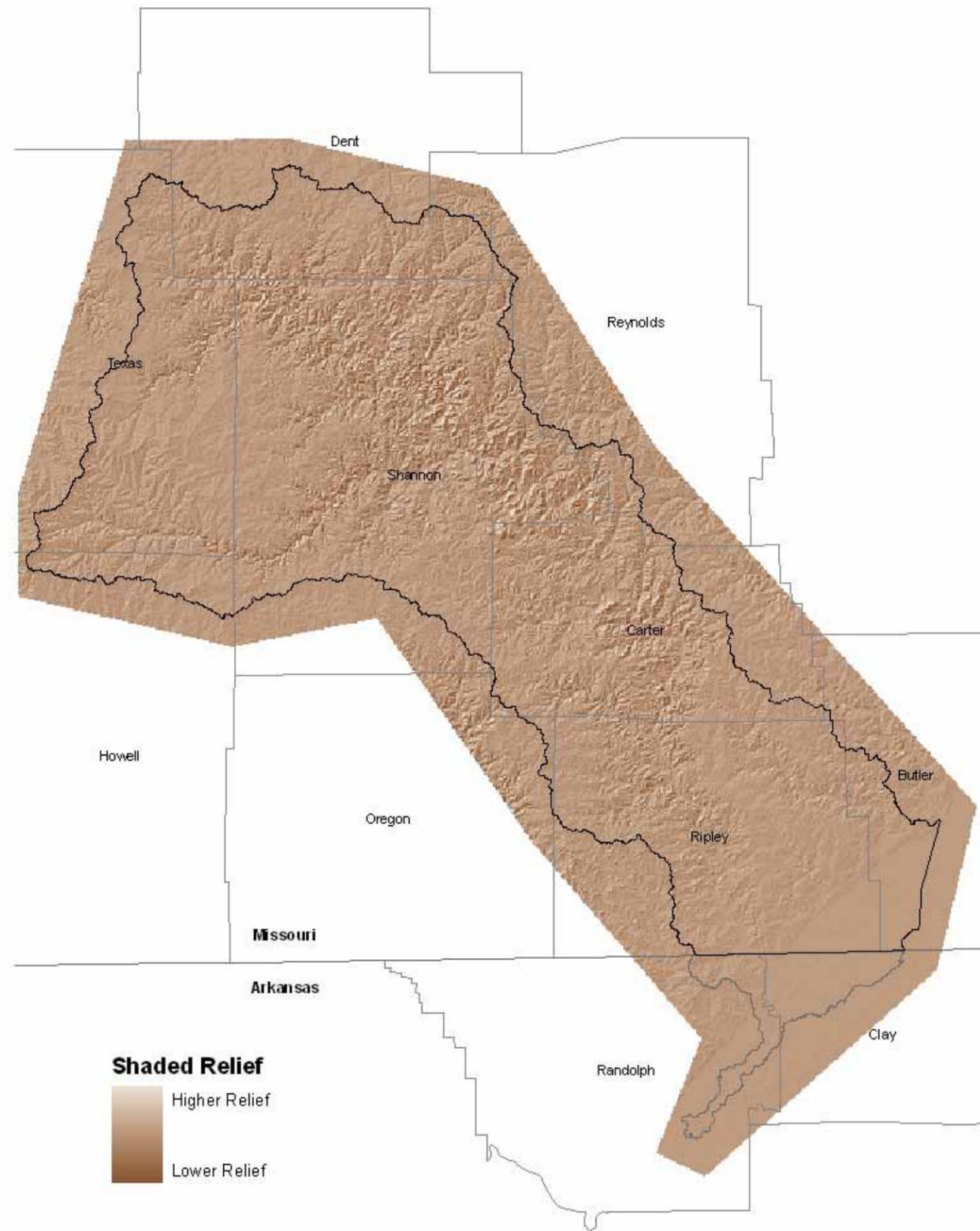
The Black River Ozark Border CRA consists of moderately dissected hills with local relief up to 300 feet, and local flatwoods of less relief. Soils on steeper slopes are deep, cherty silt loams, and elsewhere they have claypans formed in loess over cherty residuum. Most of the land is in oak and oak-pine forest with cleared land restricted to valley bottoms. A substantial amount of public land exists here.

131A.3 – Southern Mississippi River Meander Belts:

The Southern Mississippi River Meander Belts CRA is dominantly level to nearly level flood plains of the Mississippi River. Soils are deep, fertile, and most are well suited to crop production. Most of the area has been cleared of forest and is used mainly for growing cotton, soybeans, rice and wheat. Some areas require surface drainage for crop production. Some areas of converted wetlands are being restored.



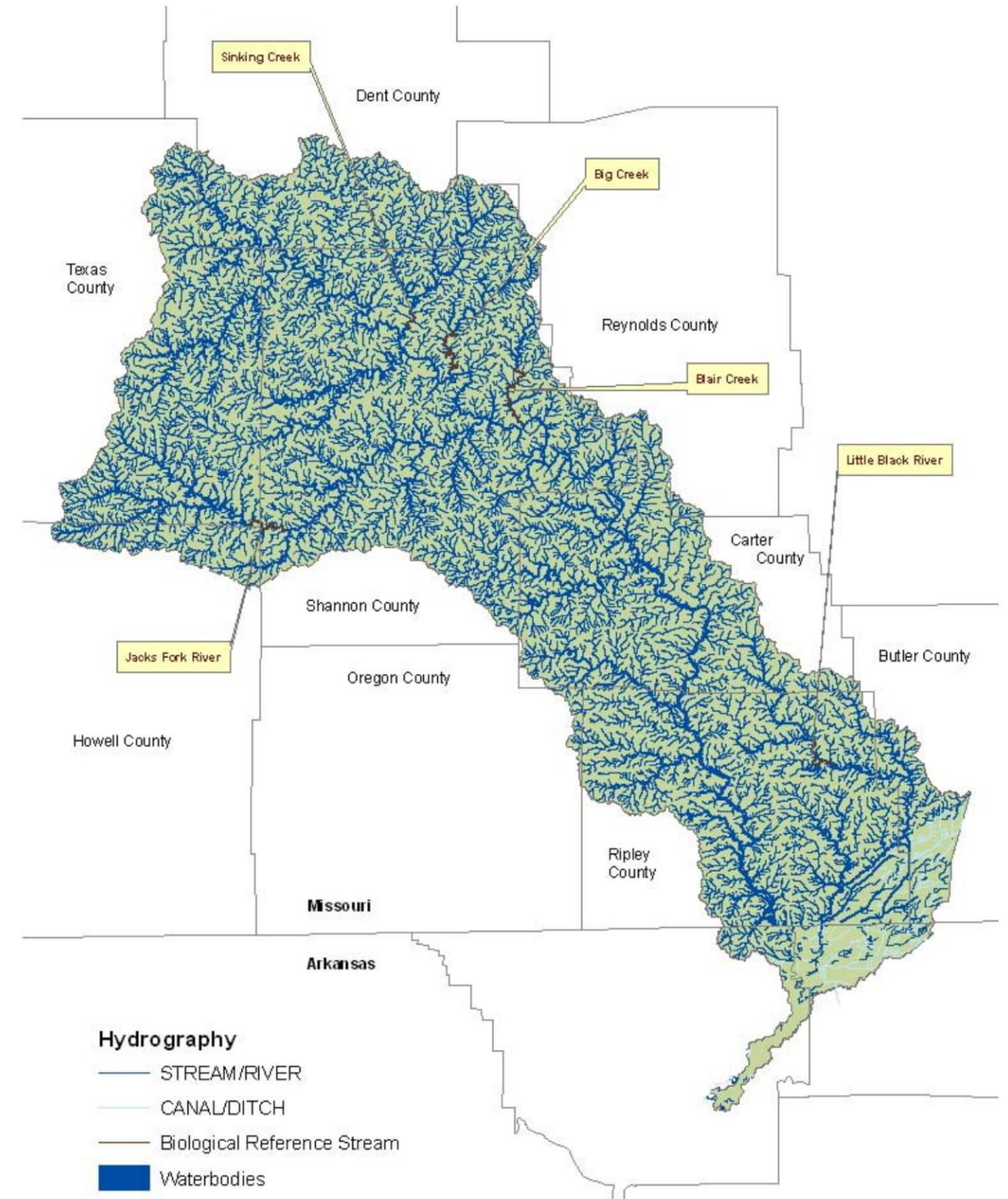
2.5 Relief Map [/27](#)



2.6 Streams

2.6.1 NHD with Biological Reference Streams [/24](#)

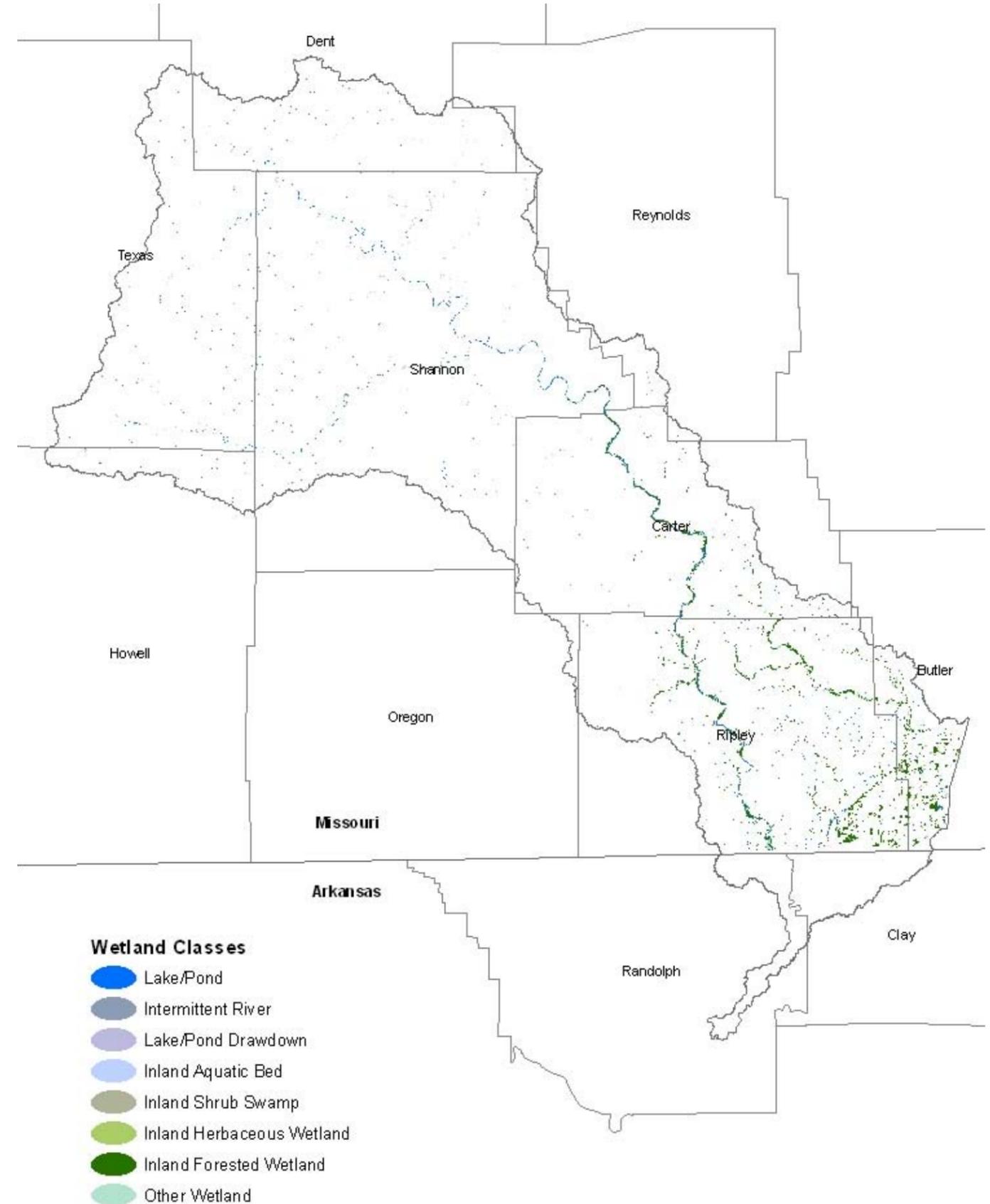
The Current River sub-basin has 6,684 miles of delineated streams. Since the tributaries that feed the Current River emanate from public and protected lands, the water quality and quantity are in relatively good condition. Certain stream reaches within this sub-basin are designated as *Biological Reference Streams* by the Missouri Department of Natural Resources. This designation indicates that these sections are of optimal quality to support aquatic life in a given area. There are five such segments designated in the Current River sub-basin.



2.7 Wetlands [/19](#)

The National Wetland Inventory delineates and records wetland information through the U.S. Fish and Wildlife Service. The largest number of wetlands in the Current River sub-basin are ponds used for agricultural purposes. The largest percentage of wetland acres is for inland forested wetlands which are found mainly on the tributaries and main stem of the Current River located in the public lands managed by the U.S. Forest Service and the National Park Service.

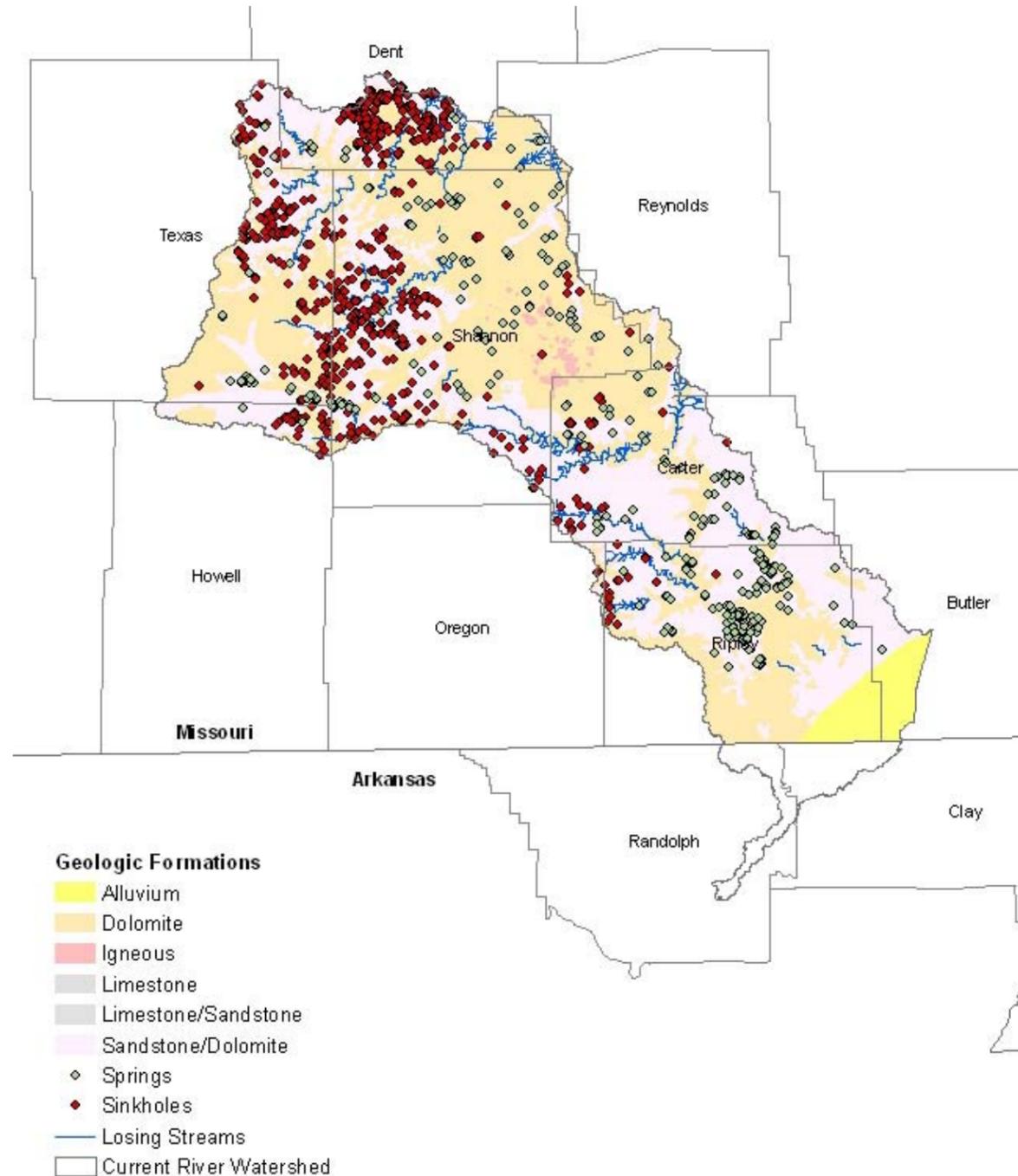
Wetland Class	Number	Acres
Lake/Pond	10,879	7,933
Intermittent River	138	229
Lake/Pond Drawdown	1,289	960
Inland Aquatic Bed	99	75
Inland Shrub Swamp	558	1,145
Inland Herbaceous Wetland	1,188	990
Inland Forested Wetlands	2,078	14,596
Other Wetlands	661	3,074
Total	16,890	29,022



2.8 Geologic and Karst features [/16](#)

The Current River sub-basin has a karst landscape indicative of caves, sinkholes, springs and losing streams. These features are found in limestone and dolomitic formations which dominate the Ozark geologic regime. Since limestone and dolomite formations are soluble, the interaction between surface and groundwater resources is great.

The Current River watershed is known for its karst landscape and has some the largest springs in Missouri including Big, Alley and Blue springs. Other associated features such as Devil's Well, a large underground lake can be found in this watershed as well. These unique karst features not only support the environmental resources but also the recreational economy in this area as well.



3.0 Resource Concerns

Resource concerns are issues related to the natural environment. Natural resources include soil, water, air, plants and humans. Missouri Natural Resources Conservation Service identified major resource issues that affect the state of Missouri.

Natural Resource	Concern 1	Concern 2	Concern3
Air	Objectionable Odors		
Animals (Domestic)	Stress & Mortality		
Plants	Threatened & Endangered Species	Noxious & Invasive Plants	Plant Damage (from wind erosion)
Soil (Quality)	Sheet & Rill Erosion to "T"		
Water (Quality)	Harmful Levels of Pathogens (livestock source)	Excessive Nutrients and Organics in Surface Water	
Water (Quantity)	Inefficient water use on irrigated lands		

3.1 Soil Quantity and Quality

3.1.1 Soils

The parent material for the soils in the Current River sub-basin predominately originates from sedimentary rocks of dolomite. The Roubidoux, Eminence, and Gasconade dolomite bedrock formations are comprised of mainly soluble calcium and magnesium carbonate material. The mechanical and chemical processes of weathering has over time produced solutional sub-terrain cavities characteristic of karst geology. Most soil profiles in the sub-basin contain less than 2 feet of wind deposited silt (loess) near soil surfaces.

The majority of the soils present are classified as either *alfisols* or *ultisols* soil orders. The soil order classification accounts for differences among soil-forming processes identified in the field, especially concerning major soil horizons within the profile. Alfisols and ultisols are characteristic of forested mineral soils with a characteristic horizon of clays or sodium that has translocated from the soil surface. Alfisols have greater base saturation and are generally more fertile than the more highly weathered ultisols.

Most of the general soil map units include soil associations of Clarksville, Doniphan, Goss, Gepp, Agnes, and Captina soil series. These soils are generally moderate or excessively drained, gentle sloping to steep, and may contain chert or fragipan layers. They are present on upland landscape positions that are frequently dissected by numerous small narrow V-shaped drainages.

3.1.2 Soil Erosion

Cropland Erosion Rates in USLE Tons/Acre/Year ¹		
CROPLAND CATEGORY	CULTIVATED CROPLAND	NON-CULTIVATED CROPLAND
HEL		
Highly Erodible Land Eroding at or below "T"	0	1.16
Highly Erodible Land Eroding above "T"	10.9	2.74
All Highly Erodible Land	10.9	2.71
NON-HEL		
Non-Highly Erodible Land Eroding at or below "T"	1.97	0.43
Non-Highly Erodible Land Eroding above "T"	5.73	0.43
All Non-Highly Erodible Land	2.43	0.43
All Land Eroding at or below "T"	1.97	0.59
All Land Eroding above "T"	6.55	5.16
All Land	2.62	1.11

CROPLAND EROSION RATES IN USLE TONS/ACRE/YEAR

USLE - This table reports estimated soil loss rates from the 1997 NRI based on the Universal Soil Loss Equation (USLE). USLE estimates average annual sheet and rill soil movement down a uniform slope using rainfall energy as the erosive force acting on the soil. Soil characteristics and slope for the fields in which the NRI sample points fall or those portions of the fields surrounding the points that would be considered in conservation planning are used in the NRI USLE calculations.

"T" FACTOR - This is the maximum rate of annual soil erosion that will still permit crop productivity to be sustained economically and indefinitely.

HEL - Highly erodible land (HEL) is land that has an erodibility index (EI) value of 8 or more. The EI index provides a numerical expression of the potential for a soil to erode, considering the physical and chemical properties of the soil and climatic conditions where it occurs. The higher the index value, the greater the investment needed to maintain the sustainability of the soil if intensively cropped.

Cropland Erosion in Relationship to "T" ¹												
CROPLAND CATEGORY	CULTIVATED CROPLAND				NON-CULTIVATED CROPLAND				ALL CROPLAND			
	Total	% of Cropland Category	% of all Cropland	% of Sub-basin	Total	% of Cropland Category	% of all Cropland	% of Sub-basin	Total	% of Cropland Category	% of all Cropland	% of Sub-basin
HEL												
Highly Erodible Cropland at or below "T"	0	0%	0%	0%	0	0%	0%	0%	0	0%	0%	0%
Highly Erodible Cropland above "T"	1,400	100%	2%	<1%	8,000	100%	9%	1%	9,400	100%	11%	
TOTALS FOR HIGHLY ERODIBLE CROPLAND	1,400	100%	2%	<1%	8,000	100%	9%	1%	9,400	100%	11%	
NON-HEL												
Non-Highly Erodible Cropland at or below "T"	53,500	88%	60%	3%	18,800	100%	21%	1%	72,300	91%	81%	
Non-Highly Erodible Cropland above "T"	7,400	12%	8%	1%	0%	0%	0%	0%	7,400	9%	8%	
TOTALS FOR NON-HIGHLY ERODIBLE CROPLAND	60,900	100%	68%	4%	18,800	100%	21%	1%	79,700	100%	89%	6%
GRAND TOTALS	62,300	100%	70%	4%	26,800	100%	30%	2%	89,100	100%	100%	6%

CROPLAND EROSION IN RELATIONSHIP TO "T"

This table reports acres and percentages of cultivated cropland, non-cultivated cropland and all cropland by HEL and "T" categories for the sub-basin.

CORN EROSION PROFILE [/1](#)

This table reports USLE rates and acres by HEL, "T" and conservation practices for corn.

Corn Erosion Profile - USLE (tons/acre/year)		
ALL CORN ACRES	All corn acres	2,200
	USLE all corn acres	3.83
	All contoured corn acres	0
	USLE all contoured corn acres	0
	All contoured and terraced corn acres	0
	USLE all contoured and terraced corn acres	0
	All contoured corn acres not terraced	0
	USLE contoured corn acres not terraced	0
	All non-contoured corn acres	2,200
	USLE all non-contoured corn acres	3.83
	All non-contoured and terraced corn acres	0
	USLE all non-contoured and terraced corn acres	0
	All non-contoured corn acres not terraced	2,200
	USLE non-contoured corn acres not terraced	3.83
HEL CORN ACRES	All HEL corn acres	0
	USLE all HEL corn acres	0
	All contoured HEL corn acres	0
	USLE all contoured HEL corn acres	0
	All contoured and terraced HEL corn acres	0
	USLE all contoured and terraced HEL corn acres	0
	All contoured HEL corn acres not terraced	0
	USLE contoured HEL corn acres not terraced	0
	All non-contoured HEL corn acres	0
	USLE non-contoured HEL corn acres	0
	All non-contoured and terraced HEL corn acres	0
	USLE non-contoured and terraced HEL corn acres	0
	All non-contoured HEL corn acres not terraced	0
	USLE non-contoured HEL corn acres not terraced	0

SOYBEAN EROSION PROFILE [/1](#)

This table reports USLE rates and acres by HEL, "T" and conservation practices for soybeans.

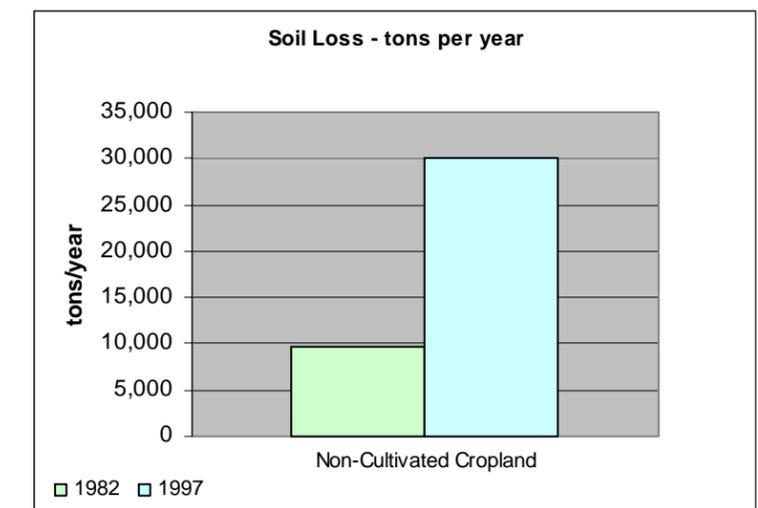
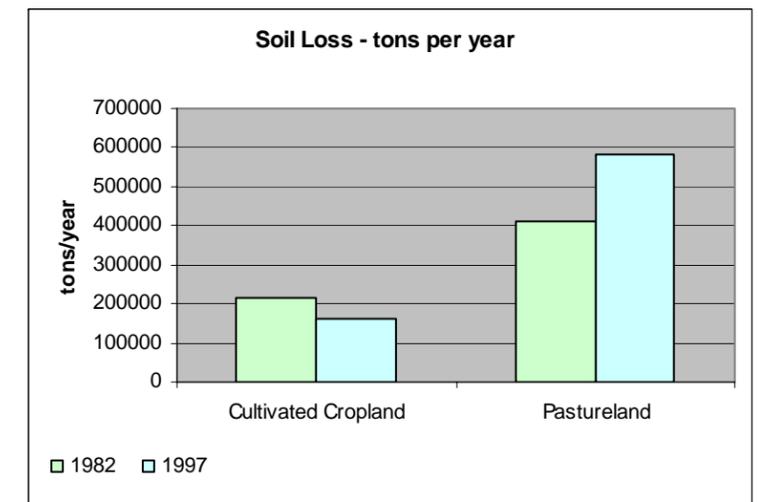
Soybean Erosion Profile - USLE (tons/acre/year)		
ALL SOYBEAN ACRES	All soybean acres	30,400
	USLE all soybean acres	3.21
	All contoured soybean acres	0
	USLE all contoured soybean acres	0
	All contoured and terraced soybean acres	0
	USLE all contoured and terraced soybean acres	0
	All contoured soybean acres not terraced	0
	USLE contoured soybean acres not terraced	0
	All non-contoured soybean acres	30,400
	USLE all non-contoured soybean acres	3.21
	All non-contoured and terraced soybean acres	0
	USLE all non-contoured and terraced soybean acres	0
	All non-contoured soybean acres not terraced	81,400
	USLE non-contoured soybean acres not terraced	3.21
HEL SOYBEAN ACRES	All HEL soybean acres	1,400
	USLE all HEL soybean acres	10.90
	All contoured HEL soybean acres	0
	USLE all contoured HEL soybean acres	0
	All contoured and terraced HEL soybean acres	0
	USLE all contoured and terraced HEL soybean acres	0
	All contoured HEL soybean acres not terraced	0
	USLE contoured HEL soybean acres not terraced	0
	All non-contoured HEL soybean acres	1,400
	USLE non-contoured HEL soybean acres	10.90
	All non-contoured and terraced HEL soybean acres	0
	USLE non-contoured and terraced HEL soybean acres	0
	All non-contoured HEL soybean acres not terraced	1,400
	USLE non-contoured HEL soybean acres not terraced	10.90

PASTURELAND EROSION [/1](#)

This table reports USLE rates and acres in relationship to "T" for pastureland.

Pastureland in Relation to "T" Pastureland Erosion Rates tons/acre/year		
	Acres of Pastureland	USLE Rate
Pastureland Eroding At or Below "T"	238,800	0.977
Pastureland Eroding Above "T"	51,500	6.77
All Pastureland	290,300	2.01

USLE SOIL LOSS RATES (tons/year) [/1](#)



3.2 Water Quality

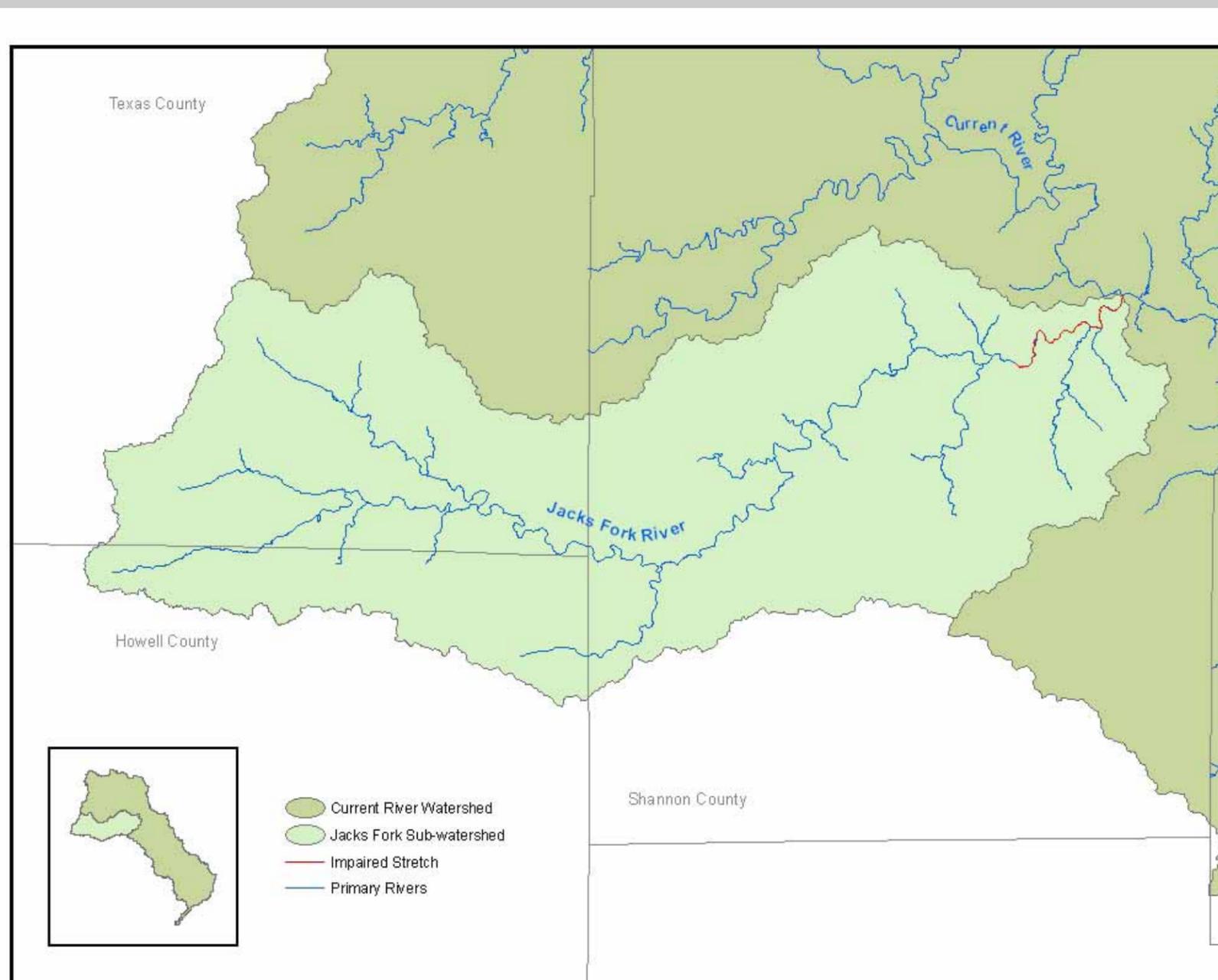
3.2.1 303(d) Listed Water Bodies [17](#)

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

Waterbody	Waterbody ID	TMDL Approved	Size	Unit	Pollutant	Source	Beneficial Use(s) *	Impaired Use(s)	Counties	Priority
Jack's Fork River	2681	2004	7	Miles	Fecal Coliform	Organic Waters	1, 2, 3, 4, 5, 10	Whole Body Contact (Swimming)	Shannon	High

* Beneficial Uses:

- 1 Livestock and Wildlife Watering
- 2 Protection of Warm Water Aquatic Life
- 3 Human Health associated with Fish Consumption
- 4 Boating and Canoeing
- 5 Whole Body Contact (swimming)
- 6 Secondary Contact Reaction
- 7 Irrigation
- 8 Drinking Water Supply
- 9 Industrial
- 10 Cool Water Fishery



3.2.2 Riparian Corridor [/24 & /25](#)

The condition of the riparian zone adjacent to streams has a critical impact on water quality. Permanent and deeply-rooted stream bank vegetation slows run-off of nutrients and pollutants, and reduces sedimentation and solar heating. NRCS riparian practice standards specify 50-foot buffers along first and second order streams and 100-feet for third order and higher streams.

The 1:24,000 National Hydrologic Dataset (NHD) stream network is the highest resolution stream representation available consistently for the State. Stream order is not an attribute of these data; therefore, the streams were all buffered by 50-feet to give the most conservative representation of riparian condition. Buffered streams were used to subset the common land unit (CLU) data, land parcel data developed and maintained by the Farm Service Agency. The land cover attribute in the CLU data was used to characterize the vegetative condition of the buffers. Cropland (which includes pasture and hayland), urban, mined and barren cover types were considered “unprotected” or “vulnerable” riparian conditions, while forestland, rangeland and water were considered “protected”.

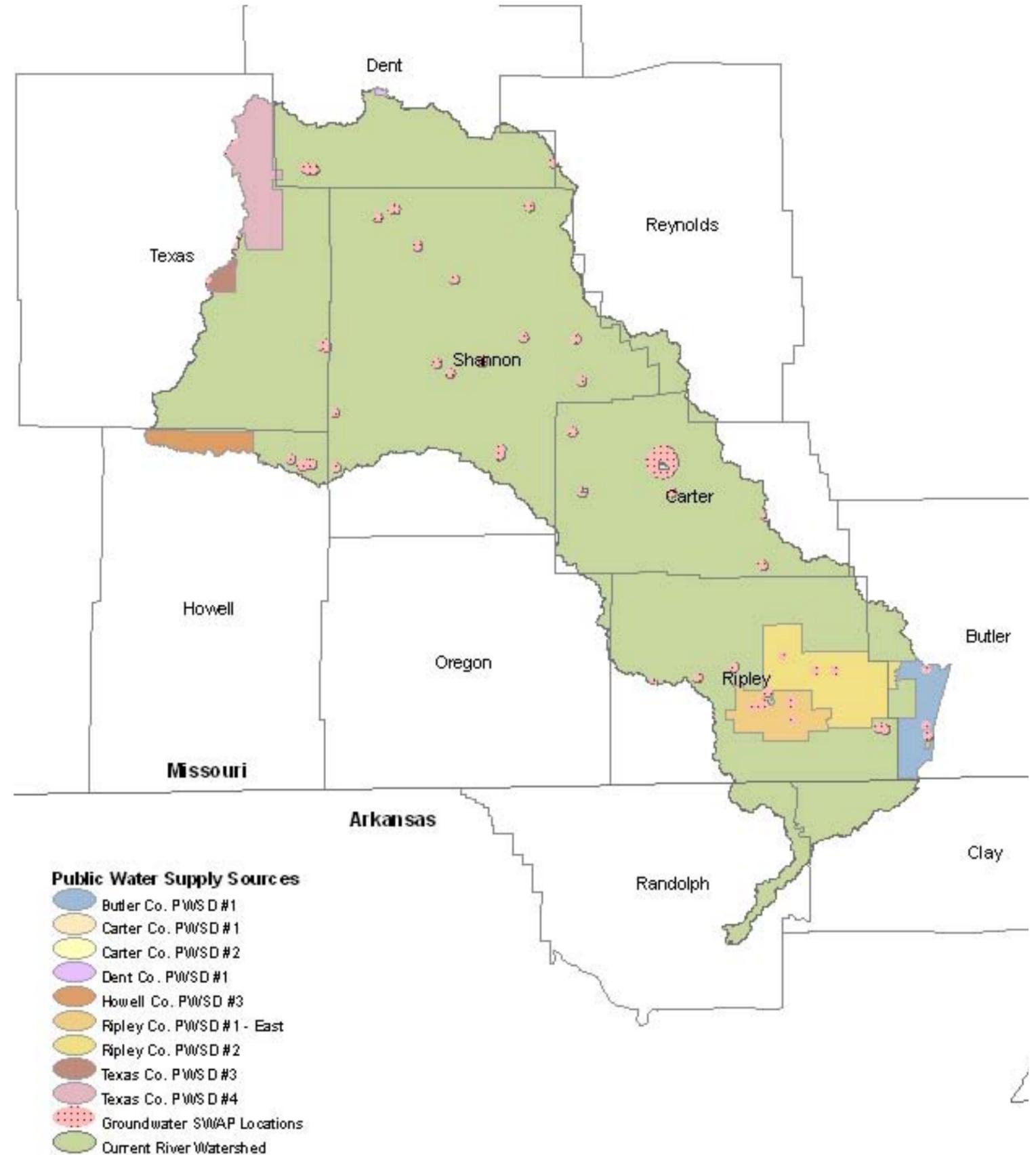


3.2.3 Drinking Water Resources [/15](#)

Drinking water resources are important factor in watershed management. In the Current River sub-basin, all drinking water sources are generated from groundwater. There are 67 public wells in the Current River sub-basin servicing various municipalities, water districts, campgrounds and federal park facilities.

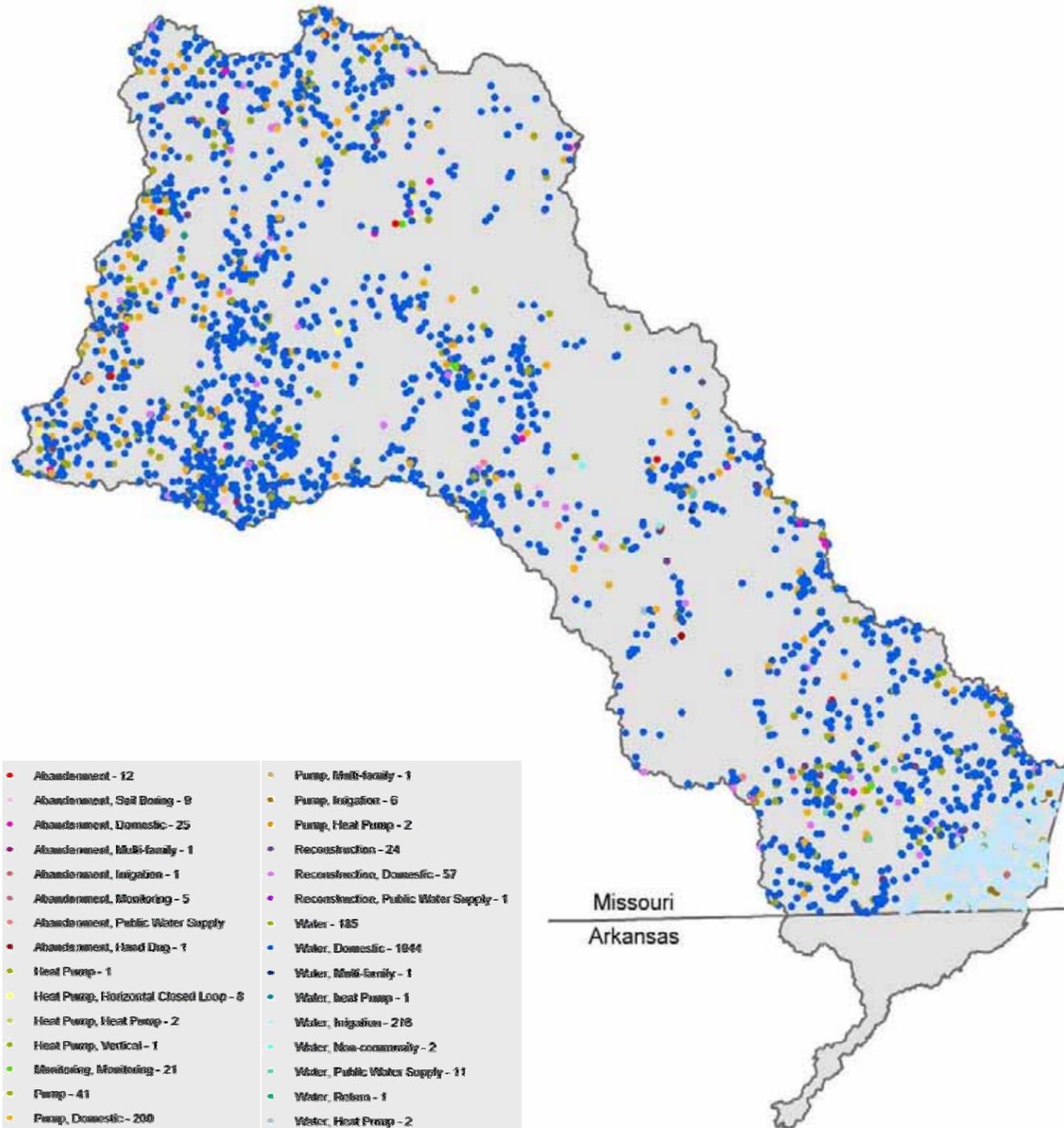
All public drinking water sources are regulated by the Missouri Department of Natural Resources Public Drinking Water Program through the federal Safe Drinking Water Act. These facilities are responsible for providing a Source Water Assessment Plan that includes an inventory of potential contamination sites located within a delineated one-mile wellhead zone. This plan also entails measures utilized to deter potential contamination problems as well as an annual consumer confidence report sent to facility consumers detailing water quality conditions.

Facility Type	Number of Wells
Municipalities	25
Public Water Districts	15
Federal Facilities*	12
Private Campgrounds	3
State Park Facilities	3
Hotels/Resorts	2
Restaurants	2
Schools	2
Private Country Club	1
Mobile Home Park	1
State Conservation Area	1
*National Forest Service and Park Service campgrounds and offices.	



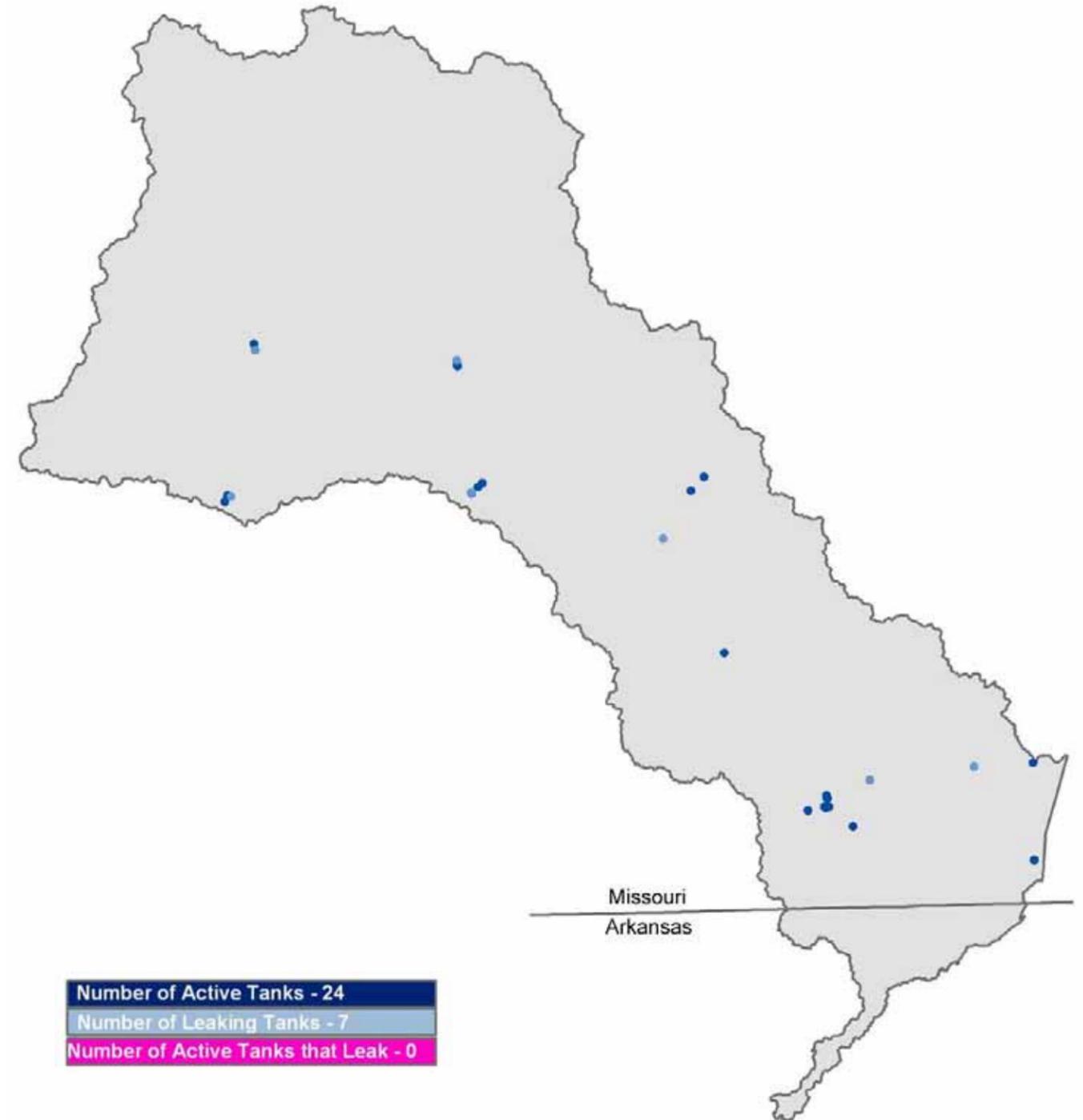
3.2.4 Wells [/12](#)

The Missouri Well Driller's Law (Section 256.600-256.640 RSMo.) established minimum construction standards and state certification requirements of wells constructed after October, 1987. The law was created to protect Missouri groundwater from contamination due to improperly constructed wells. Contaminated groundwater exposes Missourians of all ages to serious health risks that can result from water borne diseases such as typhoid fever, dysentery, cholera, hepatitis and giardiasis. The law is administered through the Department of Natural Resources.



3.2.5 Underground Tanks [/13& /14](#)

Registered active underground tanks and locations of leaking underground tanks where clean-up activities are on-going.



3.3 Threatened and Endangered Species [/18](#)



Rocky Creek in Shannon County, Missouri

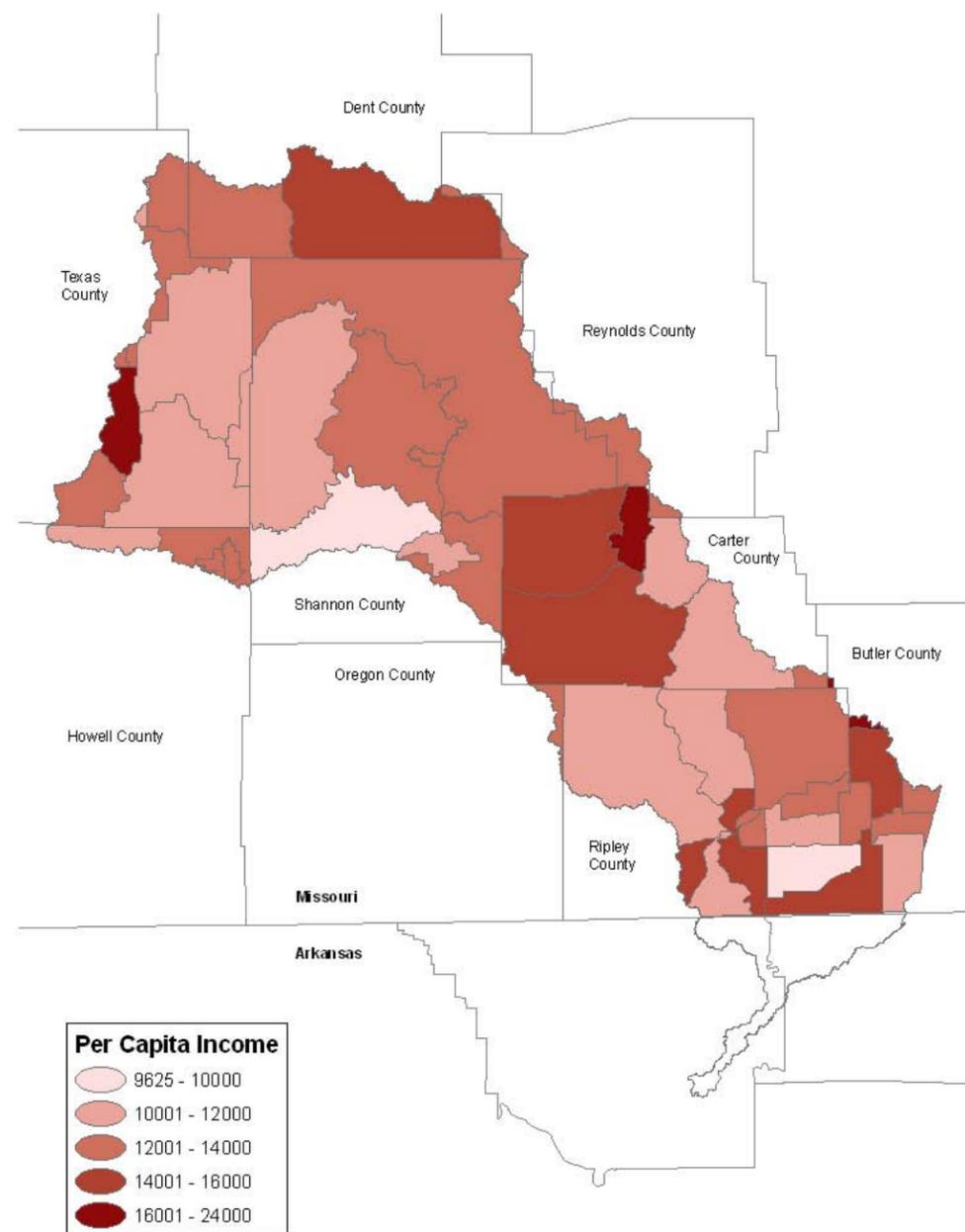
Species Common Name	Scientific Name	Threatened (T), Endangered (E), Candidate (C)	Listing: Federal (F), State (S)
Amphibians			
Hines Emerald	<i>Somatochlora hineana</i>	E/E	F/S
Ozark Hellbender	<i>Cryptobranchus alleganiensis</i>	C/E	F/S
Bats			
Gray Bat	<i>Myotis grisescens</i>	E/E	F/S
Indiana Bat	<i>Myotis sodalis</i>	E/E	F/S
Birds			
Bachman's Sparrow	<i>Aimophila aestivilas</i>	E	S
Bald Eagle	<i>Haliaeetus leuchcephalus</i>	T/E	F/S
Barn Owl	<i>Tyto alba</i>	E	S
Swainson's Warbler	<i>Limnothlypis swainsonii</i>	E	S
Fish			
Swamp Darter	<i>Etheostoma fusiforme</i>	E	S
Taillight Shiner	<i>Notropis maculatus</i>	E	S
Mammals			
Plains Spotted Skunk	<i>Spilogale putorius interrupta</i>	E	S
Mollusks			
Curtis Pearlymussel	<i>Epilblasma florentina curtisii</i>	E/E	F/S
Ebonysshell	<i>Fusconaia ebena</i>	E	S
Elephantear	<i>Elliptio crassidens</i>	E	S
Pink Mucket	<i>Lampsilis abrupta</i>	E/E	F/S
Snuffbox	<i>Epioblasma triquerta</i>	E	S
Plants			
Pondberry	<i>Lindera melissifolium</i>	E/E	F/S
Virginia Sneezeweed	<i>Helenium virginicum</i>	T/E	F/S
Reptiles			
Western Chicken Turtle	<i>Deirochelys reticularia miaria</i>	E	S

4.0 Census and Social Data

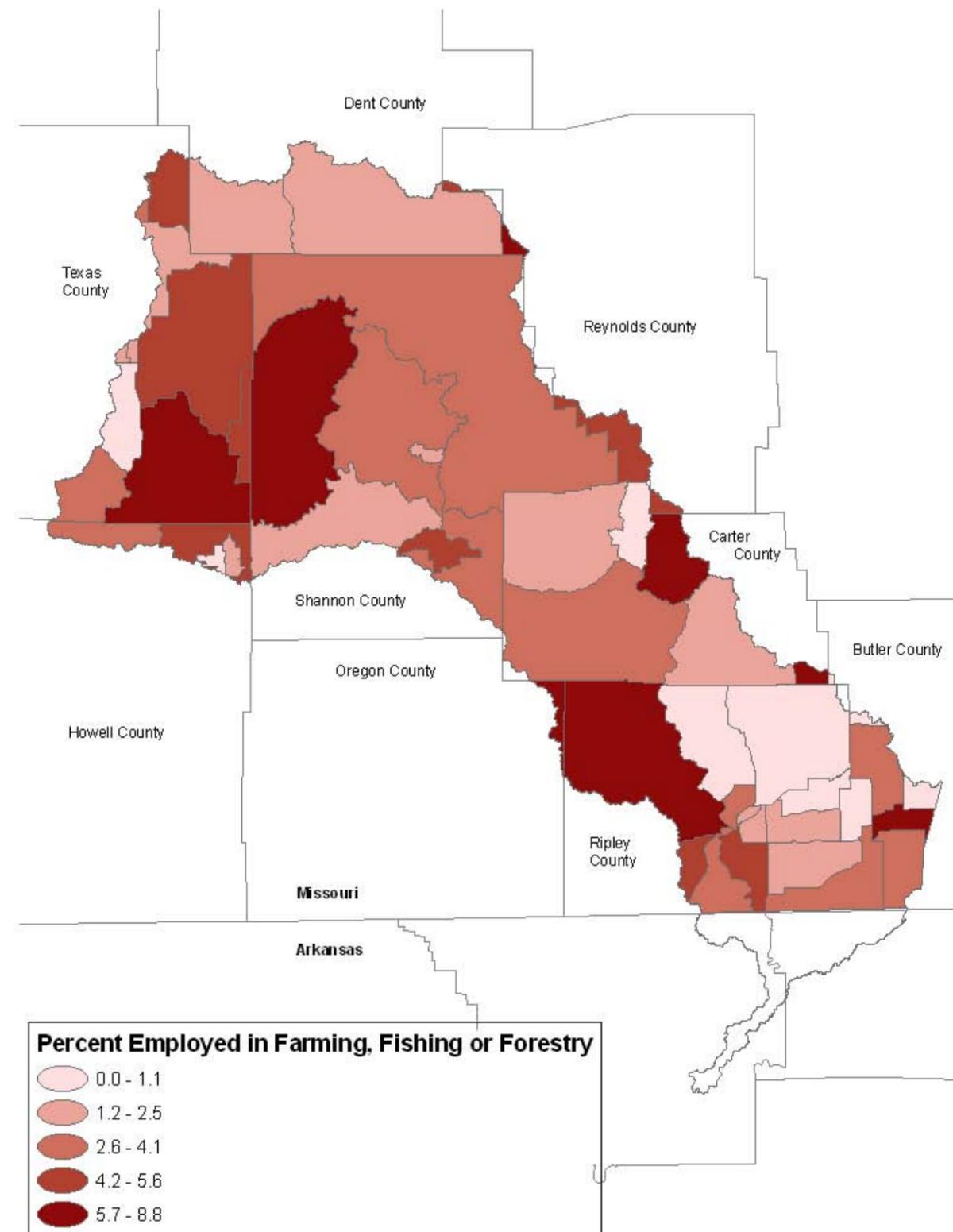
4.1 Census Bureau [/20](#)

Block group-level GIS data files from the 2000 Census, including Summary Form 3 (SF3) attributes, were used to illustrate population, population change, income and the agricultural cohort for the sub-basin. County block group spatial files were merged and clipped by the watershed boundary. The per cent of the block group falling in the sub-basin was calculated, and population figures were prorated by this value. Although this technique erroneously assumes even distribution of the population within block groups, it is a more accurate population count for the sub-basin than including the entire block group population.

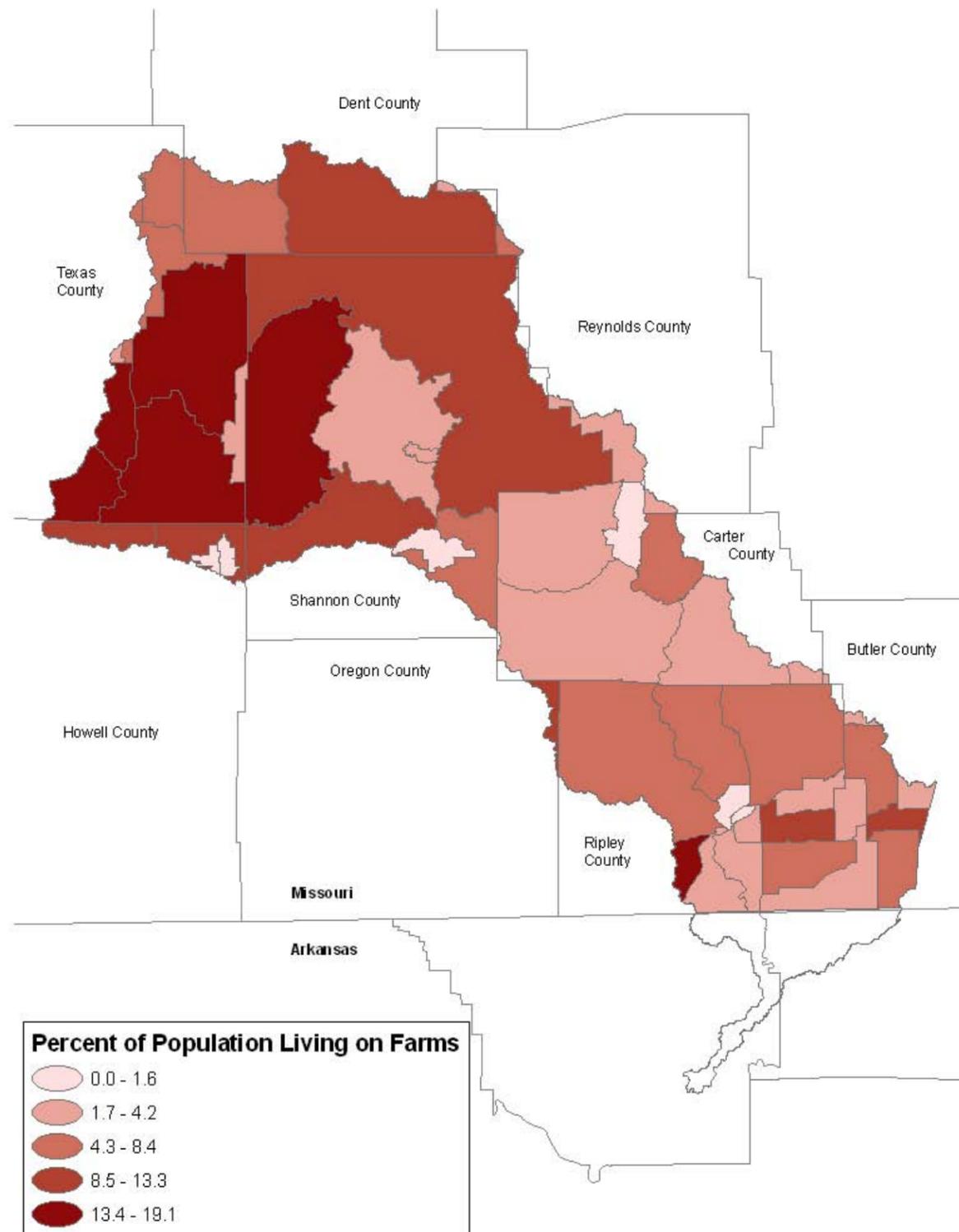
4.1.1 Income



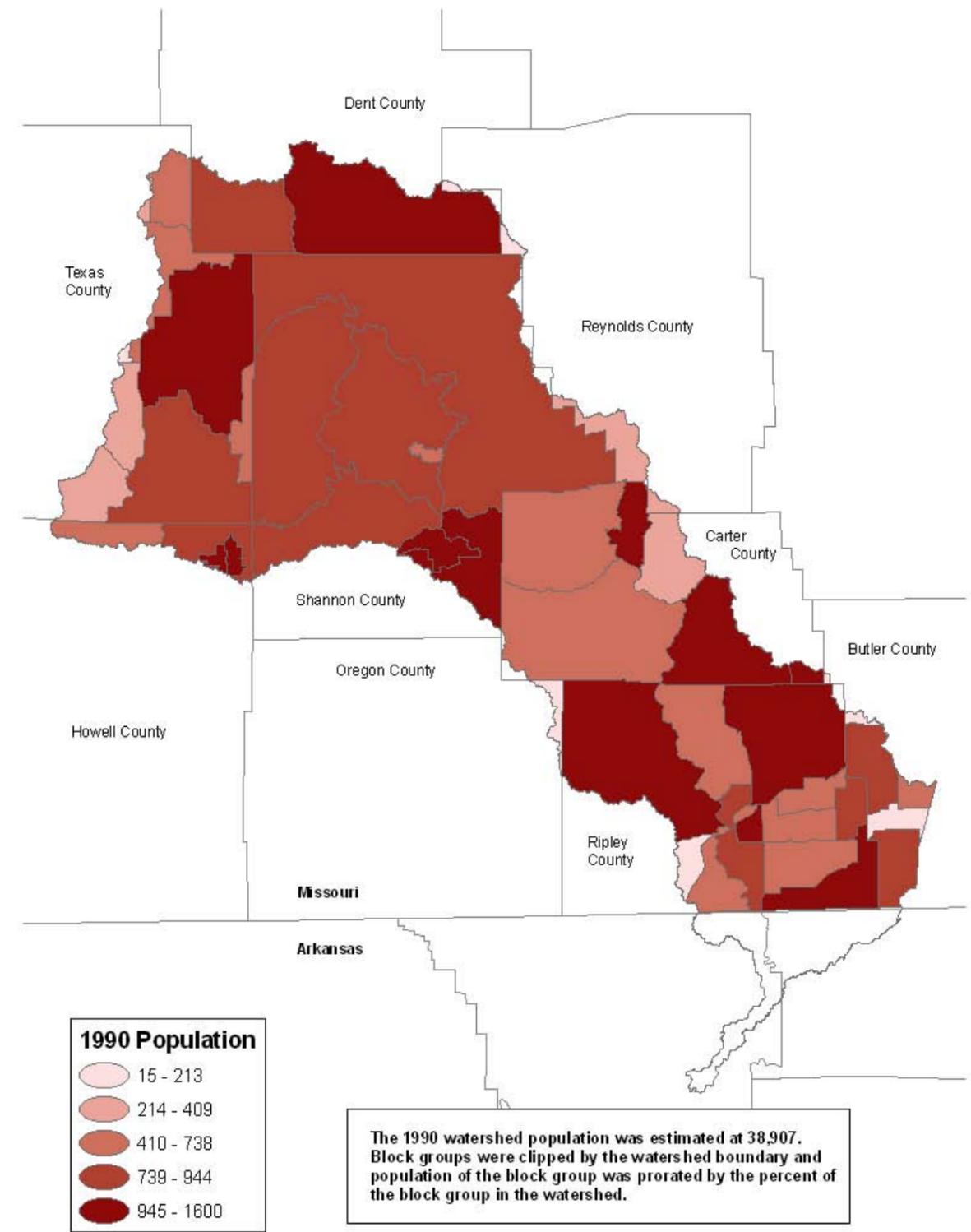
4.1.2 Employment in Agriculture, Forestry and Fishing



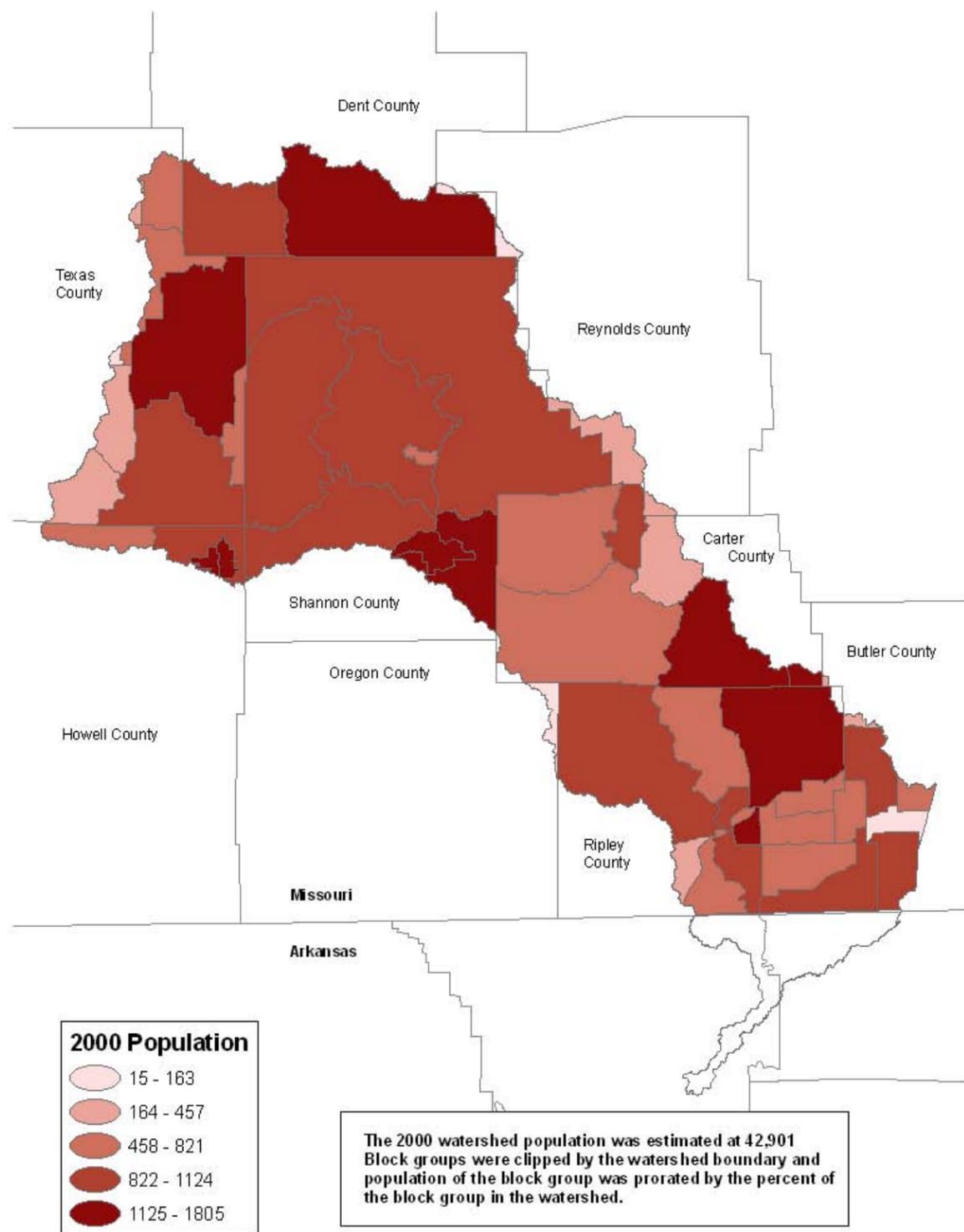
4.1.3 Farms



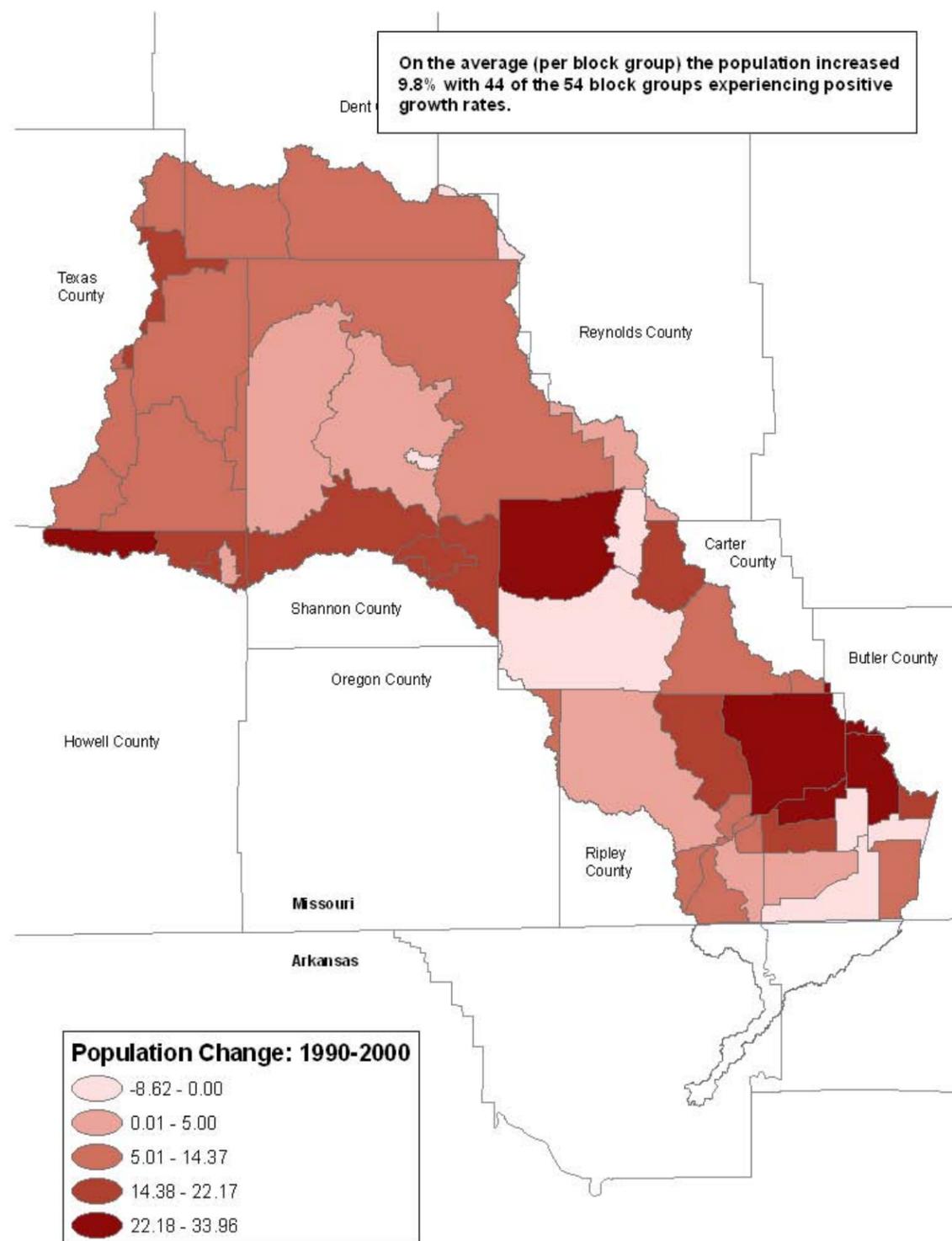
4.1.4 1990 Population



4.1.5 2000 Population



4.1.6 Change in Population



4.2 Agricultural Census

4.2.1 County Statistics [/4](#)

COUNTY SUMMARY HIGHLIGHTS, 2002								
Item		Missouri	Butler	Carter	Dent	Ripley	Shannon	Texas
Farms	number	106,797	673	228	693	478	516	1,600
Land in farms	acres	29,946,035	247,820	92,560	210,108	140,171	135,312	472,163
Cattle	number	4,460,495	7,769	11,147	34,768	18,160	20,892	93,274
Sheep	number	76,015	(D)	-	401	(D)	332	488
Horses & Ponies	number	141,362	872	332	1,015	730	1,060	2,906
Goats	number	48,654	288	163	1,021	346	1,994	2,223
Cropland used only for pasture or grazing	acres	4,178,574	10,152	11,348	48,980	24,725	35,239	91,060
Woodland pastured	acres	2,281,064	7,612	15,880	30,658	24,187	27,571	65,203
Permanent Pastureland and rangeland	acres	4,854,438	10,357	15,533	51,727	26,497	19,172	137,334
Pastureland, all types	acres	11,314,076	28,121	42,761	131,365	75,409	81,982	293,597
Percent Pastureland to All Land in Farms	percent	37.8	11.3	46.2	62.5	53.8	60.6	62.2
Sum of All Grazing Livestock	number	4,726,526	8,929	11,642	37,205	19,236	24,278	98,891
Acres of Pastureland per Animal	number	2.4	3.1	3.7	3.5	3.9	3.4	3

4.2.2 General Statistics

- 341 Operators with farming as primary occupation
- Majority of farms size: 50-179 acres
- Nearly 26,000 cattle and calves
- Only 442 hogs and pigs
- 13,500 acres of corn harvested for grain
- Only 256 acres of wheat harvested for grain
- 24,700 acres of forage
- 625 acres of rice

4.2.3 Forestry Statistics ¹⁶

AREA OF FOREST LAND BY FOREST TYPE AND STAND SIZE CLASS																		
Land Class	Total Forest type	Shortleaf pine	Eastern Red Cedar	Eastern Red Cedar hardwood	Shortleaf Pine Oak	Post Oak Blackjack Oak	White Oak Red Oak Hickory	White Oak	Northern Red Oak	Sassafras Persimmon	Sweetgum Yellow-Poplar	Scarlet Oak	Chestnut Oak Black Oak Scarlet oak	Red maple Oak	Mixed upland hardwoods	River birch Sycamore	Sugarberry Hackberry Elm Green Ash	Sugar maple Beech Yellow Birch
Large diameter	503,793.8	20,246.3	-	-	67,256.5	15,502.2	251,032.0	64,577.4	5,392.6	-	-	22,879.7	35,536.4	-	10,008.1	2,911.2	4,378.5	4,072.8
Medium diameter	415,774.6	17,457.1	3,200.1	4,612.9	42,959.2	12,838.6	193,769.9	82,074.8	-	4,072.8	-	10,188.3	30,021.8	-	3,821.6	3,054.6	-	7,703.0
Small diameter	102,899.5	1,523.0	-	5,362.9	4,072.8	8,442.7	63,586.8	-	-	910.6	2,650.3	-	7,402.9	761.5	3,807.5	-	-	-
Chaparral	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonstocked	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not collected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-basin Total	1,022,467.9	39,226.4	3,200.1	9,975.8	114,288.5	36,783.5	508,388.8	146,652.2	5,392.6	4,983.3	2,650.3	33,068.0	72,961.0	761.5	17,637.2	5,965.8	4,378.5	11,775.8

NET VOLUME OF SAWTIMBER TREES BY SPECIES GROUP AND DIAMETER CLASS (BOARD FEET)															
Tree Species	Total Current diameter	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	not measured	
Other Yellow Pines	259,274.3	-	-	-	-	259,274.3	-	-	-	-	-	-	-	-	
Other Eastern Softwoods	225,947.1	-	-	-	-	225,947.1	-	-	-	-	-	-	-	-	
Select White Oaks	19,921,206.9	-	-	-	-	-	1,483,601.9	2,269,474.3	1,143,794.6	-	-	8,197,248.6	6,827,087.5	-	
Other Red Oaks	9,033,076.4	-	-	-	-	-	844,680.2	735,796.8	980,827.8	-	-	-	6,471,771.7	-	
Hickory	9,573,555.3	-	-	-	-	-	-	2,167,124.7	2,067,765.8	-	2,303,732.6	3,034,932.2	-	-	
Soft Maple	2,706,833.3	-	-	-	-	-	952,255.9	664,515.5	1,090,061.9	-	-	-	-	-	
Ash	4,446,715.9	-	-	-	-	-	367,035.8	1,875,483.0	-	-	2,204,197.1	-	-	-	
Cottonwood and Aspen	9,905,873.1	-	-	-	-	-	-	-	-	1,816,486.2	-	-	8,089,386.9	-	
Basswood	1,029,779.3	-	-	-	-	-	-	-	1,029,779.3	-	-	-	-	-	
Black Walnut	14,762,780.1	-	-	-	-	-	2,293,047.5	3,765,284.3	1,882,823.2	1,226,830.2	1,786,564.1	3,808,230.7	-	-	
Other Eastern Soft Hardwoods	28,230,020.7	-	-	-	-	-	4,309,308.9	6,106,747.1	3,065,237.5	2,806,111.4	2,126,681.1	9,815,934.7	-	-	
Other Eastern Hard Hardwoods	5,977,257.7	-	-	-	-	-	2,881,594.8	1,145,685.4	-	-	1,949,977.5	-	-	-	
Sub-basin Total	113,382,929.4	-	-	-	-	485,221.4	13,131,525.0	19,413,307.1	14,392,326.6	7,385,408.7	12,330,548.1	24,856,346.3	21,388,246.1	-	

AREA OF FOREST LAND BY OWNERSHIP											
Land Class	Total Ownership class	National Forest	National Park Service	Bureau of Land Mgmt	Fish and Wildlife Service	Dept of Defense	Other federal	State	County and Municipal	Other local government	Private
Sub-basin Total	1,022,467.9	226,097.6	14,999.5	0	0	0	0	178,828	4,072.8	0	598,470

4.2.3 Forestry—continued ^{/6}

General Statistics				
Land Class		Total Tree species	Softwoods	Hardwoods
Net Volume of Growing-Stock	Cubic Feet	1,211,938,577	213,048,380.8	998,890,196
Net Volume of Live Trees	Cubic Feet	1,293,904,878	214,227,258.9	1,079,677,619
Average Net Annual Growth of Growing-Stock Trees	Cubic Feet	42,470,201.1	9,673,939.6	32,796,261.6
Average Net Annual Growth of Sawtimber	Board Feet	178,324,706.3	44,958,186.7	133,366,519.6
Average Annual Mortality Rate of Growing-Stock	Cubic Feet	9,498,003.9	356,542.9	9,141,461
Average Annual Mortality Rate of Sawtimber	Board Feet	20,395,808.3	0	20,395,808.3
Average Annual Removals of Growing-Stock	Cubic Feet	4,686,785.2	1,509,497.8	3,177,287.4
Average Annual Removals of Sawtimber	Board Feet	13,064,739.3	2,062,860.8	11,001,878.5

Area of Forest Land by Site Productivity Class								
Land Class	Total Site productivity class	225+	165-224	120-164	85-119	50-84	20-49	0-19
Sub-basin Total	1,022,467.9	0	3,046	49,039.9	362,872.4	511,515.1	95,994.4	0

Area of Forest Land by Stocking Class						
Land Class	Total Growing-stock stocking	Overstocked	Fully stocked	Medium stocked	Poorly stocked	Non-stocked
Sub-basin Total	1,022,467.9	34,977	398,304.9	504,782.5	84,403.5	0

4.3 Resource Producer Factor ^{/5}

Missouri's average county has a limited resource producer factor of 13, with a low of 2 for St. Louis County to a high of 45 for Greene county.

Factor = number of farms in the county multiplied by the percentage of the county's population below the poverty level and then divided by 1,000.

County	Limited Resource Producer Factor
Adair	20
Andrew	7
Atchison	5
Audrain	16
Barry	28
Barton	12
Bates	19
Benton	13
Bollinger	13
Boone	20
Buchanan	10
Butler	13
Caldwell	11
Callaway	13
Camden	7
Cape Girardeau	13
Carroll	15
Carter	6
Cass	9
Cedar	17
Chariton	13
Christian	12
Clark	10
Clay	4
Clinton	8
Cole	10
Cooper	10
Crawford	12
Dade	12
Dallas	22
Daviess	16
DeKalb	9
Dent	12
Douglas	20
Dunklin	11
Franklin	13
Gasconade	8
Gentry	10

County	Limited Resource Producer Factor
Greene	45
Grundy	12
Harrison	15
Henry	14
Hickory	11
Holt	6
Howard	9
Howell	33
Iron	6
Jackson	10
Jasper	20
Jefferson	5
Johnson	27
Knox	12
Laclede	20
Lafayette	11
Lawrence	30
Lewis	13
Lincoln	9
Linn	14
Livingston	11
McDonald	23
Macon	17
Madison	8
Maries	12
Marion	9
Mercer	8
Miller	16
Mississippi	6
Moniteau	11
Monroe	11
Montgomery	9
Morgan	15
New Madrid	8
Newton	20
Nodaway	23
Oregon	19
Osage	10

County	Limited Resource Producer Factor
Ozark	18
Pemiscot	8
Perry	8
Pettis	16
Phelps	14
Pike	16
Platte	4
Polk	29
Pulaski	6
Putnam	12
Ralls	6
Randolph	12
Ray	8
Reynolds	8
Ripley	11
St. Charles	3
St. Clair	15
Ste. Genevieve	6
St. Francois	11
St. Louis	2
Saline	12
Schuyler	8
Scotland	11
Scott	8
Shannon	14
Shelby	11
Stoddard	16
Stone	8
Sullivan	14
Taney	6
Texas	34
Vernon	21
Warren	6
Washington	12
Wayne	10
Webster	29
Worth	5
Wright	29

Counties in Orange fall within the Current River Sub-basin

5.0 Status of Resources

5.1 Performance Results System (PRS) [/11](#)

The Performance Results System (PRS) is a web-based measurement and accountability system utilized by the USDA-Natural Resources Conservation Service since 1998 to formalize annual performance measures on the landscape from field personnel and to enhance conservation data quality and accountability.

PRS Data	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Avg/Year
Total Acres of Conservation Systems Planned	6,110	18,746	7,146	10,952	7,072	Not reported by HU	17,816	11,986	11,957
Total Acres of Conservation Systems Applied	1,544	12,566	5,954	7,170	6,478	Not reported by HU	7,435	10,967	8,013

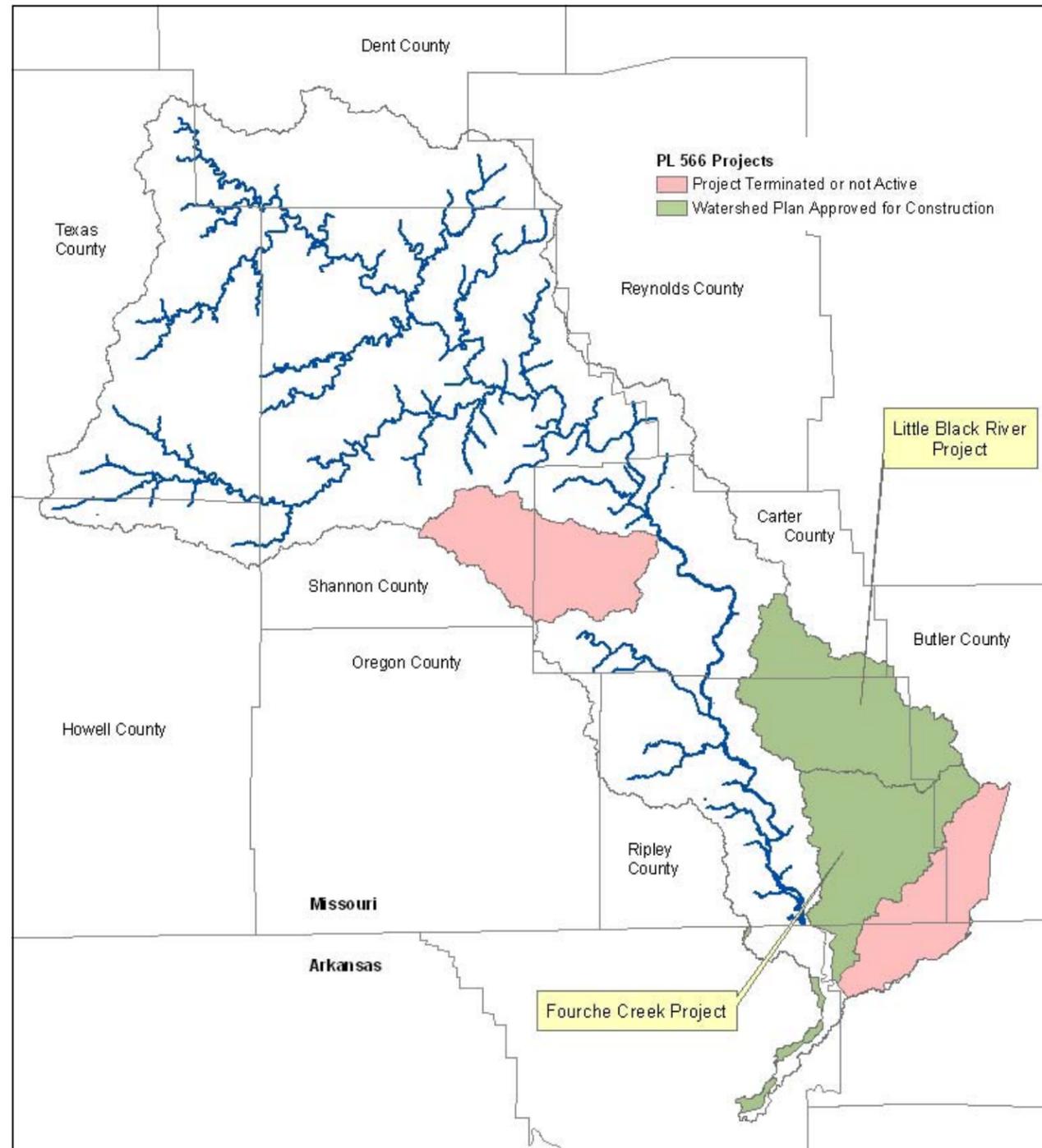
	Fiscal Year 2004		Fiscal Year 2005		Fiscal Year 2006	
Summary Conservation Practices	Planned	Applied	Planned	Applied	Planned	Applied
Comprehensive Nutrient Management Plan (100) (no)			1		1	1
Conservation Cover (327) (ac)	271	192	292	36	641	793
Conservation Crop Rotation (328) (ac)	1,393	498	5,744	1,186	1,906	2,112
Cover Crop (340) (ac)					5	
Critical Area Planting (342) (ac)	39	24	33	1	7	
Diversion (362) (ft)		333				
Early Successional Habitat Development/Management (647) (ac)	108		251		31	149
Fence (382) (ft)	247,892	68,211	323,583	35,537	153,705	26,259
Filter Strip (393) (ac)	3		6	1	5	
Forage Harvest Management (511) (ac)	304	259	386	97	65	27
Forest Site Preparation (490) (ac)			22			
Forest Stand Improvement (666) (ac)	451	36	920		222	186
Forest Trails and Landings (655) (ac)	2		16	1	11	1
Grade Stabilization Structure (410) (no)	18	8	60	12	27	24
Heavy Use Area Protection (561) (ac)	1	0	1		0	
Irrigation Land Leveling (464) (ac)	40		1,644	63	119	586
Irrigation System, Surface and Subsurface (443) (no)	1		1,299	1	161	314
Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic (430DD) (ft)			4,881		90	
Irrigation Water Management (449) (ac)	418	75	4,491	662	1,253	1,559
Land Smoothing (466) (ac)			3			
Mulching (484) (ac)	2	6	8	5	1	
Nutrient Management (590) (ac)	119		1,719		265	
Pasture and Hay Planting (512) (ac)	2,820	605	2,842	396	2,088	1,157
Pest Management (595) (ac)	119		830		423	
Pipeline (516) (ft)	49,028	6,731	68,465	4,160	21,257	11,729

	Fiscal Year 2004		Fiscal Year 2005		Fiscal Year 2006	
Summary Conservation Practices	Planned	Applied	Planned	Applied	Planned	Applied
Pond (378) (no)	26	20	13	4	22	5
Precision Land Forming (462) (ac)			34	34		
Prescribed Burning (338) (ac)	102	12	103	30	153	56
Prescribed Grazing (528) (ac)			111	118	5,310	2,040
Prescribed Grazing (528A) (ac)	7,182	1,924	6,377	2,742	318	871
Residue Management, Mulch Till (329B) (ac)			23			
Residue Management, No-Till/Strip Till (329A) (ac)			33			
Residue Management, Seasonal (344) (ac)	1,393	460	5,317	608	1,854	2,067
Restoration and Management of Declining Habitats (643) (ac)	52		171	6		
Restoration and Management of Natural Ecosystems (766) (ac)					13	32
Riparian Forest Buffer (391) (ac)	50	51	133	189	3	59
Shallow Water Management for Wildlife (646) (ac)			219			14
Spring Development (574) (no)	2		5	1		
Structure for Water Control (587) (no)			1		1	
TA Check-Out (913) (no)			3	3		
TA Design (911) (no)			3	3		
Tree/Shrub Establishment (612) (ac)	49	47	25		54	4
Tree/Shrub Site Preparation (490) (ac)					5	2
Upland Wildlife Habitat Management (645) (ac)	6,140	2,997	8,909	1,062	5,633	2,232
Use Exclusion (472) (ac)	3,678	1,051	3,016	1,140	786	1,466
Waste Storage Facility (313) (no)			1			1
Waste Utilization (633) (ac)			84			
Water Well (642) (no)	7		8	2	3	1
Watering Facility (614) (no)	101	29	104	14	58	12
Well Decommissioning (351) (no)	4		1	2	1	
Wetland Creation (658) (ac)	11	11				
Wetland Enhancement (659) (ac)	11	11				
Wetland Restoration (657) (ac)					54	
Wetland Wildlife Habitat Management (644) (ac)	22	11			54	
Wildlife Watering Facility (648) (no)	18		12	4	26	5
Windbreak/Shelterbelt Establishment (380) (ft)					5,171	2,612

5.2 Watershed Projects

PL-566 [/26](#)

The PL-566 program is an initiative that authorizes the NRCS to cooperate with states and local agencies to carry out works of improvement for soil conservation and other purposes including flood prevention, conservation, development, utilization and disposal of water. The NRCS also assists public sponsors to develop watershed plans to mitigate flood damages; conservation, development, utilization and disposal of water; and conservation and proper utilization of land. The focus of these plans is to identify solutions that use conservation practices, including nonstructural measures, to solve problems. In the Current River sub-basin, there is an active project in the McKenzie Creek watershed near Piedmont.



The Missouri Department of Natural Resources administers two watershed protection programs that local communities can apply for in order to address water quality concerns:

SALT [/21](#)

The Special Area Land Treatment (SALT) program addresses agricultural non-point sources such as sedimentation, nutrients, animal waste management, irrigation, pesticide and grazing issues. *No SALT programs have been or are currently being implemented in the Current River sub-basin.*

319 [/22](#)

NPS source grant funds are provided from the U.S. Environmental Protection Agency (EPA) through Section 319 of the Clean Water Act. Funds are used to address NPS pollution and are administered from the EPA through the Missouri Department of Natural Resources to eligible sponsors. Funds can be used to address NPS pollution through information/education, conserve, restore, or improve water quality. Eligible sponsors include state and local agencies, educational institutions, and nonprofit organizations with 501(c)(3) status. The overall goal of the grant program is to provide citizens with the knowledge and ability to improve their common land-use practices and to protect water quality. Selection for 319 funding emphasizes projects that restore the quality of waters on the state's 303(d) list of impaired waters due to NPS pollution. However, other high quality NPS projects are encouraged. Three types of 319 grants are offered: 1) Major sub-grants, 2) Watershed planning grants and 3) Mini-grants. The Current River sub-basin has only one 319 grant currently being implemented. The Bryant Creek Watershed Project is implementing an educational project called *Our Watersheds, Our Homes: Building on the Watershed Atlas Concept*. This is a web-based atlas created to familiarize residents of the Jack's Fork River with watershed issues.

5.3 Farm Bill Program Lands

Conservation Reserve Program (CRP) [/23](#)

The Conservation Reserve Program (CRP) provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. CRP is administered by the Farm Service Agency, with NRCS providing technical land eligibility determinations, conservation planning and practice implementation.

The Conservation Reserve Program reduces soil erosion, protects the Nation's ability to produce food and fiber, reduces sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices. In the Current River watershed, 1,876 acres of highly erodible cropland have been converted over to vegetative cover, namely in grassland and irrigated lowland areas in Butler and Ripley County.

Land In CRP						
County	Butler	Carter	Dent	Ripley	Shannon	Texas
Acres	269	67	59	1,363	29	89

5.4 Missouri Department of Conservation 2003 Management Goals

The management goals, for the Current River sub-basin were developed using information collected from the Current River Watershed Inventory and Assessment (WIA) and direction provided by the Ozark Regional Management Guidelines, Missouri Department of Conservation (MDC) Strategic Plan, and the Fisheries Division Five Year Strategic Plan. All goals are of equal importance, with objectives listed in prioritized order whenever possible. Refer to <http://mdc.mo.gov/fish/watershed/current/contents/> for specific objectives and strategies.

GOAL I

Protect and Improve Riparian and Aquatic Habitat in the Current River Watershed.

Objective 1.1

With the assistance of willing landowners, over a 25-year period, increase by 25% the proportion of streams with a sufficient forested corridor as defined in *NRCS Standard 391 for Riparian Forest Buffer*.

Objective 1.2

Limit the negative impacts of sand and gravel removal within the watershed.

GOAL II

Protect Surface and Ground Water Quality in the Current River Watershed.

Objective 1.1

Ensure that watershed streams meet or exceed state standards for water quality.

GOAL III

Maintain the Abundance, Diversity and Distribution of Aquatic Biota At or Above Current Levels While Improving the Quality of the Game Fishery in the Current River Watershed.

Objective 1.1

Maintain the diversity, abundance, and distribution of native non-sport fish, and aquatic invertebrate communities at or above current levels.

Objective 1.2

Maintain or improve populations of sport fish while maintaining a stable and diverse fish community.

Objective 1.3

Prevent detrimental impacts on native fauna of the Current River Watershed from invasive exotic aquatic species.

GOAL IV

Increase Public Awareness and Promote Wise Use of Aquatic Resources in the Current River Watershed.

Objective 4.1

Ensure that up to date aquatic oriented recreational data is available to properly manage aquatic resources and their use.

Objective 4.2

Increase awareness of stream recreational opportunities and appreciation of stream ecology and advocacy to a level that will encourage a widespread and diversified public interest in the Current River Watershed

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