

Appendix C – Aquatic Resources

Watersheds are numbered according to their relationship to one another. The first two digits in a watershed number refer to their region (1st level). The second two digits refer to their Subregion (2nd level), and so on. For example, a regional watershed (1st level) is divided into smaller regions and units according to drainage areas. As is shown in Table C.1 below, regions are divided into subregions, which are divided into accounting units that are divided into 5th level watersheds.

Table C. 1 5TH Level Hydrologic Units on the Ouachita National Forest

.00 Region (1st level)	Watershed Acres	Percent of Watershed Under NFS Management
0000 Sub-Region (2nd level)		
000000 Accounting unit (3rd level)		
00000000 Cataloging unit (4th level)		
0000000000 Watershed (5th level)		
08 Lower Mississippi Region		
0804 Lower Red – Ouachita		
080401 Upper Ouachita		
08040101 Ouachita Headwaters		
804010101 Irons Fork	85,841	37.90
804010102 Kates Creek	142,469	44.79
804010103 Muddy Fiddler	150,518	72.54
804010104 South Fork of the Ouachita	102,466	66.43
804010105 North Fork	110,210	71.41
804010106 Blakely	113,307	48.49
804010107 Lake Hamilton	78,481	16.10
804010108 Mazarn	60,186	48.11
804010109 Little Mazarn	87,247	1.40
08 Lower Mississippi Region		
0804 Lower Red – Ouachita		
080401 Upper Ouachita		
08040102 Upper Ouachita		
804010205 Headwaters of the Caddo	67,378	64.12
804010206 Carney Creek	76,380	14.79
804010207 South Fork of the Caddo	49,154	48.97
08 Lower Mississippi Region		
0804 Lower Red – Ouachita		
080401 Upper Ouachita		
08040103 Little Missouri		
804010301 Headwaters of the Little Mo	83,368	54.98
804010302 Greeson	68,981	2.85
08 Lower Mississippi Region		
0804 Lower Red – Ouachita		
080402 Lower Ouachita		
08040203 Upper Saline		
804020301 Alum Fork	89,915	30.03
804020302 North Fork	61,712	23.07
804020303 Middle Fork	61,943	12.17

.00 Region (1st level)			
0000 Sub-Region (2nd level)		Watershed Acres	Percent of Watershed Under NFS Management
000000 Accounting unit (3rd level)			
00000000 Cataloging unit (4th level)			
0000000000 Watershed (5th level)			
11	Arkansas-White-Red Region		
1111	Lower Arkansas		
111101	Robert S. Kerr Reservoir		
11110105	Poteau		
1111010501	Headwaters of the Poteau	109,588	36.24
1111010502	Black Fork	125,962	73.55
1111010503	Middle Poteau	93,307	41.22
1111010504	Fourche Maline	166,086	0.01
1111010505	Wister	140,837	33.44
1111010506	Riddle Creek	218,110	2.76
1111010508	James Fork	138,965	6.13
11	Arkansas-White-Red Region		
1111 --	Lower Arkansas		
111102 --	Lower Arkansas-Fourche La Fave		
11110204	Petit Jean		
1111020401	Washburn	169,291	17.85
1111020402	Sugar Creek	142,517	34.37
1111020403	Deadman Creek	84,080	25.09
1111020404	Chickalah Creek	86,463	3.86
1111020405	Dutch Creek	91,549	61.14
1111020406	Heath	56,685	4.64
1111020407	Lower Petit Jean	71,760	0.01
11	Arkansas-White-Red Region		
1111 --	Lower Arkansas		
111102 --	Lower Arkansas-Fourche La Fave		
11110206	Fourche La Fave		
1111020601	Cedar Creek	224,790	80.42
1111020602	Gafford Creek	114,940	63.49
1111020603	Nimrod	97,337	41.56
1111020604	Lower Fourche	126,395	10.91
1111020605	South Fork of the Fourche	149,552	54.26
11	Arkansas-White-Red Region		
1111	Lower Arkansas		
111102	Lower Arkansas-Fourche La Fave		
11110207	Lower Arkansas-Maumelle		
1111020702	Maumelle	89,324	20.15
11	Arkansas-White-Red Region		
1114	Red-Sulphur		
111401 --	Red-Little		
11140105	Kiamichi		
1114010501	Headwaters of the Kiamichi	157,396	49.83
11	Arkansas-White-Red Region		
1114	Red-Sulphur		
111401 --	Red-Little		
11140106	Pecan-Waterhole		
1114010604	Norwood	105,053	10.96

.00 Region (1st level)	0000 Sub-Region (2nd level)	000000 Accounting unit (3rd level)	00000000 Cataloging unit (4th level)	0000000000 Watershed (5th level)	Watershed Acres	Percent of Watershed Under NFS Management
				1114010605 McKinney Creek	55,568	3.73
11	Arkansas-White-Red Region	1114	Red-Sulphur			
			111401 -- Red-Little			
			11140107 Upper Little			
			1114010704 Glover	220,499	16.82	
			1114010705 Lower Little River	201,563	1.91	
11	Arkansas-White-Red Region	1114	Red-Sulphur			
			111401 -- Red-Little			
			11140108 Mountain Fork			
			1114010801 Twomile	112,896	40.16	
			1114010804 Beech	195,562	15.31	
			1114010805 Broken Bow Lake	233,094	29.32	
11	Arkansas-White-Red Region	1114	Red-Sulphur			
			111401 -- Red-Little			
			11140109 Lower Little			
			1114010901 Flat Creek	192,528	2.56	
			1114010902 Upper Rolling Fork	109,476	0.14	
			1114010903 Lower Rolling Fork	120,428	1.12	
			1114010904 Headwaters of the Cossatot	174,696	31.46	
			1114010907 Shady Lake	71,752	7.14	

Figure C.1 shows the 5th level watersheds (subdivisions of 4th level cataloging units) that contain lands managed by the Ouachita National Forest. Fifty 5th level watersheds are potentially affected by management of the Forest.

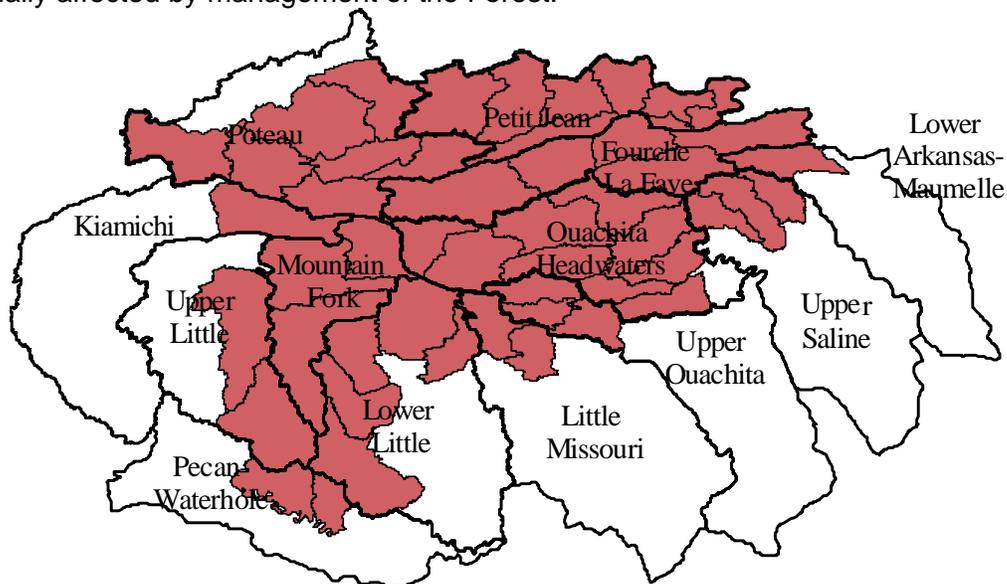


Figure C.1 Fifth Level Watersheds within 4th Level Cataloging Units

Watersheds (5th level) for the headwaters of the Ouachita, Upper Ouachita, and Little Missouri 4th level cataloging units (designated by shading) are shown in Figure C.2. Named watersheds indicate that lands managed by the Forest are within that watershed.

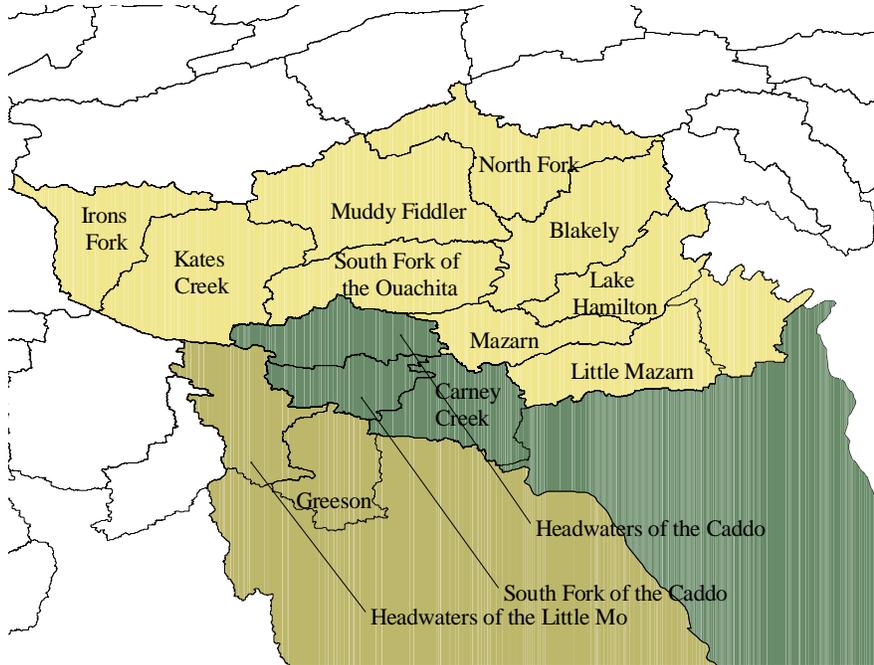


Figure C.2 5th level watersheds within the Headwaters of the Ouachita, Upper Ouachita, and Little Missouri 4th Level Cataloging Units

Watersheds within the Petit Jean and Fourche La Fave cataloging units (designated by shading) are named in Figure C.3.

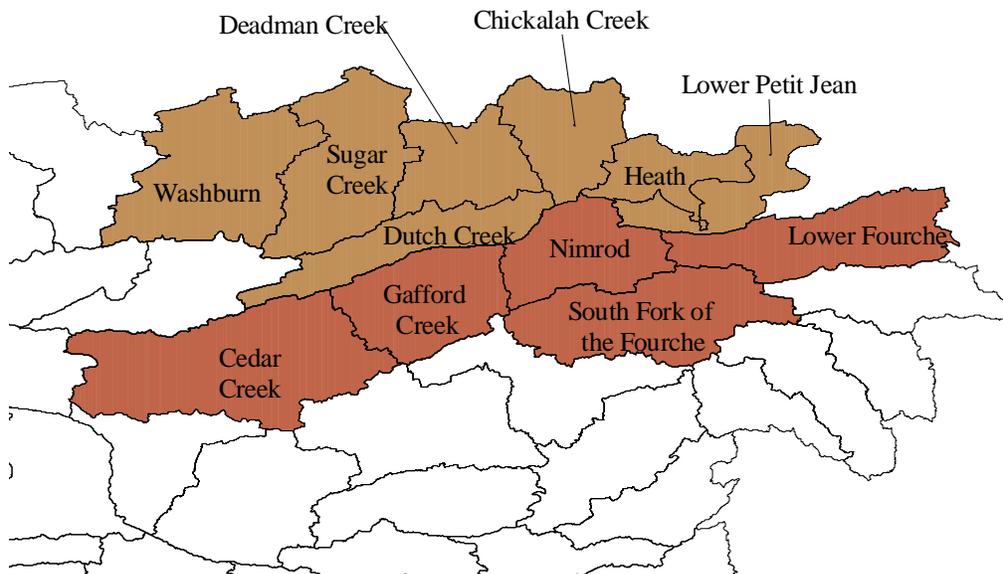


Figure C.3 Watersheds in the Petit Jean and Fourche La Fave 4th Level Cataloging Units

Within the 4th level cataloging units of Mountain Fork, Upper Little, Lower Little and Pecan/Waterhole (designated by shading), the following 5th level watersheds are found in Figure C.4.

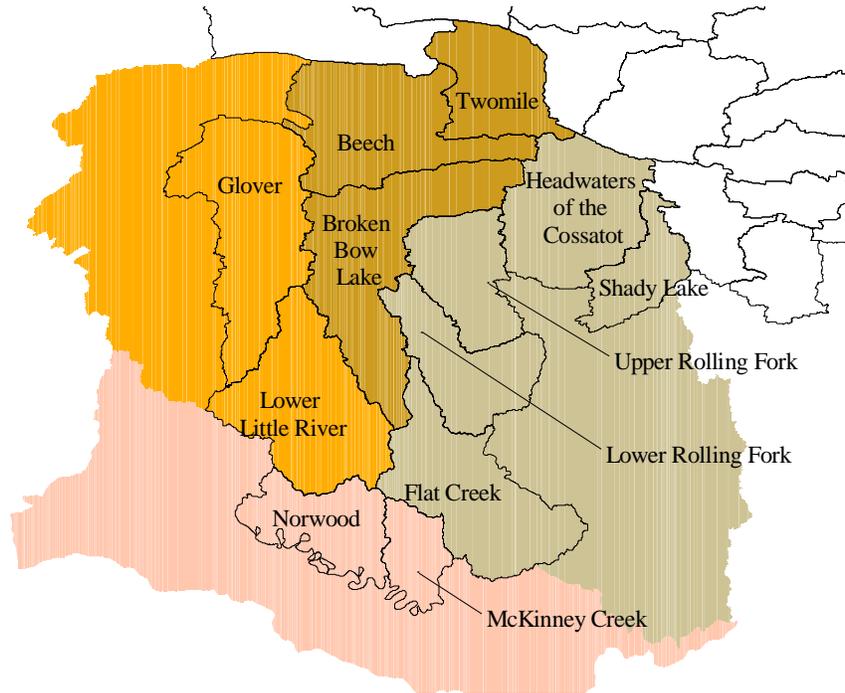


Figure C.4 Watersheds in the Mountain Fork, Upper Little, Lower Little and Pecan/Waterhole 4th Level Cataloging Units

Watersheds with lands managed by the Ouachita National forest in the Poteau and Kiamichi 4th level cataloging units (designated by shading) are found in Figure C.5.

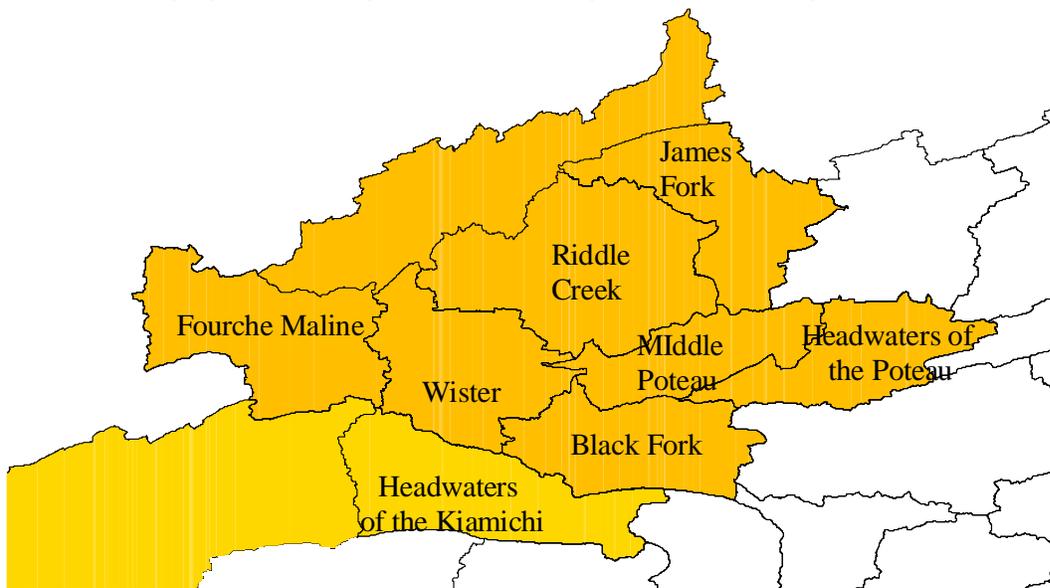


Figure C.5 Watersheds Found in the Poteau and Kiamichi 4th Level Cataloging Units

Only four 5th level watersheds (Figure C.6) are found with lands managed by the Ouachita National Forest in the Lower Arkansas-Maumelle and Upper Saline 4th level cataloging units (designated by shading).

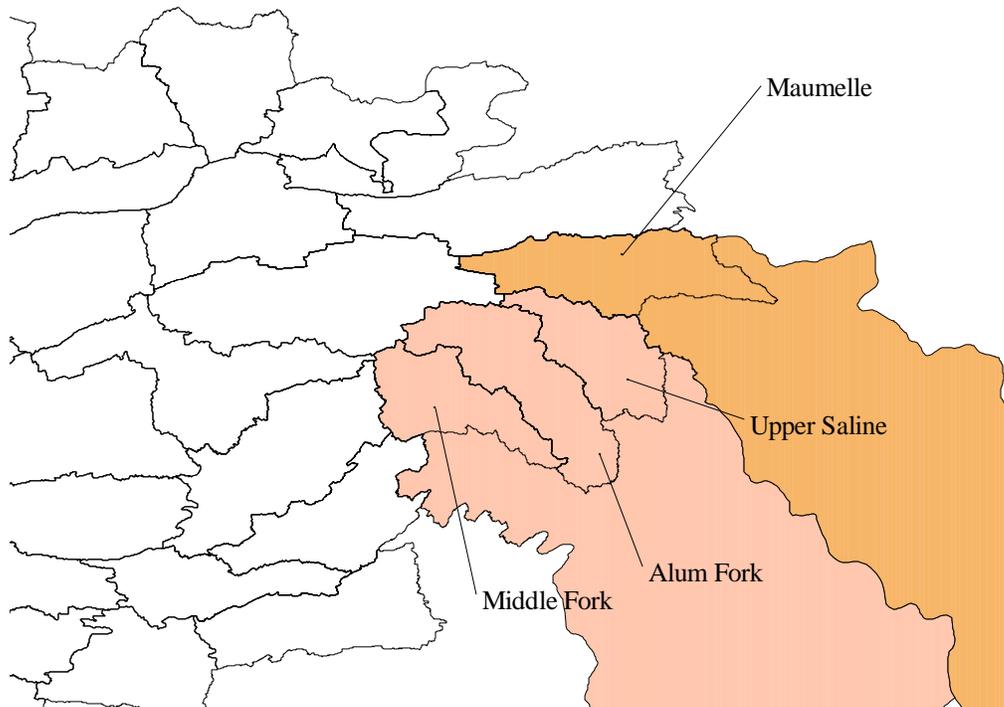


Figure C.6 Watersheds in the Lower Arkansas-Maumelle and Upper Saline 4th Level Cataloging Units

Transmission Facilities

Using the Tiger (US Census Bureau 2000) line data across the entire 5th level HUCs with National Forest ownership, over 582 miles of major powerlines, 10 miles of major waterlines, and 266 miles of pipeline (primarily oil and gas) are found. Within Forest ownership, 39 miles of major powerlines, 2 miles of waterlines, and 29 miles of pipeline (primarily oil and gas) occur within the lands managed by the Forest. Special use permits identify 136 miles of major powerlines, 147 miles of waterlines, and 36 miles of pipeline (primarily oil and gas) within the forest.

Using the 2000 Tiger line data across the entire 5th level HUCs with National Forest ownership over 436 miles of active railways and 55 miles of abandoned railways are found. Within lands managed by the Forest, only 7 miles of active railways are located on the forest. Figure C.7 shows the general location of major powerlines, pipelines, and railroads with respect to National Forest System lands.

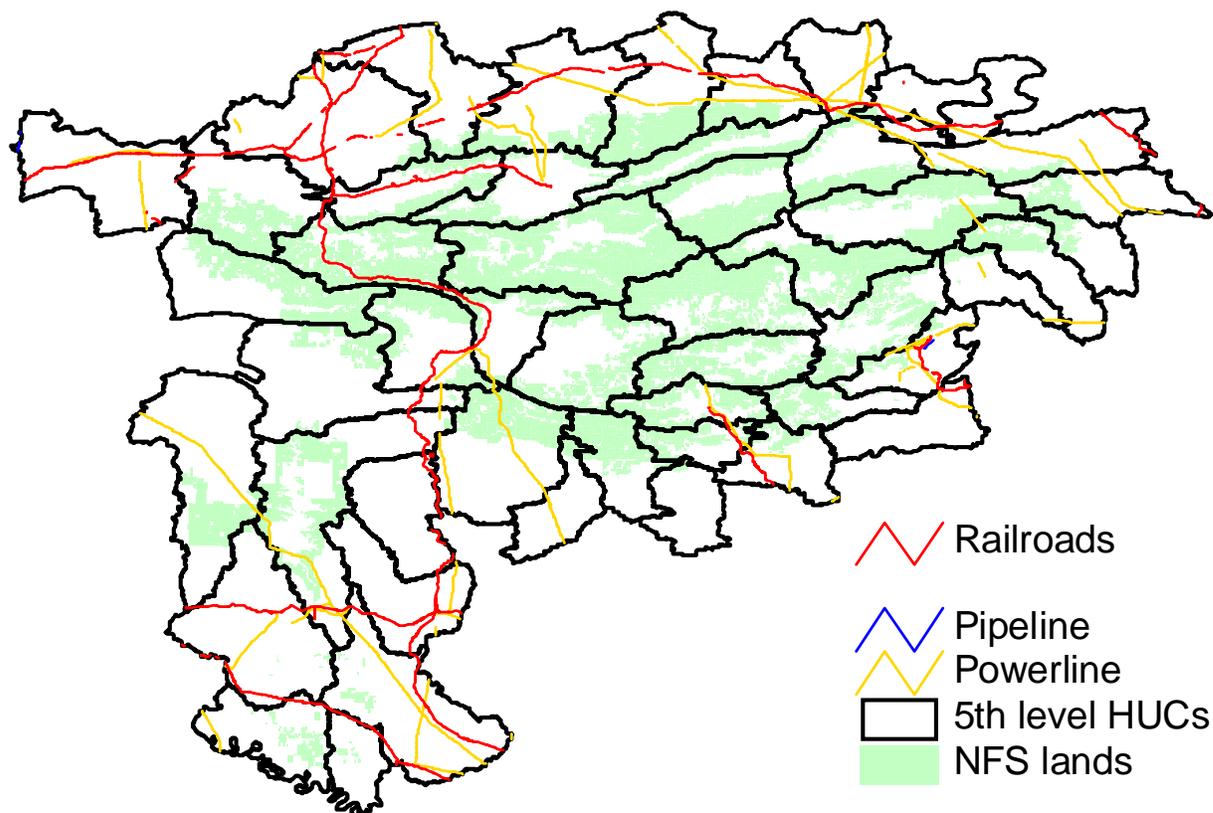


Figure C.7 General Location of Major Powerlines, Pipelines, and Railroads

Condition and Vulnerability

Watershed condition and vulnerability were determined through a forest-wide watershed assessment. (US Forest Service 2004). Fifteen factors (eight condition and seven vulnerability factors) affecting watershed condition or watershed vulnerability were addressed and ranked on 5th level watersheds across the Forest. Figure C.8 shows the watersheds with a better condition and lower vulnerability (by shading) and watersheds with a higher vulnerability and poorer condition. Lake Hamilton watershed has the lowest overall score, based on road crossings, point sources, population, road density and drinking water sources. Riddle Creek, Irons Fork Middle Fork, Headwaters of the Poteau, Lower Little River and Little Mazarn also have low overall watershed values.

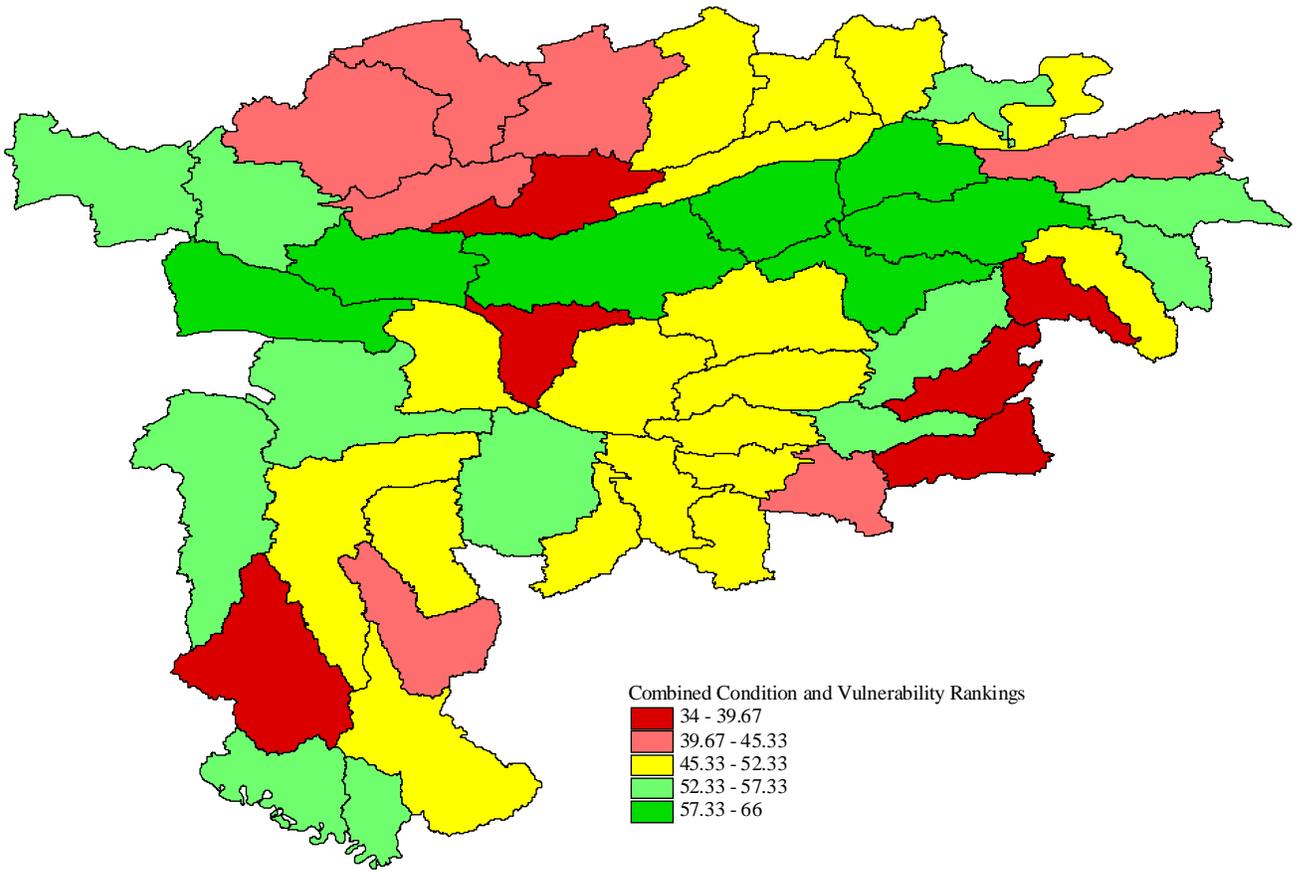


Figure C.8 Overall Watershed Value

Guidance Reviewed

The National Forest Management Act of 1976

Among other provisions addressing water and water quality, the National Forest Management Act includes the following:

“Sec. 5(5) Program recommendations which--(C) recognized the fundamental need to protect and where appropriate, improve the quality of soil, water and air resources.”

“Sec. 6(3) specifying guidelines for land management plans developed to achieve the goals of the program which--(E) insure that timber will be harvested from National Forest System lands only where--(i) soil, slope, or other watershed conditions will not be irreversibly damaged; (iii) protection is provided for streams, stream-banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat;...”

The 1987 Amendments to the Clean Water Act

“Sec. 319. Nonpoint Source Management Programs:

a) State Assessment Reports—

(1) Contents

(A) identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or the goals and requirements of this Act;”

(B) identifies those categories and subcategories of nonpoint sources or, where appropriate, particular nonpoint sources which add significant pollution to each portion of the navigable waters identified under subparagraph (A) in amounts which contribute to such portion not meeting such water quality standards or such goals and requirements;”

(C) describes the process, including intergovernmental coordination and public participation, for identifying best management practices and measures to control each category and subcategory of nonpoint sources and, where appropriate, particular nonpoint sources identified under paragraph (B) and to reduce , to the maximum extent practicable, the level of pollution resulting from such category, subcategory, or source...”

(b) State Management Programs—

(2) Specific Contents.

(A) An identification of the best management practices and measures which will be undertaken to reduce pollutant loadings resulting from each category, subcategory, or particular nonpoint source designated under paragraph (1)(B), taking into account the impact on the practice on ground water quality.”

(3) An identification of programs...to achieve implementation of the best management practices by the categories, subcategories, and particular nonpoint sources...”

Sec. 313

(a) Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government... (2) engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants, and each officer, agent, or employee thereof in the performance of his official duties, shall be subject to and comply with all Federal, State, interstate, and local requirements, administrative authority, and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity...”

EPA, August 19, 1987 Guidance: Nonpoint Source Controls and Water Quality Standards

“It is recognized that Best Management Practices (BMPs) are the primary mechanism to enable the achievement of water quality standards. The State water quality plan should include identification of the process by which nonpoint source controls including Best Management Practices (BMPs) are selected to achieve water quality standards. The process should include: (1) design of BMPs based on site-specific conditions, technical, economic and institutional feasibility; (2) monitoring to ensure that practices are correctly designed and applied; (3) monitoring to determine: a) the effectiveness of practices in meeting water quality standards, and b) the appropriateness of water quality criteria in reasonably assuring protection of beneficial uses; (4) adjustment of BMPs when it is found that water quality standards are not being protected to a desired level and/or possible adjustment of water quality standards based on considerations in 40 CFR 131.”

“EPA's water quality regulation (40 CFR 131) provides that State adopted water quality standards shall include designated beneficial uses and water quality criteria to protect those uses as well as include an antidegradation policy. It is intended that proper installation of State approved BMPs will achieve water quality standards. Therefore, water quality standards are to be used to measure the effectiveness of BMPs...”

“For proposed management actions, BMPs designed and implemented in accordance with State approved process will normally constitute compliance with the CWA. The CWA does not itself directly establish a mechanism for enforcing WQS

(water quality standards) directly against NPS (nonpoint sources). BMPs developed under a State approved process may be used as performance standards for proposed actions...”

“Once BMPs have been approved by the State, the BMPs become the primary mechanism for meeting water quality standards. Proper installation, operation and maintenance of State approved BMPs are presumed to meet a landowner's obligation for compliance with applicable water quality standards...”

In response to EPA's 1987 guidance, the Clean Water Act, and the National Forest Management Act, the Southern Region drafted a “strategy” in 1989 that restated many of the provisions in these documents:

“A management process should be identified by which NPS controls, including BMPs, can be selected and implemented so that beneficial uses can be maintained. The process should include: (1) design of site-specific BMPs based on technical, economic, and institutional feasibility, (2) monitoring to ensure that practices are correctly designed and applied, (3) monitoring to determine effectiveness of practices in meeting water quality objectives, and the appropriateness of water quality criteria for describing the needs of water dependent resources and, (4) a mechanism to adjust BMPs and/or standards as appropriate.

Programs based on design and implementation of BMPs must be the primary mechanism for attaining water quality standards. Proper installation, operation, and maintenance of BMPs as determined by a State approved process is presumed to meet a landowner's or operator's obligation for compliance with applicable water quality standards. If subsequent evaluation indicates that approved and properly installed BMPs are not achieving water quality standards, BMPs should be revised and/or water quality standards evaluated.

Through the iterative process of monitoring and adjustment of BMPs and/or water quality standards, it can be expected that BMPs will lead to achievement of water quality standards. BMPs as determined by a State approved NPS Management System are the performance standards that land managers are expected to meet. Water quality standards should not be used a regulatory performance standard, but coupled with monitoring, should be used as a measure of NPS system effectiveness.”