Pollution Control and Ecology Commission # 014.00-002

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

INITIAL MARK-UP DRAFT

Part 21~~RULE 2~~

RULE ESTABLISHING WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF ARKANSAS

Submitted to the Arkansas Pollution Control and Ecology Commission in December, 2024

EXHIBIT A

~~Arkansas Pollution Control and Ecology Commission~~
~~Rule 2, As Amended~~

8 Code of Arkansas Rules, Part 21
Rule Establishing
Water Quality Standards for Surface Waters of the State of Arkansas

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ARKANSAS
POLLUTION CONTROL
AND ECOLOGY COMMISSION

Part 21~~Rule 2~~, As Amended

Rule Establishing
Water Quality Standards for Surface Waters
of the State of Arkansas

SUBPART~~CHAPTER~~ 1: Authority, general principles, and coverage~~AUTHORITY, GENERAL PRINCIPLES, AND COVERAGE~~

8 CAR § 21-101~~Rule 2.101~~ Authority

Pursuant to the Arkansas Water and Air Pollution Control Act, (~~Ark.~~Arkansas Code ~~Ann.~~ § 8-4-101 *et seq.*), and in compliance with the requirements of the Federal Water Pollution Control Act, 33 U.S.C. § 1251 *et seq.*, (hereinafter "Clean Water Act"), the Arkansas Pollution Control and Ecology Commission ~~(hereinafter "Commission")~~ hereby promulgates this rule establishing water quality standards for all surface waters, interstate and intrastate, of the State of Arkansas.

8 CAR § 21-102~~Rule 2.102~~ Purpose

The water quality standards herein set forth are based upon present, future and potential uses of the surface waters of the State and criteria developed from statistical evaluations of past water quality conditions and a comprehensive study of least-disturbed, ecoregion reference streams. The standards are designed to enhance the quality, value, and beneficial uses of the water resources of the State of Arkansas, to aid in the prevention, control and abatement of water pollution, to provide for the protection and propagation of fish and wildlife and to provide for recreation in and on the water. In establishing these standards, the ~~Commission~~ commission has taken into consideration the use and value of the streams for public water supplies, commercial, industrial and agricultural uses, aesthetics, recreational purposes, propagation of fish and wildlife, other beneficial uses, and views expressed at public hearings. The State of Arkansas has an exceptionally large volume of high--quality water. With few exceptions the streams and lakes of Arkansas contain waters of a quality suitable for all legitimate uses without the necessity of unreasonable water treatment. Where man-made pollution exists, substantial progress has been made in abatement. It is the purpose of these rules to preserve and protect the quality of this water so that it shall be reasonably available for all beneficial uses and thus promote the social welfare and economic well-being of the people of the State. It is further the purpose of these rules to designate the uses for which the various waters of the State shall be maintained and protected; to prescribe the water quality standards required to sustain the designated uses; and to prescribe rules necessary for implementing, achieving and maintaining the prescribed water quality.

8 CAR § 21-103~~Rule 2.103~~ Arkansas Pollution Control and Ecology Commission ~~Review~~ review

The water quality standards herein established will be reviewed by the ~~Commission~~commission ~~Commission~~ at least once each three-year period beginning as of October 18, 1972. Revisions may be made to take into account changing technology of waste production, treatment and removal, advances in knowledge of water quality requirements, and other relevant factors.

8 CAR § 21-104~~Rule 2.104~~ Policy for Compliance

It shall be the policy of the Arkansas Department of Energy and Environment, Division of Environmental Quality ~~(hereinafter "Division")~~ to provide, on a case-by-case basis, a reasonable time for an existing permittee to comply with new or revised water quality ~~-~~-based effluent limits. Consequently, compliance schedules may be included in National Pollutant Discharge Elimination System (NPDES) permits at the time of renewal or permit modification initiated by the ~~Division~~ division to require compliance with new water quality standards. Compliance must occur at the earliest practicable time, in accordance with 40 C.F.R. §122.47.

8 CAR § 21-105~~Rule 2.105~~ ~~Environmental~~ Improvement Projects

The ~~Commission~~commission ~~Commission~~ may, after consideration of information provided pursuant to Appendix B and ~~Ark.~~ Arkansas Code ~~Ann.~~ § 8-5-901 *et seq.*, grant temporary modifications to the General and Specific Standards or establish a subcategory(ies) of use(s) for completion of long-term Environmental Improvement Projects.

8 CAR § 21-106~~Rule 2.106~~ Definitions

(1) **~~304(a) Guidance~~**~~:~~ "304(a) guidance" refers ~~Refers~~ to Section 304(a) of the Clean Water Act, 33 U.S.C. § 1314(a), which requires the United States Environmental Protection Agency to publish and periodically update ambient water quality criteria which will be protective of human health and the environment.

(2) **~~Abatement~~**~~:~~ "Abatement" means the ~~The~~ reduction in degree or intensity of pollution.

(3) **Acute toxicity**: "Acute toxicity" means a ~~A~~ statistically significant difference (at the ninety-fifth percent (95%) ~~percent~~ confidence level) in mortality or immobilization between test organisms and a control measured during a specified period of time which is normally less than 96 hours.

(4) **~~Algae~~**~~:~~ "Algae" means simple ~~Simple~~ plants (without roots, stems, or leaves) that contain chlorophyll and are capable of photosynthesis.

(5) **~~Aquatic biota~~**~~:~~ "Aquatic biota" means all ~~All~~ those life forms which inhabit the aquatic environment.

(6) **~~Aquatic life~~**~~:~~ "Aquatic life" means the ~~The~~ designated use of a waterbody determined by the fish community and other associated aquatic biota.

(7) **~~Base flows~~:** "Base flows" means that ~~That~~ portion of the stream discharge that is derived from natural storage (i.e., outflow from groundwater or swamps), or sources other than recent rainfall that creates surface runoff. Also called sustaining, normal, dry weather, ordinary, or groundwater flow.

(8) **~~Bioaccumulation:~~** "Bioaccumulation" means the ~~The~~ process by which a compound is taken up by an aquatic organism, both from water and through food.

(9) **~~Chronic toxicity~~**: ~~A~~ "Chronic toxicity" means a statistically significant difference (at the ninety-fifth percent (95%)~~95 percent~~ confidence level) in mortality or immobilization, reduced reproduction or limited growth between test organisms and a control measured during a substantial segment of the life span of the test organism.

(10) **~~Commission~~**: ~~The~~ "Commission" means the Arkansas Pollution Control and Ecology Commission.

(11) **~~Conventional pollutants:~~** ~~Pursuant~~ "Conventional pollutants", pursuant to section 304(a)(4) of the Clean Water Act, 33 U.S.C. § 1314(a)(4), includes biochemical oxygen demand (BOD), total suspended solids (nonfilterable) (TSS), pH, fecal coliform, and oil and grease.

(12) **~~Criterion continuous concentration (CCC):~~** ~~An~~ "Criterion continuous concentration (CCC)" means an estimate of the highest concentration of a material in ambient water to which an aquatic community can be *exposed indefinitely* without resulting in an unacceptable adverse effect. This is the chronic criterion.

(13) **~~Criterion maximum concentration (CMC):~~** ~~An~~ "Criterion maximum concentration (CMC)" means an estimate of the highest concentration of a material in ambient water to which an aquatic community can be *exposed briefly* without resulting in an unacceptable adverse effect. This is the acute criterion.

(14) **~~Critical flows~~**: ~~The~~ "Critical flows" means the flow volume used as background dilution flows in calculating concentrations of pollutants from permitted discharges. These flows may be adjusted for mixing zones. The following critical flows are applicable:

(A) For a seasonal aquatic life - ~~1~~ one cubic foot per second (1 ft^3/sec) minus the design flow of any point source discharge (may not be less than zero (0));

(B) For human health - harmonic mean flow or ~~long term~~long-term average flow;

(C) For minerals - harmonic mean flow, except as follows:

(i) 8 CAR § 21-511(a) ~~Rule 2.511(A)~~ Site Specific Mineral Criteria listed with an asterisk- 4 cubic feet per second.

(ii) 8 CAR § 21-511(c) ~~Rule 2.511 (C)~~ Domestic Water Supply: Q7-10; and

(D) For metals and conventional pollutants - Q7-10.

(15) **~~Critical season~~**: ~~That~~ "Critical season" means that period of the year when water temperatures exceed twenty-two degrees Celsius (>22°C (71.6°F)). This is normally the hot, dry season and after the majority of the fish spawning activities have ceased. This

season occurs during a different time frame in different parts of the state, but normally exists from about mid-May to mid-September.

(16) ~~**Cumulative**~~: "Cumulative" means increasing ~~Increasing~~ by successive additions.

(17) ~~**Degradation**: The~~ "Degradation" means the act or process of causing any decrease in quality.

(18) ~~**Design flow**: A~~ "Design Flow" means a facility discharge flow of process wastewater that is authorized in a NPDES permit.

(19) ~~**Designated uses**: Those~~ "Designated uses" means those uses specified in the water quality standards for each waterbody or ~~stream segment~~ assessment unit whether or not they are being attained.

(20) ~~**Discharge**: A~~ "Discharge" means a discrete point source of waste or wastewater entering into waters of the ~~State~~state.

(21) ~~**Dissolved oxygen (DO)**: A~~ "Dissolved Oxygen" (DO) means a measure of the concentration of oxygen in solution in a liquid.

(22) ~~**Division**: The~~ "Division" means the Arkansas Department of Energy and Environment, Division of Environmental Quality or its successor.

(23) ~~**Ecoregion**: A~~ "Ecoregion" means a large area of landscape with relatively homogenous physical, chemical, and biological characteristics.

(24) ~~**Effluent: Water**~~ "Effluent" means water that is not reused after flowing out of any wastewater treatment facility or other works used for the purpose of treating, stabilizing, or holding wastes.

(25) ~~***Escherichia coli*: A~~ *"Escherichia coli"* means a ~~rod-shaped gram-negative~~rod-shaped gram-negative bacillus ~~(0.5 – 3.5 microns)~~ abundant in the large intestines of mammals.

(26) ~~**Endemic**: Native~~ "Endemic" means native to and confined to a specific region.

(27) ~~**Existing uses**: Those~~ "Existing uses" means those uses listed in Section 303(c)(2) of the Clean Water Act, 33 U.S.C. § 1313(c)(2) (i.e., public water supplies, propagation of fish and wildlife, recreational uses, agricultural and industrial water supplies, and navigation), which were actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

~~**Fecal coliform bacteria**: Gram-negative nonspore-forming rods that ferment lactose in 24 ± 2 hours at 44.5 ± 0.2°C with the production of gas in a multiple-tube procedure or produce acidity with blue colonies in a membrane filter procedure. For the purpose of this rule, the genus *Klebsiella* is not included in this definition.~~

(28) ~~**Fishable/swimmable**: Refers~~ "Fishable/swimmable" refers to one of the national goals stated in Section 101(a)(2) of the Clean Water Act, 33 U.S.C. § 1251(a)(2) ,"...provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water."

(29) ~~**Groundwater:** Water~~ "Groundwater" means water below the land surface in a zone of saturation.

(30) ~~**Hardness**: A~~ "Hardness" means a measure of the sum of multivalent metallic cations expressed as calcium carbonate ($CaCO_3$).

(31) ~~**Harmonic mean flow**: The~~ "Harmonic mean flow" means the reciprocal of the mean of the reciprocals of daily flow measurements.

(32) ~~**Headwater**: The~~ "Headwater" means the upper watershed area where streams generally begin; headwater typically consists of 1st- and 2nd-order streams.

(33) ~~**Heavy metals**: A~~ "Heavy metals" means a general name given to the ions of metallic elements heavier than iron, such as cadmium, lead, mercury, copper, zinc and chromium.

(34) ~~**Human health criteria**: Levels~~ "Human health criteria" means levels of toxicants in ambient water which will not manifest adverse health effects in humans.

(35) ~~**Hypolimnion**: That~~ "Hypolimnion" means that portion of a thermally stratified lake or reservoir below the zone in which the rate of temperature change is greatest. An area of minimal circulation and mixing.

(36) ~~**Impairment**: Exceedances~~ "Impairment" means exceedances of the water quality standards by a frequency and/or magnitude which results in any designated use of a waterbody to fail to be met as a result ~~of physical~~of physical, chemical or biological conditions.

(37) ~~**Indicator species**: Species~~ "Indicator species" means species of fish which may not be dominant within a species group and may not be limited to one (1) area of the state, but which, because of their presence, are readily associated with a specific ecoregion. All indicator species need not be present to establish a normal or representative fishery.

(38) ~~**Indigenous**: Produced~~ "Indigenous" means produced, growing or living naturally in a particular region or environment.

(39) ~~**Interstate**: Of~~ "Interstate" means of, connecting, or existing between two (2) or more states.

(40) ~~**Intrastate**: Existing~~ "Intrastate" means existing or occurring within a state.

(41) ~~**Ionizing radiation**: Gamma~~ "Ionizing radiation" means gamma rays and x-rays; alpha and beta particles, high speed electrons, neutrons, protons and other nuclear particles; but not sound or radio waves, or visible, infrared or ultraviolet light.

(42) ~~**Key species**: Fishes~~ "Key species" means fishes which are normally the dominant species (except for some ubiquitous species) within the important groups such as fish families or trophic feeding levels. All specified key species need not be present to establish a normal or representative fishery.

(43) ~~**Long term average flow**: An~~ "Long term average flow" means an average annual stream flow based on a period of record which reflects the typical annual variability.

(44) ~~**Milligrams per liter (mg/L)**: The~~ "Milligrams per liter (mg/L) means the concentration at which one milligram (1mg) is contained in a volume of one liter (1 L); one milligram per liter (1 mg/L) is equivalent to one part per million (1 ppm) at unit density.

(45) ~~**Mixing zone**: An~~ "Mixing zone" means an area where an effluent discharge undergoes mixing with the receiving waterbody. For toxic discharges a zone of initial dilution may be allowed within the mixing zone.

(46) "Most probable number (MPN)" is used to estimate the concentration of viable microorganisms in a sample by means of replicating liquid broth growth in ten-fold dilutions.

(47) ~~**Mouth**: The~~ "Mouth" means the point of confluence where a stream enters a larger body of water.~~.~~

(48) ~~**Natural background**: Ambient~~ "Natural background" means ambient conditions or concentrations of a parameter due to non-anthropogenic sources; natural background does not typically interfere with support of designated uses nor the level of aquatic biota expected to occur naturally at the site.

(49) ~~**Naturally occurring excursions**: Temporary~~ "Naturally occurring excursions" means temporary deviation from natural background due to natural events such as severe storm events, drought, temperature extremes, etc.

(50) ~~**Nephelometric turbidity unit (NTU):** A~~ "Nephelometric turbidity unit (NTU)" means a measure of turbidity based upon a comparison of the intensity of light scattered by a sample of water under defined conditions with the intensity of light scattered by a standard reference suspension; NTU are considered comparable to the previously reported Jackson Turbidity Units (JTU). May also be reported as Formazin Turbidity Units (FTU) in equivalent units.

(51) "Non-critical season" means that period of the year when water temperatures are twenty-two degrees Celsius or below ($\leq 22^{\circ}$C (71.5°F)). This includes the major part of the year from fall through spring, including the spawning season of most fishes. It normally occurs from about mid-September to mid-May.

(52) ~~**Nonpoint source:** A~~ "Nonpoint source" means a contributing factor to water pollution that is not confined to an end-of-the-pipe discharge, i.e., stormwater runoff not regulated under Clean Water Act § 402(p)(1), 33 U.S.C. § 1342(p), agricultural or silvicultural runoff, irrigation return flows, etc.

(53) ~~**Nuisance species**: Those~~ "Nuisance species" means those organisms capable of interfering with the beneficial use of water.

(54) ~~**Nutrient**: Any~~ "Nutrient" means any substance assimilated by an organism which promotes growth and replacement of cellular constituents. The usual nutrient components of water pollution are nitrogen, phosphorus and carbon.

(55) ~~**Objectionable algal densities**: Numbers~~ "Objectionable algal densities" means numbers of total algae which would interfere with a beneficial use.

(56) ~~**Persistent**: Degraded~~ "Persistent" means degraded only slowly by the environment.

(57) ~~**pH**: The~~ "pH" means the negative logarithm of the effective hydrogen-ion concentration in gram equivalents per liter.

(58) ~~**Picocurie**: One~~ "Picocurie" means one trillionth (10^{-13}~~^{13}~~^{12}) of a curie which is a unit of quantity of any radioactive nuclide in which 3.7×10^{10} disintegrations occur per second.

(59) ~~**Point source**: A~~ "Point source" means a discharge from a discrete point.

~~**Primary season**: That period of the year when water temperatures are 22°C or below. This includes the major part of the year from fall through spring, including the spawning season of most fishes. It normally occurs from about mid-September to mid-May.~~

(60) ~~**Q7-10:** A~~ "Q7-10" means a flow volume equal to or less than the lowest mean discharge during seven (7) ~~7~~ consecutive days of a year which, on the average, occurs once every ten (10) years.

(61) ~~**Regulated-flow stream**: Those~~ "Regulated-flow stream" means those streams restricted by structures which have the ability to control stream flow.

(62) ~~**Seasonal aquatic life**: The~~ "Seasonal aquatic life" means the designated aquatic life use that occurs in some waterbodies only during the period when stream flows increase substantially and water temperatures are cooler. This is normally during the months of December through May.

(63) ~~**State of Arkansas Continuing Planning Process:** A~~ "State of Arkansas Continuing Planning Process (CPP)" is a document setting forth the principal procedures of the ~~State's~~ state's water quality management programs, developed pursuant to Section 303(e) of the Clean Water Act, 33 U.S.C. § 1313(e), and 40 C.F.R. § 130.5. The CPP is not a rule.

(64) ~~**Storm flows**: Takes~~ "Storm flows" takes into account all flows and data collected throughout the year, including elevated flows due to rainfall events.

(65) ~~**Surface water**: That~~ "Surface water" means the water contained on the exterior or upper portion of the earth's surface as opposed to groundwater.

(66) **~~Synergism:~~** ~~Cooperative~~ "Synergism" means cooperative action of discrete agents such that the total effect is greater than the sum of the effects taken independently.

(67) **~~Total dissolved solids (TDS)~~**: ~~The~~ "Total dissolved solids (TDS)" means the total soluble organic and inorganic material contained in water; includes those materials, both liquid and solid, in solution and otherwise, which pass through a standard glass fiber filter disk and are not volatilized during drying at one hundred eighty degrees Celsius (180°C).

(68) **~~Trout fishery~~**: ~~Water~~ "Trout fishery" means water that is suitable for the growth and survival of trout, usually characterized as ~~high quality~~high-quality water having a maximum summer temperature of sixty-eight degrees Fahrenheit (68°F) or less.

(69) **~~Use attainability analysis~~**: ~~A~~ "Use attainability analysis" means a structured scientific assessment of the factors affecting the attainment of the fishable/swimmable use which may include physical, chemical, biological and economic factors.

(70) "Waterbodies, waterways, waters",~~:~~ ~~In~~ in this part~~document~~, refers to surface waters of the ~~State~~ state as described in ~~Act 472~~ Arkansas~~.~~ Code ~~Ann.~~ § 8-4-101 et seq.

(71) **~~Water effects ratio (WER)~~**: ~~A~~ "Water effects ratio (WER)" means a specific pollutant's acute or chronic value measured from a specific site ambient water, divided by the respective acute or chronic toxicity of the same pollutant in laboratory water.

(72) **~~Zone of initial dilution (ZID)~~**: ~~An~~ "Zone of initial dilution (ZID)" means an area within the mixing zone where a toxic effluent discharge initiates mixing in the receiving waterbody. This is an area where acute water quality criteria may be exceeded, but acute toxicity may not occur.

Subpart 2. Antidegradation policy ~~CHAPTER 2: ANTIDEGRADATION POLICY~~

8 CAR § 21-201. ~~Rule 2.201~~ Existing ~~Uses~~ uses

Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

8 CAR § 21-202. ~~Rule 2.202~~ High ~~Quality Waters~~ quality waters

Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the ~~State~~state ~~State~~ finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State of Arkansas'~~s~~ Continuing Planning Process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the ~~State~~state ~~State~~ shall assure water quality adequate to protect existing uses fully. Further, the ~~State~~state ~~State~~ shall assure that (1) there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and (2) that the provisions of the Arkansas Water Quality Management Plan be implemented with regard to nonpoint sources.

8 CAR § 21-203.~~Rule 2.203~~ Outstanding ~~Resource Waters~~ resource waters

Where high quality waters constitute an outstanding state or national resource, such as those waters designated as Extraordinary Resource Waters, Ecologically Sensitive Waterbodies or Natural and Scenic Waterways, those uses and water quality for which the outstanding waterbody was designated shall be protected by (1) water quality controls, (2) maintenance of natural flow regime, (3) protection of instream habitat, and (4) encouragement of land management practices protective of the watershed. It is not the intent of the Extraordinary Resource Waters (ERW) designated use definition to imply that ERW status dictates regulatory authority over private land within the watershed, other than what exists under local, state, or federal law. The Arkansas Natural Resources Commission has responsibility for the regulation of the withdrawal of water from streams and reservoirs, and such withdrawals are not within the jurisdiction of this rule.

8 CAR § 21-204. ~~Rule 2.204~~ Thermal ~~Discharges~~ discharges

In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act, 33 U.S.C. § 1326.

Subpart 3. Waterbody uses ~~CHAPTER 3: WATERBODY USES~~

8 CAR § 21-301.~~Rule 2.301~~ Introduction

Substantially all the waters of the ~~State~~state ~~State~~ have been designated for specific uses as shown in Appendix A. In those instances where waters are classified for multiple uses and different criteria are specified for each use, the criteria to protect the most sensitive use shall be applicable.

8 CAR § 21-302.~~Rule 2.302~~ Designated ~~Uses~~ uses

The designated uses are defined as follows:

~~(A)~~ (1) Extraordinary Resource Waters - This beneficial use is a combination of the chemical, physical and biological characteristics of a waterbody and its watershed that is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values. (For specific listings, refer to Appendices A and D)

~~(B)~~ (2) Ecologically Sensitive Waterbody - This beneficial use identifies segments known to provide habitat within the existing range of threatened, endangered or endemic species of aquatic or semi-aquatic life forms. (For specific listings, refer to Appendices A and D)

~~(C)~~ (3) Natural and Scenic Waterways - This beneficial use identifies segments that have been legislatively adopted into a state or federal system. (For specific listings, refer to Appendices A and D)

~~(D)~~ (4) Primary Contact Recreation - This beneficial use designates waters where full body contact is involved. Any streams with watersheds of greater than ten square miles ($\geq$10 mi^2) are designated for full body contact. All streams with watersheds less than ten square miles ($<$10 mi^2) may be designated for primary contact recreation after site verification. (April 1 to October 31)

~~(E)~~ (5) Secondary Contact Recreation - This beneficial use designates waters where secondary activities like boating, fishing or wading are involved. (Year-round)

~~(F)~~ (6) Aquatic Life - This beneficial use provides for the protection and propagation of fish, shellfish and other forms of aquatic biota. It is further subdivided into the following subcategories:

~~(1)~~(i) Trout Waters - Water that is suitable for the growth and survival of trout (Family: Salmonidae).

~~(2)~~(ii) Lakes and Reservoirs - Water that is suitable for the protection and propagation of fish and other forms of aquatic biota adapted to impounded waters. Generally characterized by a dominance of sunfishes such as bluegill or similar species, black basses and crappie. May include substantial populations

of catfishes such as channel, blue and flathead catfish and commercial fishes including carp, buffalo and suckers. Forage fishes are normally shad or various species of minnows. Unique populations of walleye, striped bass and/or trout may also exist.

(1) (iii) Streams - Water that is suitable for the protection and propagation of fish and other forms of aquatic biota adapted to flowing water systems whether or not the flow is perennial.

(a) Ozark Highlands Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by a preponderance of sensitive species and normally dominated by a diverse minnow community followed by sunfishes and darters. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Duskystripe, Bleeding or Cardinal Shiner	Banded Sculpin
Northern Hogsucker	Ozark Madtom
Slender Madtom	Southern Redbelly Dace
"Rock" basses	Whitetail Shiner
Rainbow and/or Orangethroat darters	Ozark Minnow
Smallmouth Bass	

(b) Boston Mountains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by a major proportion of sensitive species; a diverse, often darter-dominated community exists but with nearly equal proportions of minnows and sunfishes. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Bigeye Shiner	Shadow Bass
Black Redhorse	Wedgespot Shiner
Slender Madtom	Longnose Darter
Longear Sunfish	Fantail Darter
Greenside Darter	
Smallmouth Bass	

(c) Arkansas ~~River~~ Valley Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by a substantial proportion of sensitive species; a sunfish- and minnow-dominated community exists but with substantial proportions of darters and

catfishes (particularly madtoms). The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bluntnose Minnow	Orangespotted Sunfish
Golden Redhorse	Blackside Darter
Yellow Bullhead	Madtoms
Longear Sunfish	
Redfin Darter	
Spotted Bass	

(d) Ouachita Mountains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. The fish community is characterized by a major proportion of sensitive species; a minnow-sunfish-dominated community exists, followed by darters. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bigeye Shiner	Shadow Bass
Northern Hogsucker	Gravel Chub
Freckled Madtom	Northern Studfish
Longear Sunfish	Striped Shiner
Orangebelly Darter	
Smallmouth Bass	

(e) Typical ~~Gulf Coastal~~ South Central Plains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by a limited proportion of sensitive species; sunfishes are distinctly dominant followed by darters and minnows. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Redfin Shiner	Pirate Perch
Spotted Sucker	Flier
Yellow Bullhead	Reds~~S~~potted Sunfish
Warmouth	Dusky Darter
Slough Darter	Creek Chubsucker
Redfin Pickerel	Banded Pygmy Sunfish

(f) Springwater-influenced ~~Gulf Coastal~~ South Central Plains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by a substantial proportion of sensitive species; sunfishes

normally dominate the community and are followed by darters and minnows. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Redfin Shiner	Pirate Perch
Blacktail Redhorse	Golden Redhorse
Freckled Madtom	Spotted Bass
Longear Sunfish	Scaly Sand Darter
Creole Darter	Striped Shiner
Redfin Pickerel	Banded Pygmy Sunfish

(g) Least-altered ~~Delta~~ Mississippi Alluvial Plain Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by an insignificant proportion of sensitive species; sunfishes are distinctly dominant followed by minnows. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Ribbon Shiner	Pugnose Minnow
Smallmouth Buffalo	Mosquitofish
Yellow Bullhead	Pirate Perch
Bluegill	Tadpole Madtom
Bluntnose Darter	Banded Pygmy Sunfish
Largemouth Bass	

(h) Channel-altered ~~Delta~~ Mississippi Alluvial Plain Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic biota. Fish communities are characterized by an absence of sensitive species; sunfishes and minnows dominate the population followed by catfishes. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Blacktail Shiner	Mosquitofish
Drum	Gizzard Shad
Carp	Emerald Shiner
Channel Catfish	
Green Sunfish	
Spotted Gar	

~~(G)~~ (7) Domestic Water Supply - This beneficial use designates water that will be protected for use in public and private water supplies. Conditioning or treatment may be necessary prior to use.

~~(H)~~ (8) Industrial Water Supply - This beneficial use designates water that will be protected for use as process or cooling water. Quality criteria may vary with the specific type of process involved and the water supply may require prior treatment or conditioning.

~~(I)~~ (9) Agricultural Water Supply - This beneficial use designates waters that will be protected for irrigation of crops and/or consumption by livestock.

~~(J)~~ (10) Other Uses - This category of beneficial use is generally used to designate uses not dependent upon water quality, such as hydroelectric power generation and navigation.

8 CAR § 21-303.~~Rule 2.303~~ Use ~~Attainability Analysis~~attainability analysis

~~(A)~~ (a) A use attainability analysis must be conducted to justify the following conditions:

(1) Removing a fishable/swimmable designated use, which is not an existing use, from a waterbody; or

(2) To identify a subcategory of a fishable/swimmable use that requires less stringent criteria.

~~(B)~~ (b) In order to remove a designated fishable/swimmable use, which is not an existing use, or identify subcategories of a fishable/swimmable use that require less stringent criteria, it must be demonstrated that the designated use is not attainable because:

(1) naturally occurring pollutant concentrations prevent the attainment of the use; or

(2) natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating ~~State~~state ~~State~~ water conservation requirements to enable uses to be met; or

(3) human caused conditions or sources of pollution prevent attainment of the use and cannot be remedied or would cause more environmental damage to correct than leave in place; or

(4) dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the ~~water body~~ waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(5) physical conditions related to the natural features of a ~~water body~~ waterbody, such as lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) controls more stringent than those required by ~~Section~~ Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact.

(c) The scope of a use attainability analysis shall be in direct proportion to the project involved and the resource value of the receiving stream. Methods for conducting a use attainability analysis may be found in the November 1983 United States Environmental Protection Agency publication entitled *Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses*. Other scientific methods, including the use of existing technical data, may be used for justifying the removal of a designated use, provided the methods are agreed upon prior to the study. Such other methods may include the use of information previously gathered through technical studies, use attainability analysis, or both. Use attainability analysis procedures may be found in the State of Arkansas Continuing Planning Process document. Any waterbody on which a use attainability analysis is approved shall be listed in Appendix A with appropriate criteria.

8 CAR § 21-304.~~Rule 2.304~~ Physical ~~Alteration of Habitat~~ alteration of habitat

Significant physical alterations of the habitat within Extraordinary Resource Waters, Ecologically Sensitive Waterbodies, or Natural and Scenic Waterways are not allowed. In other waters, where significant physical alterations of the habitat are proposed, the Division of Environmental Quality must be assured that no significant degradation of any existing use or water quality necessary to protect that use will occur. In order to make such determinations, the ~~Division~~ division may require an evaluation of all practicable alternatives to the project including: an environmental assessment of the impacts of each alternative, an engineering and economic analysis, and a socio-economic evaluation of the project in the local area.

8 CAR § 21-305.~~Rule 2.305~~ Short ~~Term Activity Authorization~~ term activity authorization

(a) The ~~Director~~ director of the Division of Environmental Quality may authorize, with whatever conditions deemed necessary and without public notice, short term activities which might cause a violation of the Arkansas Water Quality Standards. This authorization is subject to the provisions that such activity is essential to the protection or promotion of the public interest and that no permanent or long-term impairment of beneficial uses is likely to result from such activity. Nothing herein shall be intended to supersede existing state and federal permitting processes or requirements.

(b) Activities eligible for authorization include, but are not limited to:

~~(A)~~ (1) wastewater treatment facility maintenance;

~~(B)~~ (2) fish eradication projects;

~~(C)~~ (3) mosquito abatement projects;

~~(D)~~ (4) algae and weed control projects;

~~(E)~~ (5) dredge and fill projects;

~~(F)~~ (6) construction activities; or

~~(G)~~ (7) activities which result in overall enhancement or maintenance of beneficial uses.

(c)(1) The ~~Director~~ director shall specify the degree of variance from the standards, the time limit of activity, and restoration procedures where applicable.

(2) Such authorization shall not be granted for activities which result in the adverse impact on any federally threatened or endangered species or on critical habitat of such species.

8 CAR § 21-306. ~~Rule 2.306~~ Procedures for ~~Removal of Any Designated Use Except Fishable/Swimmable~~ removal of any designated use except fishable/swimmable, Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway, and ~~Modification of Water Quality Criteria not Related to These Uses~~ modification of water quality criteria not related to these uses

(a) This procedure is applicable in those cases where the Arkansas Pollution Control and Ecology Commission chooses to establish less stringent water quality criteria without affecting a fishable/swimmable use or the designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway, or when the ~~Commission~~ commission chooses to remove a use which is not an existing use other than fishable/swimmable, Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway.

(b) The ~~Commission~~commission ~~Commission~~ may allow a modification of the water quality criteria or the removal of a use which is not a fishable/swimmable use or designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway to accommodate important economic or social development in a local area, if existing uses are maintained and protected fully and the requirements for public participation in the State of Arkansas Continuing Planning Process are met. A~~t~~s a minimum, the following information shall be submitted to the ~~Director~~ director before initiation of the public participation process:

~~(A)~~ (1) Technological or economic limits of treatability.

~~(B)~~ (2) Economic analysis of the impact on the local area.

~~(C)~~ (3) Documentation that the use being removed is not an existing use and that all other designated uses will be protected.

(c) Modifications made pursuant to this section may be required to be rejustified for continued support. As community water needs change, or technological advancement, including long-term environmental improvement projects, make treatment options more practicable, the ~~Commission~~commission~~Commission~~ may reevaluate the need for the reestablishment of the more stringent water quality criteria or the removed use.

(d) Any waterbody on which such alterations are approved will be ~~so~~ listed in Appendix A with the applicable changes noted.

8 CAR § 21-307. ~~Rule 2.307~~ Use ~~Subcategories~~ subcategories

The Arkansas Pollution Control and Ecology Commission may adopt ~~sub-categories~~ subcategories of a use and set the appropriate criteria to reflect varying needs of such ~~sub-categories~~ subcategories of uses; for instance, to differentiate between cold and warm water fisheries or agricultural and domestic water supply.

8 CAR § 21-308. ~~Rule 2.308~~ Site ~~Specific Criteria~~ -specific criteria

In establishing criteria:

~~(A)~~ (a) Establish numerical criteria values based on:

(1) 304(a) Guidance; or

(2) 304(a) Guidance modified to reflect site conditions (i.e., Water Effects Ratio); or

(3) Other scientifically defensible methods.

~~(B)~~ (b) Establish narrative criteria or criteria based upon biomonitoring methods where numerical criteria cannot be established or to supplement numerical criteria.

8 CAR § 21-309. ~~Rule 2.309~~ Water ~~Quality Standards Temporary Variance~~ quality standards temporary variance

A water quality standards temporary variance shall be developed in accordance with and meet the requirements of 40 C.F.R. §131.14 and must be approved by the Arkansas Pollution Control and Ecology Commission and the United States Environmental Protection Agency.

8 CAR § 21-310.~~Rule 2.310~~ Procedure for the ~~Removal of the Designated Use of~~ removal of the designated use of Extraordinary Resource Water, or Ecologically Sensitive Waterbody, or Natural and Scenic Waterway for the ~~Purpose of Constructing a Reservoir on a Free Flowing Waterbody to Provide a Domestic Water Supply~~ purpose of constructing a reservoir on a free-flowing waterbody to provide a domestic water supply

~~(A)~~ (a)(1) An Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway designated use may be removed from a ~~free flowing~~ free-flowing waterbody for the purpose of constructing a reservoir to provide a domestic water supply, if it can be demonstrated that:

~~(1)~~ (A) the sole purpose for the funding and construction of the reservoir is to provide a domestic water supply; and

~~(2)~~ (B) there is no feasible alternative to constructing a reservoir in order to meet the domestic water needs of the citizens of the State of Arkansas.

(2) The limitation in ~~Subsection A(1)~~ subsection (a)(1)(A) of this section does not prohibit incidental uses of the reservoir that are consistent with the use of domestic water supply.

~~(B)~~(b) A petition to initiate rulemaking to remove an Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway designated use from a ~~free-flowing~~ free-flowing waterbody in order to construct a reservoir to provide a domestic water supply may be submitted to the Arkansas Pollution Control and Ecology Commission by a regional water distribution district, public facilities board, public water authority, or other public entity engaged in providing water to the public. Such petition, at a minimum, shall include:

(1) A map depicting the location of the proposed project and the area to be impounded;

(2) A description of the proposed project, including detailed design plans;

(3) A certification that the proposed structure to impound the ~~free-flowing~~ free-flowing stream shall be funded and constructed solely for the purpose of providing a domestic water supply;

(4) An evaluation of all alternatives to the proposed project, including:

~~(i)~~(A) an environmental assessment of the impacts of each alternative on the instream and downstream water quality, the instream habitat, and the habitat and plant and animal life in the area upstream, downstream, and to be inundated by the proposed project;

~~(ii)~~(B) the costs associated with, and an economic analysis for, each alternative;

~~(iii)~~(C) an engineering analysis for each alternative; and

~~(iv)~~(D) a socio-economic evaluation of the project to the local area and to the ~~State~~ state as a whole; and

(5) Information and supporting documentation which address the criteria set forth in Appendix E;

(6) A recommendation to the Arkansas Pollution Control and Ecology Commission from the ~~Director~~ director of the Division of Environmental Quality on whether or not the designated use should be maintained based upon a review of the information and supporting documentation required to be considered in Appendix E. The ~~Director~~ director shall provide the petitioner with the ~~Director~~ director's recommendation within one-hundred-eighty (180) days of the ~~Division's~~ Division of Environmental Quality's receipt of the petitioner's Appendix E submittal. If the ~~Director~~ director does not deliver a recommendation to the petitioner within the 180 day time period, the petitioner may file its petition under this section without including a recommendation from the ~~Director~~ director. The ~~Director~~ director may submit a recommendation to the ~~Commission~~ commission at any time not less than 30 days prior to the ~~Commission~~ commission's final decision on the petition.

(7) A description of any proposed mechanisms for protecting the domestic water supply, including but not limited to prohibitions to be placed on commercial and residential developments along the proposed shoreline of the impoundment, the controls to be placed

on public access to the water supply, and the legal authority for establishing and maintaining these domestic water supply protections; and

(8) Any other submittals required by Administrative Procedures, 8 CAR pt. 11 (previously, Rule 8) for a petition to initiate rulemaking.

~~(C)~~(c) The ~~Commission~~ commission, as part of its rulemaking decision, shall determine whether or not a feasible alternative to constructing a reservoir is available to meet the domestic water needs of the citizens of the State of Arkansas. The ~~Commission~~ commission shall set forth the reasons for its determination in writing. The designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway shall not be removed by the ~~Commission~~ commission if a feasible alternative to constructing a reservoir is available to meet the domestic water needs of the citizens of the State of Arkansas.

~~(D)~~(d) The ~~Commission~~ commission, as part of its rulemaking, shall determine whether or not the sole purpose for the funding and construction of the reservoir is to provide a domestic water supply. The ~~Commission~~ commission shall set forth the reasons for its determination in writing. The designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway shall not be removed by the ~~Commission~~ commission if the purpose for the funding and construction of the reservoir is other than to provide a domestic water supply. In no circumstance, shall the designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway be removed by the ~~Commission~~ commission from a ~~free flowing~~ free-flowing waterbody in order to construct a reservoir for recreational, flood control, or economic purposes other than providing a domestic water supply.

(~~E~~e) The ~~Commission~~ commission, as part of its rulemaking decision, shall determine whether or not the designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway of a given waterbody should be maintained. The ~~Commission~~ commission shall set forth the reasons for its determination in writing, after considering the ~~Director~~ director's recommendation referenced in Subsection ~~(B)~~(b)(6) of this section and reviewing the information and supporting documentation which address the criteria set forth in Appendix E.

8 CAR § 21-311. ~~Rule 2.311~~ Procedure for the ~~Addition of the Designated Use of~~ addition of the designated use of Extraordinary Resource Water, or Ecologically Sensitive Waterbody, or Natural and Scenic Waterway to a Waterbody or Segment of a Waterbody

~~(A)~~(a) Any waters of the ~~State~~ state may be nominated for designation as an Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway by submitting a petition to initiate rulemaking to the Arkansas Pollution Control and Ecology Commission. Such petition shall include, at a minimum, the following:

(1) Name of petitioner;

(2) Petitioner's mailing address and telephone number;

(3) Name and location description of the waterbody or segment proposed for designation;

(4) A map depicting the waterbody or segment proposed for designation;

(5) Petitioner's interest in the proposed action;

(6) Statement of potential benefits and impacts of the proposed action, including economic benefits and impacts;

(7) Evidence of requests for ~~resolution(s)~~ resolution or resolutions by appropriate local ~~government(s)~~ government or governments regarding the nomination of the waterbody as an Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway;

(8) Supporting documentation for the designation, including information which addresses the factors listed in Appendix F;

(9) Recommended language change necessary to affect this proposed change to any ~~Commission~~ commission rule; and

(10) Any other submittals required by Administrative Procedures, 8 CAR pt. 11 (previously, Rule 8) for a petition to initiate rulemaking.

~~(B)~~(b) The ~~Commission~~ commission, as part of its rulemaking, shall set forth in writing the reasons for its final decision.

Subpart 4. General standards~~CHAPTER 4: GENERAL STANDARDS~~

8 CAR § 21-401. ~~Rule 2.401~~ Applicability

Unless otherwise indicated in this Chapter or in Appendix A, the general standards outlined below are applicable to all surface waters of the ~~State~~ state at all times. They apply specifically with regard to substances attributed to discharges, nonpoint sources, or instream activities as opposed to natural phenomena. Waters may, on occasion, have natural background levels of certain substances outside the limits established by these criteria, in which case these criteria do not apply.

8 CAR § 21-402. ~~Rule 2.402~~ Nuisance ~~Species~~ species

All waters shall be free from substances attributed to man-caused point or nonpoint source discharges in concentrations that produce undesirable aquatic biota or result in the dominance of nuisance species.

8 CAR § 21-403. ~~Rule 2.403~~ Methods

The methods of sample collection, preservation, measurements, and analyses shall be in accordance with the United States Environmental Protection Agency *Guidelines Establishing Test Procedures for the Analysis of Pollutants* (40 C.F.R. § 136) or other proven methods acceptable to the Division of Environmental Quality.

8 CAR § 21-404.~~Rule 2.404~~ Mixing ~~Zones~~ zones

(a) Where mixing zones are allowed, the effects of wastes on the receiving stream shall be determined after the wastes have been thoroughly mixed with the mixing zone volume. Outfall structures should be designed to minimize the extent of mixing zones to ensure rapid and complete mixing.

(b) For aquatic life toxic substances in larger streams (those with Q7-10 flows equal to or greater than one hundred cubic feet per second (≥100 cfs), the zone of mixing shall not exceed one-fourth (1/4) of the cross-sectional area and/or critical flow volume of the stream. The remaining three-fourths (3/4) of the stream shall be maintained as a zone of passage for swimming and drifting organisms, and shall remain of such quality that stream ecosystems are not significantly affected. In the smaller streams (Q7-10 flows less than one hundred cubic feet per second (≤100 cfs) because of varying local physical and chemical conditions and biological phenomena, a site-specific determination shall be made on the percentage of river width necessary to allow passage of critical free-swimming and drifting organisms so that negligible or no effects are produced on their populations. As a guideline, no more than two-thirds (2/3) of the cross-sectional area and/or critical flow volume of smaller streams should be devoted to mixing zones thus leaving at least one-third (1/3) of the cross-sectional area free as a zone of passage.

(c) Mixing zones are not allowed for the parameters of bacteria or oil and grease, or where the background flow is less than the critical flow or where the background concentration of a waste parameter exceeds the specific criteria for that waste parameter.

(d) In lakes and reservoirs the size of mixing zones shall be defined by the Division of Environmental Quality on an individual basis, and the area shall be kept at a minimum.

(e) Mixing zones shall not prevent the free passage of fish or significantly affect aquatic ecosystems.

(f) A mixing zone shall not include any domestic water supply intake.

8 CAR § 21-405. ~~Rule 2.405~~ Biological ~~Integrity~~integrity

(a) For all waters with specific aquatic life use designated in Appendix A, aquatic biota should not be impacted. Aquatic biota should be representative of streams that have the ability to support the designated ~~fishery~~ aquatic life use, taking into consideration the seasonal and natural variability of the aquatic biota community under naturally varying habitat and hydrological conditions; the technical and economic feasibility of the options available to address the relevant conditions; and other factors.

(b) An aquatic biota assessment should compare biota communities that are similar in habitat and hydrologic condition, based upon either an in-stream study including an upstream and downstream comparison, a comparison to a reference water-body within the same ecoregion, or a comparison to community characteristics from a composite of reference waters. Such a comparison should consider the seasonal and natural variability of the aquatic biota community. It is the responsibility of the Division of Environmental Quality to evaluate the data for an aquatic biota assessment to protect aquatic life uses designated in Appendix A. Such data may be used to develop permit effluent limitations or conditions.

8 CAR § 21-406. ~~Rule 2.406~~ Color

True color shall not be increased in any waters to the extent that it will interfere with present or projected future uses of these waters.

8 CAR § 21-407. ~~Rule 2.407~~ Taste and ~~Odor~~ odor

Taste and odor producing substances shall be limited in receiving waters to concentrations that will not interfere with the production of potable water by reasonable water treatment processes, impart unpalatable flavor to food or fish, result in offensive odors arising from the waters, or otherwise interfere with the reasonable use of the water.

8 CAR § 21-408. ~~Rule 2.408~~ Solids, ~~Floating Material and Deposits~~ floating material, and deposits

Receiving waters shall have no distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks.

8 CAR § 21-409. ~~Rule 2.409~~ Toxic ~~Substancess~~substances

Discharges shall not be allowed into any waterbody which, after consideration of the zone of initial dilution, the mixing zone, and critical flow conditions, will cause toxicity to human, animal, plant, or aquatic biota or interfere with normal propagation, growth, and survival of aquatic biota.

8 CAR § 21-410. ~~Rule 2.410~~ Oil and ~~Grease~~grease

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules, other residue, or any visible, colored film on the surface; coat the banks and/or bottoms of the waterbody; or adversely affect any of the aquatic biota.

Subpart 5. Specific standards~~CHAPTER 5: SPECIFIC STANDARDS~~

8 CAR § 21-501. ~~Rule 2.501~~ Applicability

Unless otherwise indicated in this ~~Chapter~~ Subpart or in Appendix A, the following specific standards shall apply to all surface waters of the ~~State~~ state at all times except during periods when flows are less than the applicable critical flow. Streams with regulated flow will be addressed on a case-by-case basis to maintain designated instream uses. These standards apply outside the applicable mixing zone. Waters may, on occasion, have natural background levels of certain substances outside the limits established by these criteria, in which case these criteria do not apply to the naturally occurring excursions.

8 CAR § 21-502. ~~Rule 2.502~~ Temperature

(a) Heat shall not be added to any waterbody in excess of the amount that will elevate the natural temperature, outside the mixing zone, by more than 5°F (2.8°C) based upon the monthly average of the maximum daily temperatures measured at mid-depth or three feet (whichever is less) in streams, lakes, or reservoirs.

(b) The following criteria are applicable:

Waterbodies	**Criteria °C (°F)**
Streams	
Ozark Highlands	29 (84.2)
Boston Mountains	31 (87.8)
Arkansas ~~River~~ Valley	31 (87.8)
Ouachita Mountains	30 (86.0)
~~Springwater-influenced Gulf Coastal~~	~~30 (86.0)~~
~~Typical Gulf Coastal~~ South Central Plains	30 (86.0)
Least-Altered ~~Delta~~ Mississippi Alluvial Plain	30 (86.0)
Channel-Altered ~~Delta~~ Mississippi Alluvial Plain	32 (89.6)
White River (Dam #1 to mouth)	32 (89.6)
St. Francis River	32 (89.6)
Mississippi River	32 (89.6)
Arkansas River	32 (89.6)
Ouachita River (L. Missouri R.to Louisiana state line)	32 (89.6)
Red River	32 (89.6)
Lakes and Reservoirs	32 (89.6)
Trout Waters	20 (68.0)

(c) Temperature requirements shall not apply to off-stream privately-owned reservoirs constructed primarily for industrial cooling purposes and financed in whole or in part by the entity or successor entity using the lake for cooling purposes.

Note: Site specific temperature criteria are located in Appendix A.

8 CAR § 21-503. ~~Rule 2.503~~ Turbidity

(a) There shall be no distinctly visible increase in turbidity of receiving waters attributable to discharges or instream activities.

(b) The values below should not be exceeded during base flow (June 1 through October 31) in more than twenty percent (20%) of samples. The values below should not be exceeded during storm flows in more than twenty-five percent (25%) of samples taken in no less than twenty-four (24) monthly samples.

Waterbodies	Base Flows Values (NTU)	Storm Flows Values (NTU)
Streams		
Ozark Highlands	10	17
Boston Mountains	10	19
Arkansas ~~River~~ Valley	21	40
Ouachita Mountains	10	18
~~Springwater-influenced Gulf Coastal~~	~~21~~	~~32~~
~~Typical Gulf Coastal~~ South Central Plains	21	32
Least-Altered ~~Delta~~ Mississippi Alluvial Plain	45	84
Channel-Altered ~~Delta~~ Mississippi Alluvial Plain	75	250
Arkansas River	50	52
Mississippi River	50	75
Red River	50	150
St. Francis River	75	100
Trout Waters	10	15
Lakes and Reservoirs	25	45

8 CAR § 21-504. ~~Rule 2.504~~ pH

pH between 6.0 and 9.0 standard units are the applicable criteria for rivers, streams, lakes, and reservoirs. As a result of waste discharges, the pH of water in streams or lakes must not fluctuate in excess of 1.0 standard unit over a period of twenty-four (24) hours.

Note: Site specific pH criteria are located in Appendix A.

8 CAR § 21-505. ~~Rule 2.505~~ Dissolved ~~Oxygen~~ oxygen

(a) Rivers and Streams

(1) The following dissolved oxygen criteria are applicable:

Waterbodies	**Criteria (mg/L)**	
Streams	~~Primary~~ Non-Critical	Critical
Ozark Highlands		
<10 mi^2 watershed	6	2
10 to 100 mi^2	6	5
>100 mi^2 watershed	6	6
Boston Mountains		
<10 mi^2 watershed	6	2
>10 mi^2 watershed	6	6
Arkansas ~~River~~ Valley		
<10 mi^2 watershed	5	2
10 mi^2 to 150 mi^2	5	3
151 mi^2 to 400 mi^2	5	4
>400 mi^2 watershed	5	5
Ouachita Mountains		
<10 mi^2 watershed	6	2
>10 mi^2 watershed	6	6
Typical ~~Gulf Coastal~~ South Central Plains		
<10 mi^2 watershed	5	2
10 mi^2 to 500 mi^2	5	3
>500 mi^2 watershed	5	5
Springwater-influenced ~~Gulf Coastal~~ South Central Plains		
All size watersheds	6	5
~~Delta~~ Mississippi Alluvial Plain (least-altered and channel altered)		
<10 mi^2 watershed	5	2
10 mi^2 to 100 mi^2	5	3
>100 mi^2 watershed	5	5
Trout Waters		
All size watersheds	6	6

(2) In streams with watersheds of less than then ten square miles (≤10 mi^2), it is assumed that insufficient water exists to support aquatic life during the critical season. During this time, a dissolved oxygen criteria of two milligrams per liter (2 mg/L) will apply to prevent nuisance conditions. However, field verification is required in areas suspected of having significant groundwater flows or enduring pools that may support unique aquatic biota. In such waters the critical season criteria for the next size category of stream shall apply.

(3) All streams with watersheds of less than ten square miles (≤10 mi^2) are expected to support aquatic life during the ~~primary~~ non-critical season when stream flows, including discharges, equal or ~~exceed~~ greater than ~~1~~one cubic foot per second (1 cfs). However, when site verification indicates that aquatic life exists at flows below one cubic foot per second (1 cfs), such aquatic biota will be protected by the ~~primary~~ non-critical season standard (refer to the State of Arkansas Continuing Planning Process for field verification requirements).

(4) Also in streams with watersheds of less than ten square miles (≤10 mi^2), where waste discharges are one cubic foot per second (1 cfs) or more, streams are assumed to provide sufficient water to support aquatic life and, therefore, must meet the dissolved oxygen criteria of the next size category of streams.

(5) For purposes of determining effluent discharge limits, the following conditions shall apply:

~~(A)~~ (A) The ~~primary~~ non-critical season dissolved oxygen standard is to be met at a water temperature of twenty-two degrees Celsius (22°C (seventy-one and six-tenths degrees Fahrenheit (71.6°F))) and at the minimum stream flow for that season. At water temperatures of ten degrees Celsius (10°C (fifty degrees Fahrenheit (50°F))), the dissolved oxygen criteria is six and five-tenths milligrams per liter (6.5 mg/L).

~~(B)~~ (B) During March, April and May, when background stream flows are fifteen cubic feet per second (15 cfs) or higher, the dissolved oxygen standard is six and five-tenths milligrams per liter (6.5 mg/L) in all areas except the ~~Delta~~ Mississippi Alluvial Plain Ecoregion, where the ~~primary~~ non-critical season dissolved oxygen criteria will remain at five milligrams per liter (5 mg/L).

~~(C)~~ (C) The critical season dissolved oxygen standard is to be met at maximum allowable water temperatures and at Q7-10 flows. However, when water temperatures exceed twenty-two degrees Celsius (22°C (seventy-one and six-tenths degrees Fahrenheit (71.6°F))), a one milligram per liter (1 mg/L) diurnal depression will be allowed below the applicable critical criteria for no more than eight (8) hours during any ~~24~~twenty-four-hour period.

(b) Lakes and ~~Reservoirs~~ reservoirs

(1) Specific dissolved oxygen criteria for lakes and reservoirs shall be 5 mg/L.

(2) Effluent limits for oxygen-demanding discharges into impounded waters are promulgated in Arkansas Pollution Control and Ecology Commission's ~~Rule 6,~~ Rules for State Administration of the National Pollutant Discharge Elimination System (NPDES), 8 CAR pt. 25.

(3) However, the ~~Commission~~ commission may, after full satisfaction of the intergovernmental coordination and public participation provisions of the State of Arkansas Continuing Planning Process, establish alternative limits for dissolved oxygen in lakes and reservoirs where studies and other relevant information can demonstrate that predominant ecosystem conditions may be more accurately reflected by such alternate limits; provided that these limits shall be compatible with all designated beneficial uses of named lakes and reservoirs.

Note: Site specific dissolved oxygen criteria are located in Appendix A.

8 CAR § 21-506. ~~Rule 2.506~~ Radioactivity

The Rules ~~and Regulations~~ for the Control of Sources of Ionizing Radiation, 20 CAR pt. 3, of the Department of Health, Division of Radiological Health~~, Arkansas of the Department of Health~~, limits the maximum permissible levels of radiation that may be present in effluents to surface waters in uncontrollable areas. These limits shall apply for the purposes of ~~these standards~~this part, 8 CAR 21, except that in no case shall the levels of dissolved radium226 and strontium90 exceed three (3) and ten (10) picocuries~~/~~ per liter, respectively, in the receiving water after mixing, nor shall the gross beta concentration exceed one thousand (1000) picocuries~~/~~ per liter.

8 CAR § 21-507. ~~Rule 2.507~~ Bacteria

(a) For the purposes of this ~~rule~~part, all streams with watersheds less than ten square miles (10 mi^2) shall not be designated for primary contact unless and until site verification indicates that such use is attainable. Secondary contact use is assumed in all watershed sizes. No mixing zones are allowed for discharges of bacteria.

(b) For assessment of ambient waters as impaired by bacteria, the below listed applicable criteria for *E. coli* shall not be exceeded in more than twenty-five percent (25%) of individual samples in no less than eight (8) samples taken during the primary contact season or during the secondary contact season.

(c) The following criteria are applicable:

Contact Recreation Seasons	Criteria (col/100mL or MPN)			
Primary Contact[1]	*E. coli*		~~Fecal Coliform~~	
	IS[32]	*GM*[43]	~~*IS*[3]~~	~~*GM*[4]~~
ERW, ESW, NSW, Reservoirs, Lakes	298	126	~~400~~	~~200~~
All Other Waters	410	-126	~~400~~	~~200~~
Secondary Contact[54]				
ERW, ESW, NSW, Reservoirs, Lakes	1490	630	~~2000~~	~~1000~~
All Other Waters	2050	-630	~~2000~~	~~1000~~

~~[2] (RESERVED)~~

(d) The ~~Arkansas~~ Department of Health has the responsibility of approving or disapproving surface waters for public water supply and of approving or disapproving the suitability of specifically delineated outdoor bathing places for body contact recreation, and it has issued rules pertaining to such uses.

8 CAR § 21-508. ~~Rule 2.508~~ Toxic ~~Substances~~ substances

(a) Toxic substances shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of the ~~indigenous~~ aquatic biota.

(1) Acute toxicity standards apply outside the zone of initial dilution. Within the zone of initial dilution acute toxicity standards may be exceeded but acute toxicity may not occur.

(2) Chronic toxicity and chronic numeric toxicity standards apply at, or beyond, the edge of the mixing zone.

(b) Permitting of all toxic substances shall be in accordance with the toxic implementation strategy found in the State of Arkansas Continuing Planning Process.

(c) For non-permit issues and as a guideline for evaluating toxic substances not listed in the following tables, the Division of Environmental Quality may consider No Observed Effect Concentrations or other literature values as appropriate.

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[1] ~~May~~ April 1 to ~~September 30~~ October 31.
[2] For assessment of Individual Sample Criteria– at least eight (8) data points.
[3] For calculation ~~and assessment~~ of Geometric Mean – ~~calculated on a minimum of five (5) samples spaced evenly and within a thirty (30) day period~~ all samples taken within a primary contact recreation season.
[4] Year-round.

(d) For the substances listed below, the following standards shall apply:

ALL WATERBODIES - AQUATIC LIFE CRITERIA

Substance	Acute Values (µg/L)	Chronic Values (µg/L) (24-hr Average)
PCBs	---	0.0140
Aldrin	3.0	
Dieldrin	2.5	0.0019
DDT (& metabolites)	1.1	0.0010
Endrin[*5]	0.18	0.0023
Toxaphene	0.73	0.0002
Chlordane	2.4	0.0043
Endosulfan[*5]	0.22	0.056
Heptachlor	0.52	0.0038
Hexachlorocyclohexane[*5]	2.0	0.080
Pentachlorophenol	$e^{[1.005(pH)-4.869]}$	$e^{[1.005(pH)-5.134]}$
Chlorpyrifos	0.083	0.041

[5] * Total of all isomers.

DISSOLVED METALS ⁑[6]

Substance	Acute Criteria (CMC) - µg/L(ppb) Formula	X	Conversion	Chronic Criteria (CCC) - ug/L(ppb) Formula	X	Conversion
Cadmium	$e^{[1.1280.9789(\ln hardness)]-3.8283.866}$		(a)	$e^{[0.78520.7977(\ln hardness)]-3.490-3.909}$		(c)
Chromium(III)	$e^{[0.819(\ln hardness)]+3.688}$		0.316	$e^{[0.8190(\ln hardness)]+1.561}$		0.860
Chromium (VI)	16		0.982	11		0.962
Copper	$e^{[0.9422(\ln hardness)]-1.464}$		0.960	$e^{[0.8545(\ln hardness)]-1.465}$		0.960
Lead	$e^{[1.273(\ln hardness)]-1.460}$		(b)	$e^{[1.273(\ln hardness)]-4.705}$		(b)
Mercury‡[7]	2.4		0.85	---		---
Nickel	$e^{[0.8460(\ln hardness)]+3.3612}$		0.998	$e^{[0.8460(\ln hardness)]+1.1645}$		0.997
Silver	$e^{[1.72(\ln hardness)]-6.52}$		0.85	---		---
Zinc	$e^{[0.8473(\ln hardness)]+0.8604}$		0.978	$e^{[0.8473(\ln hardness)]+0.7614}$		0.986

(a) Calculated as: 1.136672 - [(ln hardness)(0.041838)]

(b) Calculated as: 1.46203 - [(ln hardness)(0.145712)]

(c) Calculated as: 1.101672 - [(ln hardness)(0.041838)]

[6] ⁑These values may be adjusted by a site specific Water Effects Ratio (WER) as defined in 40 C.F.R. § 131.36 (c).
[7] ‡Mercury based on bioaccumulation of residues in aquatic organisms.

TOTAL METALS

Acute Criteria (CMC) - µg/L(ppb)		Chronic Criteria (CCC) - ug/L(ppb)
Substance	**Value**	**Value**
Cyanide**[8]	22.36	5.2
Mercury‡[9]	---	0.012**[8]
Selenium**[8]	20	5

ALL WATERBODIES - HUMAN HEALTH CRITERIA

Substance	Water & Organism Criteria (~~ng/L~~ ug/L)*[10]
alpha Hexachlorocyclohexane	~~37.3~~ 0.0373
Benzene	0.58[11]
Beryllium	4.0~~00~~**[12]
Chlordane	~~5.0~~ 0.005
Dieldrin	~~1.2~~ 0.0012
Dioxin (2,3,7,8 TCDD)	~~0.001~~ 0.000001
Ethylbenzene	68
PCBs (polychlorinated biphenyls)	~~0.4~~ 0.0004
Phenol	4000
Toluene	57
Toxaphene	~~6.3~~ 0.0063
Xylene[13]	10000[14]

Note: Site specific toxics criteria are located in Appendix A.

(e) The permittee shall have the option to develop site-specific numerical standards for toxic substances using United States Environmental Protection Agency approved bioassay methodology and guidance. Such guidance may include but may not be limited to *Water Quality Standards ~~Handbook; Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses~~* (EPA-823-B-94-005, August, 1994); *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms* (EPA-821-R-02-012~~600/4-90/027F~~, 5th ed. December 2002); *Short Term Methods for Estimating the Chronic*

[8] **Expressed as total recoverable.
[9] ‡Mercury based on bioaccumulation of residues in aquatic organisms.
[10] * Criteria based on a lifetime risk factor of 10^{-5}.
[11] Criteria based on a lifetime risk factor of 10^{-6} and cancer slope factor of 0.015 unless otherwise noted.
[12] ** ~~4000 ng/L is also represented as 4.0 ug/L, which is t~~The maximum contaminant level under the Safe Drinking Water Act, 42 U.S.C.§ 300f et seq.
[13] Total of all isomers.
[14] 10000 ug/L is also represented as 10 mg/L, which is the maximum contaminant level under the Safe Drinking Water Act, 42 U.S.C. 300f et seq.

Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/600/4-91/002. 4th ed. October 2002) or most recent update thereof.

(f) Only ambient water quality data for dissolved metals generated or approved by the ~~Division~~ division after March 1, 1993 will be considered in the documentation of background concentrations for the purpose of developing permit limitations.

8 CAR § 21-509. ~~Rule 2.509~~ Nutrients

~~(A)~~(a) Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody. Impairment of a waterbody from excess nutrients is dependent on the natural waterbody characteristics such as stream flow, residence time, stream slope, substrate type, canopy, riparian vegetation, primary use of waterbody, season of the year, and ecoregion water chemistry. Because nutrient water column concentrations do not always correlate directly with stream impairments, impairments will be assessed by a combination of factors such as water clarity, periphyton or phytoplankton production, dissolved oxygen values, dissolved oxygen saturation, diurnal dissolved oxygen fluctuations, pH values, aquatic-life community structure and possibly others. However, when excess nutrients result in an impairment, based upon ~~Division~~ division assessment methodology or by any Arkansas established numeric water quality criteria, the waterbody will be determined to be impaired by nutrients.

~~(B)~~(b) Site Specific Nutrient Criteria

Lake	Chlorophyll a (ug/L)~~*~~**	Secchi Transparency (m)~~**~~***
Beaver Lake~~*~~[15]	8[16]	1.1[17]

(c) (1) All point source discharges into the watershed of waters officially listed on Arkansas's~~s~~ impaired waterbody list (Section 303(d) of the Clean Water Act, 33 U.S.C. § 1313(d)) with phosphorus as the major cause shall have monthly average discharge permit limits no greater than those listed below.

(2) Additionally, waters in nutrient surplus watersheds as determined as set forth in ArkansasArk. Code ~~Ann.~~ § 15-20-1104, and subsequently designated nutrient surplus watersheds may be included under this ~~Rule~~part if point source discharges are shown to provide a significant phosphorus contribution to waters within the listed nutrient surplus watersheds.

[15] ~~*~~These criteria are for measurement at the Hickory Creek site over the old thalweg, below the confluence of War Eagle Creek and the White River in Beaver Lake.

[16] ~~**~~Growing season geometric mean (May - October).

[17] ~~***~~Annual Average.

Facility Design Flow – mgd	Total Phosphorus discharge limit – mg/L
= or > 15	Case by case
3 to <15	1.0
1 to <3	2.0
0.5 to <1.0	5.0
<0.5	Case by Case

(3) For discharges from point sources which are greater than fifteen million gallons per day (>15 mgd), reduction of phosphorus below one milligram per liter (1 mg/L) may be required based on the magnitude of the phosphorus load (mass) and the type of downstream waterbodies (e.g., reservoirs, Extraordinary Resource Waters). Additionally, any discharge limits listed above may be further reduced if it is determined that these values are causing impairments to special waters such as domestic water supplies, lakes or reservoirs, or Extraordinary Resource Waters.

8 CAR § 21-510. ~~Rule 2.510~~ Oil and ~~Grease~~ grease

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules, other residue, or any visible, colored film on the surface; coat the banks and/or bottoms of the waterbodies; or adversely affect any of the aquatic biota. Oil and grease shall be an average of no more than ten milligrams per liter (10 mg/L) or a maximum of no more than fifteen milligrams per liter (15 mg/L). No mixing zones are allowed for discharges of oil and grease.

8 CAR § 21-511. ~~Rule 2.511~~ Mineral ~~Quality~~quality

~~(A)~~(a) Site Specific Mineral Quality Criteria

(1) Mineral quality shall not be altered by municipal, industrial, other waste discharges or instream activities so as to interfere with designated uses.

~~The following criteria apply to the streams indicated.~~

(2) Site specific mineral quality criteria are found by ecoregion in Appendix A.

~~Stream~~	~~Concentration mg/L~~		
	~~Chlorides (Cl^-)~~	~~Sulfates (SO_4^{2-})~~	~~TDS~~
~~Arkansas River Basin~~			
~~Arkansas River (Mouth to Murray Lock and Dam [L&D #7])~~	~~250~~	~~100~~	~~500~~
~~Bayou Meto (Rocky Branch to Pulaski/Lonoke county line)~~	~~64*~~	~~ER~~	~~ER~~
~~Bayou Meto (Pulaski/Lonoke county line to mouth)~~	~~95**~~	~~45**~~	~~ER~~
~~Bayou Two Prairie (Pulaski/Lonoke county line to Northern boundary of Smoke Hole Natural Area)~~	~~95**~~	~~45**~~	~~ER~~
~~Bayou Two Prairie (Southern boundary of Smoke Hole Natural Area to Mouth)~~	~~95**~~	~~45**~~	~~ER~~
~~Rocky Branch Creek~~	~~64*~~	~~ER~~	~~ER~~

Stream	Concentration-mg/L		
	Chlorides (Cl^-)	Sulfates (SO_4^{2-})	TDS
Little Fourche Creek (Willow Springs Branch to Fourche Creek)	ER	ER	179
Willow Springs Branch (McGeorge Creek to Little Fourche Creek)	ER	112	247
McGeorge Creek (headwaters to Willow Springs Branch)	ER	250	432
Arkansas River (Murray Lock and Dam [L&D #7] to Dardanelle Lock and Dam [L&D #10])	250	100	500
Cadron Creek	20	20	100
Arkansas River (Dardanelle Lock and Dam [L&D #10] to Oklahoma state line, including Dardanelle Reservoir)	250	120	500
James Fork	20	100	275
Illinois River	20	20	300
Poteau River from Scott County Road 59 to Oklahoma state line	120	60	500
Poteau River from confluence of Unnamed trib to Scott County Road 59	185	200	786
Unnamed trib from Tyson-Waldron Outfall 001 to confluence with the Poteau River	180	200	870
White River Basin			
White River (Mouth to Dam #3)	20	60	430
Big Creek	20	30	270
Unnamed trib from Frit Ind.	ER	48*	ER
Cache River	20	30	270
Bayou DeView (from Mouth to AR Hwy 14)	48	37.3	411.3
Bayou DeView (from AR Hwy 14 to Whistle Ditch)	48	38	411.3
Big Creek (from Whistle Ditch to mouth of Unnamed trib)	58	49	ER
Unnamed trib to Big Creek	71	60	453
Lost Creek Ditch	20	30	270
Little Red River (including Greers Ferry Reservoir)	20	30	100
Black River	20	30	270
Strawberry River	20	30	270
Spring River	20	30	290
Eleven Point River	20	30	270
Stennitt Creek from Brushy Creek to Spring River	ER	43.3	456*
Brushy Creek from Unnamed Tributary to Stennitt Creek	ER	126	549
Unnamed Tributary from Vulcan Outfall 001 to Brushy Creek	ER	260	725
South Fork Spring River	20	30	270
Myatt Creek	20	30	270

Stream	Concentration-mg/L		
	Chlorides (Cl^-)	Sulfates (SO_4^{2-})	TDS
Current River	20	30	270
White River (Dam #3 to Missouri state line, including Bull Shoals Reservoir)	20	20	180
Buffalo River	20	20	200
Crooked Creek (Harrison WWTP outfall to Monitoring Station WHI0193)	22.6	24.4	269
Crooked Creek (Monitoring Station WHI0193 to the mouth)	20	20	238
White River (WHI0052 to Missouri state line, including Beaver Reservoir)	20	20	160
Kings River	20	20	150
Holman Creek from the confluence with Town Branch downstream to the confluence with War Eagle Creek	180	48	621
Town Branch from point of discharge of the City of Huntsville WWTP downstream to the confluence with Holman Creek	223	61	779
White River from WR-02 to WHI0052	30	40	237
White River from Noland WWTP to 0.4 miles downstream (WR-02)	44	79	362
White River headwaters to Noland WWTP	20	20	160
West Fork White River	20	20	150
St. Francis River Basin			
St. Francis River (Mouth to 36° N. Lat.)	10	30	330
L'Anguille River	20	30	235
Tyronza River (headwaters to Ditch No. 6 confluence)	20	30	350
Ditch No. 27	ER	480	1200
Ditch No. 6 (mouth to Ditch No. 27 confluence)	ER	210	630
Tyronza River (mouth to Ditch No. 6 confluence)	20	60	350
Little River	20	30	365
Pemiscot Bayou	20	30	380
St. Francis River (36° N. Lat. to 36° 30' N. Lat.)	10	20	180
Ouachita River Basin			
Bayou Bartholomew	30	30	220
Chemin-A-Haut Creek	50	20	500
Overflow Creek	20	30	170
Bayou Macon	30	40	330
Boeuf River	90	30	460
Big Cornie Creek Cornie Bayou	230	30	500
Little Cornie Creek Corney Bayou	200	10	400
Three Creeks	250	10	500
Little Cornie Bayou	200	20	500

Stream	Concentration-mg/L		
	Chlorides (Cl^-)	Sulfates (SO_4^{2-})	TDS
Walker Branch	180	ER	970
Gum Creek	104*	ER	311*
Bayou de L'Outre above Gum Creek	250	90	500
Bayou de L'Outre below Gum Creek	250	90	750
Ouachita River (Louisiana state line to Camden)	160	40	350
Saline River	20	40	120
Saline River east bifurcation at Holly Creek	ER	250	500
Hurricane Creek above Hurricane Lake Dam	20	250	500
Hurricane Creek from Hurricane Lk. Dam to Ben Ball Bridge	125	730	1210
Hurricane Creek from Ben Ball Bridge to US Hwy.270	125	700	1200
Hurricane Creek from Hwy 270 to Saline River	100	500	1000
Alcoa unnamed tribs to Hurricane Creek	125	700	1100
Dry Lost Creek and tribs	ER	560	880
Lost Creek to Little Lost Creek	ER	510	820
Lost Creek below Little Lost Creek	ER	300	550
Holly Creek	30	860	1600
Moro Creek	30	20	260
Smackover Creek	250	30	500
Boggy Creek – from the discharge for Clean Harbors El Dorado LLC to the confluence of Bayou de Loutre	631	63	1360
Ouachita River (Camden to Carpenter Dam)	50	40	150
Town Creek below Acme tributary	ER	200	700
Unnamed trib from Acme	ER	330	830
Little Missouri River	10	90	180
Muddy Fork Little Missouri	ER	250	500
Bluff Creek and unnamed trib.	ER	651*	1033*
Garland Creek	250	250	500
South Fork Caddo	ER	60	128
Back Valley Creek	ER	250	500
Cove Creek from the confluence with Chamberlain Creek to the Ouachita River		250***	500***
Chamberlain from headwaters to confluence with Cove Creek	68***	1,384***	2,261***
Lucinda from the confluence of Rusher Creek to the confluence with Cove Creek		250***	500***
Rusher Creek from the confluence of the East and West Forks to confluence with Lucinda Creek		250***	500***
Reyburn Creek from headwaters to confluence of Francois Creek		250***	500***
Scull Creek from a point approximately 350 feet upstream of Clearwater Lake to Clearwater Lake		250***	500***

Stream	Concentration-mg/L		
	Chlorides (Cl^-)	Sulfates (SO_4^{2-})	TDS
(including Clearwater Lake) and from Clearwater Lake dam to confluence Reyburn Creek			
Wilson Creek from its mouth upstream approx. 1.7 miles at the UMETCO property line	56	250	500
Ouachita River (Carpenter Dam to Headwaters, including Lake Ouachita tributaries)	10	10	100
Red River Basin			
Bayou Dorcheat	100	16*	250
Albemarle unnamed trib (AUT) to Horsehead Creek	137*	ER	383*
Horsehead Creek from AUT to mouth	85*	ER	260*
Cypress Creek	250	70	500
Crooked Creek	250	10	500
Dismukes Creek	26*	ER	157*
Big Creek from Dismukes to Bayou Dorcheat	20*	ER	200*
Bois d'Arc Creek from Caney Creek to Red River	113*	283*	420*
Caney Creek	113*	283*	420*
Bodcau Creek	250	70	500
Poston Bayou	120	40	500
Kelley Bayou	90	40	500
Red River from Arkansas/Oklahoma state line to mouth of the Little River	250	200	850
Red River from mouth of the Little River to the Arkansas/Louisiana State Line	250	200	780
Sulphur River	120	100	500
Days Creek	250	250	500
McKinney Bayou	180	60	480
Little River from Oklahoma State line to Millwood Lake	20	20	100
Little River from Millwood Lake to the Red River	20	20	138†
Saline River	20	10	90
Mine Creek from Hwy 27 to Millwood Lake	90	65	700
Cossatot River	10	15	70
Upper Rolling Fork	20	20	100
Rolling Fork from unnamed trib A to DeQueen Lake	130	70	670
Unnamed tribs A and A1 at Grannis	135	70	700
Mountain Fork	20	20	110
Mississippi River (Louisiana state line to Arkansas River)	60	150	425
Mississippi River (Arkansas River to Missouri state line)	60	175	450

ER – ecoregion value
* developed using background flow of 4 cfs

~~** These criteria shall apply to all tributaries of Bayou Meto and Bayou Two Prairie listed in Appendix A~~
~~Any modification of these values must be made in accordance with Rule 2.306.~~
~~† Not applicable for Clean Water Act purposes until approved by EPA.~~
~~***These temporary standards variations are effective for 148 months from EPA's approval of the EIP on January 7, 2020.~~

~~(B)~~(b) Ecoregion Reference Stream Minerals Values

The following values were determined from Arkansas'~~s~~ least-disturbed ecoregion reference streams and are considered to be the maximum naturally occurring levels. For waterbodies not listed above, any discharge that results in instream concentrations more than one-third (1/3) higher than these values for chlorides (Cl^-) and sulfates (SO_4^{2-}) or more than fifteen milligrams per liter (15 mg/L), whichever is greater, is considered to be a significant modification of the maximum naturally occurring values. These waterbodies should be considered as candidates for ~~site specific~~ site-specific criteria development in accordance with 8 CAR §§ 21-306 and 21-308 (previously Rules 2.306 and 2.308). Similarly, ~~site specific~~ site-specific criteria development should be considered if the following TDS values are exceeded after being increased by the sum of the increases to Cl^- and SO_4^{2-}. Such criteria may be developed only in accordance with 8 CAR §§ 21-306 and 21-308 (previously Rules 2.306 and 2.308). The values listed in the table below are not intended to be used by the Division of Environmental Quality to evaluate attainment of water quality standards for assessment purposes.

ECOREGION REFERENCE STREAM VALUES (mg/L)

Ecoregion	Chlorides (Cl^-)	Sulfates (SO_4^{2-})	TDS
Ozark Highlands	13	17	240
Boston Mountains	13	9	85
Arkansas ~~River~~ Valley	10	13	103
Ouachita Mountains	6	15	128
~~Gulf Coastal~~ South Central Plains	14	31	123
~~Delta~~ Mississippi Alluvial Plain	36	28	390

~~(C)~~(c) Domestic Water Supply Criteria

In no case shall discharges cause concentrations in any waterbody to exceed two hundred fifty milligrams per liter (250 mg/L), two hundred fifty milligrams per liter (250 mg/L), and five hundred milligrams per liter (500 mg/L) of chlorides, sulfates, and total dissolved solids, respectively, or cause concentrations to exceed the applicable criteria, except in accordance with 8 CAR §§ 21-306 and 21-308 (previously Rules 2.306 and 2.308).

8 CAR § 21-512. ~~Rule 2.512~~ Ammonia

(a) The total ammonia nitrogen (TAN) criteria and the frequency of occurrence are as follows:

~~(A)~~(1) The one-hour average concentration of total ammonia nitrogen shall not exceed, more than once every three years on the average, the acute criterion as shown in the following table~~s~~:

~~pH-Dependent Values of the CMC (Acute Criterion)- mg/L~~

~~pH~~	**~~Salmonids* Present~~**	**~~Salmonids Absent~~**
~~6.5~~	~~32.6~~	~~48.8~~
~~6.6~~	~~31.3~~	~~46.8~~
~~6.7~~	~~29.8~~	~~44.6~~
~~6.8~~	~~28.1~~	~~42.0~~
~~6.9~~	~~26.2~~	~~39.1~~
~~7.0~~	~~24.1~~	~~36.1~~
~~7.1~~	~~22.0~~	~~32.8~~
~~7.2~~	~~19.7~~	~~29.5~~
~~7.3~~	~~17.5~~	~~26.2~~
~~7.4~~	~~15.4~~	~~23.0~~
~~7.5~~	~~13.3~~	~~19.9~~
~~7.6~~	~~11.4~~	~~17.0~~
~~7.7~~	~~9.65~~	~~14.4~~
~~7.8~~	~~8.11~~	~~12.1~~
~~7.9~~	~~6.77~~	~~10.1~~
~~8.0~~	~~5.62~~	~~8.40~~
~~8.1~~	~~4.64~~	~~6.95~~
~~8.2~~	~~3.83~~	~~5.72~~
~~8.3~~	~~3.15~~	~~4.71~~
~~8.4~~	~~2.59~~	~~3.88~~
~~8.5~~	~~2.14~~	~~3.20~~
~~8.6~~	~~1.77~~	~~2.65~~
~~8.7~~	~~1.47~~	~~2.20~~
~~8.8~~	~~1.23~~	~~1.84~~
~~8.9~~	~~1.04~~	~~1.56~~
~~9.0~~	~~0.885~~	~~1.32~~

Temperature and pH-Dependent Values of the CMC (Acute Criterion Magnitude) – *Oncorhynchus Species*[18] Present

	Temperature (°C)																
pH	**0-14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
6.5	33	33	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	31	31	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	30	30	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0
6.8	28	28	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	26	26	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7.0	24	24	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	8.0	7.3
7.1	22	22	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	20	20	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	18	18	17	16	14	13	12	11	10	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	15	15	15	14	13	12	11	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	13	13	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	11	11	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	9.6	9.6	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	3.0
7.8	8.1	8.1	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	6.8	6.8	6.6	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	5.6	5.6	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	4.6	4.6	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	3.8	3.8	3.7	3.5	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	3.1	3.1	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	2.6	2.6	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79
8.5	2.1	2.1	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.9	0.83	0.77	0.71	0.65
8.6	1.8	1.8	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.59	0.54
8.7	1.5	1.5	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.8	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.2	1.2	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.0	1.0	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.4	0.37	0.34	0.32
9.0	0.88	0.88	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27

[18] Family of fishes that includes trout.

Temperature and pH-Dependent Values of the CMC (Acute Criterion Magnitude) – *Oncorhynchus Species* Absent.

	Temperature (°C)																				
pH	**0-10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
6.5	51	48	44	41	37	34	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	49	46	42	39	36	33	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	46	44	40	37	34	31	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0
6.8	440	41	38	35	32	30	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	41	38	35	32	30	28	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7.0	38	35	33	30	28	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9	7.3
7.1	34	32	30	27	25	23	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	31	29	27	25	23	21	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	27	26	24	22	20	18	17	16	14	13	12	11	10	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	21	19	18	17	15	14	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	18	17	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	2.9
7.8	13	12	11	10	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	11	9.9	9.1	8.4	7.7	7.1	6.6	3.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	8.8	8.2	7.6	7.0	6.4	5.9	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	7.2	6.8	6.3	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2	1.8	1.7	1.5	1.4
8.2	6.0	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	4.9	4.6	4.3	3.9	3.6	3.3	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79
8.5	3.3	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.9	0.83	0.77	0.71	0.65
8.6	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.58	0.54
8.7	2.3	2.2	2.0	1.8	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.8	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.4	0.37	0.34	0.32
9.0	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27

~~(B)~~(2) The monthly average concentration of total ammonia nitrogen shall not exceed those values shown as the chronic criterion in the following tables~~:~~

~~Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present – mg/L~~

	~~Temperature °C~~									
~~pH~~	**~~0~~**	**~~14~~**	**~~16~~**	**~~18~~**	**~~20~~**	**~~22~~**	**~~24~~**	**~~26~~**	**~~28~~**	**~~30~~**
~~6.5~~	~~6.67~~	~~6.67~~	~~6.06~~	~~5.33~~	~~4.68~~	~~4.12~~	~~3.62~~	~~3.18~~	~~2.80~~	~~2.46~~
~~6.6~~	~~6.57~~	~~6.57~~	~~5.97~~	~~5.25~~	~~4.61~~	~~4.05~~	~~3.56~~	~~3.13~~	~~2.75~~	~~2.42~~
~~6.7~~	~~6.44~~	~~6.44~~	~~5.86~~	~~5.15~~	~~4.52~~	~~3.98~~	~~3.50~~	~~3.07~~	~~2.70~~	~~2.37~~
~~6.8~~	~~6.29~~	~~6.29~~	~~5.72~~	~~5.03~~	~~4.42~~	~~3.89~~	~~3.42~~	~~3.00~~	~~2.64~~	~~2.32~~
~~6.9~~	~~6.12~~	~~6.12~~	~~5.56~~	~~4.89~~	~~4.30~~	~~3.78~~	~~3.32~~	~~2.92~~	~~2.57~~	~~2.25~~
~~7.0~~	~~5.91~~	~~5.91~~	~~5.37~~	~~4.72~~	~~4.15~~	~~3.65~~	~~3.21~~	~~2.82~~	~~2.48~~	~~2.18~~
~~7.1~~	~~5.67~~	~~5.67~~	~~5.15~~	~~4.53~~	~~3.98~~	~~3.50~~	~~3.08~~	~~2.70~~	~~2.38~~	~~2.09~~
~~7.2~~	~~5.39~~	~~5.39~~	~~4.90~~	~~4.31~~	~~3.78~~	~~3.33~~	~~2.92~~	~~2.57~~	~~2.26~~	~~1.99~~
~~7.3~~	~~5.08~~	~~5.08~~	~~4.61~~	~~4.06~~	~~3.57~~	~~3.13~~	~~2.76~~	~~2.42~~	~~2.13~~	~~1.87~~
~~7.4~~	~~4.73~~	~~4.73~~	~~4.30~~	~~3.78~~	~~3.32~~	~~2.92~~	~~2.57~~	~~2.26~~	~~1.98~~	~~1.74~~
~~7.5~~	~~4.36~~	~~4.36~~	~~3.97~~	~~3.49~~	~~3.06~~	~~2.69~~	~~2.37~~	~~2.08~~	~~1.83~~	~~1.61~~
~~7.6~~	~~3.98~~	~~3.98~~	~~3.61~~	~~3.18~~	~~2.79~~	~~2.45~~	~~2.16~~	~~1.90~~	~~1.67~~	~~1.47~~
~~7.7~~	~~3.58~~	~~3.58~~	~~3.25~~	~~2.86~~	~~2.51~~	~~2.21~~	~~1.94~~	~~1.71~~	~~1.50~~	~~1.32~~
~~7.8~~	~~3.18~~	~~3.18~~	~~2.89~~	~~2.54~~	~~2.23~~	~~1.96~~	~~1.73~~	~~1.52~~	~~1.33~~	~~1.17~~
~~7.9~~	~~2.80~~	~~2.80~~	~~2.54~~	~~2.24~~	~~1.96~~	~~1.73~~	~~1.52~~	~~1.33~~	~~1.17~~	~~1.03~~
~~8.0~~	~~2.43~~	~~2.43~~	~~2.21~~	~~1.94~~	~~1.71~~	~~1.50~~	~~1.32~~	~~1.16~~	~~1.02~~	~~0.897~~
~~8.1~~	~~2.10~~	~~2.10~~	~~1.91~~	~~1.68~~	~~1.47~~	~~1.29~~	~~1.14~~	~~1.00~~	~~0.879~~	~~0.773~~
~~8.2~~	~~1.79~~	~~1.79~~	~~1.63~~	~~1.43~~	~~1.26~~	~~1.11~~	~~0.973~~	~~0.855~~	~~0.752~~	~~0.661~~
~~8.3~~	~~1.52~~	~~1.52~~	~~1.39~~	~~1.22~~	~~1.07~~	~~0.941~~	~~0.827~~	~~0.727~~	~~0.639~~	~~0.562~~
~~8.4~~	~~1.29~~	~~1.29~~	~~1.17~~	~~1.03~~	~~0.906~~	~~0.796~~	~~0.700~~	~~0.615~~	~~0.541~~	~~0.475~~
~~8.5~~	~~1.09~~	~~1.09~~	~~0.990~~	~~0.870~~	~~0.765~~	~~0.672~~	~~0.591~~	~~0.520~~	~~0.457~~	~~0.401~~
~~8.6~~	~~0.920~~	~~0.920~~	~~0.836~~	~~0.735~~	~~0.646~~	~~0.568~~	~~0.499~~	~~0.439~~	~~0.386~~	~~0.339~~
~~8.7~~	~~0.778~~	~~0.778~~	~~0.707~~	~~0.622~~	~~0.547~~	~~0.480~~	~~0.422~~	~~0.371~~	~~0.326~~	~~0.287~~
~~8.8~~	~~0.661~~	~~0.661~~	~~0.601~~	~~0.528~~	~~0.464~~	~~0.408~~	~~0.359~~	~~0.315~~	~~0.277~~	~~0.244~~
~~8.9~~	~~0.565~~	~~0.565~~	~~0.513~~	~~0.451~~	~~0.397~~	~~0.349~~	~~0.306~~	~~0.269~~	~~0.237~~	~~0.208~~
~~9.0~~	~~0.486~~	~~0.486~~	~~0.442~~	~~0.389~~	~~0.342~~	~~0.300~~	~~0.264~~	~~0.232~~	~~0.204~~	~~0.179~~

Temperature and pH-Dependent Values of the CCC (Chronic Criterion)

for Fish Early Life Stages Absent – mg/L

	Temperature °C									
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***	**16***
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

Temperature and pH-Dependent Values of the CCC (Chronic Criterion Magnitude)

	Temperature (°C)																							
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.2	1.1
6.6	4.8	4.5	4.3	4.0	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0
7.0	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	0.99
7.1	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95
7.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.9
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.97	0.91	0.85
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.9	0.85	0.79
7.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.83	0.78	0.73
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98	0.92	0.86	0.81	0.76	0.71	0.67
7.7	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.6
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.5	0.47
8.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.6	0.56	0.53	0.5	0.44	0.44	0.41
8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.4	0.38	0.35
8.2	1.3	1.2	1.2	1.1	1.0	0.96	0.9	0.84	0.79	0.74	0.7	0.65	0.61	0.57	0.54	0.5	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.3
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.4	0.38	0.35	0.33	0.31	0.29	0.27	0.26
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.5	0.47	0.44	0.41	0.39	0.36	0.34	0.32	0.3	0.28	0.26	0.25	0.23	0.22
8.5	0.8	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.4	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.22	0.21	0.2	0.18
8.6	0.68	0.64	0.6	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.21	0.2	0.19	0.18	0.16	0.15
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.3	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13
8.8	0.49	0.46	0.43	0.4	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.2	0.19	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.11
8.9	0.42	0.39	0.37	0.34	0.32	0.3	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.1	0.09
9.0	0.36	0.34	0.32	0.3	0.28	0.26	0.24	0.23	0.21	0.2	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.1	0.09	0.09	0.08

~~(C)~~(3) The highest four-day average within a 30-day period should not exceed 2.5 times the chronic values shown above.

~~(D)~~(b) For permitted discharges, the daily maximum or seven-day average permit limit shall be calculated using the four-day average value described above as an instream value, after mixing and based on a season when fish early life stages are present and a season when fish early life stages are absent. Temperature values used will be 14° C when fish early life stages are absent and the ecoregion temperature standard for the season when fish early life stages are present. The pH values will be the ecoregion mean value from least-disturbed stream data.

Subpart 6. Effective Date ~~CHAPTER 6: EFFECTIVE DATE~~

8 CAR § 21-601. Effective date.

This rule is effective ten (10) days after filing with the Secretary of State, The State Library, and the Bureau of Legislative Research.

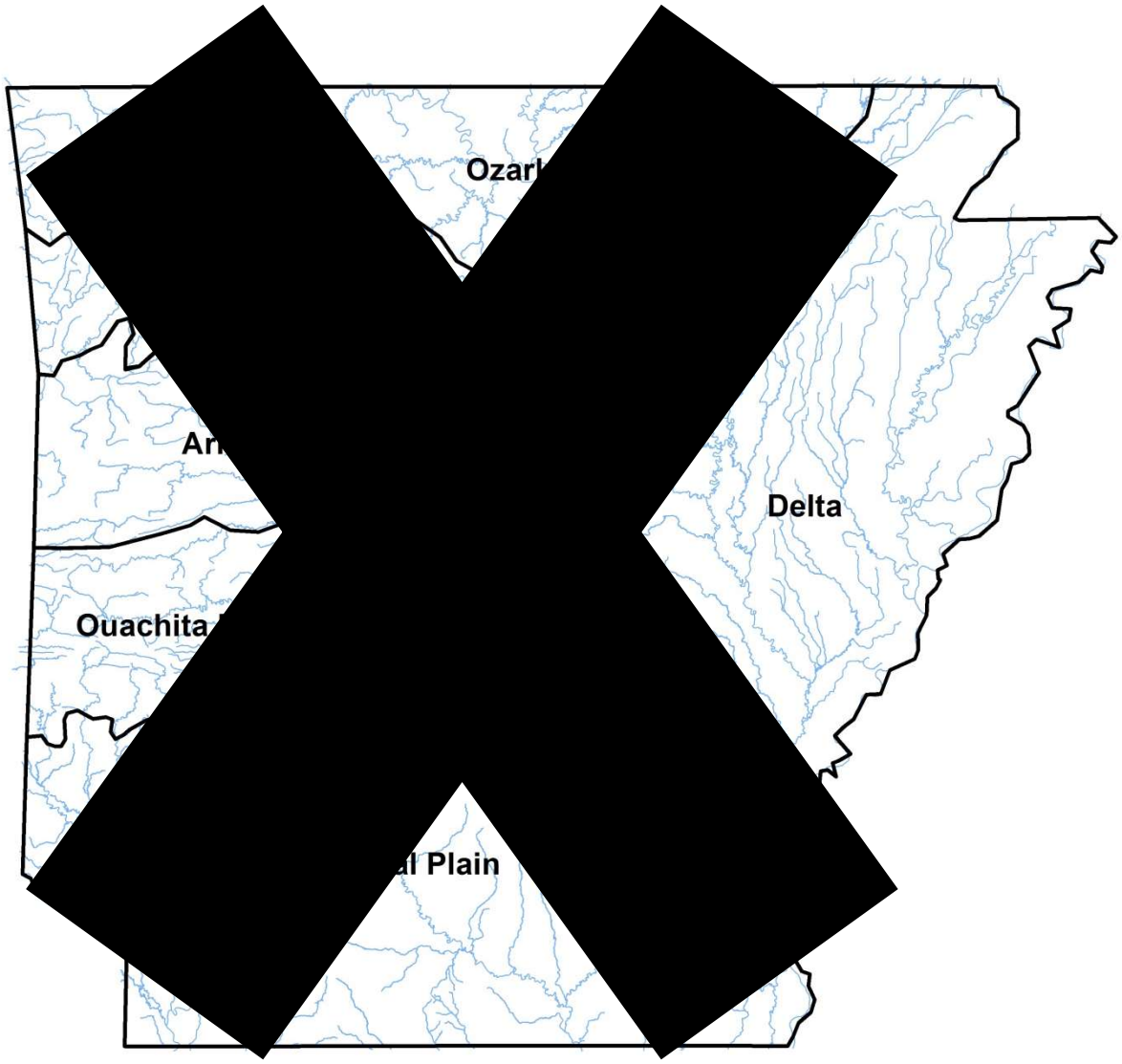
ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

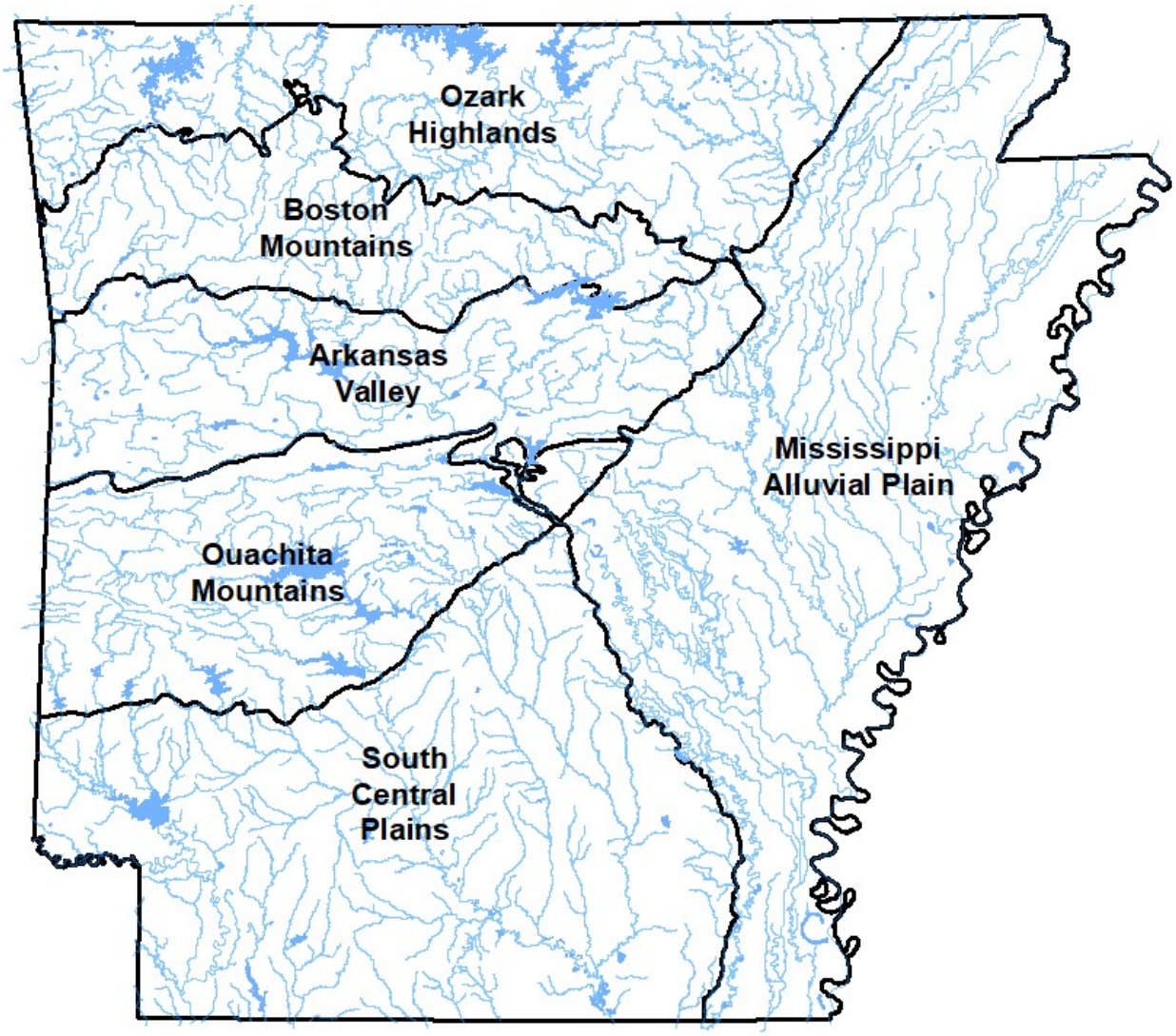
8 CAR PT. 21 ~~RULE 2~~

APPENDIX A

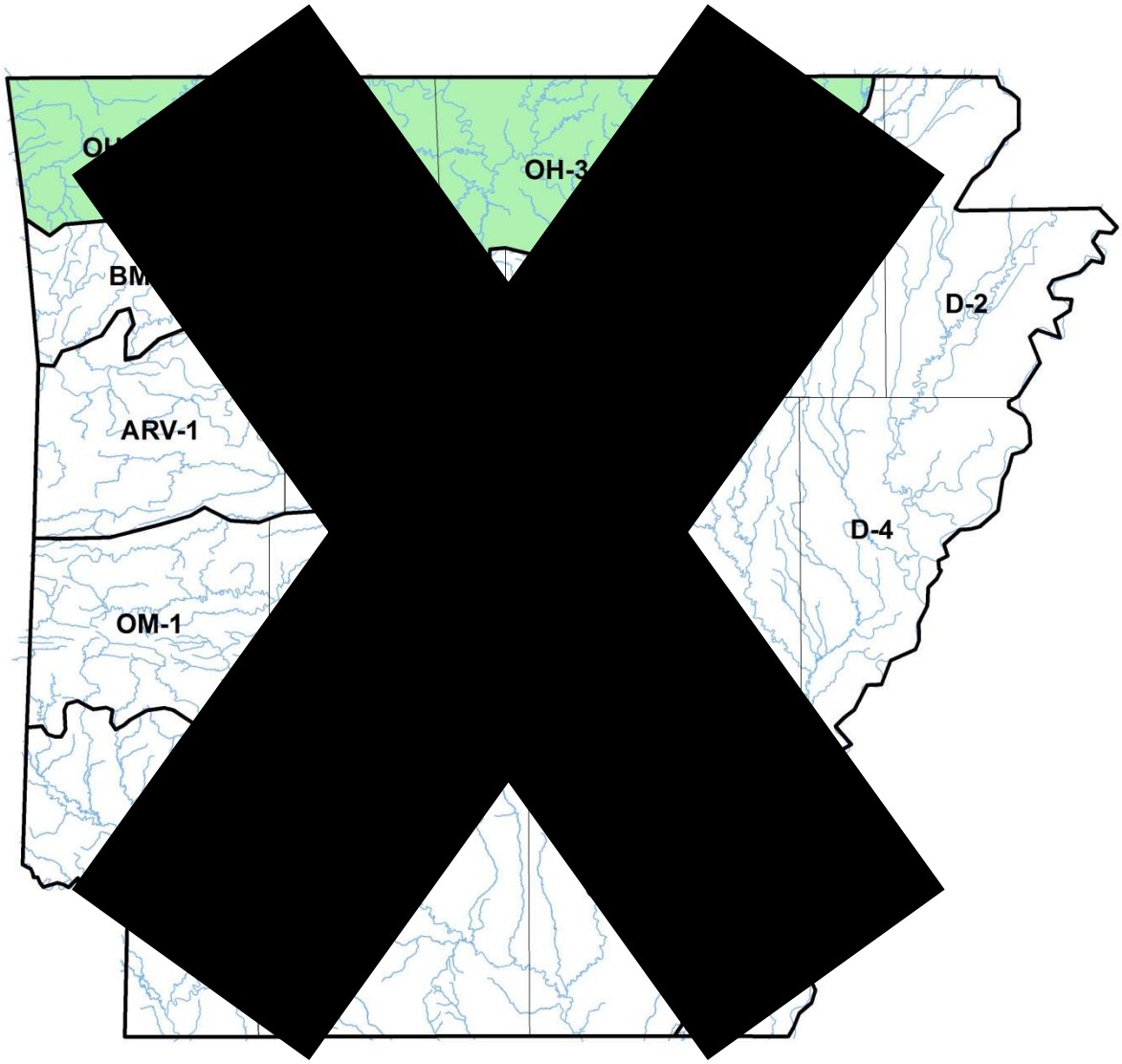
Designated Uses, Specific Standards, and Maps of Waters of the State by Ecoregions

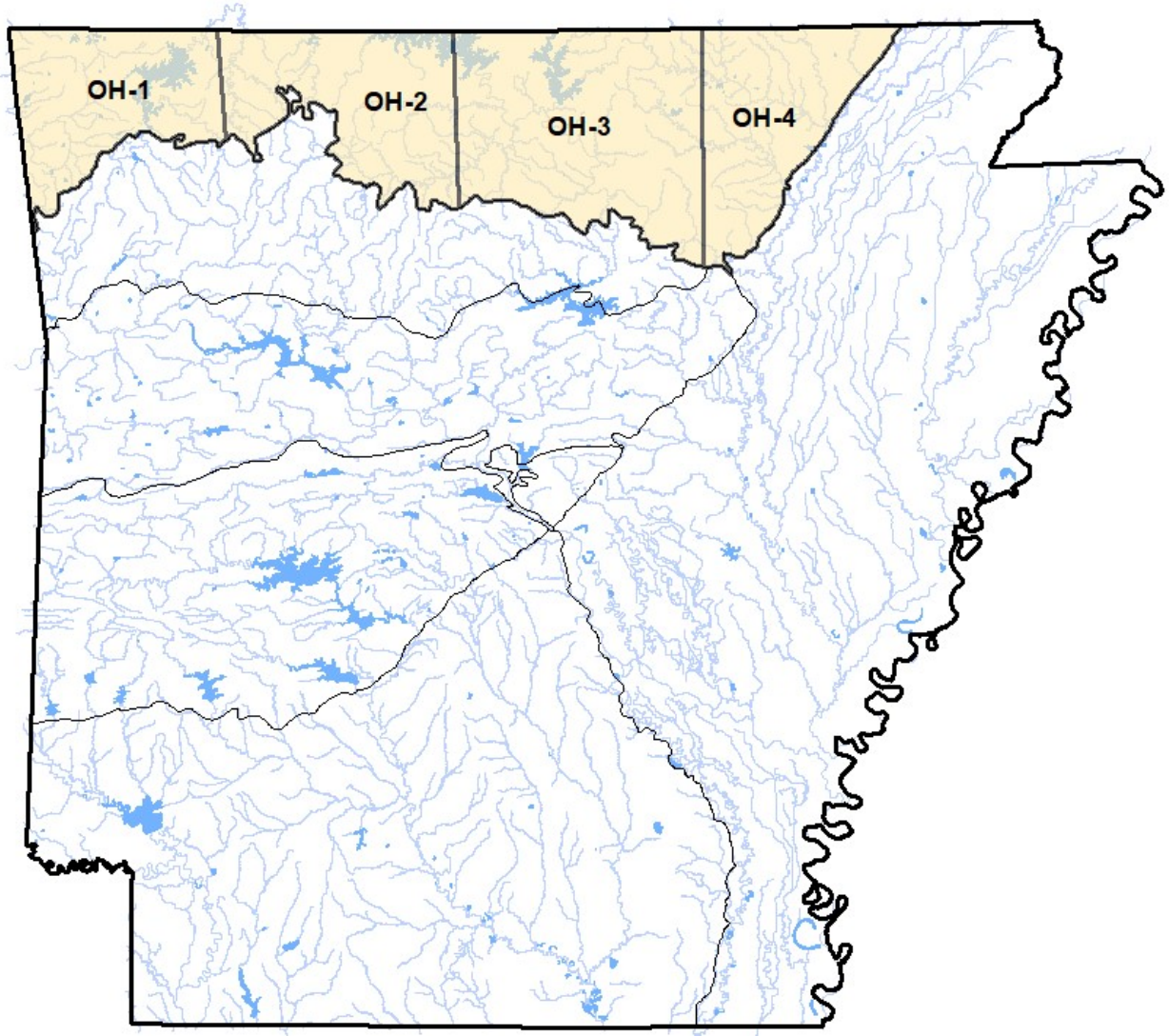
APPENDIX A: MAP OF ECOREGIONS OF ARKANSAS





Index to Plates of the Ozark Highlands




OH-1
OH-2
OH-3
OH-4

DESIGNATED USES: OZARK HIGHLANDS ECOREGION
(Plates OH-1, OH-2, OH-3, OH-4)

Extraordinary Resource Waters
Current River (OH-4)
Eleven Point River (OH-4)
Strawberry River (OH-3, OH-4)
Little Strawberry River (OH-3)
Spring River, including its tributaries: Field Creek, Big Creek, English Creek, Gut Creek and Myatt Creek (OH-4)
South Fork Spring River (OH-3, OH-4)
North Sylamore Creek (OH-3)
Buffalo River (OH-2, OH-3)
Kings River (OH-2)
Bull Shoals Reservoir (OH-2, OH-3)

Natural and Scenic Waterways
Strawberry River from headwaters to Sharp-Izard County Line (OH-3, OH-4)
Kings River - that segment in Madison County (OH-2)
Buffalo River (OH-2, OH-3)
North Sylamore Creek (OH-3) *[19]

Ecologically Sensitive Waterbodies
Cave Springs Cave, Logan Cave, and numerous springs and spring-fed tributaries which support Southern Cavefish, Ozark Cavefish, Arkansas Darter, Least Darter, Oklahoma Salamander, cave snails, cave crawfish, and unique invertebrates (OH-1, OH-2, OH-3)

Strawberry River – location of Rabbitsfoot, Snuffbox, Western Fanshell, Ouachita Kidneyshell, Purple Lilliput, Scaleshell, Elktoe, Ozark Pigtoe, Round Pigtoe, Lilliput, Rainbow, and Bleedingtooth mussels; Least Brook Lamprey, Mooneye, Ozark Shiner, Western Sand Darter, Slenderhead Darter, Gilt Darter, and Strawberry ~~River~~ Darter (OH-3, OH-4)

Little Strawberry River – location of ~~the~~ Ozark Pigtoe, Round Pigtoe mussels; Ozark Shiner and Strawberry ~~River~~ Darter (OH-3)

Spring River – Curtis Pearlymussel, Western Fanshell, Rabbitsfoot, Scaleshell, Ohio Pigtoe, Ouachita Kidneyshell, Salamander mussel, Purple Lilliput, Bleedingtooth mussel, Rainbow, Fawnsfoot, Elktoe, Ozark Pigtoe, Hickorynut, Round Pigtoe, Snuffbox and Pink Mucket mussels; Ozark Hellbender; Least Brook Lamprey, Mooneye, Blue Sucker, Silver Redhorse, Pealip Redhorse, Western Sand Darter, Current Darter, Gilt Darter, Saddleback Darter, Slenderhead Darter, and Stargazing Darter (OH-4)

Rock Creek – Round Pigtoe, Curtis Pearlymussel, Snuffbox and Pink Mucket mussels; and Ozark Hellbender (OH-4)

Eleven Point River – location of American Eel, Current Darter, Gilt Darter, and Stargazing Darter; Western Fanshell, Pink Mucket, Ouachita Kidneyshell, Bleedingtooth mussel, Rainbow, Ozark Pigtoe, Round Pigtoe, and Pyramid Pigtoe; and Ozark hellbender (OH-4)

Current River – location of Rabbitsfoot, Ouachita Kidneyshell, Western Fanshell, Elktoe, Ozark Pigtoe, Round Pigtoe, Flat Floater, and Pink Mucket mussels (OH-4)

Illinois River – Neosho Mucket, Rabbitsfoot, Purple Lilliput, Ouachita Kidneyshell, Ellipse, Rainbow, Elktoe, Round Pigtoe; Redspot Chub, Highfin Carpsucker, Pealip Redhorse, Sunburst Darter, and Highland Darter (OH-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs**[20]

Secondary Contact Recreation - all waters**[20]

[19] *As designated in the National Wild and Scenic Rivers System.
[20] **Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

Domestic, Industrial and Agricultural Water Supply - all waters**[20]

Aquatic Life**[21]

Trout Waters

~~Bull Shoals Reservoir - lower portion (OH-2)~~
White River from Bull Shoals Dam to Dam #3 (OH-3)
North Fork White River (OH-3)
Spring River from Mammoth Springs to South Fork Spring River (OH-4)
Upper White River from Beaver Dam to Missouri state line (OH-1)

Lakes and Reservoirs - all

Streams

Seasonal Ozark Highlands aquatic life use - all streams with watersheds of less than 10 mi^2 except as otherwise provided in 8 CAR § 21-505~~Rule 2.505~~

Perennial Ozark Highlands aquatic life use - all streams with watersheds of ten square miles (10 mi^2) and larger and those waters where discharges equal or exceed one cubic foot per second (1-cfs)

Site Specific Designated Use Variations Supported by Use Attainability Analysis or Other Investigations

Plate	Map Inset	Waterbody	Variation	Source	Year
OH-1	1	Railroad Hollow Creek	No fishable/swimmable uses	3rd Party	1981
OH-1	2	Columbia Hollow Creek	Seasonal aquatic life use March-June	DEQ	1985
OH-1	6	Holman Creek from the confluence with Town Branch downstream to the confluence with War Eagle Creek	No domestic water supply use	3rd Party	2020
OH-1	7	Town Branch from point of discharge of the City of Huntsville WWTP downstream to the confluence with Holman Creek	No domestic water supply use	3rd Party	2020
OH-3	13	Moccasin Creek below Arkansas Highway 177	Perennial aquatic life use	3rd Party	1989
OH-4	19	Curia Creek below first waterfall	Perennial aquatic life use	DEQ	1985
OH-4	22	Stennitt Creek from Brushy Creek to Spring River	No domestic water supply use	3rd Party	1999
OH-4	23	Brushy Creek – from Unnamed Tributary to Stennitt Creek	No domestic water supply use	3rd Party	2020
OH-4	24	Unnamed Tributary – from Vulcan Outfall 001 to Brushy Creek	No domestic water supply use	3rd Party	2020

[21] Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

SPECIFIC CRITERIA: OZARK HIGHLANDS ECOREGION

(Plates OH-1, OH-2, OH-3, OH-4)

	Streams		**Lakes and Reservoirs**
Temperature ˚C (˚F)*[22]	29 (84.2)		32 (89.6)
Trout Waters	20 (68)		
Turbidity (NTU) (base/storm)	10/17		25/45
Trout Waters	10/15		
~~Minerals~~	~~see Rule 2.511~~		~~see Rule 2.511~~
Dissolved Oxygen**[23]	~~Pri.~~Non-Critical	Critical	~~see Rule 2.505~~ 5
<10 mi^2 watershed	6	2	
10 to 100 mi^2	6	5	
>100 mi^2 watershed	6	6	
Trout Waters	6	6	

All other criteria (same as statewide)

[22] *Increase over natural temperatures may not be more than 2.8°C (5°F).

[23] **At water temperatures ≤ 10°C or during March, April and May when stream flows are 15 cfs and greater, the primary season dissolved oxygen standard will be 6.5 mg/L. When water temperatures exceed 22°C, the critical season dissolved oxygen standard may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.

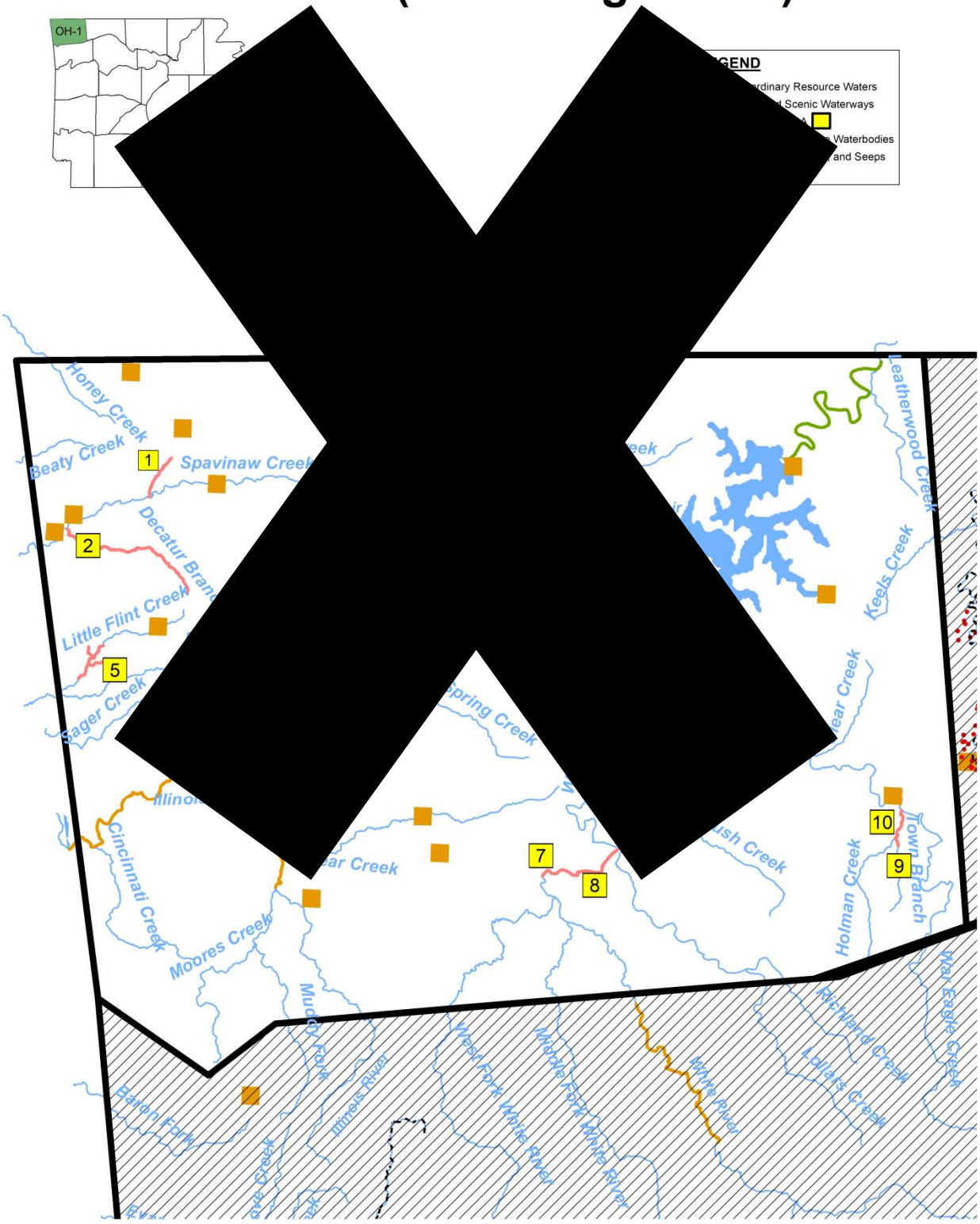
Site Specific Criteria Variations Supported by ~~Use Attainability Analysis~~ Chemical and Biological Data

Criteria with an asterisk (*) were developed using background flow of 4 cfs.

Plate	Map Inset	Waterbody	Variation	Source	Year
OH-1	1	Railroad Hollow Creek from headwaters to Spavinaw Creek	Year-round DO 2 mg/L	3rd Party	1981
OH-1	3	SWEPCO Reservoir	Maximum temperature 54°C (limitation of 2.8°C above natural temperature does not apply)	3rd Party	1984
OH-1	4	Illinois River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 300 mg/L	DEQ	1973
OH-1	5	White River (WHI0052 to Missouri state line, including Beaver Reservoir)	Chloride 20 mg/L, sulfate 20 mg/L, TDS 160 mg/L	DEQ	1973
OH-1	6	Holman Creek from the confluence with Town Branch downstream to the confluence with War Eagle Creek	Chloride 180 mg/L, sulfate 48 mg/L, TDS 621 mg/L	3rd Party	2020
OH-1	7	Town Branch from point of discharge of the City of Huntsville WWTP Downstream to the confluence with Holman Creek	Chloride 223 mg/L, sulfate 61 mg/L, TDS 779 mg/L	3rd Party	2020
OH-2	8	Kings River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 150 mg/L	DEQ	1973
OH-2	9	Crooked Creek from Harrison WWTP outfall to DEQ Monitoring Station WHI0193	Chloride 22.6 mg/L, sulfate 24.4 mg/L, TDS 269 mg/L	3rd Party	2017
OH-2&3	10	Crooked Creek from DEQ Monitoring Station WHI0193 to mouth	Chloride 20 mg/L, sulfate 20 mg/L, TDS 238 mg/L	3rd Party	2017
OH-2&3	11	Buffalo River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 200 mg/L	DEQ	1973
OH-3	12	White River (Dam #3 to Missouri state line, including Bull Shoals Reservoir)	Chloride 20 mg/L, sulfate 20 mg/L, TDS 180 mg/L	DEQ	1973
OH-3	13	Moccasin Creek below Highway 177	Critical season DO 5mg/L	3rd Party	1989
OH-3&4	14	White River (Mouth to Dam #3)	Chloride 20 mg/L, sulfate 60 mg/L, TDS 430 mg/L	DEQ	1973
OH-3&4	15	Strawberry River	Chloride 20 mg/L, sulfate 20 mg/L, TDS 270 mg/L	DEQ	1975

Plate	Map Inset	Waterbody	Variation	Source	Year
OH-3&4	16	South Fork Spring River	Chloride 20 mg/L, sulfate 20 mg/L, TDS 270 mg/L	DEQ	1975
OH-3&4	17	Myatt Creek	Chloride 20 mg/L, sulfate 20 mg/L, TDS 270 mg/L	DEQ	1975
OH-4	18	Spring River	Chloride 20 mg/L, sulfate 20 mg/L, TDS 290 mg/L	DEQ	1975
OH-4	19	Curia Creek below first waterfall	Critical season DO 6 mg/L	DEQ	1985
OH-4	20	Big Creek	Chloride 20 mg/L, sulfate 30 mg/L, TDS 270 mg/L	DEQ	1975
OH-4	21	Eleven Point River	Chloride 20 mg/L, sulfate 20 mg/L, TDS 270 mg/L	DEQ	1975
OH-4	22	Stennitt Creek from Brushy Creek to Spring River	Sulfate 43.3 mg/L, *TDS 456 mg/L	3rd Party	2020, 1999
OH-4	23	Brushy Creek – from Unnamed Tributary to Stennitt Creek	Sulfate 126 mg/L, TDS 549 mg/L	3rd Party	2020
OH-4	24	Unnamed Tributary – from Vulcan Outfall 001 to Brushy Creek	Sulfate 260 mg/L, TDS 725 mg/L	3rd Party	2020
OH-4	25	Current River	Chloride 20 mg/L, sulfate 30 mg/L, TDS 270 mg/L	DEQ	1975

Plate OH-1 (Ozark Highlands)



Ozark Highlands Plate 1

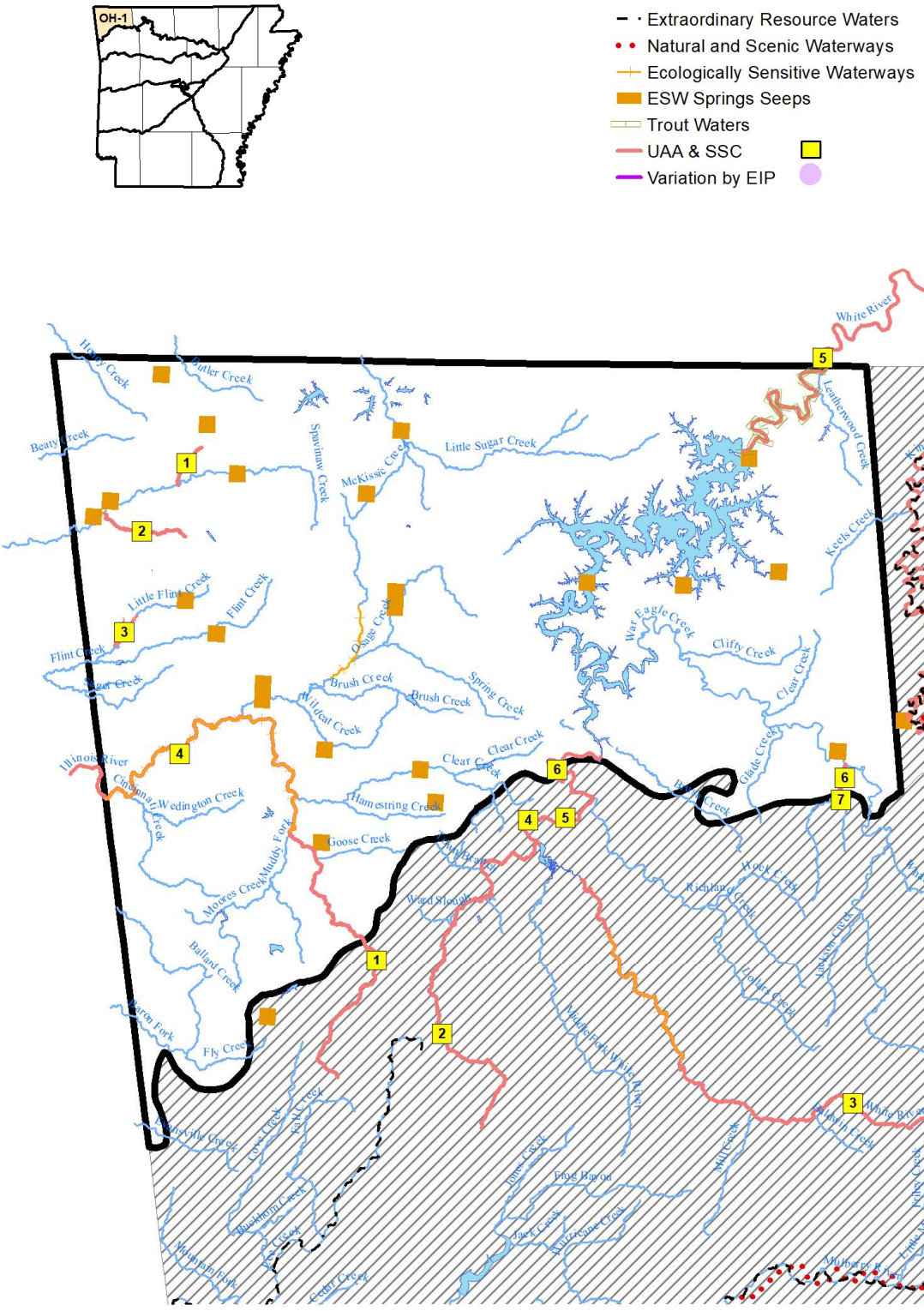
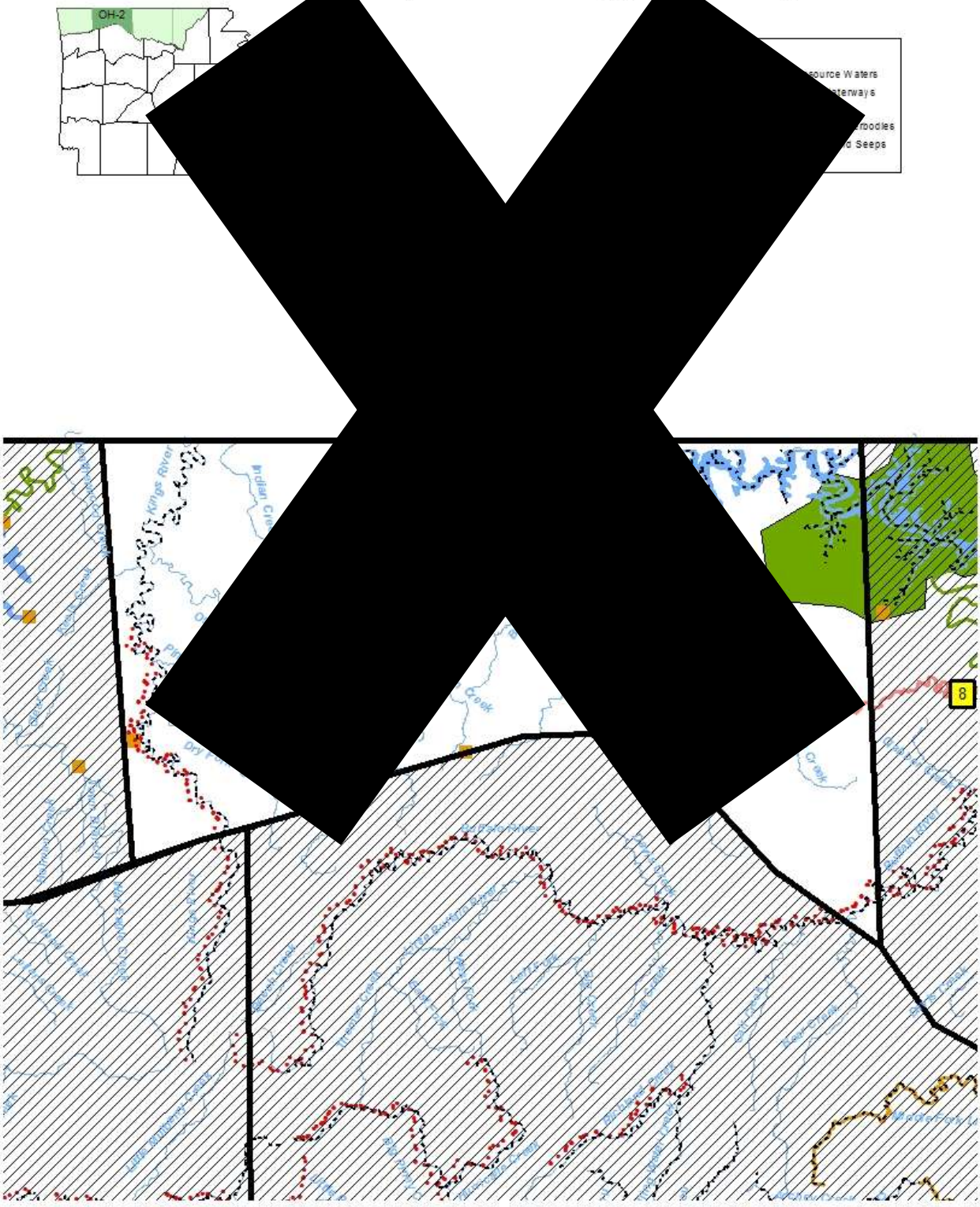
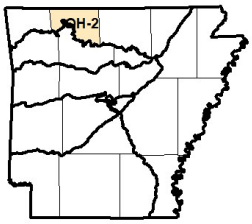


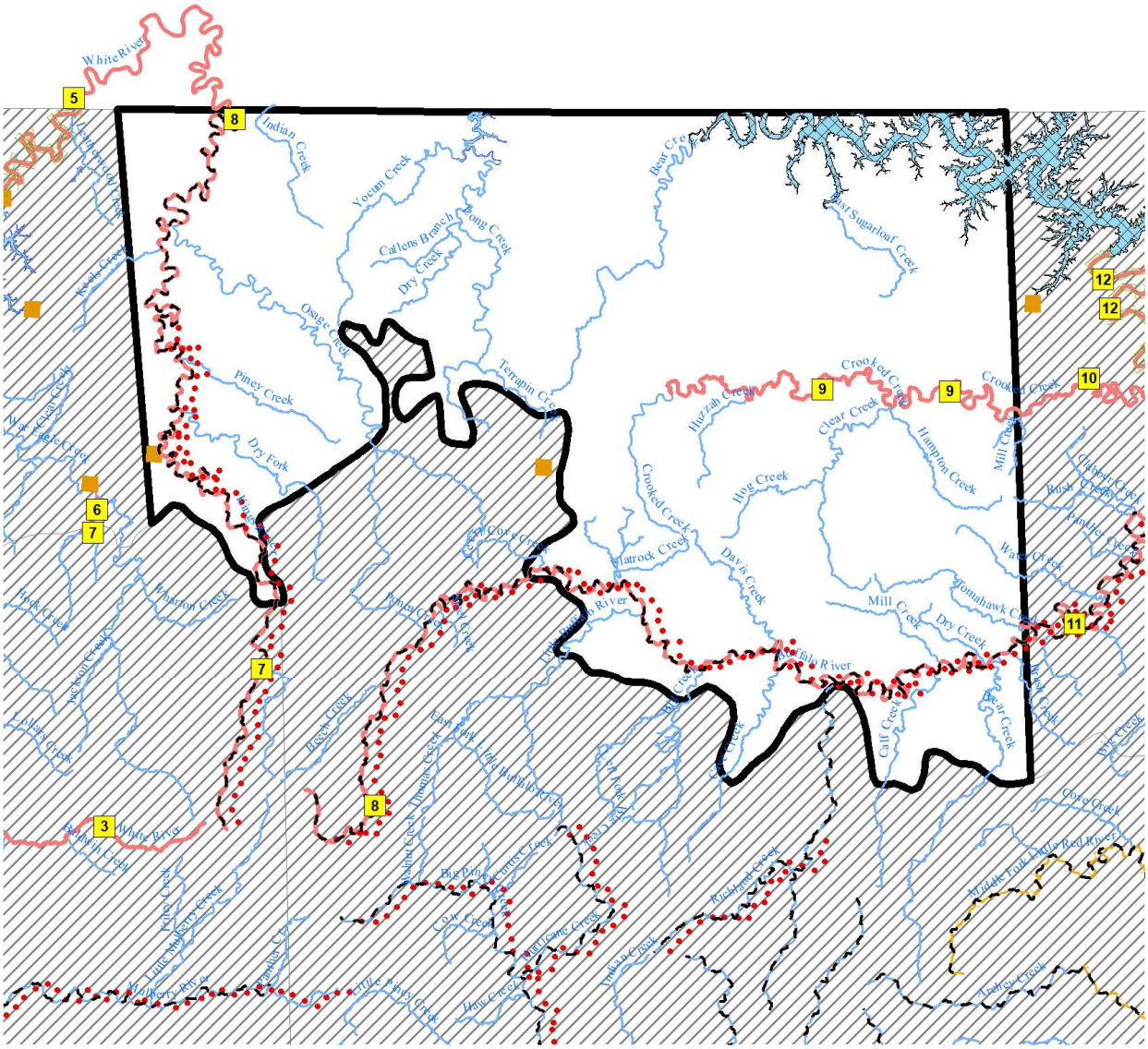
Plate OH-2 (Ozark Highlands)



Ozark Highlands Plate 2



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



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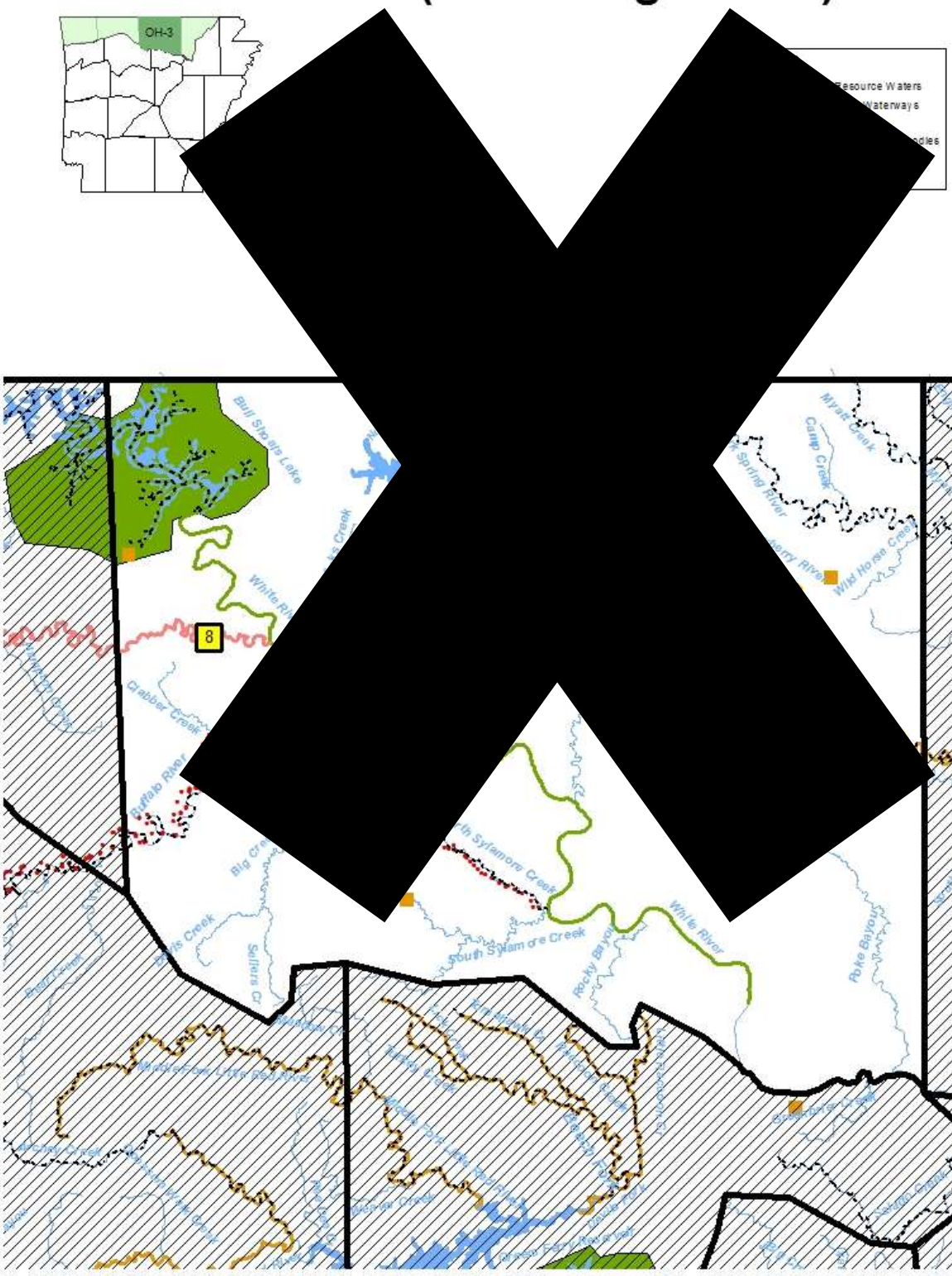
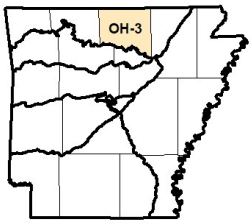
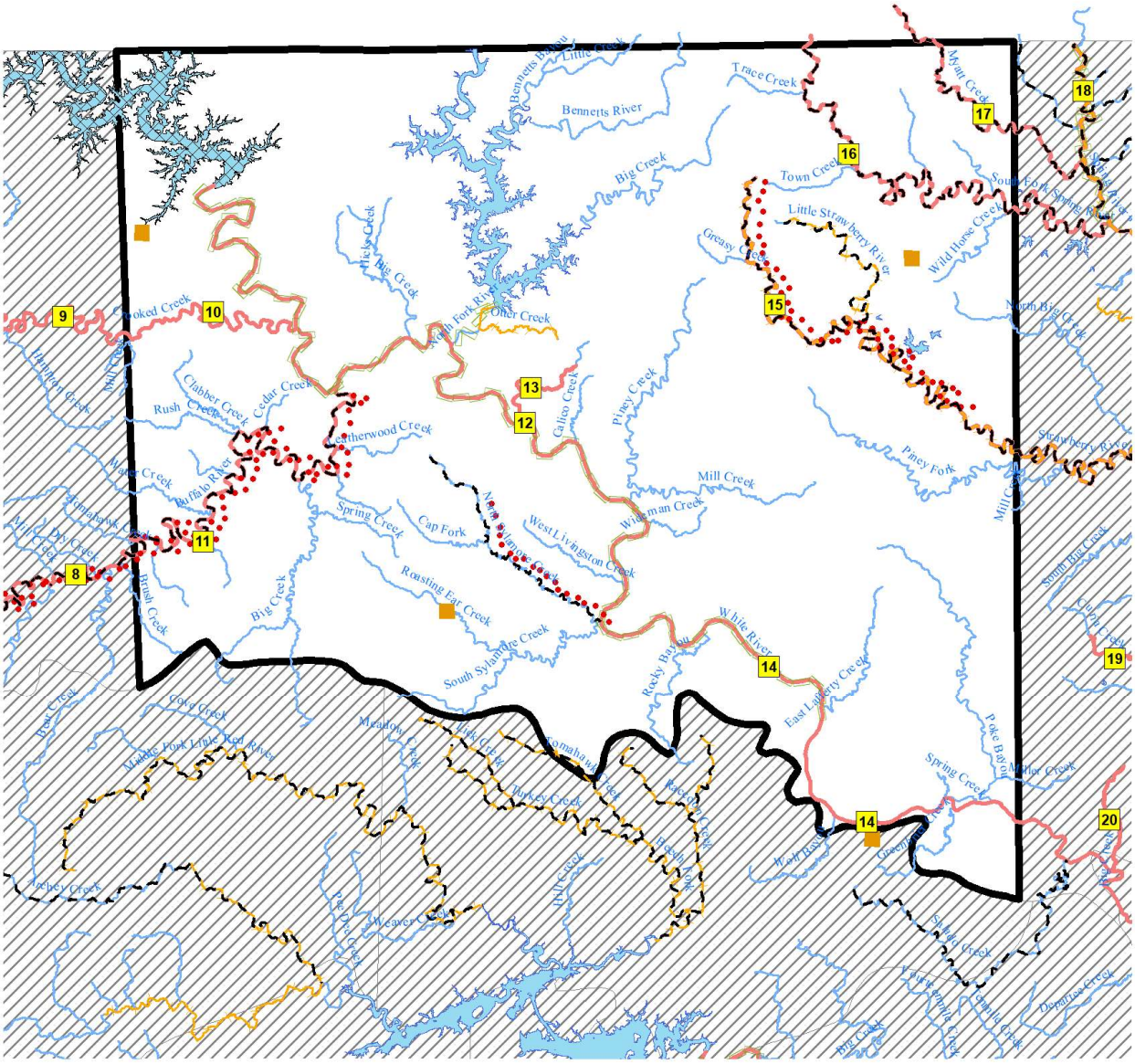


Ozark Highlands Plate 3



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



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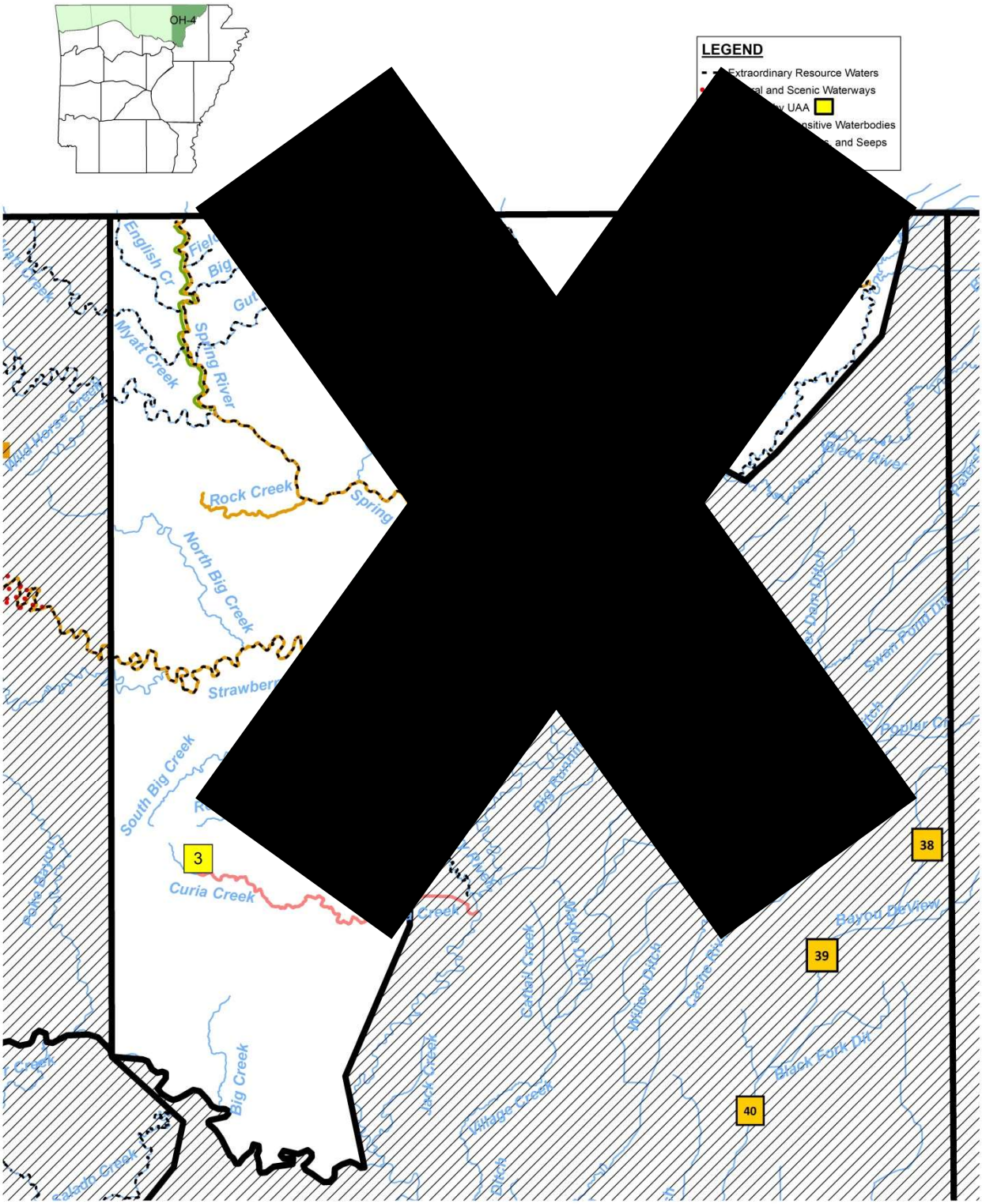
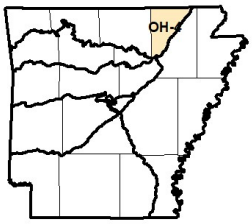
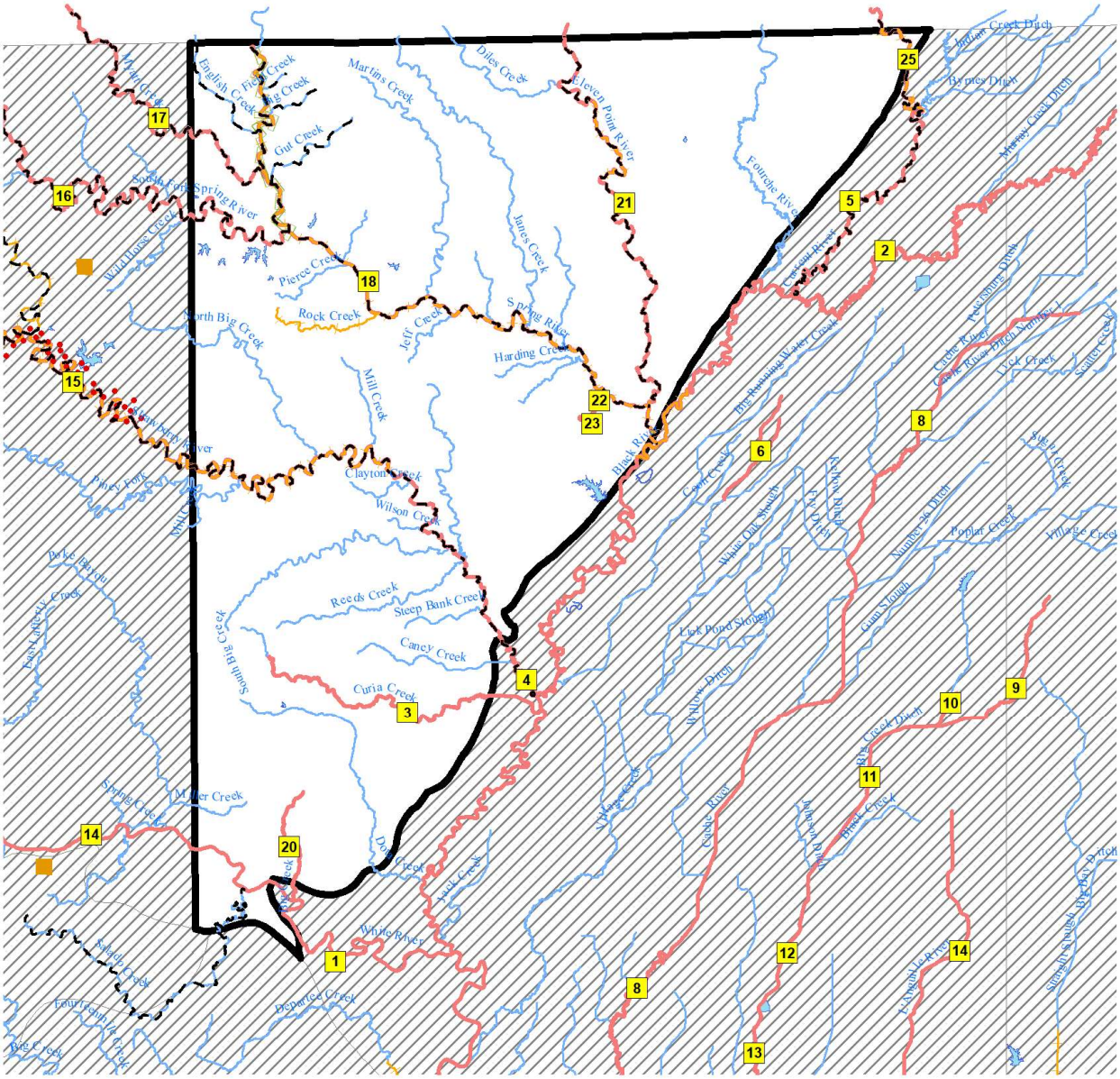


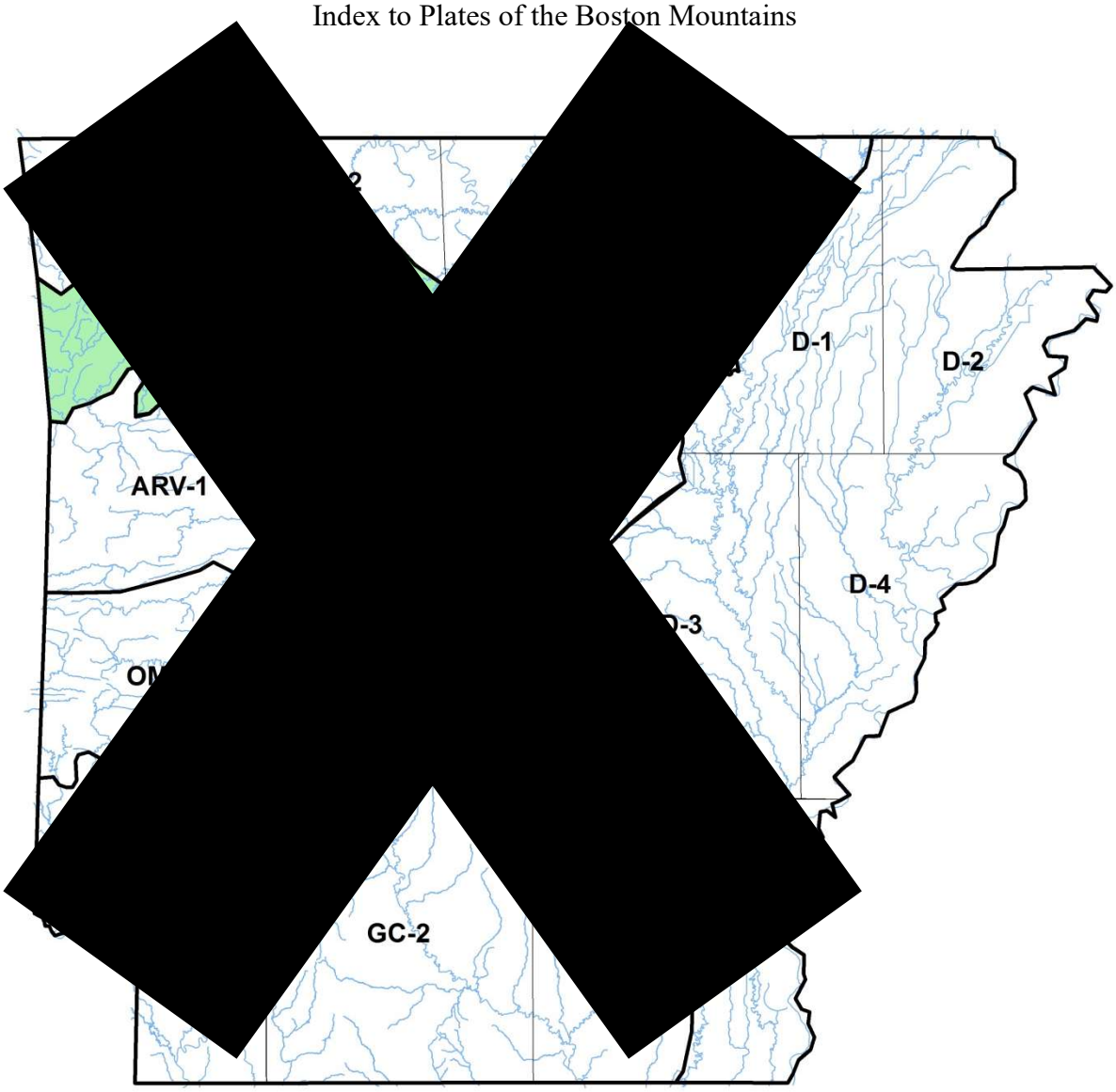
Ozark Highlands Plate 4



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



Index to Plates of the Boston Mountains




BM-1
BM-2
BM-3

DESIGNATED USES: BOSTON MOUNTAINS ECOREGION

(Plates BM-1, BM-2, BM-3)

Extraordinary Resource Waters

Middle and Devils Forks of the Little Red River including Beech Creek, Tomahawk Creek, Turkey Creek, Lick Creek, Raccoon Creek, and Little Raccoon Creek (BM-2, BM-3)
Archey Creek from headwaters to confluence with South Fork Little Red River (BM-2)
Illinois Bayou including North, Middle and East Forks (BM-2)
Big Piney Creek (BM-2)
Hurricane Creek (BM-2)
Mulberry River (BM-1, BM-2)
Lee Creek from state line upstream to headwaters (BM-1)
Salado Creek (BM-3)
Kings River (BM-1)
Richland Creek and Falling Water Creek (BM-2)
Buffalo River (BM-1, BM-2)

Natural and Scenic Waterways

Mulberry River (BM-1, BM-2)
Buffalo River (BM-1, BM-2)
Kings River (BM-1)
Big Piney Creek (BM-2) *[24]
Hurricane Creek (BM-2)*[24]
Richland Creek (BM-2)*[24]

Ecologically Sensitive Waterbodies

Middle, South, and Devils Forks of Little Red River including Beech Creek, Tomahawk Creek, Turkey Creek, Lick Creek, Raccoon Creek, Little Raccoon Creek, and Archey Creek above Greers Ferry Reservoir - location of endemic Yellowcheek Darter; Western Fanshell, Rabbitsfoot, Bleedingtooth mussel, Purple Lilliput, Pyramid Pigtoe, Ouachita Kidneyshell, Sandbank Pocketbook, Rainbow, Pondhorn, Elktoe, Ozark Pigtoe, Round Pigtoe, Lilliput, and endangered Speckled Pocketbook mussels (except Devils Fork) (BM-2, BM-3)
Foshee Cave - location of aquatic cave snail (BM-3)
Upper White River - location of Autumn Darter, Highland Darter, and Longnose Darter; Ozark Pigtoe, and Purple Lilliput (BM-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs**[25]

Secondary Contact Recreation - all waters**[25]

Domestic, Industrial and Agricultural Water Supply - all waters**[25]

Aquatic Life**[25]

Trout Waters

~~Greers Ferry Reservoir below Narrows (BM-3)~~
Little Red River below Greers Ferry Dam (BM-3)

Lakes and Reservoirs – all

[24] *As designated in the National Wild and Scenic Rivers System.
[25] ** Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

Streams

Seasonal Boston Mountain aquatic life- all waters with watersheds of less than 10 mi^2 except as otherwise provided in 8 CAR § 21-505~~Rule 2.505~~

Perennial Boston Mountain aquatic life- all waters with 10 mi^2 watershed or larger and those waters where discharges equal or exceed 1 cfs

Use Variations Supported by Use Attainability Analysis

None

SPECIFIC CRITERIA: BOSTON MOUNTAINS ECOREGION

(Plates BM-1, BM-2, BM-3)

	Streams		**Lakes and Reservoirs**
Temperature °C (°F)~~*~~[26]	31 (87.8)		32 (89.6)
Trout Waters	20 (68)		
Turbidity (NTU) (base/storm)	10/19		25/45
Trout Waters	10/15		
~~Minerals~~	~~see Rule 2.511~~		~~see Rule 2.511~~
Dissolved Oxygen (mg/L) ~~**~~[27]	~~Pri.~~Non-Critical	Critical	~~see Rule 2.505~~ 5
<10 mi^2 watershed	6	2	
10 mi^2 and greater	6	6	
Trout Waters	6	6	
All other criteria	(same as statewide)		

Site Specific Criteria Variations Supported by ~~Use Attainability Analysis~~ Chemical and Biological Data

~~None~~

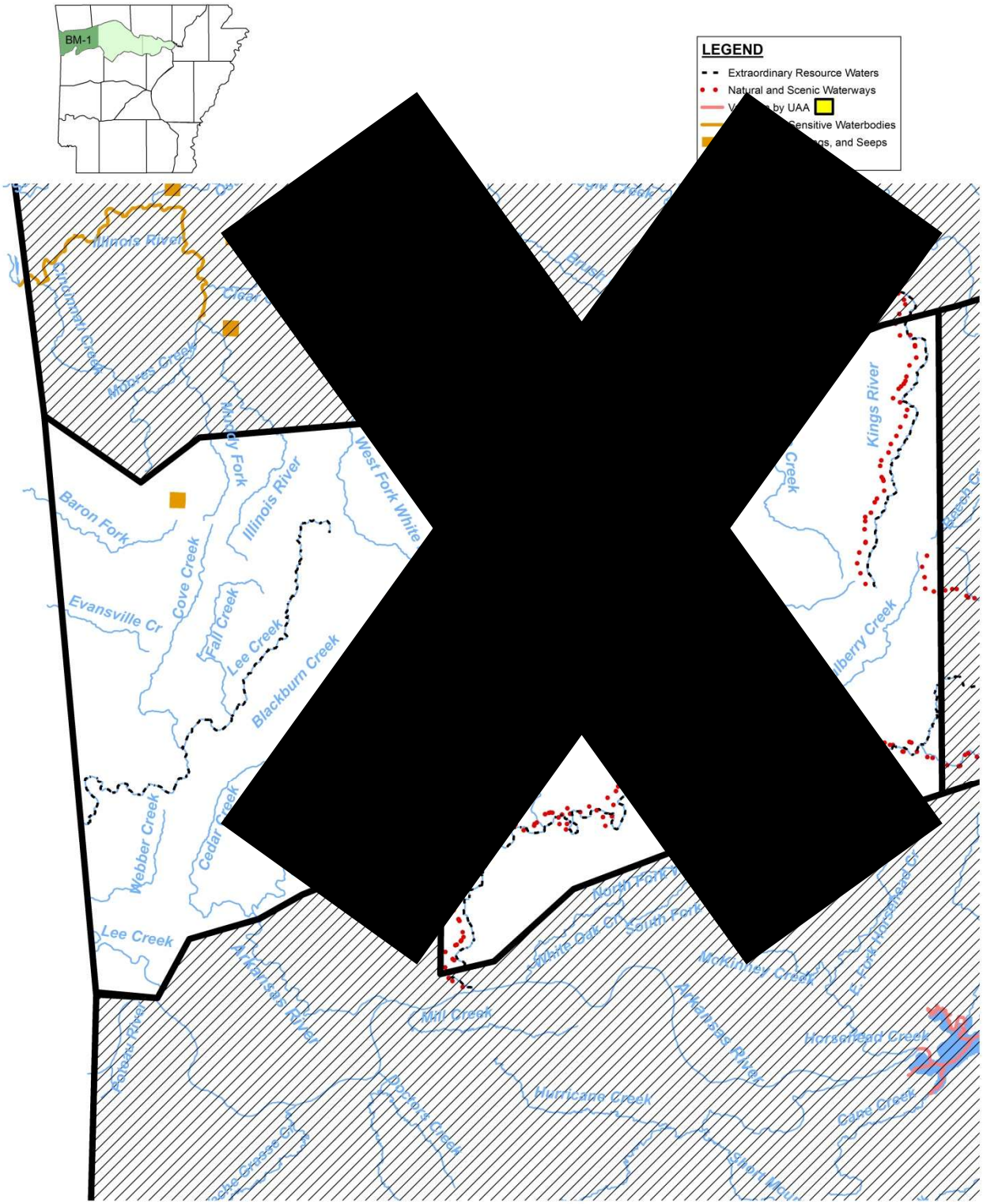
Plate	Map Inset	Waterbody	Variation	Source	Year
BM-1	1	Illinois River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 300 mg/L	DEQ	1973
BM-1	2	West Fork White River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 180 mg/L	DEQ	1975
BM-1	3	White River headwaters to Noland WWTP	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 160 mg/L	DEQ	1973
BM-1	4	White River from Noland WWTP to 0.4 miles downstream (WR-02)	Chloride 44 mg/L, sulfate 79 mg/L, TDS 362 mg/L	3rd Party	2018

[26] ~~*~~Increase over natural temperatures may not be more than 2.8°C (5°F).

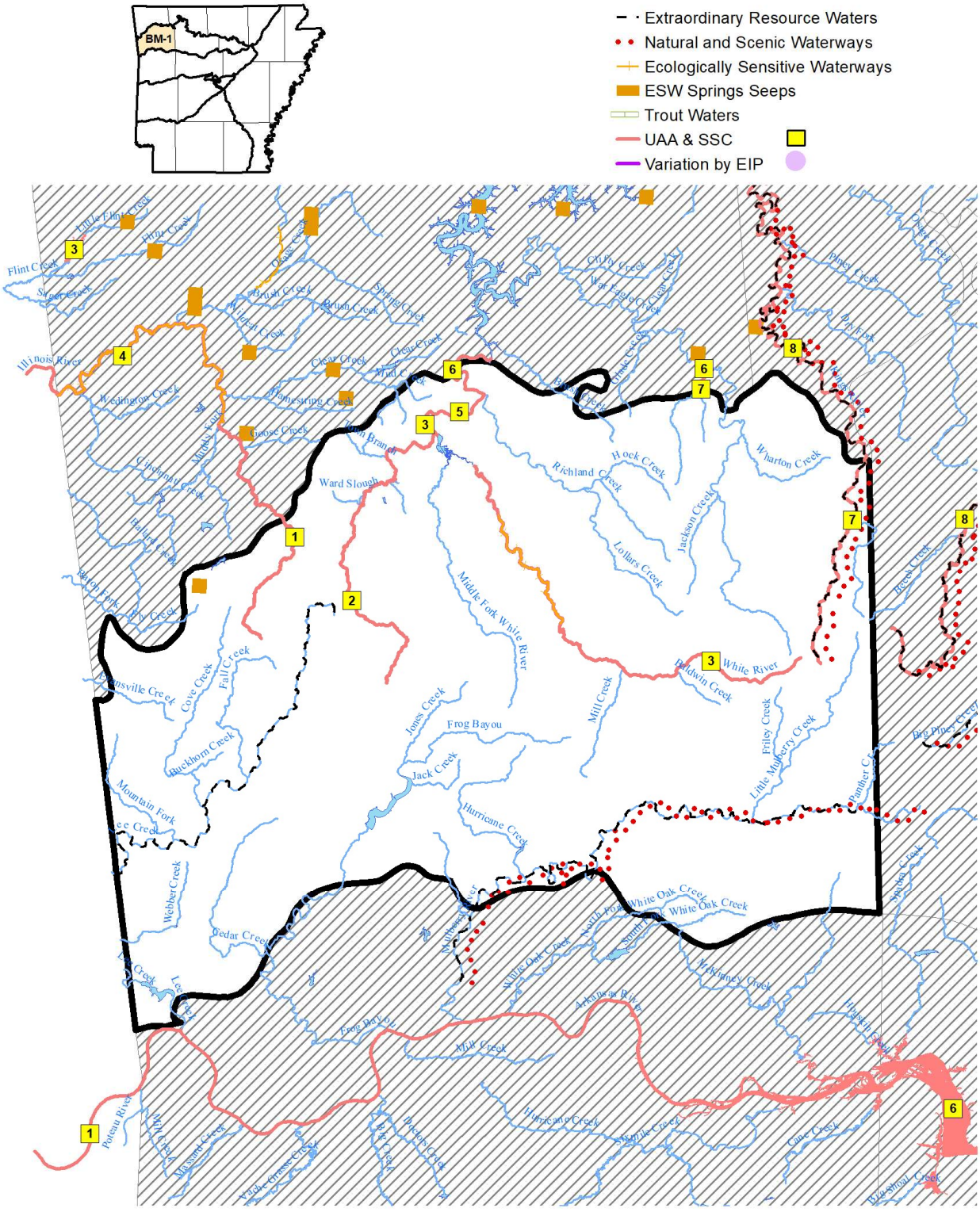
[27] ~~**~~At water temperatures ≤ 10°C or during March, April and May when stream flows are 15 cfs and greater, the primary season dissolved oxygen criteria will be 6.5 mg/L. When water temperatures exceed 22°C, the critical season dissolved oxygen criteria may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.

Plate	Map Inset	Waterbody	Variation	Source	Year
BM-1	5	White River from WR-02 to WHI0052	Chloride 30 mg/L, sulfate 40 mg/L, TDS 237 mg/L	3rd Party	2018
BM-1	6	White River (WHI0052 to Missouri state line, including Beaver Reservoir)	Chloride 20 mg/L, sulfate 20 mg/L, TDS 160 mg/L	DEQ	1973
BM-1	7	Kings River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 150 mg/L	DEQ	1975
BM-2	8	Buffalo River	Chloride 20 mg/L, sulfate, 20 mg/L, TDS 200 mg/L	DEQ	1975

Plate BM-1 (Boston Mountains)



Boston Mountains Plate 1



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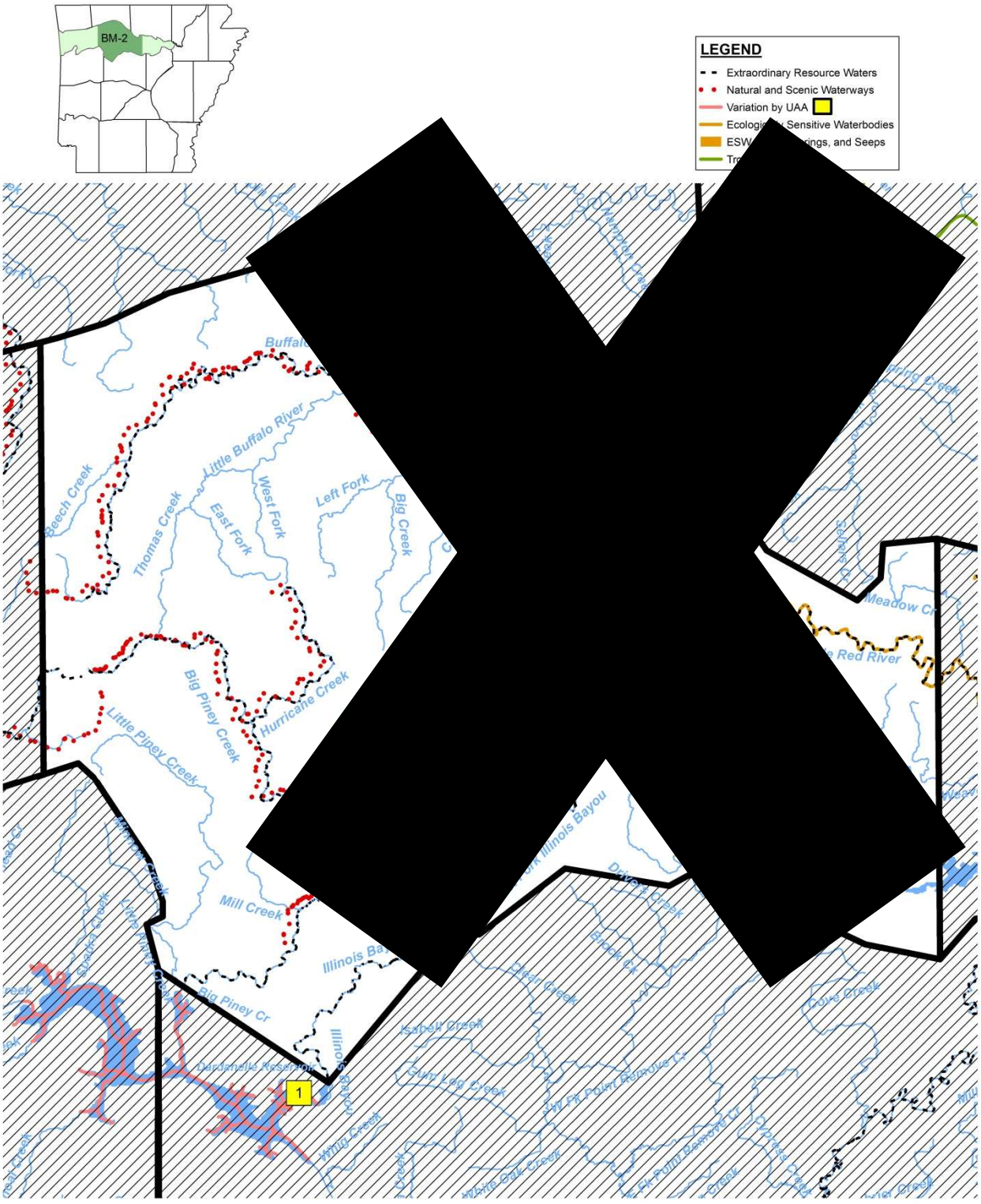
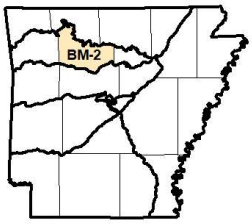


Boston Mountains Plate 2



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP

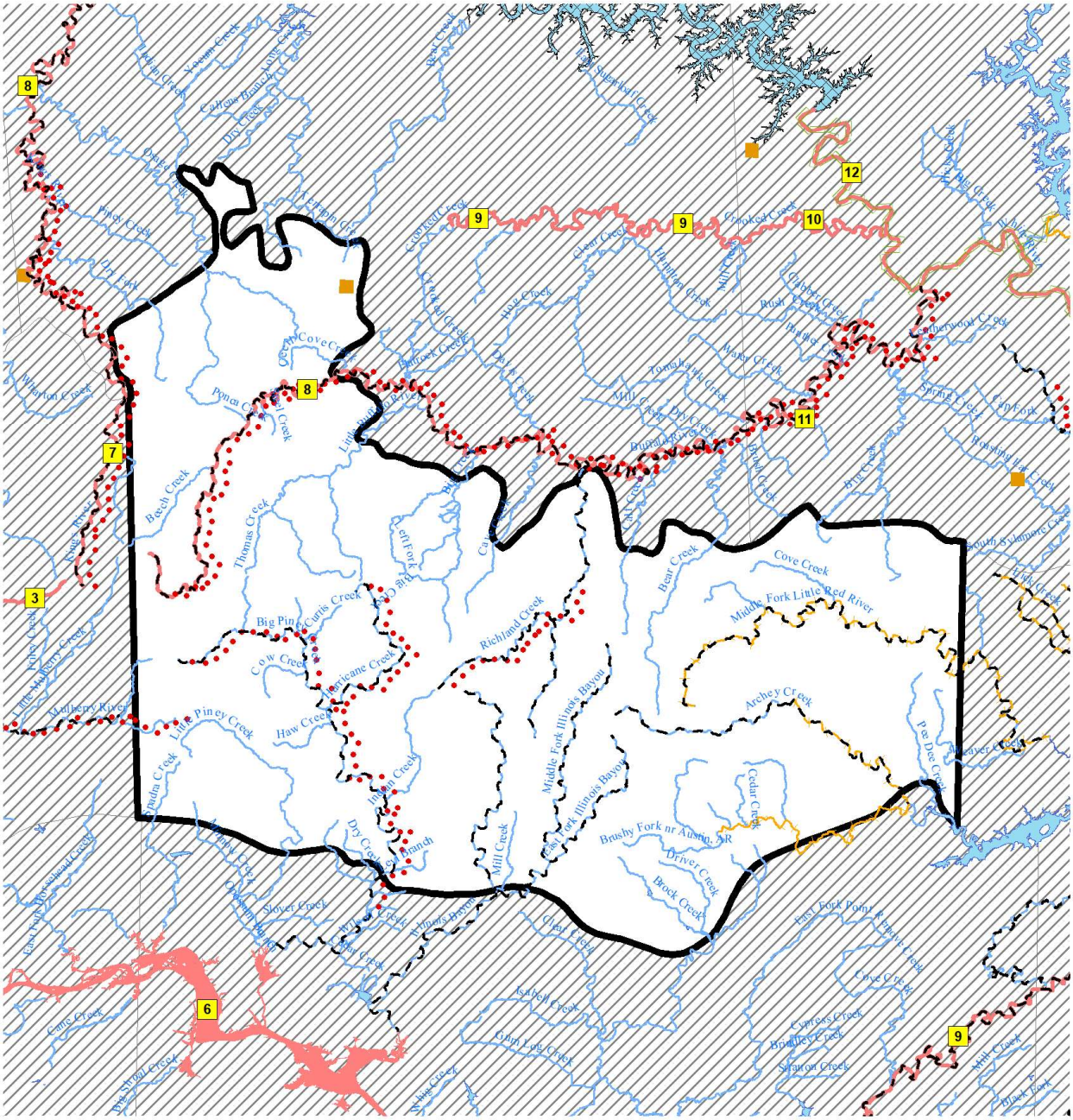
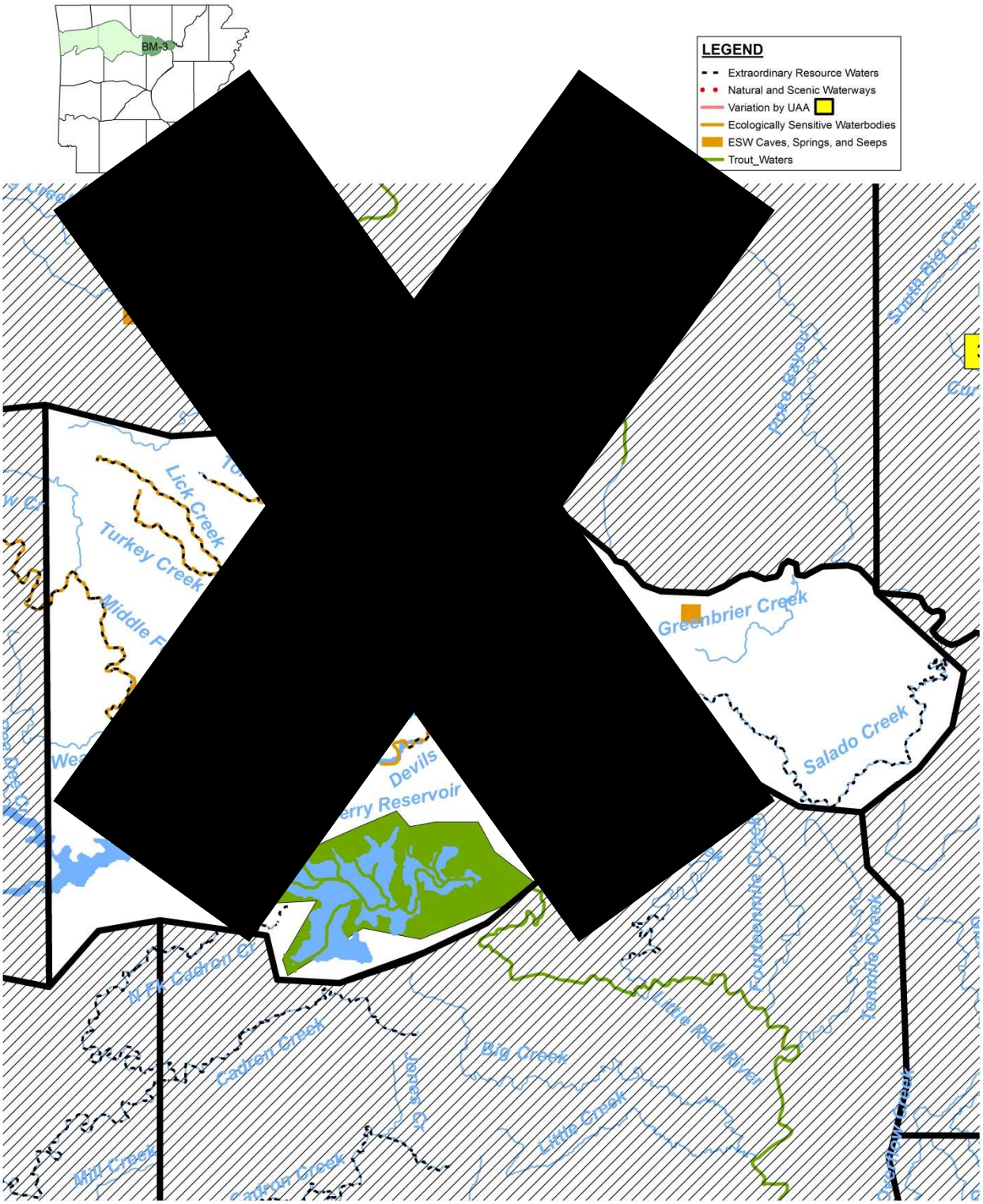
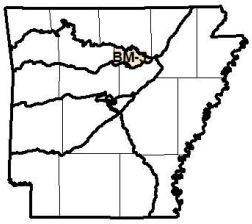


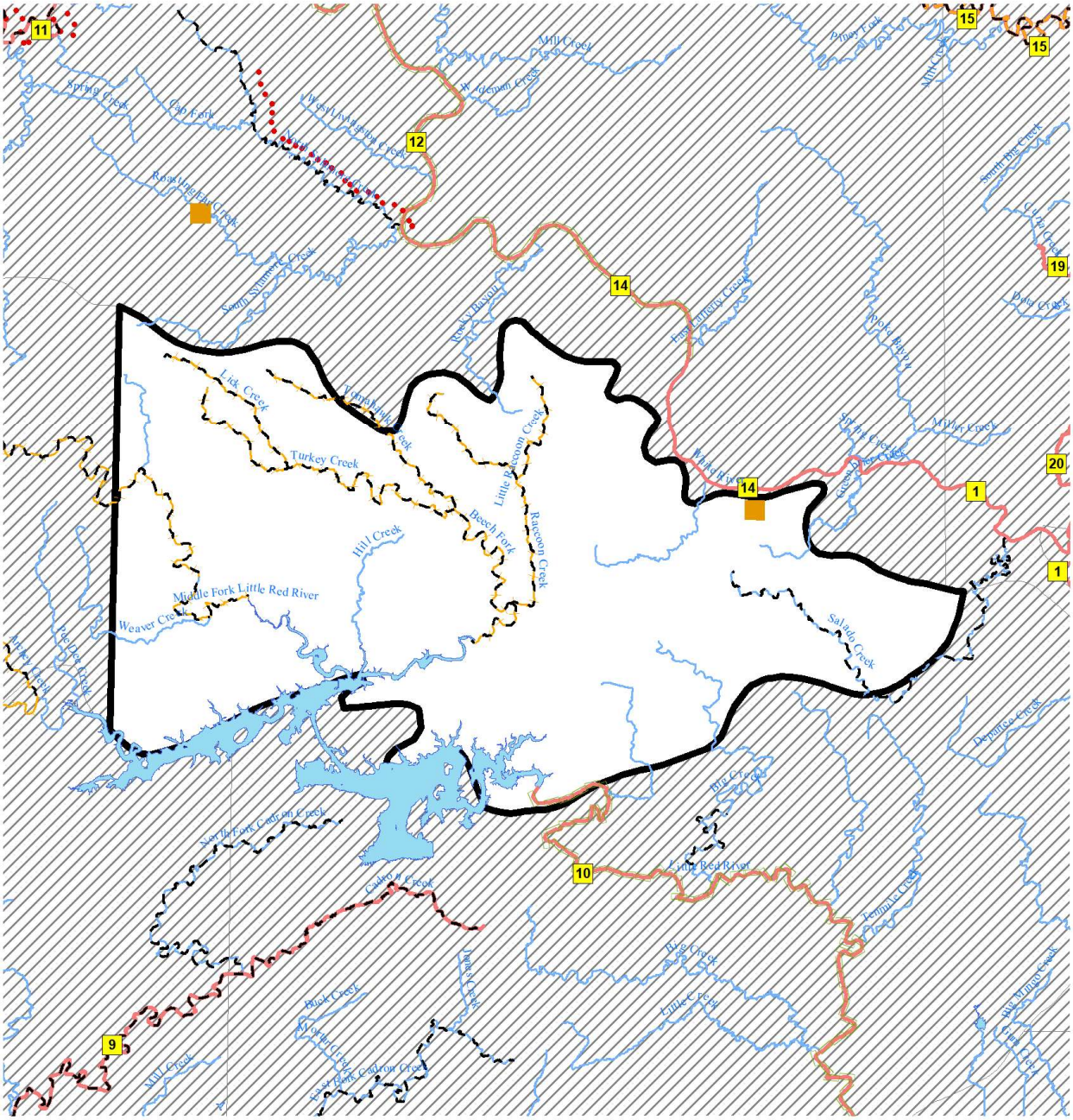
Plate BM-3 (Boston Mountains)



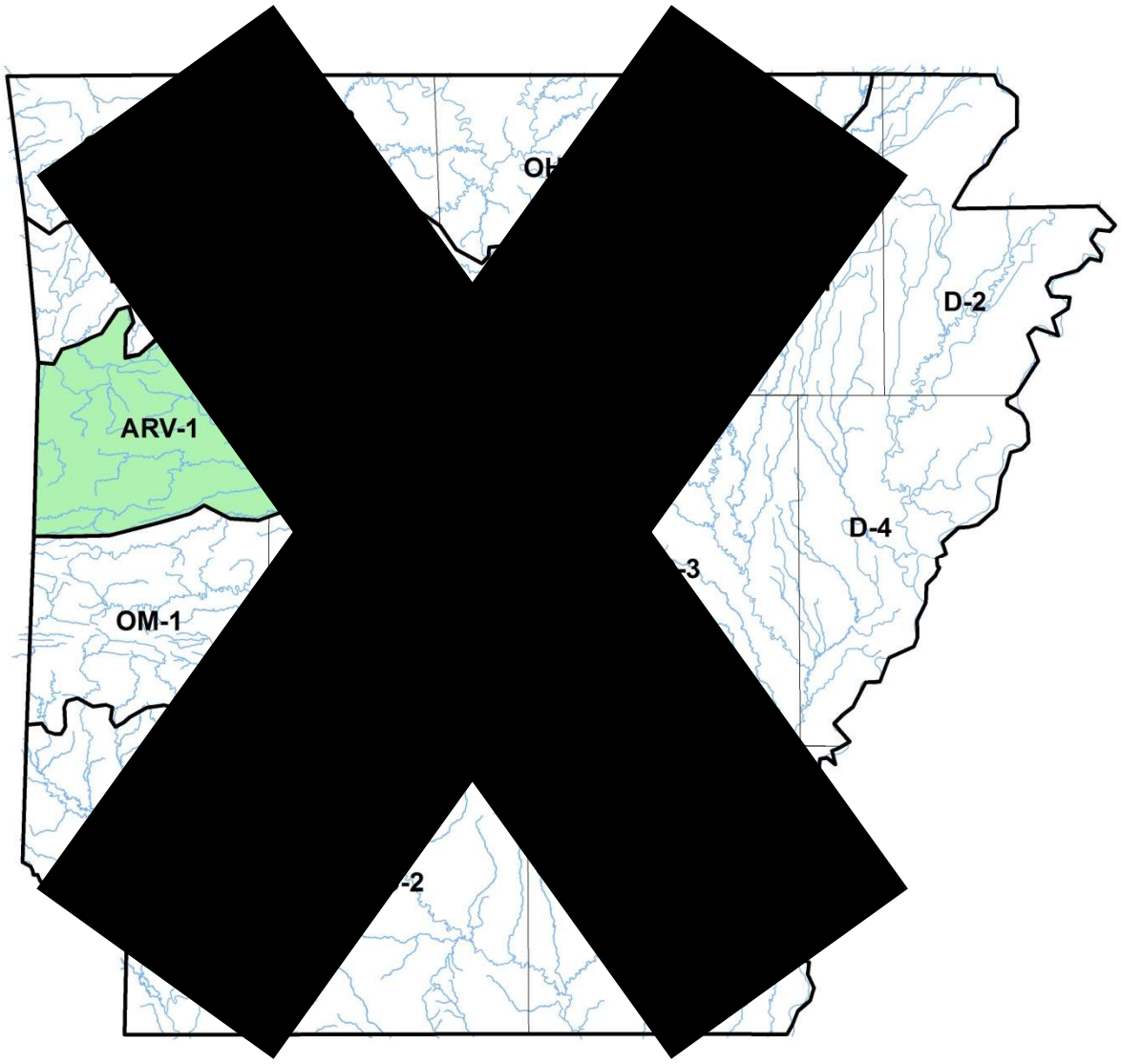
Boston Mountains Plate 3



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



Index to Plates of the Arkansas ~~River~~ Valley




AV-1
AV-2
AV-3

DESIGNATED USES: ARKANSAS ~~RIVER~~ VALLEY ECOREGION

(Plates A~~R~~V-1, A~~R~~V-2, A~~R~~V-3)

Extraordinary Resource Waters
Cadron Creek including North Fork and East Fork (A~~R~~V-2, A~~R~~V-3)
Mulberry River (A~~R~~V-1)
Big Creek adjacent to natural areas (A~~R~~V-3)

Natural and Scenic Waterway
Mulberry River (A~~R~~V-1)

Ecologically Sensitive Waterbodies
None

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs**[28]

Secondary Contact Recreation - all waters**[28]

Domestic, Industrial and Agricultural Water Supply - all waters**[28]

Aquatic Life[28]

Trout Waters

Little Red River below Greers Ferry Dam to Searcy (A~~R~~V-3)

Lakes and Reservoirs - all

Streams

Seasonal Arkansas ~~River~~ Valley aquatic life use - all streams with watersheds of less than 10 mi^2 except as otherwise provided in 8 CAR § 21-505~~Rule 2.505~~
Perennial Arkansas ~~River~~ Valley aquatic life - all streams with watersheds of 10 mi^2 or larger and those waters where discharges equal or exceed 1 cfs

Site Specific Designated Use Variations Supported by Use Attainability Analysis

Plate	Map Inset	Waterbody	Variation	Source	Year
A~~R~~V-1	3&4	Poteau River from U.S. Business Highway 71 to Oklahoma state line	No domestic water supply use	3rd Party	1995
A~~R~~V-1	5	Unnamed tributary to Poteau River at Waldron	No domestic water supply use	3rd Party	1995

[28] **~~*~~Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

SPECIFIC CRITERIA: ARKANSAS ~~RIVER~~ VALLEY ECOREGION

(Plates A~~R~~V-1, A~~R~~V-2, A~~R~~V-3)

	Streams		**Lakes and Reservoirs**
Temperature °C (°F)~~*~~[29]	31 (87.8)		32 (89.6)
Trout Waters	20 (68)		
Arkansas River	32 (89.6)		
Turbidity (NTU) (base/storm)	21/40		25/45
Arkansas River	50/52		
Trout Waters	10/15		
~~Minerals~~	~~see Rule 2.511~~		~~see Rule 2.511~~
Dissolved Oxygen (mg/L)~~**~~[30]	~~Pri.~~Non-Critical	Critical	~~see Rule 2.505~~ 5
<10 mi^2 watershed	5	2	
10 to 150 mi^2	5	3	
151 mi^2 to 400 mi^2	5	4	
>400 mi^2 watershed	5	5	
Trout waters	6	6	
All other criteria	(same as statewide)		

Site Specific Criteria Variations Supported by ~~Use Attainability Analysis~~ Chemical and Biological Data

Plate	Map Inset	Waterbody	Variation	Source	Year
A~~R~~V-1	1	Arkansas River (Dardanelle Lock and Dam [L&D #10] to Oklahoma state line, including Dardanelle Reservoir)	Chlorides 250 mg/L, sulfates 120 mg/L, TDS 500 mg/L	DEQ	[31]1973, 1988
A~~R~~V-1	2	James Fork	Chlorides 20 mg/L, sulfates 100 mg/L, TDS 275 mg/L	DEQ	[31]1973, 1975
A~~R~~V -1	3	Poteau River from Scott County Road 59 to Oklahoma state line	Chlorides 120 mg/L, sulfates 60 mg/L, TDS 500 mg/L	3rd Party	1995
A~~R~~V -1	4	Poteau River from confluence with Unnamed tributary to Scott County Road 59	Chlorides 185 mg/L, sulfates 200 mg/L, TDS 786 mg/L	3rd Party	2020

[29] ~~*~~Increase over natural temperatures may not be more than 2.8°C (5°F).

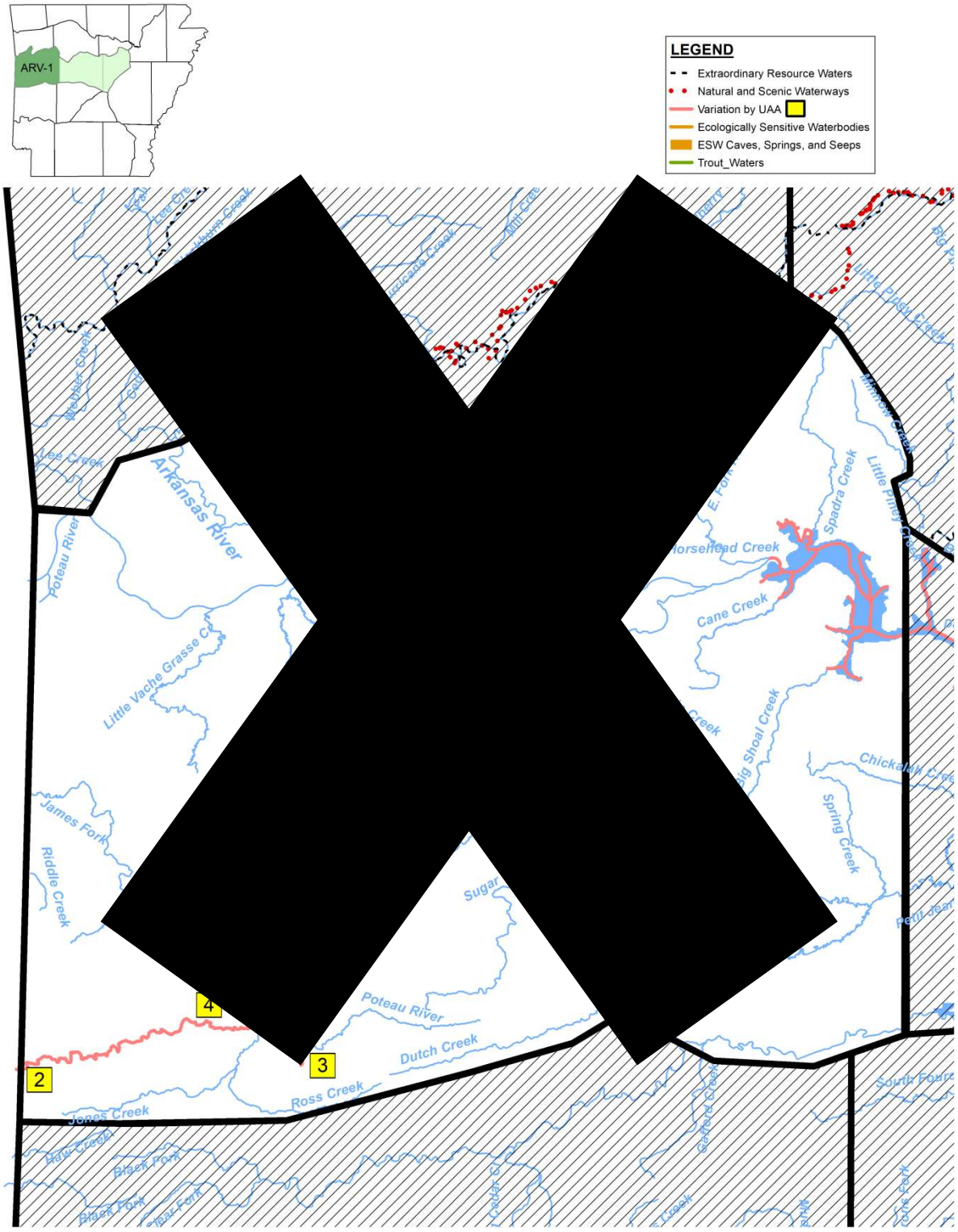
[30] ~~**~~At water temperatures ≤ 10°C or during March, April and May when stream flows are 15 cfs and greater, the primary season dissolved oxygen criteria will be 6.5 mg/L. When water temperatures exceed 22°C, the critical season dissolved oxygen criteria may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.

[31] Cl, SO4 earlier date, TDS later date.

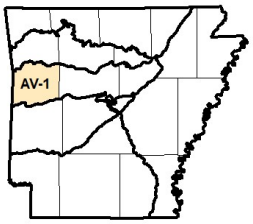
Plate	Map Inset	Waterbody	Variation	Source	Year
A~~R~~V -1	5	Unnamed tributary from Tyson-Waldron Outfall 001 to confluence with the Poteau River	Chlorides 180 mg/L, sulfates 200 mg/L, TDS 870 mg/L	3rd Party	2020
A~~R~~V-2	6	Dardanelle Reservoir	Maximum temperature 35°C (95°F) (limitation of 2.8°C above natural temperature does not apply)	3rd Party	1985
A~~R~~V-2	7	Arkansas River (Murray Lock and Dam [L&D #7] to Dardanelle Lock and Dam [L&D #10])	Chlorides 250 mg/L, sulfates 100 mg/L, TDS 500 mg/L	DEQ	[32]1973, 1988
ARV-2	8	Arkansas River (Mouth to Murray Lock and Dam [L&D #7])	Chlorides 250 mg/L, sulfates 100 mg/L, TDS 500 mg/L	DEQ	[32]1973, 1988
A~~R~~V-2&3	9	Cadron Creek	Chlorides 20 mg/L, sulfates 20 mg/L, TDS 100 mg/L	DEQ	[33]1973, 1981
A~~R~~V-3	10	Little Red River (including Greers Ferry Reservoir)	Chlorides 20 mg/L, sulfates 30 mg/L, TDS 100 mg/L	DEQ	[32]1973, 1988

[32] Cl, SO4 earlier date, TDS later date.
[33] SO4 earlier date, Cl & TDS later date.

Plate ARV-1 (Arkansas River Valley)



Arkansas Valley Plate 1



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP

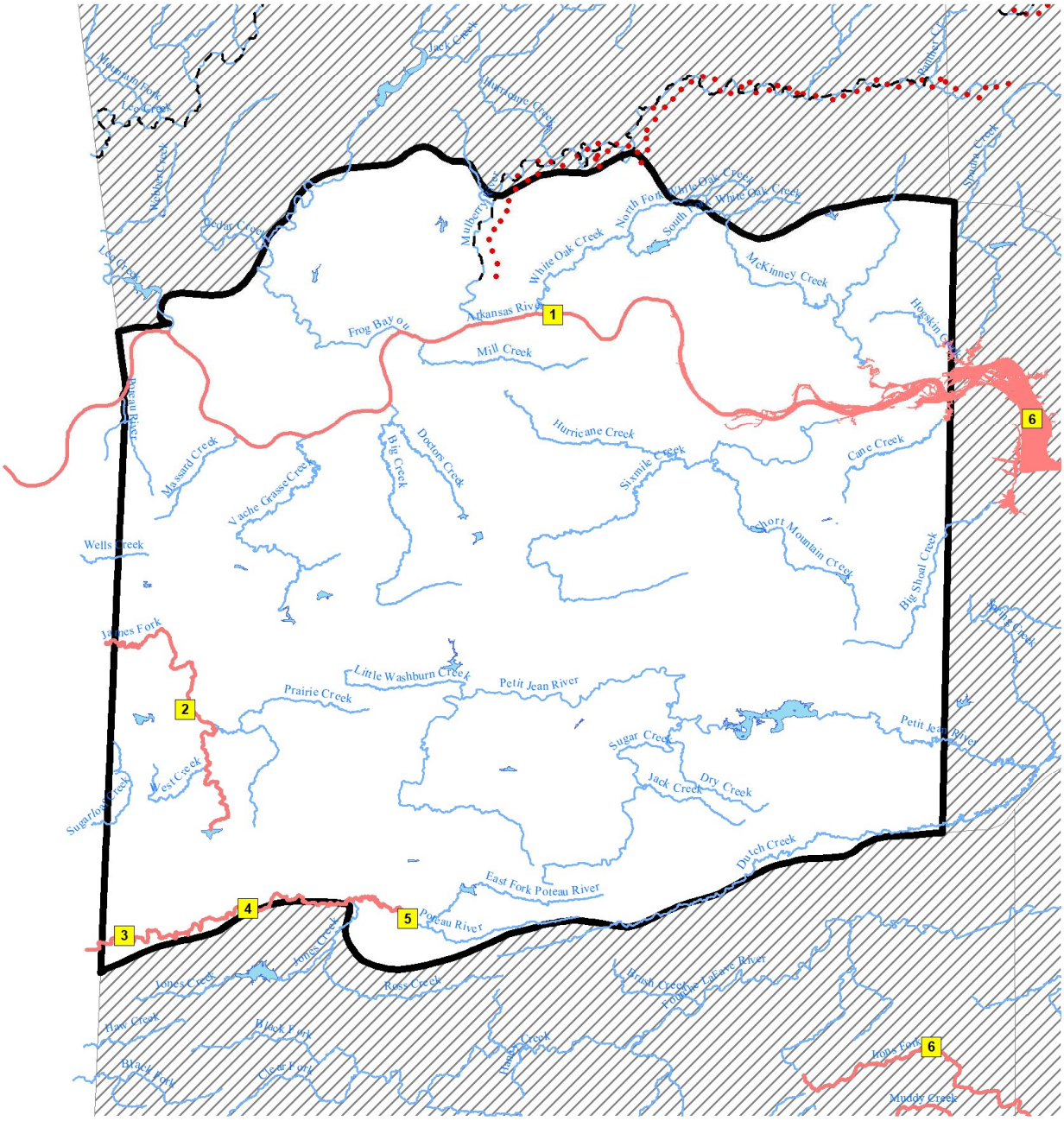
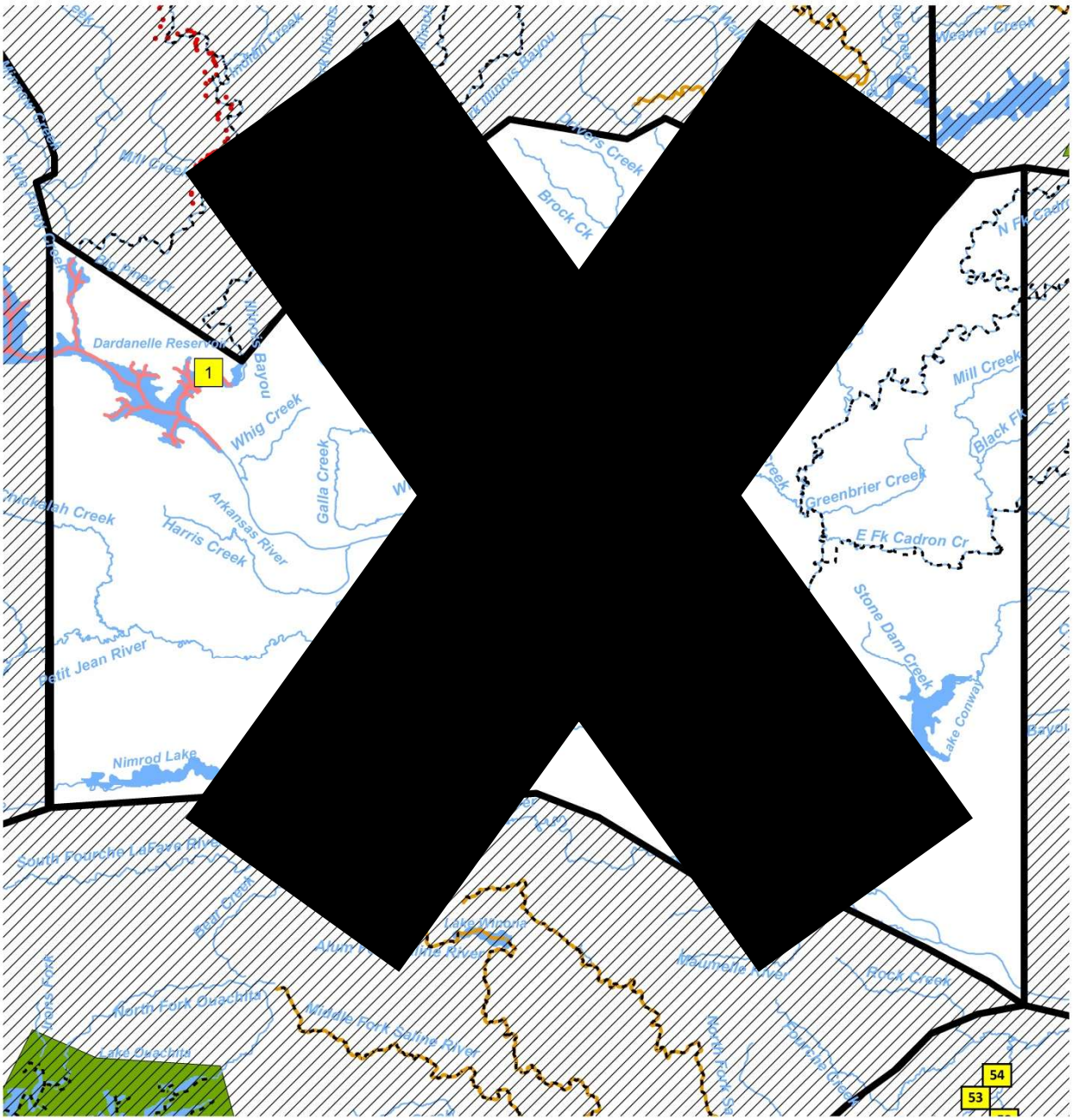
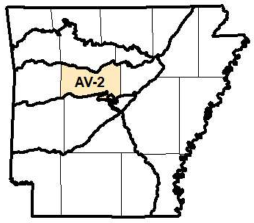


Plate ARV-2 (Arkansas River Valley)



Arkansas Valley Plate 2



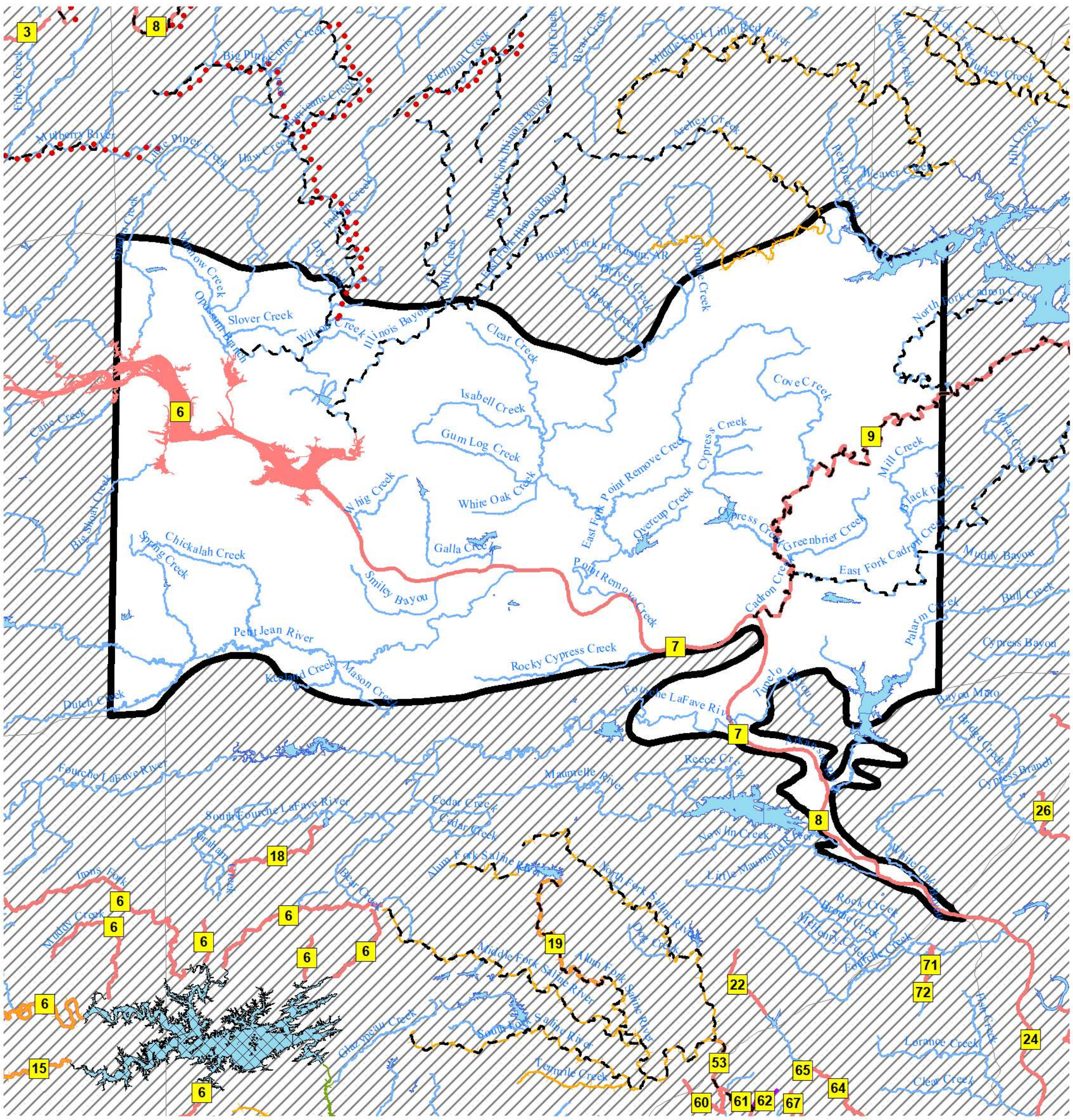
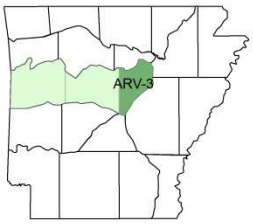
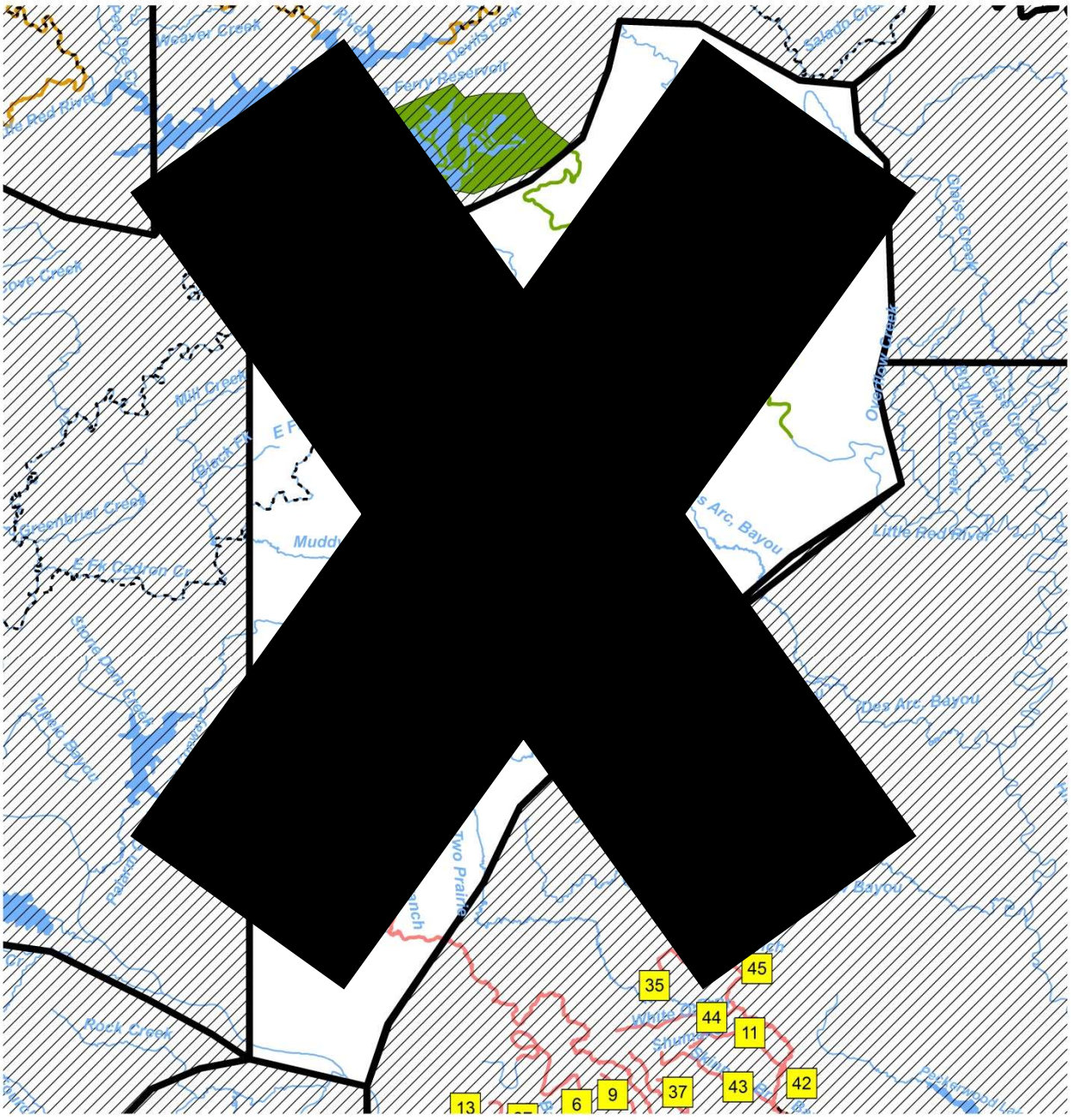
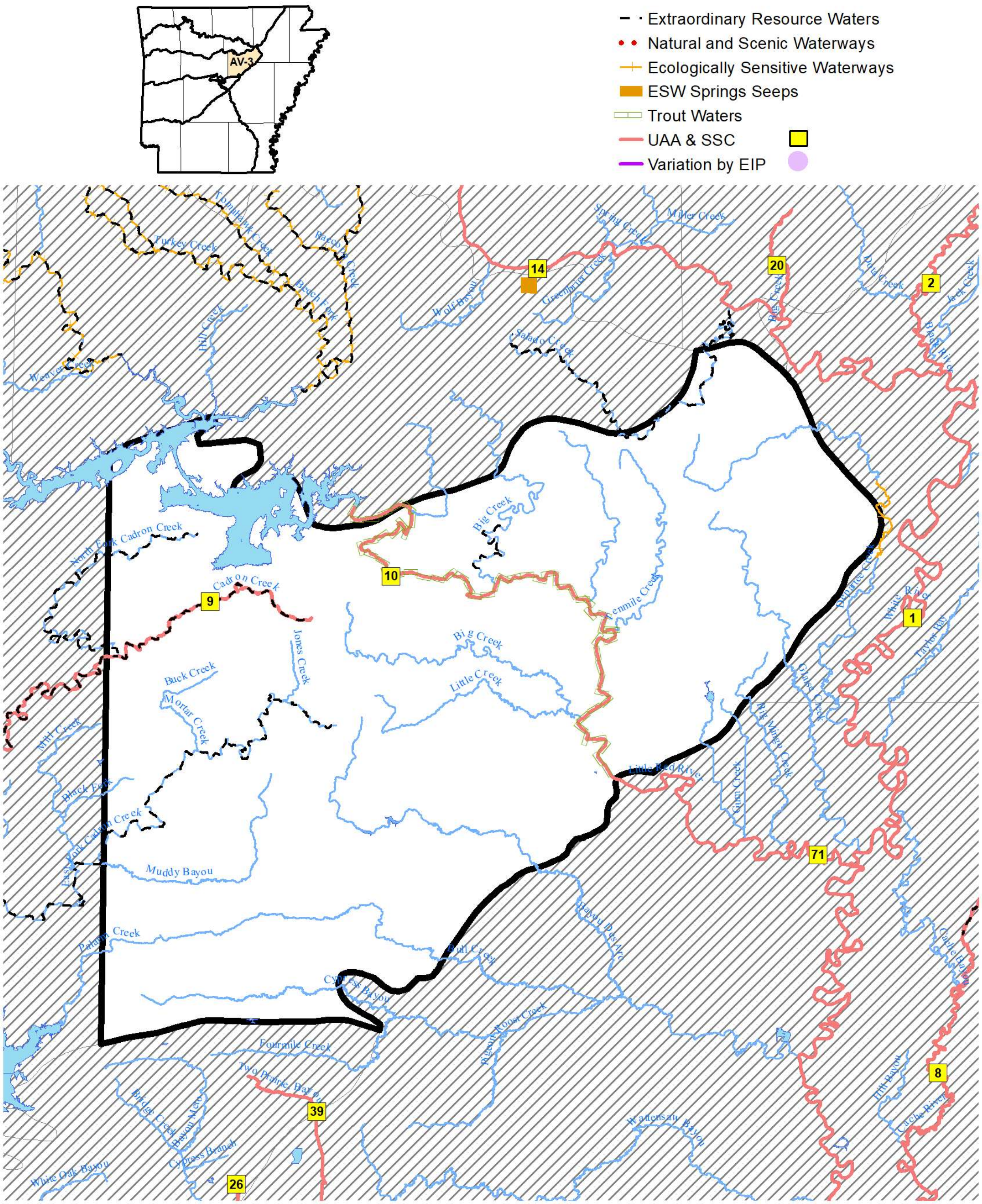


Plate ARV-3 (Arkansas River Valley)





Arkansas Valley Plate 3



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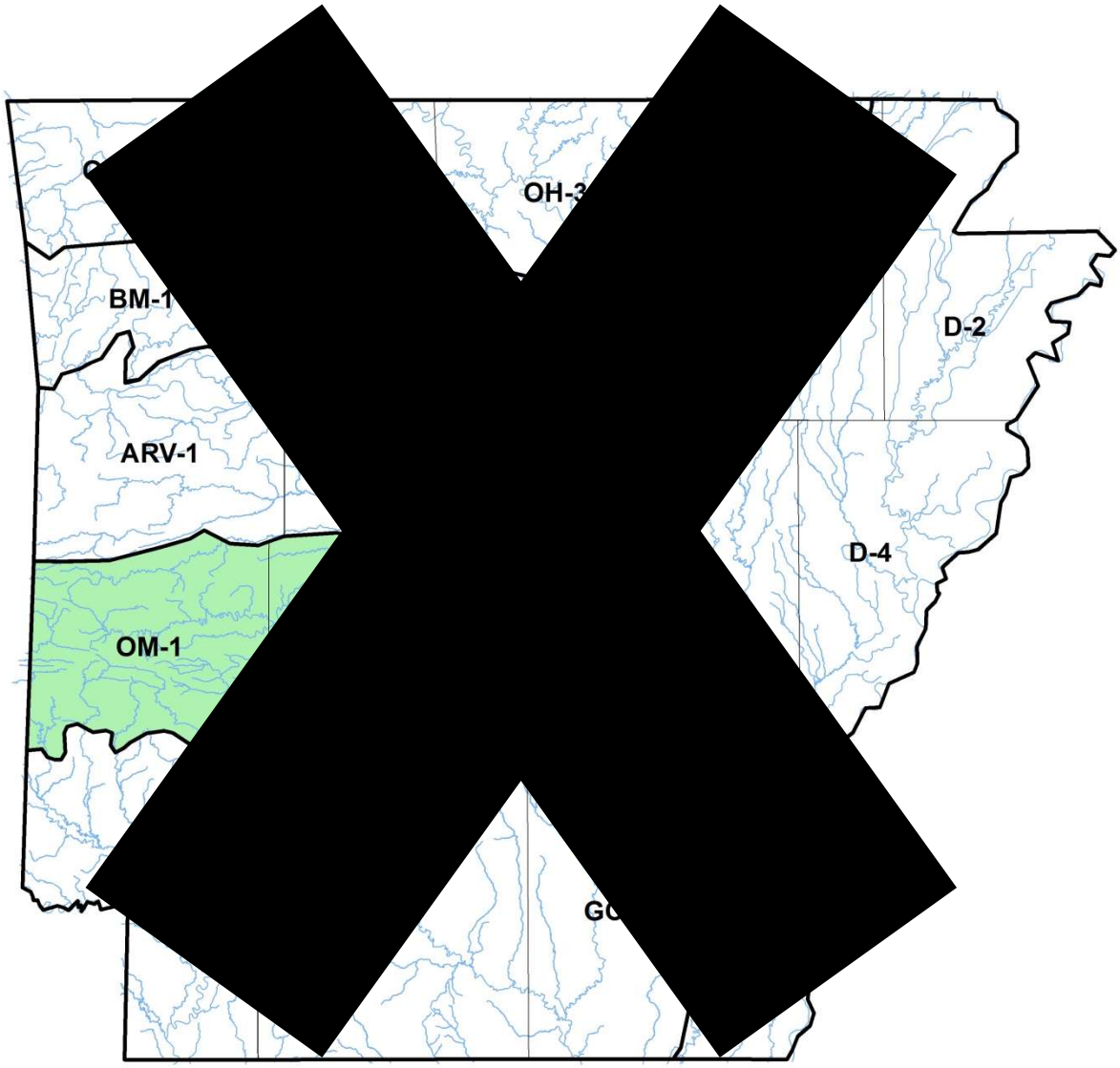



OM-2
OM-2
OM-1

DESIGNATED USES: OUACHITA MOUNTAIN ECOREGION

(Plates OM-1, OM-2)

Extraordinary Resource Waters
Lake Ouachita (OM-1, OM-2)
DeGray Reservoir (OM-2)
Saline River - entire segment including North, Alum, Middle and South Forks (OM-2)
Caddo River - above DeGray Reservoir (OM-1, OM-2)
South Fork Caddo River (OM-1)
Cossatot River - above Gillham Reservoir (OM-1)
Caney Creek (OM-1)
Little Missouri River - above Lake Greeson (OM-1)
Mountain Fork River (OM-1)
Big Fork Creek - adjacent to natural area (OM-1)

Natural and Scenic Waterway
Cossatot River above Gillham Reservoir (OM-1)
Little Missouri River above Lake Greeson (OM-1)
Brushy Creek (OM-1)*[34]

Ecologically Sensitive Waterbodies
Ouachita River above Lake Ouachita - location of Caddo Madtom, ~~longnose~~ Ouachita Darter, Peppered Shiner, Kiamichi Shiner, Beaded Darter, Saddleback Darter, Stargazing Darter; Ouachita Kidneyshell, Ouachita Fanshell, Rabbitsfoot, Elktoe, Pondhorn, Pyramid Pigtoe, Purple Lilliput, Lilliput, and threatened Arkansas Fatmucket mussels (OM-1)
South Fork Ouachita River - location of Ouachita Kidneyshell, Pondhorn, Purple Lilliput, Lilliput, Rainbow, Arkansas Fatmucket mussels; and Caddo Madtom (OM-1)
Caddo River and all tributaries above DeGray Reservoir - location of endemic Paleback Darter, Caddo Madtom, Beaded Darter; Ouachita Kidneyshell, Slippershell, Southern Pocketbook, Elktoe, Purple Lilliput, Lilliput, and threatened Arkansas Fatmucket mussels (OM-1, OM-2)
Mountain Fork River - location of threatened Leopard Darter and Ouachita Shiner; Ouachita Kidneyshell, Purple Lilliput, and Lilliput mussels (OM-1)
Cossatot River above Gillham Reservoir - location of threatened Leopard Darter, Ouachita Shiner, and Brown Bullhead; Louisiana Pigtoe mussel (OM-1)
Saline River including Alum, Middle, North and South Forks, and Ten Mile Creek - location of endemic Ouachita Madtom, Kiamichi Shiner (North and Alum Fork only), Brown Bullhead (Middle Fork only); Pink Mucket, Southern Pocketbook, Ouachita Kidneyshell, Ouachita Fanshell, Purple Lilliput, Lilliput, Elktoe, Pondhorn, and threatened Arkansas Fatmucket mussels (except South fork and Ten Mile Creek) (OM-2)
Little Missouri River above Lake Greeson - location of Caddo Madtom and Elktoe mussel
Mayberry Creek (tributary to Hallman's Creek) - location of Paleback Darter and Louisiana Pigtoe (OM-2)
Robinson Creek - location of threatened Leopard Darter (OM-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs**[35]

Secondary Contact Recreation - all waters**[36]

Domestic, Industrial and Agricultural Water Supply - all waters**[36]

[34] *As designated in the National Wild and Scenic Rivers System
[35] **Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

Aquatic Life[36]

Trout Waters

~~Lake Ouachita (lower portion) (OM-2)~~

~~Ouachita River~~ Upper Lake Hamilton from Blakely Mt. Dam to Hwy. 270 bridge (OM-2)

Lakes and Reservoirs – all

Streams

Seasonal Ouachita Mountain Ecoregion aquatic life - all streams with watersheds of less than 10 mi^2 except as otherwise provided in 8 CAR § 21-505~~Rule 2.505~~

Perennial Ouachita Mountain Ecoregion aquatic life - all streams with watershed of 10 mi^2 or larger and those waters where discharges equal or exceed 1cfs

Site Specific Designated Use Variations Supported by Use Attainability Analysis

Plate	Map Inset	Waterbody	Variation	Source	Year
OM-1	4	Rolling Fork from unnamed tributary A at Grannis to DeQueen Reservoir	No domestic water supply use	3rd Party	1995
OM-1	5	Unnamed tributaries A and A1 at Grannis	No domestic water supply use	3rd Party	1995

SPECIFIC CRITERIA: OUACHITA MOUNTAIN ECOREGION

(Plates OM-1, OM-2)

	Streams		Lakes and Reservoirs
Temperature °C (°F)*[36]	30 (86)		
	32 (89.6)		
Trout Waters	20 (68)		
Turbidity (NTU) (base/storm)	10/18		25/45
Trout Waters	10/15		
~~Minerals~~	~~see Rule 2.511~~		~~see Rule 2.511~~
Dissolved Oxygen (mg/L) **[37]	~~Pri.~~Non-Critical	Critical	~~see Rule 2.505~~ 5
<10 mi^2 watershed	6	2	
10 mi^2 and greater	6	6	
Trout Waters	6	6	
All other criteria	(same as statewide)		

Site Specific Criteria Variations Supported by ~~Use Attainability Analysis~~ Chemical and Biological Data

Plate	Map Inset	Waterbody	Variation	Source	Year
OM-1	1	Mountain Fork	Chlorides 20 mg/L, sulfates 20 mg/L, TDS 100 mg/L	DEQ	1973
OM-1	2	Barren Creek (AR_11140108_907)	pH 5.5-8.5 su	DEQ	2022
OM-1	3	Upper Rolling Fork	Chlorides 20 mg/L, sulfates 20 mg/L, TDS 100 mg/L	DEQ	[38]1973, 1981
OM-1	4	Rolling Fork from unnamed tributary A to DeQueen Reservoir	Chlorides 130 mg/L, sulfates 70 mg/L, TDS 670 mg/L	3rd Party	1995
OM-1	5	Unnamed tributaries A and A1 at Grannis	Chlorides 135 mg/L, sulfates 70 mg/L, TDS 700 mg/L	3rd Party	1995
OM-1&2	6	Ouachita River (Carpenter Dam to Headwaters, including Lake Ouachita tributaries)	Chlorides 10 mg/L, sulfates 10 mg/L, TDS 100 mg/L	DEQ	1975
OM-1	7	Prairie Creek: from headwaters to confluence with Briar Creek	Critical season DO 4 mg/L	3rd Party	1985
OM-1	8	Cossatot River	Chlorides 10 mg/L, sulfates 15 mg/L, TDS 70 mg/L	DEQ	1981

[36] *Increase over natural temperatures may not be more than 2.8°C (5°F).
[37] **At water temperatures ≤ 10°C or during March, April and May when stream flows are 15 cfs and greater, the primary season dissolved oxygen criteria will be 6.5 mg/L. When water temperatures exceed 22°C, the critical season dissolved oxygen criteria may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.
[38] SO4 earlier date, Cl & TDS later date.

Plate	Map Inset	Waterbody	Variation	Source	Year
OM-1	9	Irons Fork Creek (AR_08040101_838)	pH 5.5-8.5 su	DEQ	2022
OM-1	10	Short Creek (AR_11140109_719)	pH 5.5-8.5 su	DEQ	2022
OM-1	11	Caney Creek (AR_11140109_921)	pH 5.5-8.5 su	DEQ	2022
OM -1	12	Saline River (Red River Basin)	Chlorides 20 mg/L, sulfates 10 mg/L, TDS 90 mg/L	DEQ	1973
OM-1	12	Saline River (Red River Basin) (AR_11140109_014)	Critical season DO 5 mg/L	DEQ	2022
OM-1	13	Little Missouri River	Chlorides 10 mg/L, sulfates 90 mg/L, TDS 180 mg/L	DEQ	[39]1975, 1995
OM-1	14	Muddy Fork Little Missouri River	Sulfates 250 mg/L, TDS 500 mg/L	DEQ	1998
OM-1	15	South Fork Ouachita River (AR_08040101_043)	Critical season DO 5 mg/L,	DEQ	2022
OM-1	16	South Fork Caddo River	Sulfates 60 mg/L, TDS 128 mg/L	3rd Party	1995
OM-1	17	Back Valley Creek	Sulfates 250 mg/L, TDS 500 mg/L	3rd Party	1995
OM-2	18	Dry Fork Creek (AR_11110206_914)	pH 5.5-8.5 su	DEQ	2022
OM-2	19	Alum Fork Saline River (AR_08040203_014)	Critical season DO 5 mg/L	DEQ	2022
OM-2	20	Wilson Creek from a point approximately 0.85 mile upstream of Outfall 001 to UMETCO Outfall 001	Chlorides 56 mg/L, sulfates 250 mg/L, TDS 500 mg/L	3rd Party	2012
OM-2	20	Wilson Creek downstream of UMETCO Outfall 001 to its mouth	Chlorides 56 mg/L, sulfates 250 mg/L, TDS 500 mg/L	3rd Party	2012

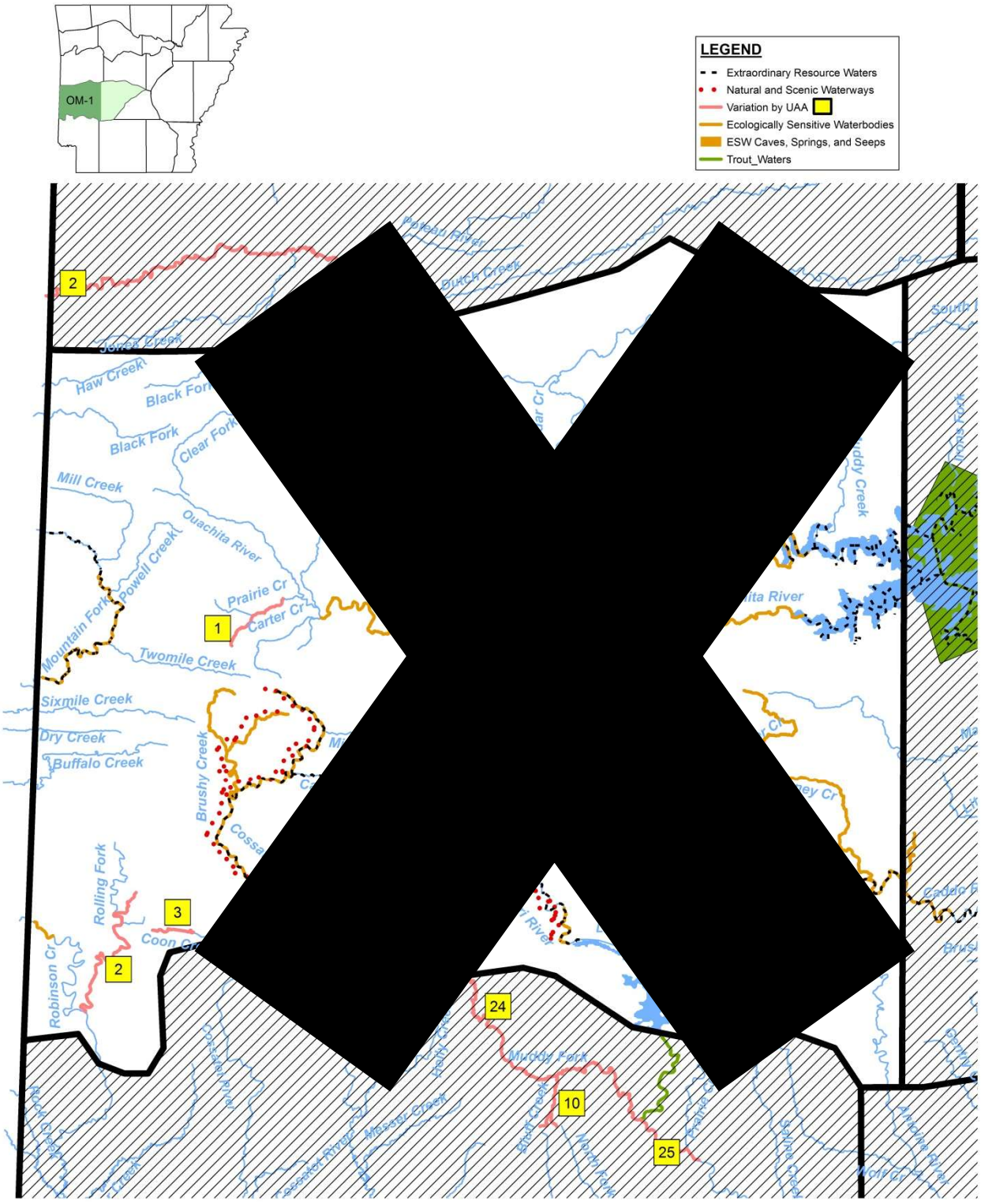
[39] *** Cl earlier date, SO4 & TDS later date.

Temporary Variations Supported by Environmental Improvement Project

Plate	Map Inset	Waterbody	Variation	Source	Year
OM-2	1	Chamberlain Creek from headwaters to confluence with Cove Creek	Chlorides 68 mg/L, sulfates 1,384 mg/L, TDS 2,261 mg/L* [40]	3rd Party	2020
OM-2	2	Cove Creek from the confluence with Chamberlain Creek to the Ouachita River	Sulfates 250 mg/L, TDS 500 mg/L* [41]	3rd Party	2020
OM-2	3	Lucinda Creek from the confluence of Rusher Creek to the confluence with Cove Creek	Sulfates 250 mg/L, TDS 500 mg/L* [41]	3rd Party	2020
OM-2	4	Rusher Creek from the confluence of the East and West Forks to confluence with Lucinda Creek	Sulfates 250 mg/L, TDS 500 mg/L* [41]	3rd Party	2020

[40] * These temporary standards variations are effective for 148 months from EPA's approval of the EIP on January 7, 2020.

Plate OM-1 (Ouachita Mountains)



Ouachita Mountains Plate 1

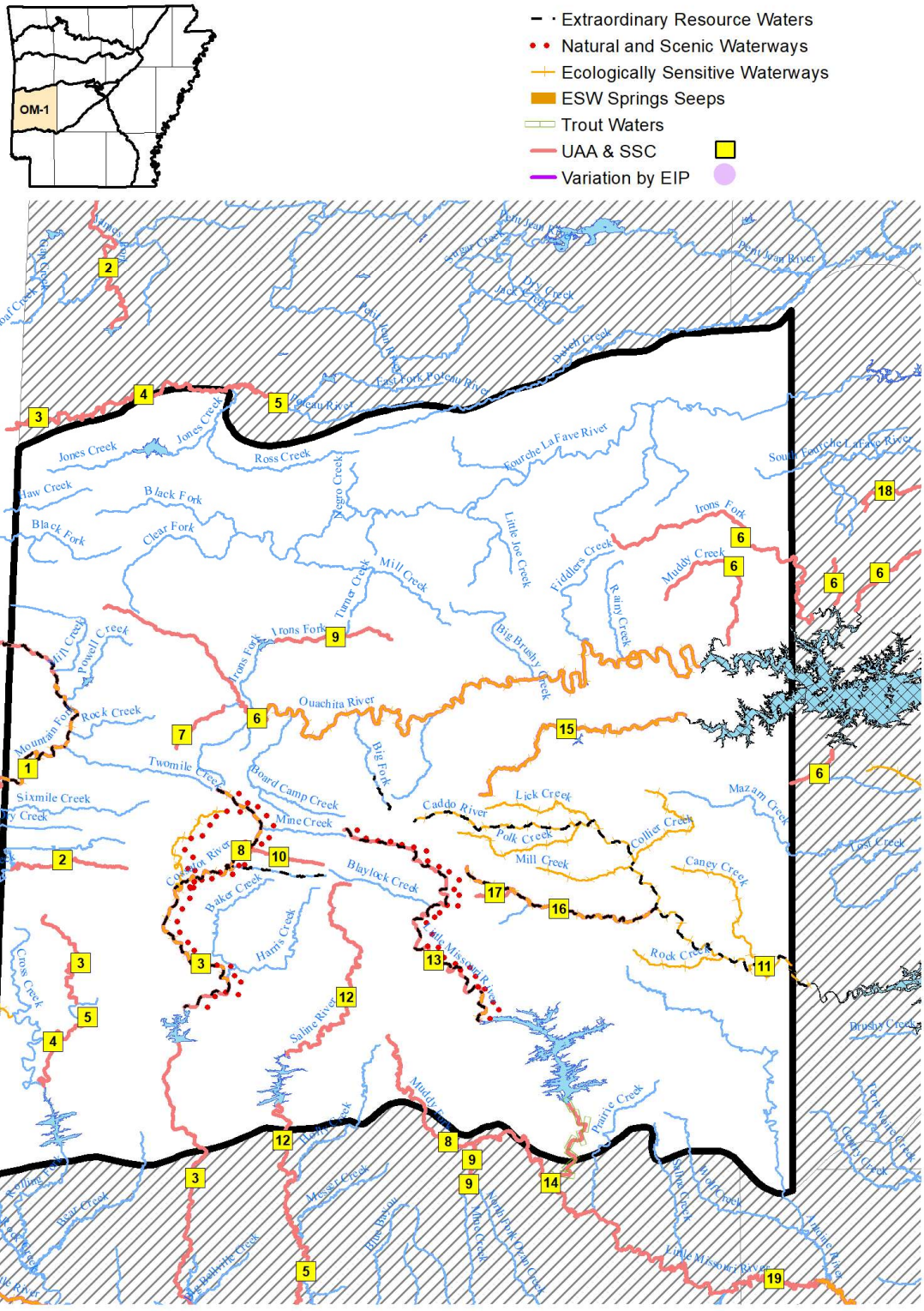
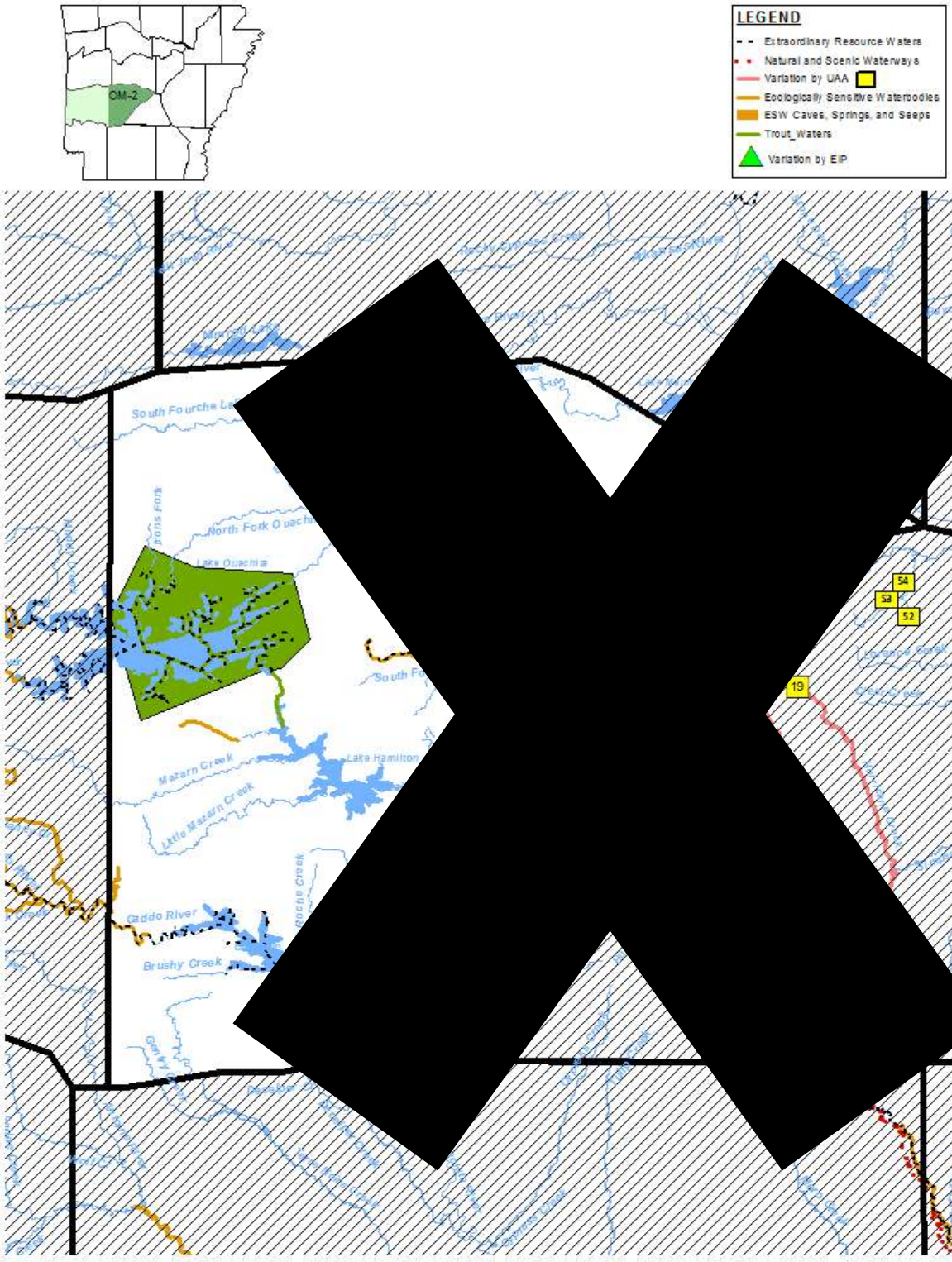
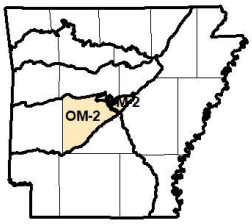


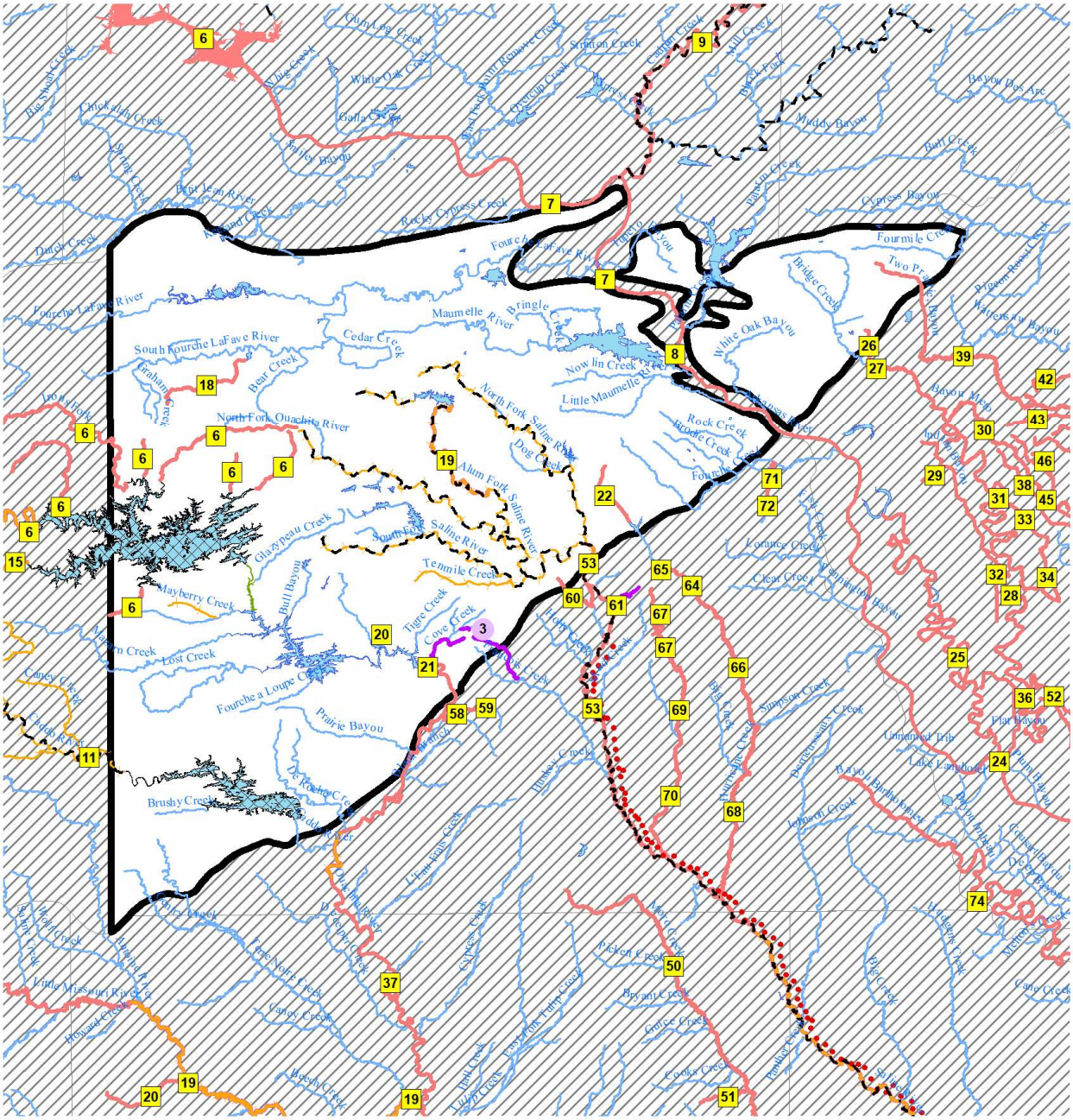
Plate OM-2 (Ouachita Mountains)



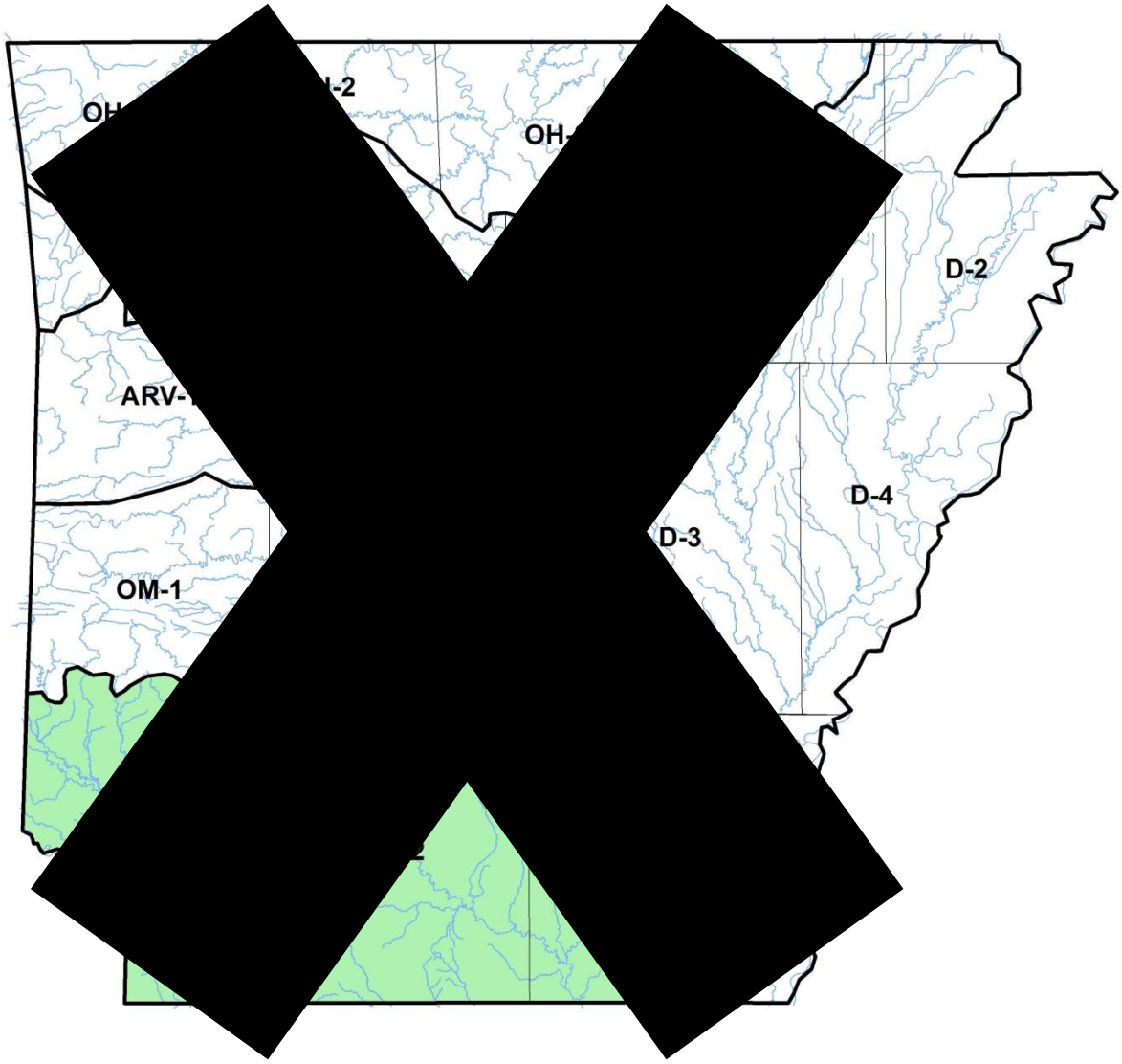
Ouachita Mountains Plate 2



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



Index to Plates of the ~~Gulf Coastal Plain~~ South Central Plains




SCP-4
SCP-1
SCP-2
SCP-3

DESIGNATED USES: ~~GULF COASTAL~~ SOUTH CENTRAL PLAINS ECOREGION

(Plates ~~GC~~SCP-1, ~~GC~~SCP-2, ~~GC~~SCP-3, ~~GC~~SCP-4)

Extraordinary Resource Waters
Saline River (~~GC~~SCP-3, ~~GC~~SCP-4)
Moro Creek - adjacent to natural area (~~GC~~SCP-2)

Natural and Scenic Waterways
Saline River from the Grant-Saline County line to mouth (~~GC~~SCP-3)

Ecologically Sensitive Waterbodies
Little River above Millwood Reservoir - location of Rocky Shiner, Bluehead Shiner, Western Starhead Topminnow; Rabbitsfoot, Texas Pigtoe, Pyramid Pigtoe, Louisiana Pigtoe, Round Pigtoe, Ouachita Kidneyshell, Fawnsfoot, Winged Mapleleaf, Southern Mapleleaf, Gulf Mapleleaf, Ouachita Rock Pocketbook, and Pink Mucket mussels (~~GC~~SCP-1)
Grassy Lake and Yellow Creek below Millwood Reservoir - unique ecosystem and biota including but not limited to: Alligator Gar and Blackspot Shiner; Ouachita Rock Pocketbook and Louisiana Pigtoe mussels (~~GC~~SCP-1)
Lower Little Missouri River - location of Peppered Shiner, ~~and~~ Longnose Darter, American Eel, Alabama Shad, Crystal Darter, Ouachita Darter, Saddleback Darter, and Stargazing Darter; Rabbitsfoot, Pink Mucket, Pyramid Pigtoe, Round Pigtoe, Ouachita Kidneyshell, Ouachita Fanshell, Southern Pocketbook, Purple Lilliput, Lilliput, and Elktoe mussels (~~GC~~SCP-2)
Lower Saline River - location of Peppered Shiner, Crystal Darter, ~~and~~ Goldstripe Darter, Western Sand Darter, Saddleback Darter, and Stargazing Darter; Rabbitsfoot, Winged Mapleleaf, Pink Mucket, Texas Pigtoe, Pyramid Pigtoe, Round Pigtoe, Ouachita Kidneyshell, Ouachita Fanshell, Southern Pocketbook, Purple Lilliput, Lilliput, Gulf Mapleleaf, Southern Mapleleaf, Elktoe, and Fawnsfoot mussels (~~GC~~SCP-3)
Ouachita River near Arkadelphia - location of Rabbitsfoot, Arkansas Fatmucket, Lilliput, Pyramid Pigtoe, Round Pigtoe, Ouachita Kidneyshell, Ouachita Fanshell, Elktoe, Flat Floater, Ouachita Rock Pocketbook, and Pink Mucket mussels; American Eel, Alabama Shad, Crystal Darter, Saddleback Darter, and Stargazing Darter (~~GC~~SCP-4)

Streams with Substantial Springwater Influence
L'Eau Frais (~~GC~~SCP-4)
Cypress Creek (~~GC~~SCP-4)
East and West Fork Tulip Creeks (~~GC~~SCP-4)
Others to be determined

Primary Contact Recreation - all streams with watersheds greater than 10 mi² and all lakes/reservoirs~~**~~**[41]**

Secondary Contact Recreation - all waters~~**~~**[43]**

Domestic, Industrial, and Agricultural Water Supply - all waters~~**~~**[43]**

[41] ~~**~~**Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

Aquatic Life[43]

Trout Waters

Little Missouri River from Narrows Dam to confluence with Muddy Fork (~~GC~~SCP-1)

Lakes and Reservoirs - all

Streams

Seasonal ~~Gulf Coastal~~ South Central Plains aquatic life - all streams with watersheds of less than 10 mi2 except as otherwise provided in 8 CAR § 21-505~~Rule 2.505~~

Perennial ~~Gulf Coastal~~ South Central Plains aquatic life - all streams with watersheds of 10 mi^2 or larger and those waters where discharges equal or exceed 1 cfs

Site Specific Designated Use Variations Supported by Use Attainability Analysis

Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -1	2	Red River from Oklahoma state line to confluence with Little River	No domestic water supply use	3rd Party	1994
~~GC~~SCP -1	4	Lick Creek	Seasonal aquatic life use; no primary contact	DEQ	1988
~~GC~~SCP -1	7	Red River from the mouth of the Little River to the Arkansas/Louisiana state line	No domestic water supply use	3rd Party	2016
~~GC~~SCP -1	9	Bluff Creek and unnamed tributary	No domestic water supply use	3rd Party	1998
~~GC~~SCP -1	10	Mine Creek from Highway 27 to Millwood Lake	No domestic water supply use	3rd Party	1995
~~GC~~SCP -1	15	Caney Creek	No domestic or industrial water supply use	3rd Party	1995
~~GC~~SCP -1	16	Bois d'Arc Creek from Caney Creek to Red River	No domestic or industrial water supply use	3rd Party	1995
~~GC~~SCP -2	23&24	Dismukes Creek and Big Creek to Bayou Dorcheat	No domestic water supply use	3rd Party	2002
~~GC~~SCP -2	25	Albemarle unnamed tributary (AUT) to Horsehead Creek	No domestic water supply use	3rd Party	2002
~~GC~~SCP -2	26	Horsehead Creek from AUT to mouth	No domestic water supply use	3rd Party	2002
~~GC~~SCP -2	29	Haynes Creek from mouth of Flat Creek to confluence with Smackover Creek	No domestic water supply use	3rd Party	2008
~~GC~~SCP -2	30	Flat Creek from mouth of UTA to confluence with Haynes Creek	No domestic water supply use	3rd Party	2008
~~GC~~SCP -2	31	Unnamed tributary A to Flat Creek from mouth of EDCC 001 ditch to confluence with Flat Creek	No domestic water supply use	3rd Party	2007
~~GC~~SCP -2	32	Unnamed tributary to Flat Creek from EDCC Outfall 001 downstream to confluence with unnamed tributary A to Flat Creek	No domestic water supply use	3rd Party	2007
~~GC~~SCP -2	34	Gum Creek	No domestic water supply use	3rd Party	1998
~~GC~~SCP -2	44, 45, &48	Bayou de Loutre from mouth of UT004 to Louisiana state line	No domestic water supply use	3rd Party	2008

Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP-2	38	Unnamed tributary 002 (UT002)	No domestic water supply use	3rd Party	2007
~~GC~~SCP-2	39	Unnamed tributary 004 (UT004)	No domestic water supply use	3rd Party	2007
~~GC~~SCP-2	40	Unnamed tributary 003 (UT003)	No domestic water supply use	3rd Party	2007
~~GC~~SCP-2	41	Unnamed tributary to Little Cornie Bayou (UTLCB-2)	No domestic water supply use	3rd Party	2007
~~GC~~SCP-2	42	Little Cornie Bayou from Walker Branch to Arkansas/Louisiana state line	No domestic water supply use	3rd Party	1998
~~GC~~SCP-2	43	Walker Branch	No domestic water supply use	3rd Party	1998
~~GC~~SCP-2	46&47	Loutre Creek	Perennial aquatic life use, except seasonal from railroad bridge to mouth	3rd Party	1986
~~GC~~SCP-2	47	Loutre Creek from Highway 15 S. to the confluence of Bayou de Loutre	No domestic water supply use	3rd Party	2008
~~GC~~SCP-2	49	Boggy Creek from the discharge from Clean Harbors El Dorado LCC downstream to the confluence of Bayou de Loutre	No domestic water supply use	3rd Party	2007
~~GC~~SCP-2	51	Jug Creek	Perennial aquatic life use	3rd Party	1987
~~GC~~SCP-3	55	~~Coffee Creek and~~ Mossy Lake	No fishable/swimmable or domestic water supply uses	DEQ	1973
~~GC~~SCP-4	58	Town Creek below Acme tributary	No domestic water supply use	3rd Party	1995
~~GC~~SCP-4	59	Unnamed tributary from Acme	No domestic water supply use	3rd Party	1995
~~GC~~SCP-4	60	Dodson Creek	Perennial aquatic life use	DEQ	1986
~~GC~~SCP-4	62	Holly Creek	No domestic water supply use	3rd Party	1988
~~GC~~SCP-4	65	Alcoa unnamed tributary to Hurricane Creek and Hurricane Creek	No domestic water supply use	3rd Party	1998
~~GC~~SCP-4	67	Dry Lost Creek and tributaries	No domestic water supply use	3rd Party	1998
~~GC~~SCP-4	69&70	Lost Creek	No domestic water supply use	3rd Party	1998
~~GC 2~~		~~Unnamed tributary to Smackover Creek~~	~~No fishable/swimmable uses~~		
~~GC 2~~		~~Unnamed tributary to Flat Creek~~	~~No fishable/swimmable uses~~		

SPECIFIC CRITERIA: ~~GULF COASTAL~~ SOUTH CENTRAL PLAINS ECOREGION

(Plates ~~GC~~SCP-1, ~~GC~~SCP-2, ~~GC~~SCP-3, ~~GC~~SCP-4)

	Typical Streams	~~Spring Water Streams~~	Lakes and Reservoirs
Temperature °C (°F)*[42]	30 (86)	~~30 (86)~~	32 (89.6)
Ouachita River (state line to Little Missouri River)	32 (89.6)		
Red River	32 (89.6)		
Little River (from Millwood Lake to the Red River)	32 (89.6)		
Trout Waters	20 (68)	~~20 (68)~~	
Turbidity (NTU) (base/storm)	21/32	~~21/32~~	25/45
Red River	50/150		
Trout Waters	10/15		
~~Minerals~~	~~see Rule 2.511~~		~~see Rule 2.511~~
Dissolved Oxygen (mg/L) **[43]	~~Pri.~~Non-Critical	Critical	~~see Rule 2.505~~ 5
<10 mi^2 watershed	5	2	
10 mi^2 - 500 mi^2	5	3	
>500 mi^2 watershed	5	5	
All sizes (springwater influenced)	6	5	
Trout Waters	6	6	
All other criteria	(same as statewide)		

Site Specific Criteria Variations Supported by ~~Use Attainability Analysis~~ Chemical and Biological Data

Criteria with an asterisk (*) were developed using background flow of 4 cfs.

Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -1	1	Little River from Oklahoma State line to Millwood Lake	Chlorides 20 mg/L, sulfates 20 mg/L, TDS 100 mg/L	DEQ	1973
~~GC~~SCP -1	2	Red River from Arkansas/Oklahoma state line to mouth of the Little River	Chlorides 250 mg/L, sulfates 200 mg/L, TDS 850 mg/L	DEQ, 3rd Party	1973, 1994
SCP -1	3	Cossatot River	Chlorides 10 mg/L, sulfates 15 mg/L, TDS 70 mg/L	DEQ	1981
~~GC~~SCP -1	4	Lick Creek - from headwaters to Millwood Reservoir	Critical season DO 2 mg/L	DEQ	1988

[42] *Increase over natural temperatures may not be more than 2.8°C (5°F).

[43] **At water temperatures ≤ 10°C or during March, April and May when stream flows are 15 cfs and greater, the primary season dissolved oxygen criteria will be 6.5 mg/L. When water temperatures exceed 22°C, the critical season dissolved oxygen criteria may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.

Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -1	5	Saline River (Red River Basin)	Chlorides 20 mg/L, sulfates 10 mg/L, TDS 90 mg/L	DEQ	1973
~~GC~~SCP -1	6	Little River from Millwood Lake to the Red River	Chlorides 20 mg/L, sulfates 20 mg/L, TDS 138 mg/L; temperature 32°C/89.6°F	DEQ, 3rd Party	[44]1973, 2016
~~GC~~SCP -1	7	Red River from mouth of the Little River to the Arkansas/Louisiana state line	Chlorides 250 mg/L, sulfates 200 mg/L, TDS 780 mg/L	DEQ, 3rd Party	[45]1973, 2018
~~GC~~SCP -1	8	Muddy Fork Little Missouri River	Sulfates 250 mg/L, TDS 500 mg/L	3rd Party	1998
~~GC~~SCP -1	9	Bluff Creek and unnamed tributary	*Sulfates 651 mg/L, *TDS 1033 mg/L	3rd Party	1996
~~GC~~SCP -1	10	Mine Creek from Highway 27 to Millwood Lake	Chlorides 90 mg/L, sulfates 65 mg/L, TDS 700 mg/L	3rd Party	1995
~~GC~~SCP -1	11	McKinney Bayou	Chlorides 180 mg/L, sulfates 60 mg/L,TDS 480 mg/L	DEQ	1973
~~GC~~SCP -1	12	Days Creek	Chlorides 250 mg/L, sulfates 250 mg/L,TDS 500 mg/L	DEQ	1991
~~GC~~SCP -1	13	Sulphur River	Chlorides 120 mg/L, sulfates 100 mg/L,TDS 500 mg/L	DEQ	1975
~~GC~~SCP -1	14	Kelley Bayou	Chlorides 90 mg/L, sulfates 40 mg/L,TDS 500 mg/L	DEQ	1973
~~GC~~SCP -1	15	Caney Creek	*Chlorides 113 mg/L, *sulfates 283 mg/L, TDS 420 mg/L	3rd Party	1995
~~GC~~SCP -1	16	Bois d'Arc Creek from Caney Creek to Red River	*Chlorides 113 mg/L, *sulfates 283 mg/L, *TDS 420 mg/L	3rd Party	1995
SCP -1	17	~~Poston~~ Posten Bayou	Chlorides 120 mg/L, sulfates 40 mg/L, TDS 500 mg/L	DEQ	1973
SCP -1	18	Bodcau Creek	Chlorides 250 mg/L, sulfates 70 mg/L, TDS 500 mg/L	DEQ	1973
~~GC~~SCP -1&2	19	Little Missouri River	Chlorides 10 mg/L, sulfates 90 mg/L, TDS 180 mg/L	DEQ	1975
SCP -2	20	Garland Creek	Chlorides 250 mg/L, sulfates 250 mg/L,TDS 500 mg/L	3rd Party	1985
~~GC~~SCP -2	21	Bayou Dorcheat	Chlorides 100 mg/L, *sulfates 16 mg/L, TDS 250 mg/L	DEQ	1981
~~GC~~SCP -2	22	Crooked Creek	Chlorides 250 mg/L, sulfates 10 mg/L,TDS 500 mg/L	DEQ	1973
~~GC~~SCP -2	23	Dismukes Creek	*Chlorides 26 mg/L, *TDS 157 mg/L	3rd Party	2002
~~GC~~SCP -2	24	Big Creek from Dismukes to Bayou Dorcheat	*Chlorides 20 mg/L, *TDS 200 mg/L	3rd Party	2002

[44] Cl earlier date, SO4 & TDS later date.

Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -2	25	Albemarle unnamed tributary (AUT) to Horsehead Creek	*Chlorides 137 mg/L, *TDS 383 mg/L	3rd Party	2002
~~GC~~SCP -2	26	Horsehead Creek from AUT to mouth	*Chlorides 85 mg/L, *TDS 260 mg/L	3rd Party	2002
~~GC~~SCP -2	27	Cypress Creek	Chlorides 250 mg/L, sulfates 70 mg/L,TDS 500 mg/L	DEQ	1973
~~GC~~SCP -2	28	Smackover Creek	Chlorides 250 mg/L, sulfates 30 mg/L,TDS 500 mg/L	DEQ	1973
SCP -2	33	~~Big Cornie Creek~~ Cornie Bayou	Chlorides 230 mg/L, sulfates 30 mg/L,TDS 500 mg/L	DEQ	1973
~~GC~~SCP -2	34	Gum Creek	*Chlorides 104 mg/L, *TDS 311 mg/L	3rd Party	1998
SCP -2	35	Little ~~Cornie Creek~~ Corney Bayou	Chlorides 200 mg/L, sulfates 10 mg/L,TDS 400 mg/L	DEQ	1973
SCP -2	36	Three Creeks	Chlorides 250 mg/L, sulfates 10 mg/L,TDS 500 mg/L	DEQ	1973
SCP -2&4	37	Ouachita River (Camden to Carpenter Dam)	Chlorides 50 mg/L, sulfates 40 mg/L, TDS 150 mg/L	DEQ	1975
SCP -2	42	Little Cornie Bayou	Chlorides 200 mg/L, sulfates 20 mg/L,TDS 500 mg/L	DEQ	1973
~~GC~~SCP -2	43	Walker Branch	Chlorides 180 mg/L, TDS 970 mg/L	3rd Party	1998
~~GC~~SCP -2	44	Bayou de Loutre above Gum Creek	Chlorides 250 mg/L, sulfates 90 mg/L,TDS 500 mg/L	3rd Party	1996
~~GC~~SCP -2	45	Bayou de Loutre from ~~Chemtura~~ AR0001171 outfall 001 to Loutre Creek	Maximum water temperature 96°F	3rd Party	2002
~~GC~~SCP -2	46	Loutre Creek from headwaters to railroad bridge	Critical season DO 3 mg/L, primary season DO 5 mg/L	3rd Party	1986
~~GC~~SCP -2	47	Loutre Creek from railroad bridge to mouth	Critical season DO 2 mg/L	3rd Party	1986
~~GC~~SCP -2	48	Bayou de Loutre below Gum Creek	Chlorides 250 mg/L, sulfates 90 mg/L,TDS 750 mg/L	3rd Party	1996
~~GC~~SCP -2	49	Boggy Creek from the discharge from Clean Harbors El Dorado LCC downstream to the confluence of Bayou de Loutre.	Chloride 631mg/L, Sulfate 63 mg/L, TDS 1360 mg/L, Selenium 15.6 u/L	3rd Party	2007
SCP -2&4	50	Moro Creek	Chlorides 30 mg/L, sulfates 20 mg/L, TDS 260 mg/L	DEQ	1973
~~GC~~SCP -2	51	Jug Creek - from headwaters to confluence with Moro Creek	Critical season DO 3 mg/L	3rd Party	1987
SCP -2&3	52	Ouachita River (Louisiana state line to Camden)	Chlorides 160 mg/L, sulfates 40 mg/L, TDS 350 mg/L	DEQ	1973
SCP -2,3,&4	53	Saline River (Ouachita River Basin)	Chlorides 20 mg/L, sulfates 40 mg/L, TDS 120 mg/L	DEQ	1973
~~GC~~SCP -3	54	~~Coffee Creek and~~ Mossy Lake	Exempt from ~~Rule 2.~~8 CAR § 21-406 and ~~Chapter Five~~ Subpart 5	DEQ	1973

Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -3	56	Ouachita River from Ouachita River mile (ORM) 223 to the Arkansas-Louisiana border (ORM 221.1)	Site specific seasonal DO criteria: 3 mg/L June and July; 4.5 mg/L August; 5 mg/L September through May. These seasonal criteria may be unattainable during or following naturally occurring high flows, (i.e., river stage above 65 feet measured at the lower gauge at the Felsenthal Lock and Dam, Station No.89-o, and also for the two weeks following the recession of flood waters below 65 feet), which occurs from May through August. Naturally occurring conditions which fail to meet criteria should not be interpreted as violations of these criteria	3rd Party	1997
~~GC~~SCP -3	57	Chemin-A-Haut Creek	Chlorides 50 mg/L, sulfates 20 mg/L, TDS 500 mg/L	DEQ	1973
~~GC~~SCP -4	58	Town Creek below Acme tributary	Sulfates 200 mg/L, TDS 700 mg/L	3rd Party	1995
~~GC~~SCP -4	59	Unnamed tributary from Acme	Sulfates 330 mg/L, TDS 830 mg/L	3rd Party	1995
~~GC~~SCP -4	60	Dodson Creek - from headwaters to confluence with Saline River	Critical season DO 3 mg/L	DEQ	1986
~~GC~~SCP -4	61	Saline River east bifurcation at Holly Creek	sulfate 250 mg/L, TDS 500 mg/L	3rd Party	1998
~~GC~~SCP -4	62	Holly Creek	Chlorides 30 mg/L, sulfates 860 mg/L, TDS 1600 mg/L	3rd Party	1988
SCP -4	63	Hurricane Creek above Hurricane Lake Dam	Chloride 20 mg/L, sulfate 250 mg/L, TDS 500 mg/L	DEQ	1973
SCP -4	64	Hurricane Creek from Hurricane Lk. Dam to Ben Ball Bridge	Chloride 125 mg/L, sulfate 730 mg/L, TDS 1210 mg/L	3rd Party	1998
~~GC~~SCP -4	65	Alcoa unnamed tributaries to Hurricane Creek and Hurricane Creek	Chlorides 125 mg/L, sulfates 700 mg/L, TDS 1100 mg/L	3rd Party	1998
SCP -4	66	Hurricane Creek from Ben Ball Bridge to US Hwy.270	Chloride 125 mg/L, sulfate 700 mg/L, TDS 1200 mg/L	3rd Party	1998
~~GC~~SCP -4	67	Dry Lost Creek and tributaries	sulfate 560 mg/L, TDS 880 mg/L	3rd Party	1998
SCP -4	68	Hurricane Creek from Hwy 270 to Saline River	Chloride 100 mg/L, sulfate 500 mg/L, TDS 1000 mg/L	3rd Party	1998
~~GC~~SCP -4	69	Lost Creek to Little Lost Creek	sulfate 510 mg/L, TDS 820 mg/L	3rd Party	1998
~~GC~~SCP -4	70	Lost Creek below Little Lost Creek	sulfate 300 mg/L, TDS 550 mg/L	3rd Party	1998

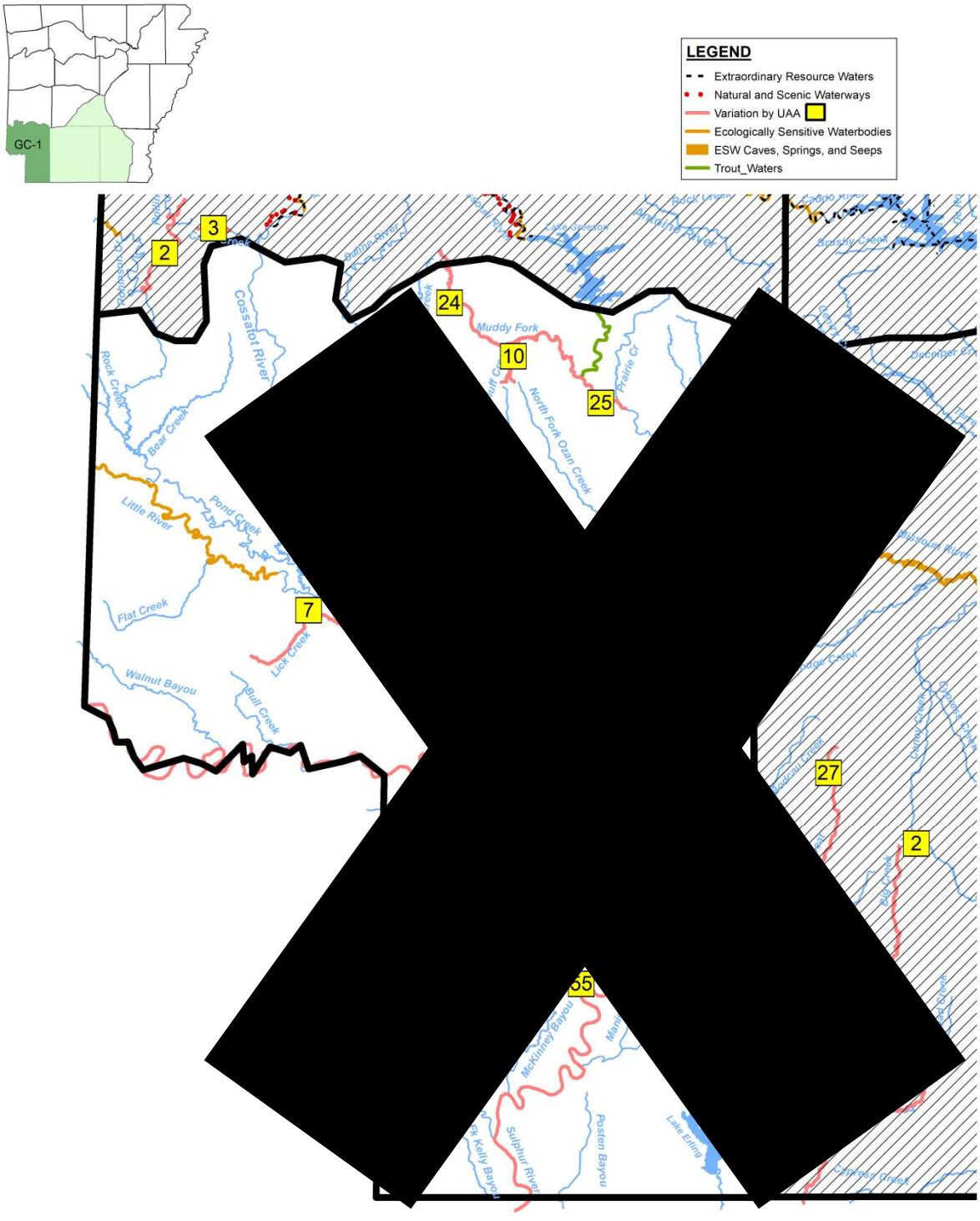
Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -4	71	Little Fourche Creek (Willow Springs Branch to Fourche Creek)	TDS 179 mg/L	3rd Party	2014
~~GC~~SCP -4	72	Willow Springs Branch (McGeorge Creek to Little Fourche Creek)	Sulfate 112 mg/L, TDS 247 mg/L	3rd Party	2014
~~GC~~SCP -4	73	McGeorge Creek (headwaters to Willow Springs Branch)	Sulfate 250 mg/L, TDS 432 mg/L	3rd Party	2014
~~GC~~SCP -4	74	Bayou Bartholomew	Chlorides 30 mg/L, sulfates 30 mg/L, TDS 220 mg/L	DEQ	1973
~~GC 1~~		~~Unnamed tributary of Lake June below Entergy Couch Plant to confluence with Lake June~~	~~Maximum water temperature 95 degrees F (limitation of 5 degrees above natural temperature does not apply)~~		
~~GC 2~~		~~Unnamed tributary to Flat Creek from headwaters to Flat Creek~~	~~Year round DO2 mg/L~~		
~~GC 2~~		~~Unnamed tributary to Smackover Creek headwaters to Smackover Creek~~	~~Year round DO 2 mg/L~~		

Temporary Variations Supported by Environmental Improvement Project

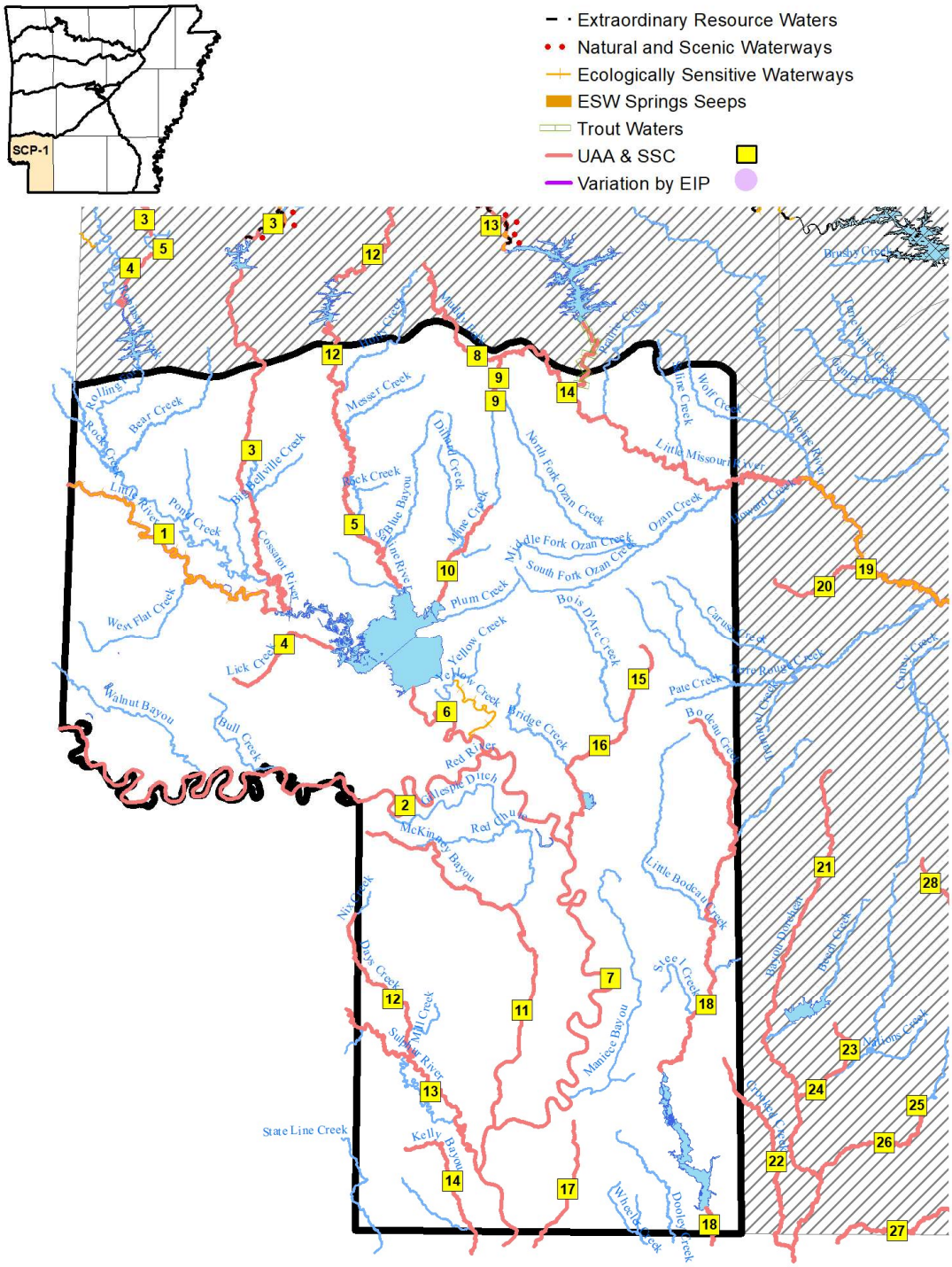
Plate	Map Inset	Waterbody	Variation	Source	Year
~~GC~~SCP -4	1	Holly Creek	Selenium chronic criteria 17 µg/L	3rd Party	2014
~~GC~~SCP -4	2	Reyburn Creek from headwaters to confluence of Francois Creek	Sulfates 250 mg/L, TDS 500 mg/L~~*~~[45]	3rd Party	2020
~~GC~~SCP -4	3	Scull Creek from a point approximately 350 feet upstream of Clearwater Lake to Clearwater Lake (including Clearwater Lake) and from Clearwater Lake dam to confluence Reyburn Creek	Sulfates 250 mg/L, TDS 500 mg/L~~*~~[46]	3rd Party	2020

[45] ~~*~~These temporary standards variations are effective for 148 months from EPA's approval of the EIP on January 7, 2020.

Plate GC-1 (Gulf Coastal Plain)



South Central Plains Plate 1



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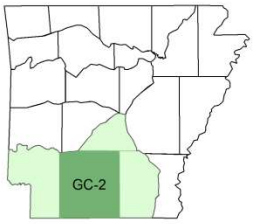
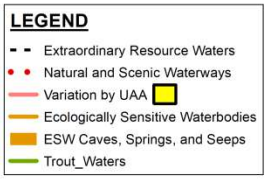
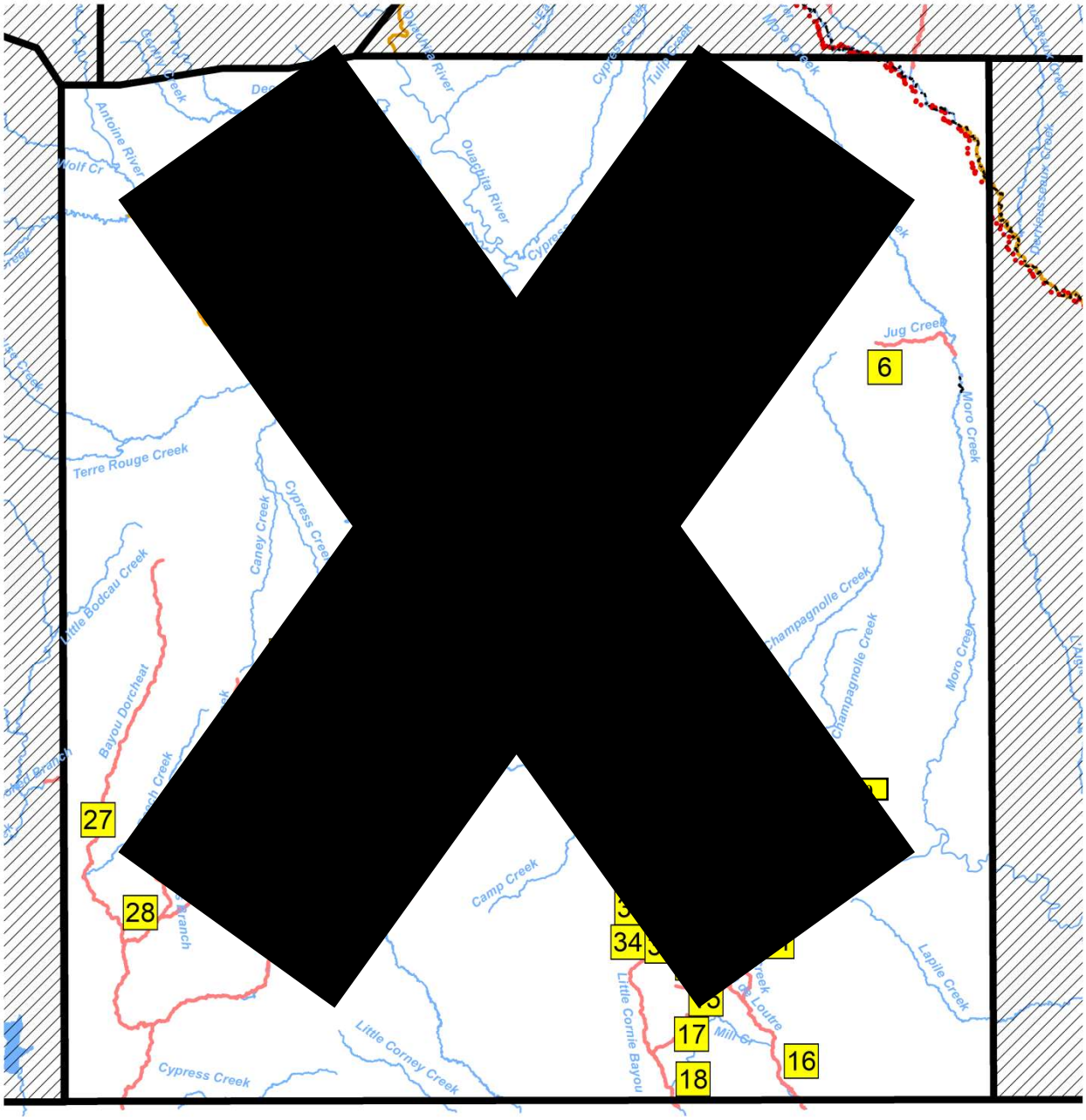
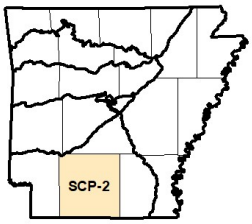


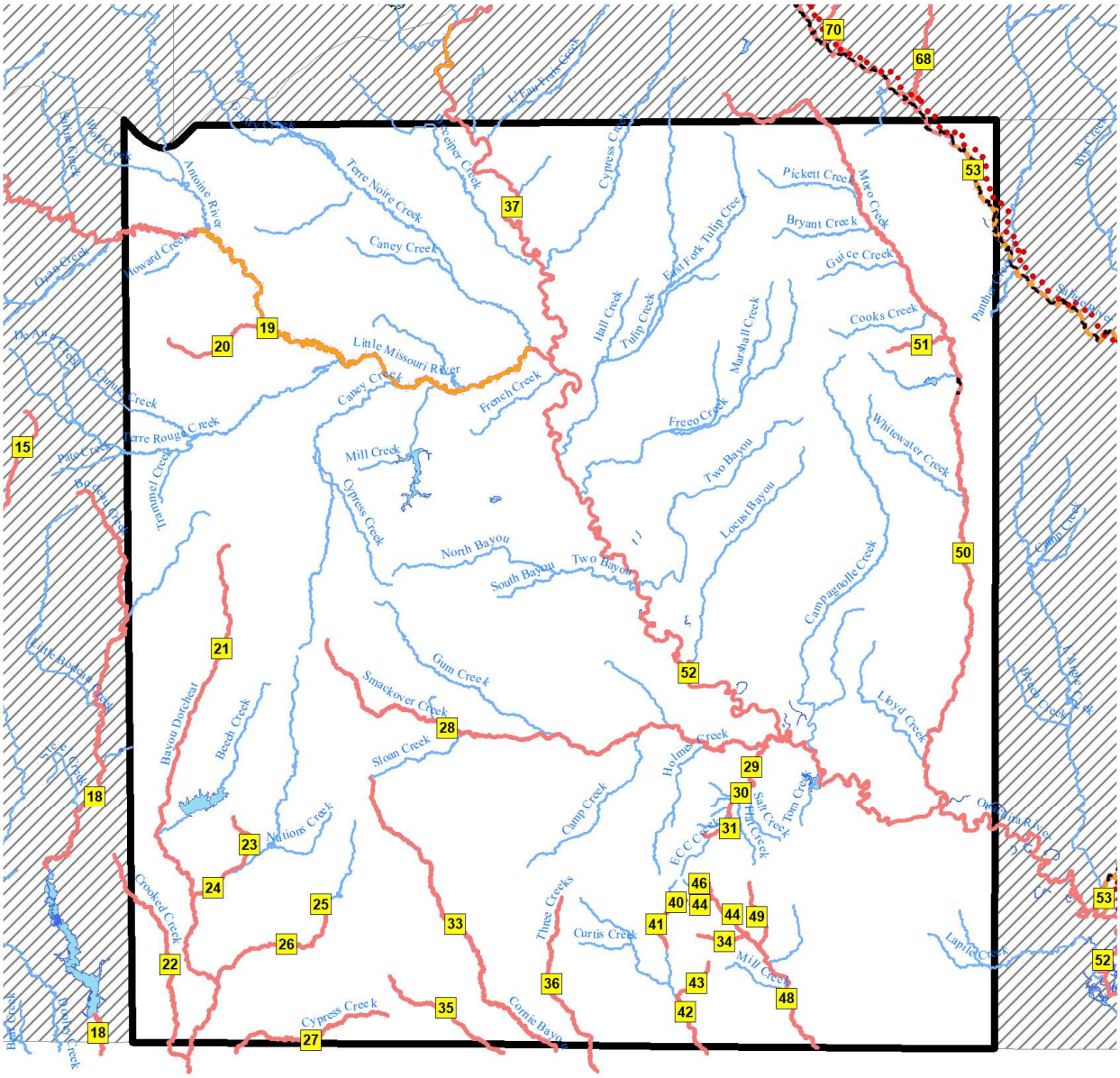




South Central Plains Plate 2



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



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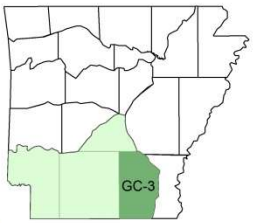
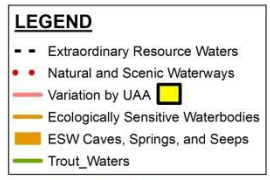
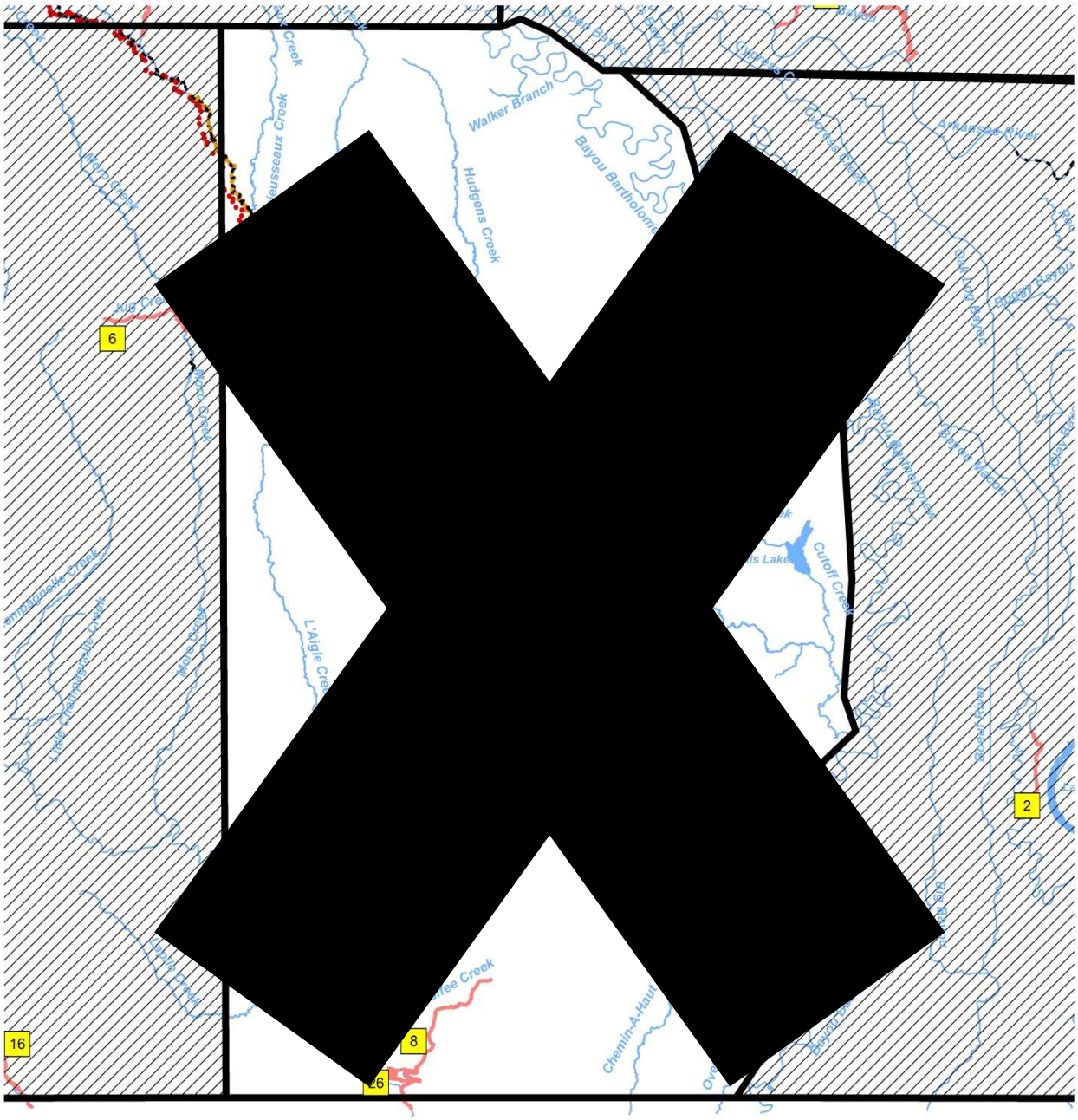
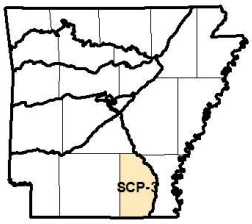


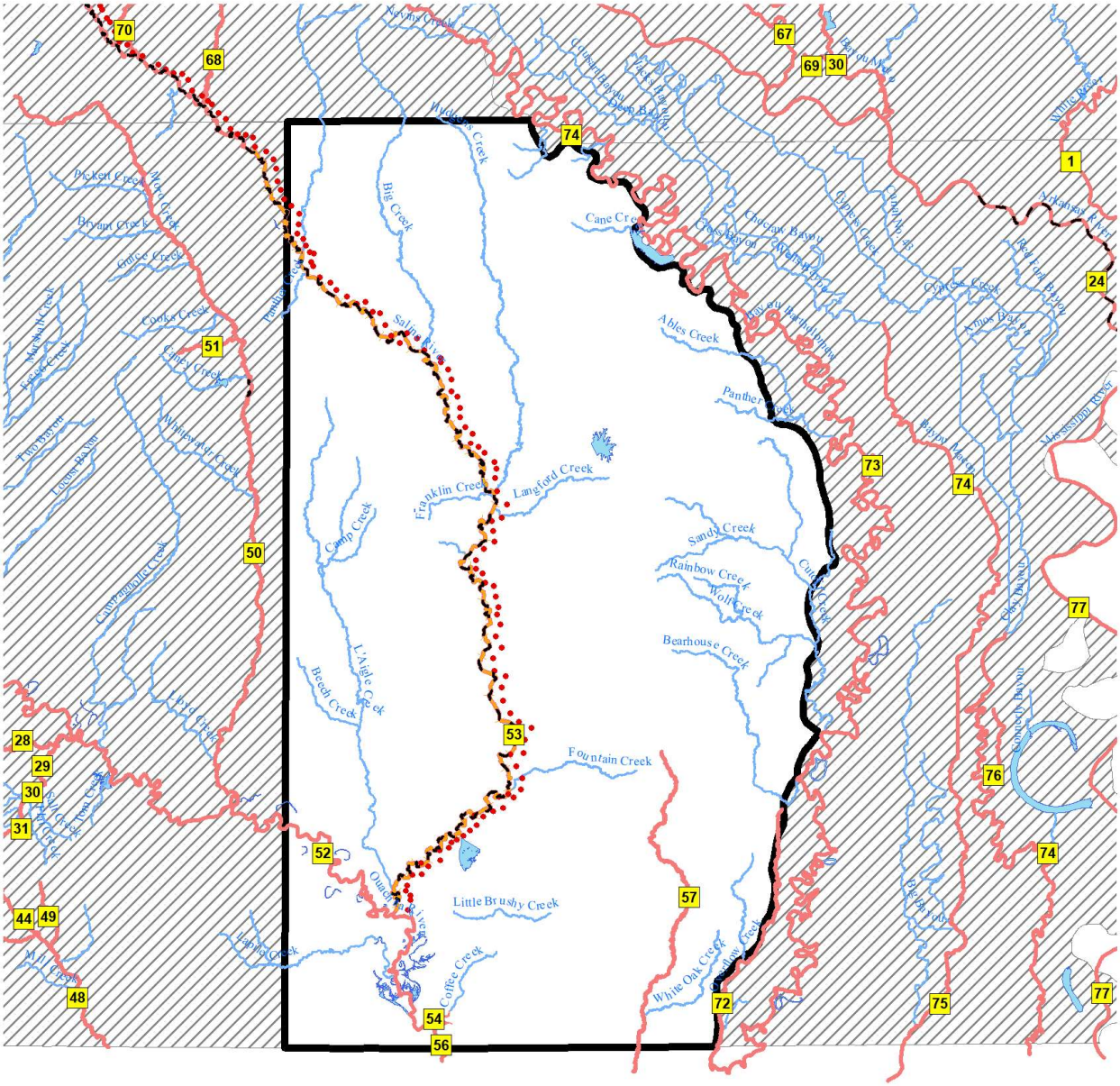




South Central Plains Plate 3



- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



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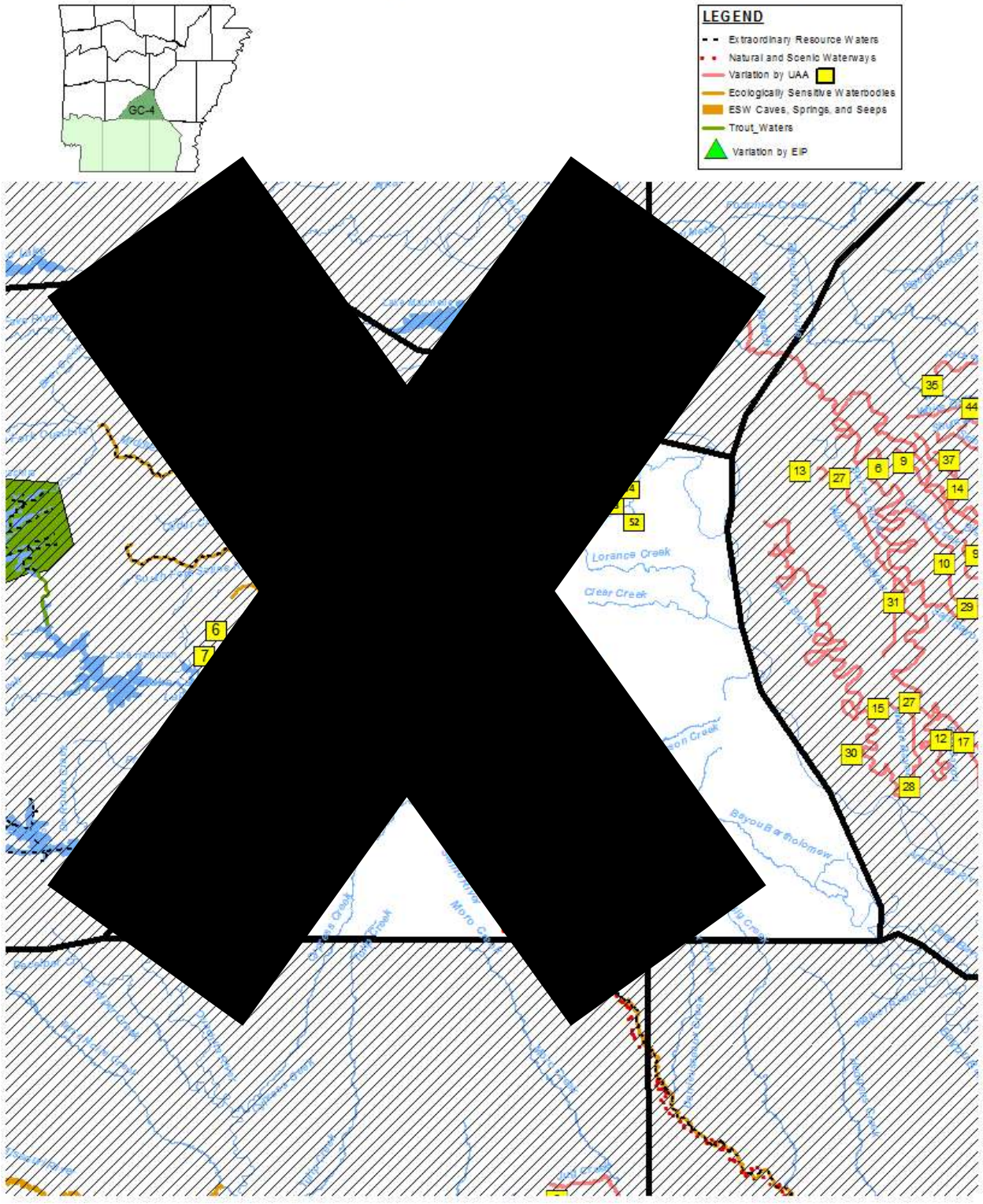
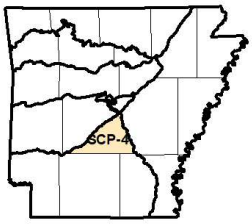
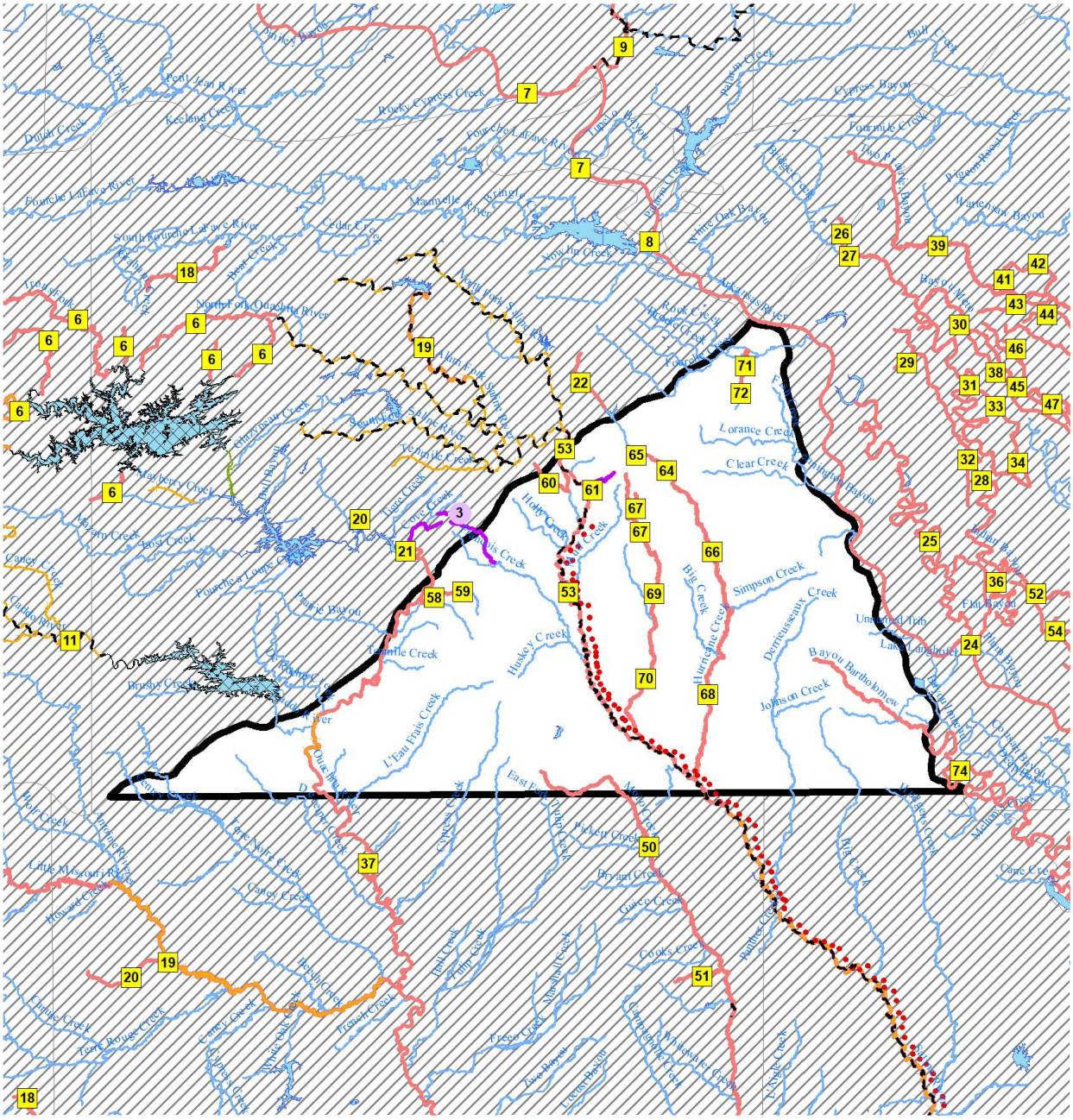


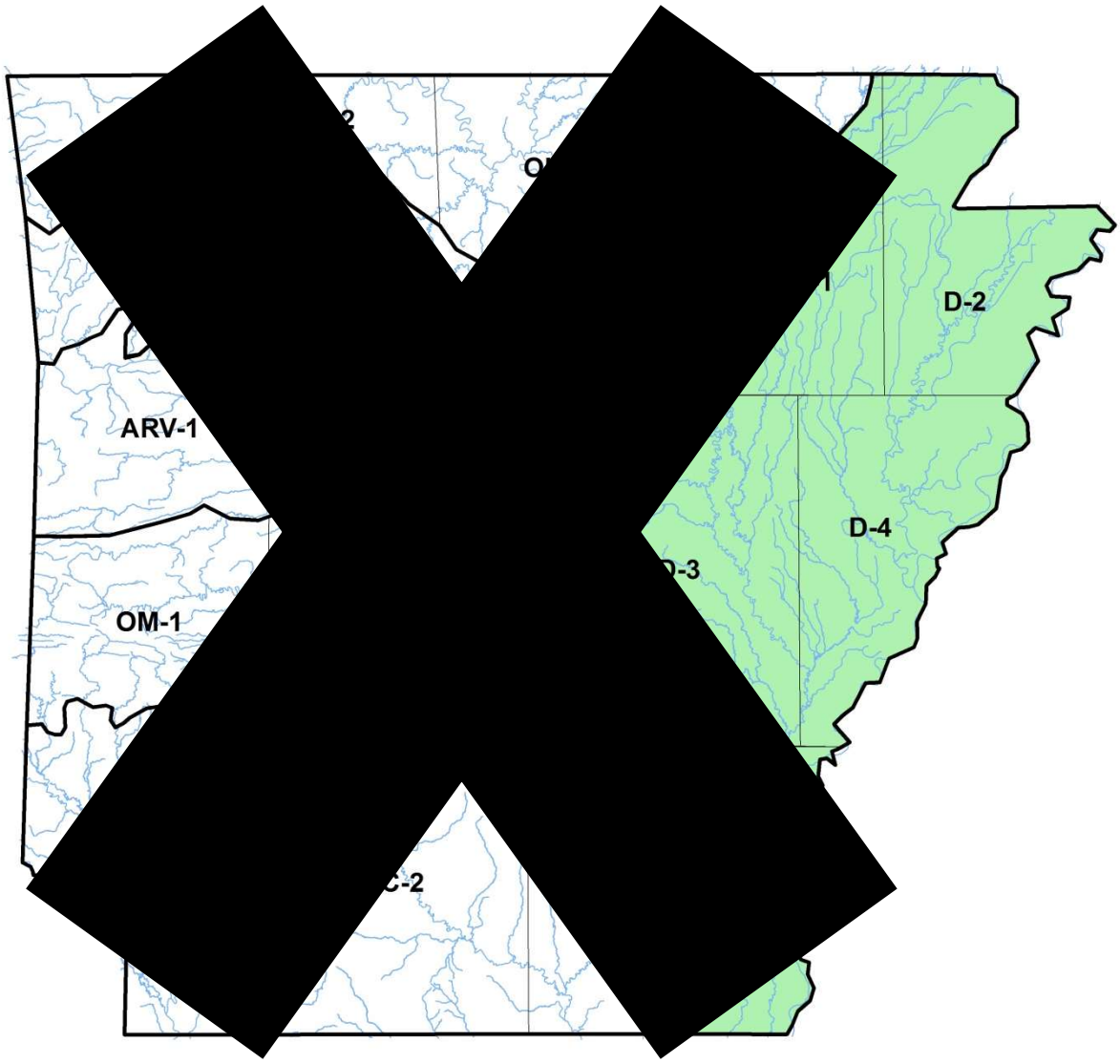
South Central Plains Plate 4

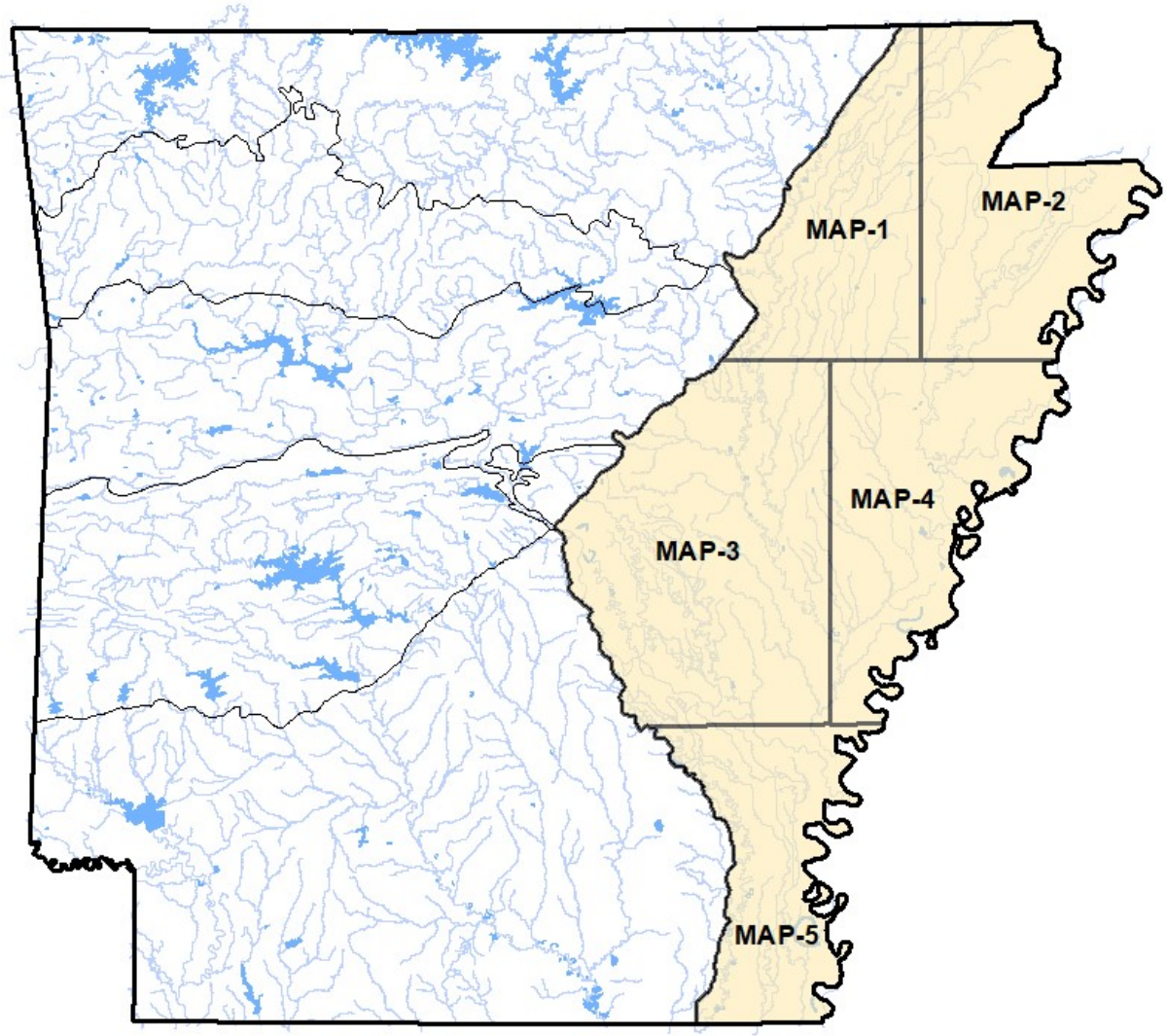


- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Ecologically Sensitive Waterways
- ESW Springs Seeps
- Trout Waters
- UAA & SSC
- Variation by EIP



Index to Plates of the ~~Delta~~ Mississippi Alluvial Plain




MAP-1
MAP-2
MAP-3
MAP-4
MAP-5

DESIGNATED USES: ~~DELTA~~ MISSISSIPPI ALLUVIAL PLAIN ECOREGION

(Plates ~~Đ~~MAP-1, ~~Đ~~MAP -2, ~~Đ~~MAP -3, ~~Đ~~MAP -4, ~~Đ~~MAP -5)

Extraordinary Resource Waters
Second Creek (~~Đ~~MAP -4)
Cache River above Cache Bayou - adjacent to natural areas (~~Đ~~MAP -3)
Arkansas River below Norrell Lock and Dam (Dam #2) (~~Đ~~MAP -5)
Strawberry River (~~Đ~~MAP -1)
Two Prairie Bayou adjacent to natural areas (~~Đ~~MAP -3)

Natural and Scenic Waterways
None

Ecologically Sensitive Waterbodies
Lower St. Francis River and lower 10 miles of Straight Slough - location of Pondhorn, Western Fanshell, Pink Heelsplitter, Fawnsfoot, Elktoe, Gulf Mapleleaf, Southern Mapleleaf, Round Pigtoe, Pyramid Pigtoe, Scaleshell, Hickorynut, Fat Pocketbook mussels (~~Đ~~MAP -2, ~~Đ~~MAP -4)
Right Hand Chute at confluence with St. Francis River - location of Fawnsfoot, Tapered Pondhorn, Scaleshell, Pyramid Pigtoe, and Fat Pocketbook mussels (~~Đ~~MAP -2)
Departee Creek - location of Flat Floater mussel (~~Đ~~MAP -1)
Black River at mouth of Spring River - location of Rabbitsfoot, Western Fanshell, Hickorynut, Round Pigtoe, Pyramid Pigtoe, Pink Mucket mussels; Lake Sturgeon and Sabine Shiner (~~Đ~~MAP -1)

Channel-altered ~~Delta~~ Mississippi Alluvial Plain Ecoregion Streams - These include the majority of the streams in this ecoregion and are characterized by substantial alteration of the morphology of their main-stream channel as well as their tributary streams. Such alteration of the tributaries of these streams significantly affects the water quality and hydrology of the streams and their watersheds. Most of the upper segments of these waters have been dredged and straightened into ditches. Additionally most of the tributaries of these streams have been straightened, ditched and, in some cases, rerouted to quickly move water off the agriculture fields and into the major streams. In the lower segments of these waters, channel realignment is less expansive but most of these channels have been "snagged" to remove any in-stream obstructions (brush, logs, and other debris) and the stream channel and banks have been dredged to uniform depths and cleared of any obstructions. These include Cache River, Bayou DeView, Village Creek, Blackfish Bayou and others to be determined by the ~~Division~~ division on a case by case basis.

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs**[46]

Secondary Contact Recreation - all waters**[48]

Domestic, Industrial and Agricultural Water Supply - all waters**[48]

Aquatic Life**[48]

Trout Waters - none

Lakes and Reservoirs - all

Streams

Seasonal ~~Delta~~ Mississippi Alluvial Plain aquatic life - all streams with watersheds of less than 10 mi^2 except as otherwise provided in 8 CAR § 21-505~~Rule 2.505~~

Perennial ~~Delta~~ Mississippi Alluvial Plain aquatic life - all streams with watersheds 10 mi^2 or larger and those waters where discharges equal or exceed 1cfs

[46] **Except for those waters with designated use variations supported by Use Attainability Analysis or other investigations.

Site Specific Designated Use Variation Supported by Use Attainability Analysis

Plate	Map Inset	Waterbody	Variation	Source	Year
~~D~~MAP -1	3	Curia Creek below first waterfall	Perennial aquatic life use	DEQ	1985
~~D~~MAP -1	6	Coon Creek and unnamed tributary from Frit Ind.	No domestic water supply use	3rd Party	1996
~~D~~MAP -2	19	Ditch No. 27	No domestic water supply use	3rd Party	2006
~~D~~MAP -2	20	Ditch No. 6	No domestic water supply use	3rd Party	2006
~~D~~MAP -3	26	Rocky Branch Creek and Bayou Meto from Rocky Branch Creek to Bayou Two Prairie	No domestic water supply use	3rd Party	2008
~~D~~MAP -3	70	Unnamed ditch to Little LaGrue Bayou	Perennial ~~Delta~~ aquatic life use	DEQ	1986
~~D~~MAP -5	76	Little Lake Bayou	Seasonal ~~Delta~~ aquatic life use, no primary contact use	DEQ	1986

SPECIFIC CRITERIA: ~~DELTA~~ MISSISSIPPI ALLUVIAL PLAIN ECOREGION

(Plates ~~D~~MAP -1, ~~D~~MAP -2, ~~D~~MAP -3, ~~D~~MAP -4, ~~D~~MAP -5)

	Least-Altered Streams	Channel-Altered Streams	Lakes and Reservoirs
Temperature °C (°F)~~*~~[47]	30 (86)	32 (89.6)	32 (89.6)
White River	32 (89.6)		
St. Francis River	32 (89.6)		
Mississippi River	32 (89.6)		
Arkansas River	32 (89.6)		
Turbidity (NTU) (base/storm)	45/84	75/250	25/45
Arkansas River	50/52		
Mississippi River	50/75		
St. Francis River	75/100		
~~Minerals~~	~~see Rule 2.511~~	~~see Rule 2.511~~	~~see Rule 2.511~~

Dissolved Oxygen (mg/L)~~**~~[48]	~~Pri.~~Non-Critical	Critical	~~Pri.~~Non-Critical	Critical	~~see Rule 2.505~~ 5
<10 mi^2 watershed	5	2	5	2	
10 mi^2 to 100 mi^2	5	3	5	3	
>100 mi^2 watershed	5	5	5	5	
All other criteria	(same as statewide)				

Site Specific Criteria Variations Supported by ~~Use Attainability Analysis~~ Chemical and Biological Data

[47] ~~*~~Increase over natural temperatures may not be more than 2.8°C (5°F).

[48] ~~**~~When water temperatures exceed 22°C, the critical season dissolved oxygen criteria may be depressed by 1 mg/L for no more than 8 hours during a 24-hour period.

Criteria with an asterisk (*) were developed using background flow of 4 cfs.

Plate	Map Inset	Waterbody	Variation	Source	Year
MAP-1,3,4,&5	1	White River (Mouth to Dam #3)	Chloride 20 mg/L, sulfate 60 mg/L, TDS 430 mg/L	DEQ	1973
MAP-1&2	2	Black River	Chloride 20 mg/L, sulfate 30 mg/L, TDS 270 mg/L	DEQ	1975
~~D~~MAP - 1	3	Curia Creek below first waterfall	Critical season DO 6 mg/L	DEQ	1985
~~D~~MAP - 1	4	Strawberry River	Chloride 20 mg/L, sulfate 20 mg/L, TDS 270 mg/L	DEQ	1975
MAP-1	5	Current River	Chloride 20 mg/L, sulfate 30 mg/L, TDS 270 mg/L	DEQ	1975
~~D~~MAP - 1	7	Unnamed tributary from Frit Ind., to Coon Creek	*Sulfates 48 mg/L	3rd Party	1996
MAP-1&3	8	Cache River	Chloride 20 mg/L, sulfate 30 mg/L, TDS 270 mg/L	DEQ	1981
MAP-1&2	9	Lost Creek Ditch	Chloride 20 mg/L, sulfate 30 mg/L, TDS 270 mg/L	DEQ	1973
~~D~~MAP - 1	10	Unnamed tributary to Big Creek	Chlorides 71 mg/L, sulfates 60 mg/L, TDS 453 mg/L	3rd Party	2011
~~D~~MAP - 1	11	Big Creek from Whistle Ditch to mouth of unnamed tributary	Chloride 58 mg/L, sulfates 49 mg/L	3rd Party	2011
~~D~~MAP - 1	12	Bayou DeView from AR Hwy 14 to Whistle Ditch	Chloride 48 mg/L, sulfates 38 mg/L, TDS 411.3 mg/L	3rd Party	2011
~~D~~MAP - 1&3	13	Bayou DeView from mouth to AR Hwy 14	Chloride 48 mg/L, sulfates 37.3 mg/L, TDS 411.3 mg/L	3rd Party	2011
MAP-1&4	14	L'Anguille River	Chloride 20 mg/L, sulfate 30 mg/L, TDS 235 mg/L	DEQ	1975
MAP-2	15	St. Francis River (36o N. Lat. to 36o 30' N. Lat.)	Chloride 10 mg/L, sulfate 20 mg/L, TDS 180 mg/L	DEQ	1973
MAP-2&4	16	St. Francis River (Mouth to 36o N. Lat.)	Chloride 10 mg/L, sulfate 30 mg/L, TDS 330 mg/L	DEQ	1973
MAP-2	17	Little River	Chloride 20 mg/L, sulfate 30 mg/L, TDS 365 mg/L	DEQ	1973
MAP-2	18	Pemiscot Bayou	Chloride 20 mg/L, sulfate 30 mg/L, TDS 380 mg/L	DEQ	1973
~~D~~MAP - 2	19	Ditch No. 27	Sulfates 480 mg/L, TDS 1,200 mg/L, maximum water temperature 95°F	3rd Party	2006
~~D~~MAP - 2	20	Ditch No. 6 from Ditch No. 27 confluence to its mouth	Sulfates 210 mg/L, TDS 630 mg/L	3rd Party	2006
~~D~~MAP - 2	21	Tyronza River headwaters to Ditch No. 6 confluence	Chlorides 20 mg/L, sulfates 30 mg/L, TDS 350 mg/L	DEQ	1975
~~D~~MAP - 2&4	22	Tyronza River from Ditch No. 6 confluence to its mouth	Chlorides 20 mg/L, sulfates 60 mg/L, TDS 350 mg/L	3rd Party	2006
~~D~~MAP - 2&4	23	Mississippi River (Arkansas River to Missouri state line)	Chloride 60 mg/L, sulfate 175 mg/L, TDS 450 mg/L	DEQ	1973

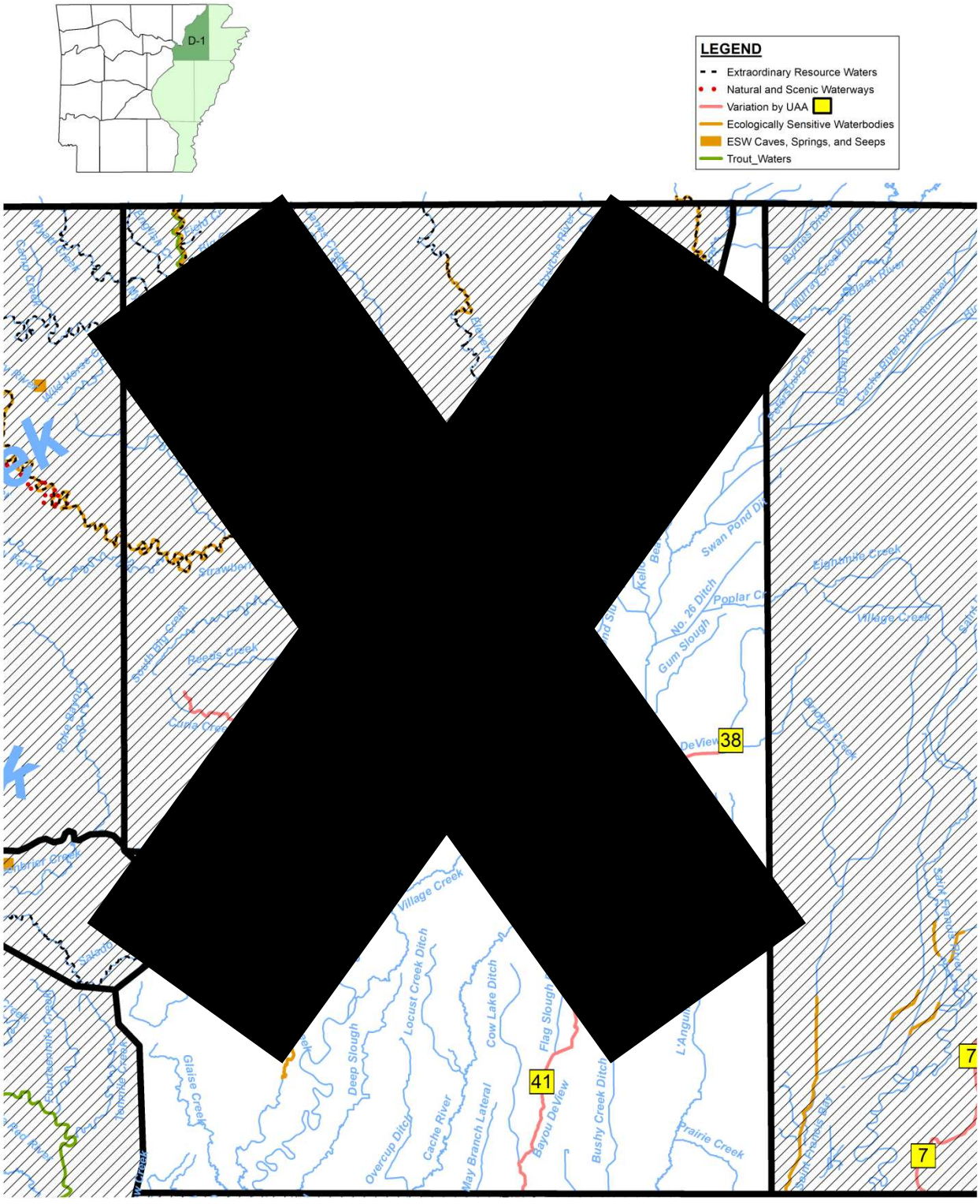
Plate	Map Inset	Waterbody	Variation	Source	Year
~~D~~MAP - 3	24	Arkansas River (Mouth to Murray Lock and Dam [L&D #7])	Chlorides 250 mg/L, sulfates 100 mg/L, TDS 500 mg/L	DEQ	1973
~~D~~MAP - 3	25	Plum Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	26	Rocky Branch Creek	*Chlorides 64 mg/L	3rd Party	2008
~~D~~MAP - 3	27	Bayou Meto (Rocky Branch to Pulaski/Lonoke county line)	*Chlorides 64 mg/L	3rd Party	2008
~~D~~MAP - 3	28	Indian Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	29	Snow Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	30	Bayou Meto from mouth to Pulaski/Lonoke county line	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	31	Bakers Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	32	Indian Bayou Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	33	Caney Creek	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	34	Caney Creek Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	35	Main Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	36	Flat Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	37	Salt Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	38	Crooked Creek Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	39	Bayou Two Prairie (Pulaski/ Lonoke county line to Northern boundary of Smoke Hole Natural Area)	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	40	Bayou Two Prairie (Southern boundary of Smoke Hole Natural Area to Mouth)	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	41	Brownsville Branch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	42	Ricky Branch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	43	White Oak Branch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	44	Shumaker Branch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	45	Fish Trap Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	45	Skinner Branch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	46	Eagle Branch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	47	Big Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008

Plate	Map Inset	Waterbody	Variation	Source	Year
~~D~~MAP - 3	49	Blue Point Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	49	Buffalo Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	50	Dennis Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	51	Flynn Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	52	Wabbaseka Bayou	Chlorides 95 mg/L, sulfates 45mg/L	3rd Party	2008
~~D~~MAP - 3	53	Bradley Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	54	Boggy Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	55	Tupelo Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	56	Five Forks Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	57	Cross Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	58	Salt Bayou Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	59	Government Cypress Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	60	Newton Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	61	West Bayou	Chlorides 95 mg/L, sulfates 45mg/L	3rd Party	2008
~~D~~MAP - 3	62	Bubbling Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	63	Tipton Ditch	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	64	Castor Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	65	Long Pond Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	66	Brushy Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	67	Little Bayou Meto	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	68	Hurricane Slough	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	69	Bear Bayou	Chlorides 95 mg/L, sulfates 45 mg/L	3rd Party	2008
~~D~~MAP - 3	70	Unnamed ditch to Little LaGrue Bayou - from headwaters to confluence with Little LaGrue Bayou	Critical season DO 3 mg/L	DEQ	1986
~~D~~MAP - 3	71	Little Red River (including Greers Ferry Reservoir)	Chlorides 20 mg/L, sulfates 30 mg/L, TDS 100 mg/L	DEQ	[49]1973, 1988

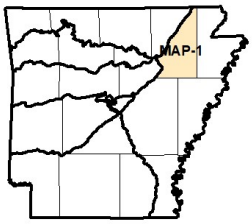
[49] Cl & TDS earlier date, SO4 later date.

Plate	Map Inset	Waterbody	Variation	Source	Year
MAP-5	72	Overflow Creek	Chloride 20 mg/L, sulfate 30 mg/L, TDS 170 mg/L	DEQ	1973
MAP-5	73	Bayou Bartholomew	Chloride 30 mg/L, sulfate 30 mg/L, TDS 220 mg/L	DEQ	1973
MAP-5	74	Bayou Macon	Chloride 30 mg/L, sulfate 40 mg/L, TDS 330 mg/L	DEQ	1973
MAP-5	75	Boeuf River	Chloride 90 mg/L, sulfate 30 mg/L, TDS 460 mg/L	DEQ	1973
~~D~~MAP - 5	76	Little Lake Bayou	Critical season DO 2 mg/L	DEQ	1986
~~D~~MAP - 5	77	Mississippi River (Louisiana state line to Arkansas River)	Chloride 60 mg/L, sulfate 150 mg/L, TDS 425 mg/L	DEQ	1973

Plate D-1 (Delta)



Mississippi Alluvial Plain Plate 1



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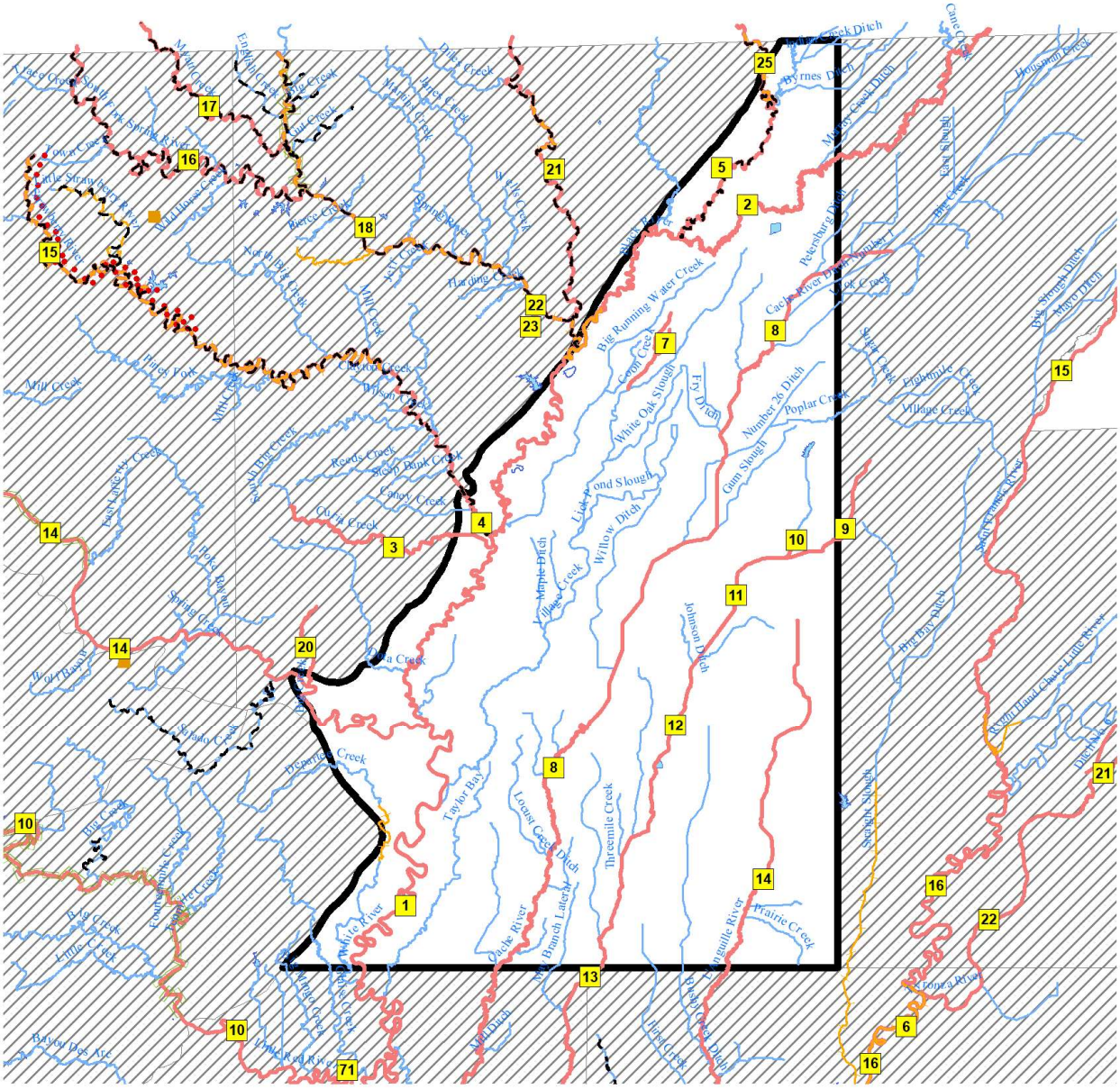
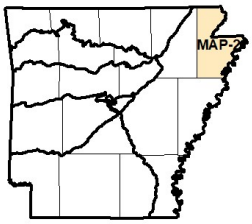


Plate D-2 (Delta)

Mississippi Alluvial Plain Plate 2



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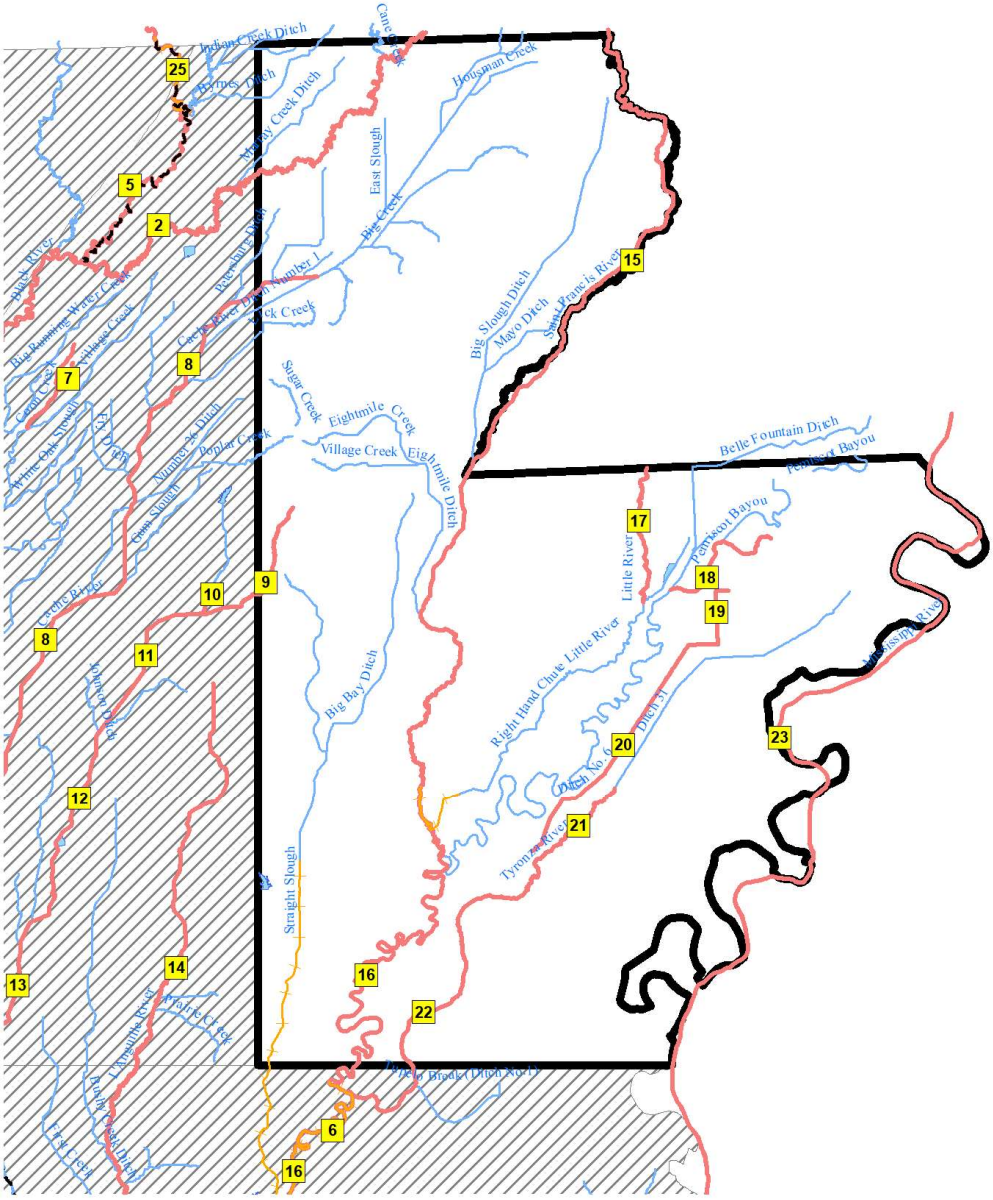

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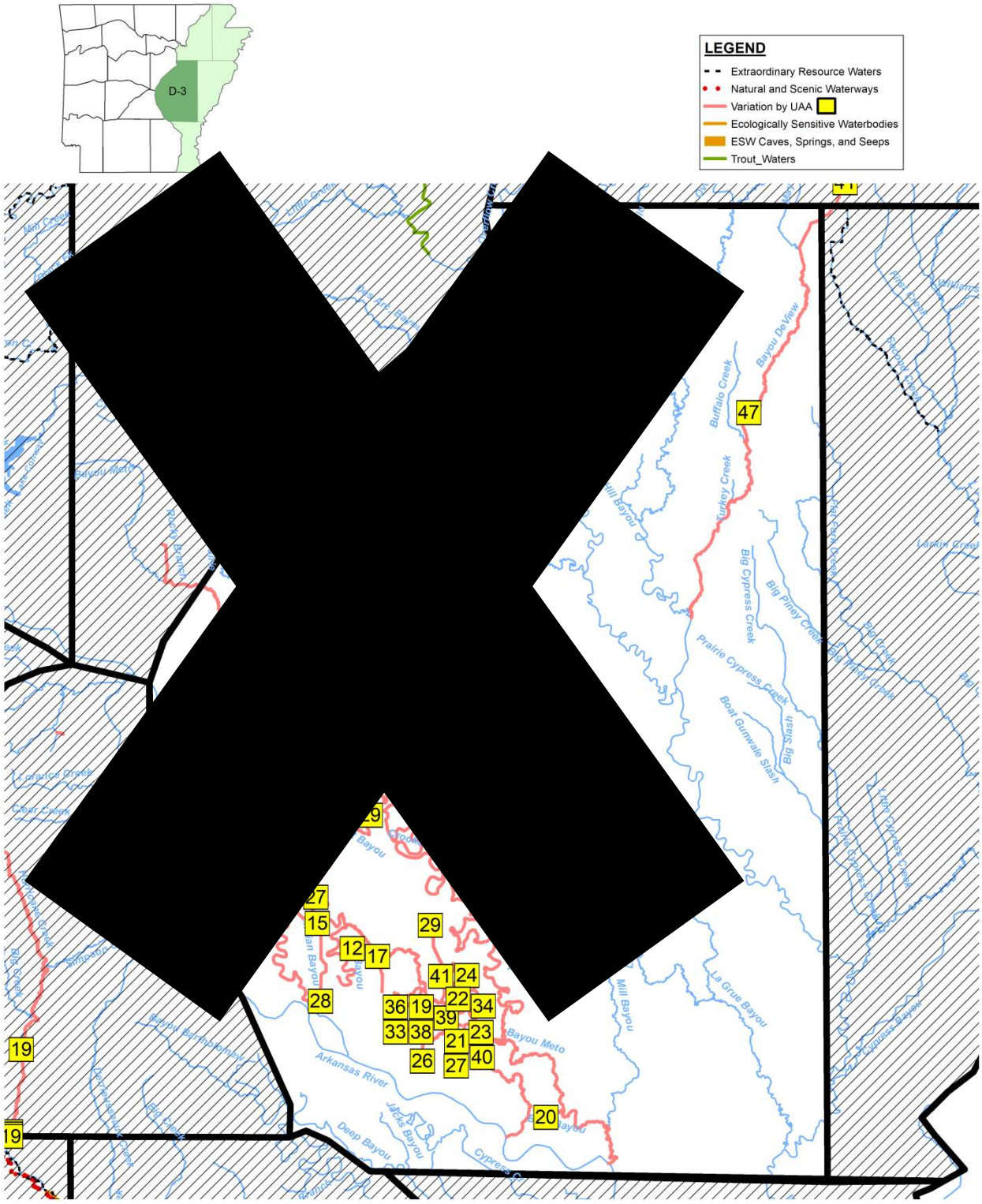


Mississippi Alluvial Plain Plate 3

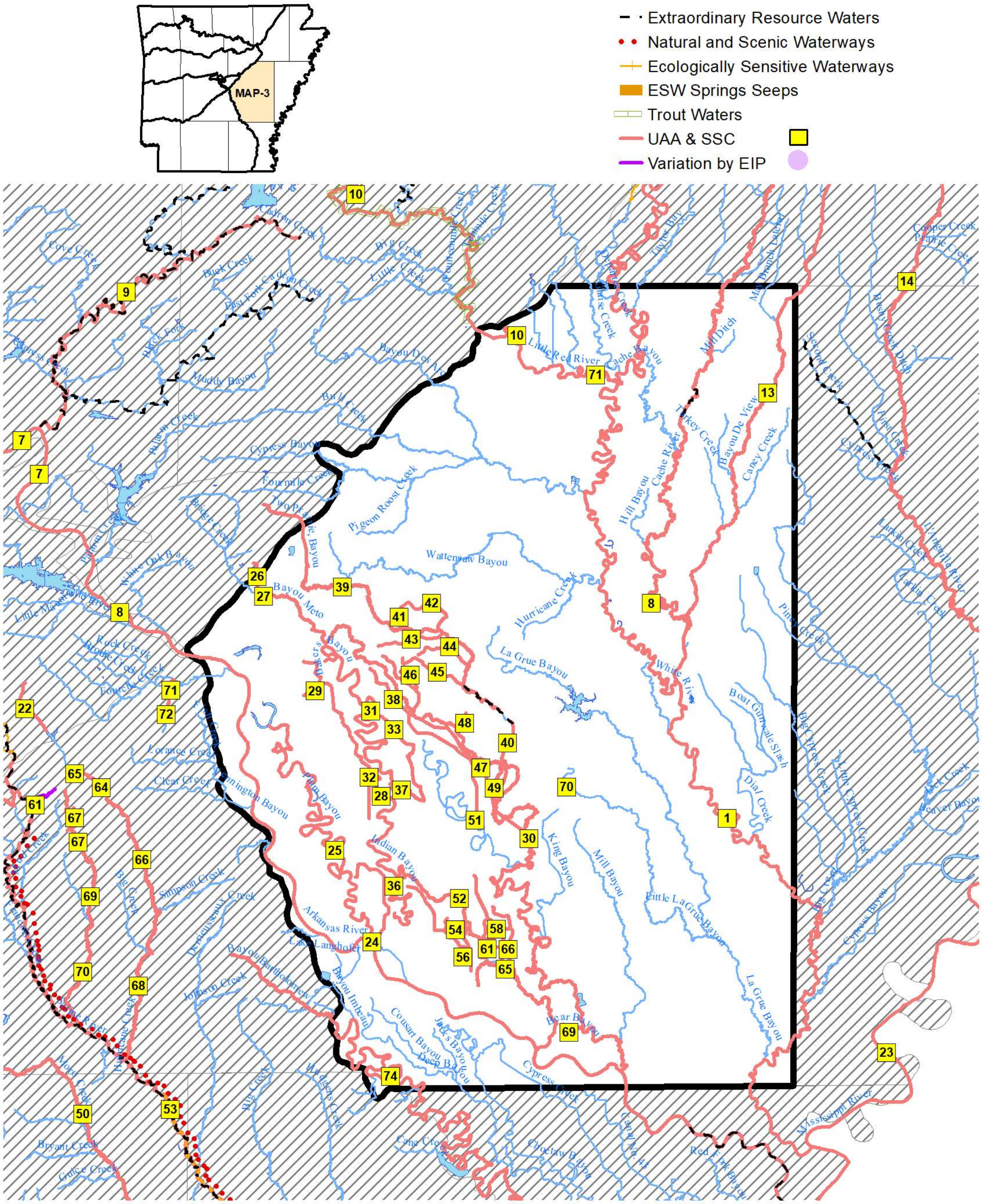
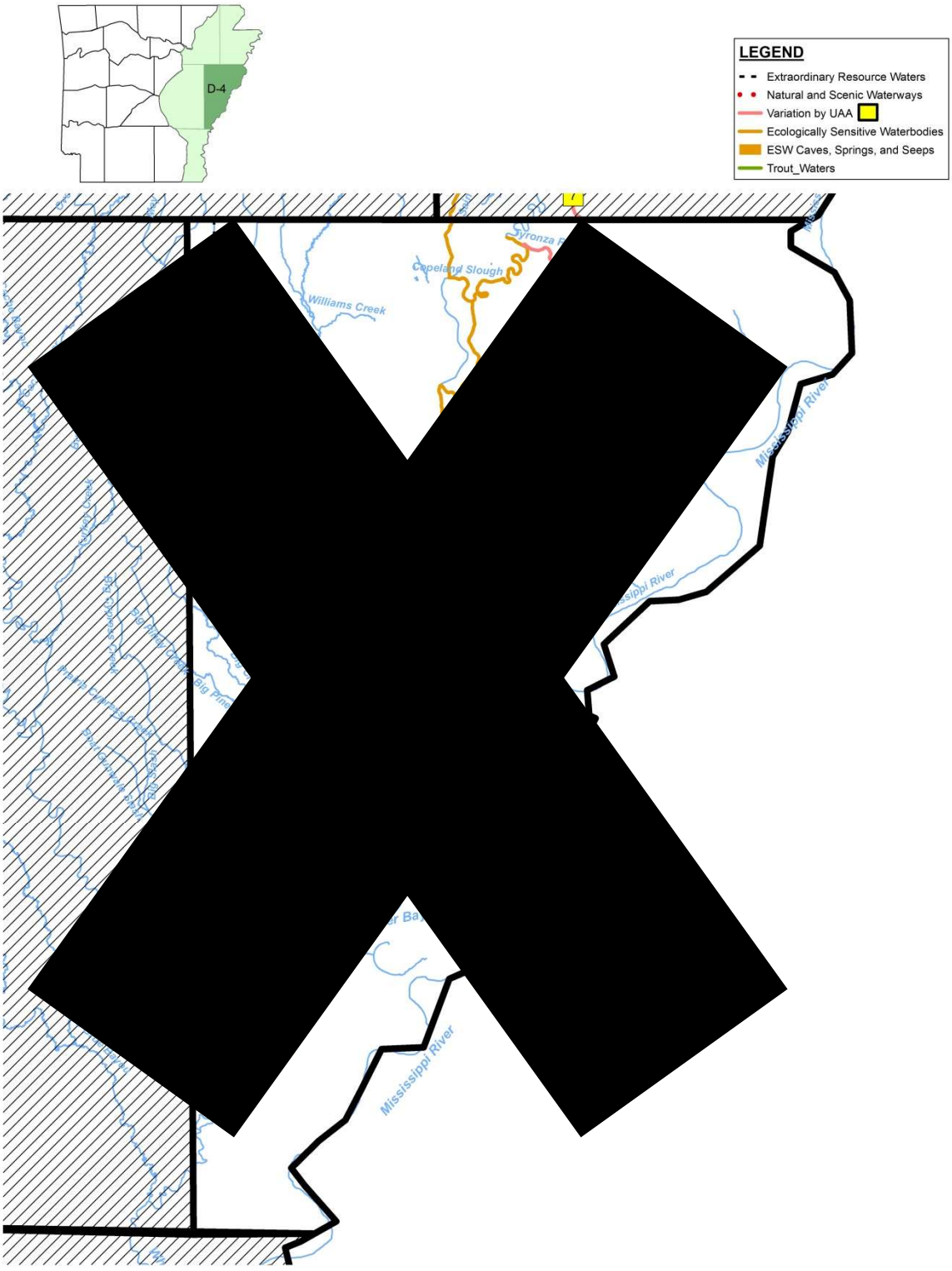


Plate D-4 (Delta)



Mississippi Alluvial Plain Plate 4

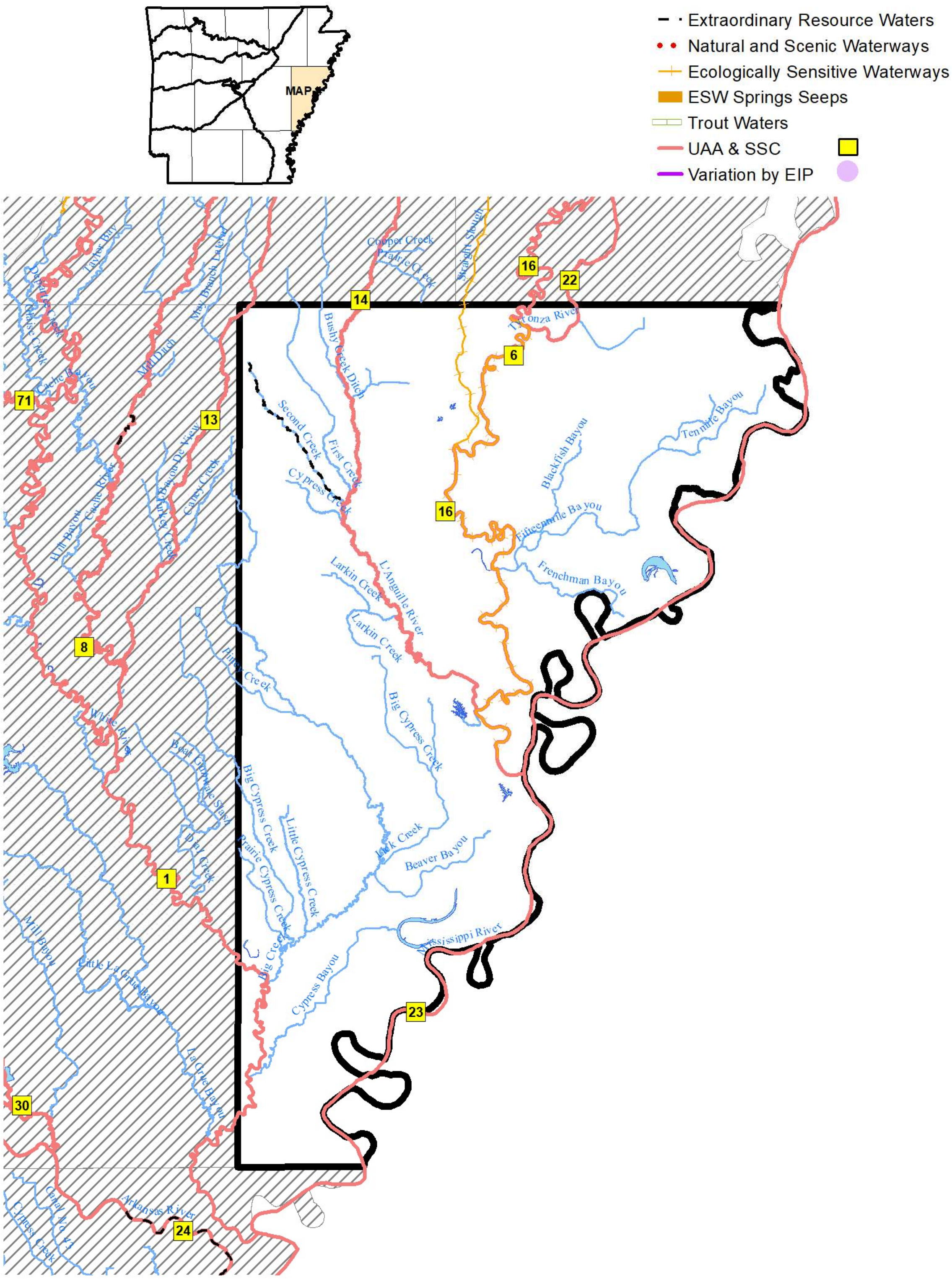
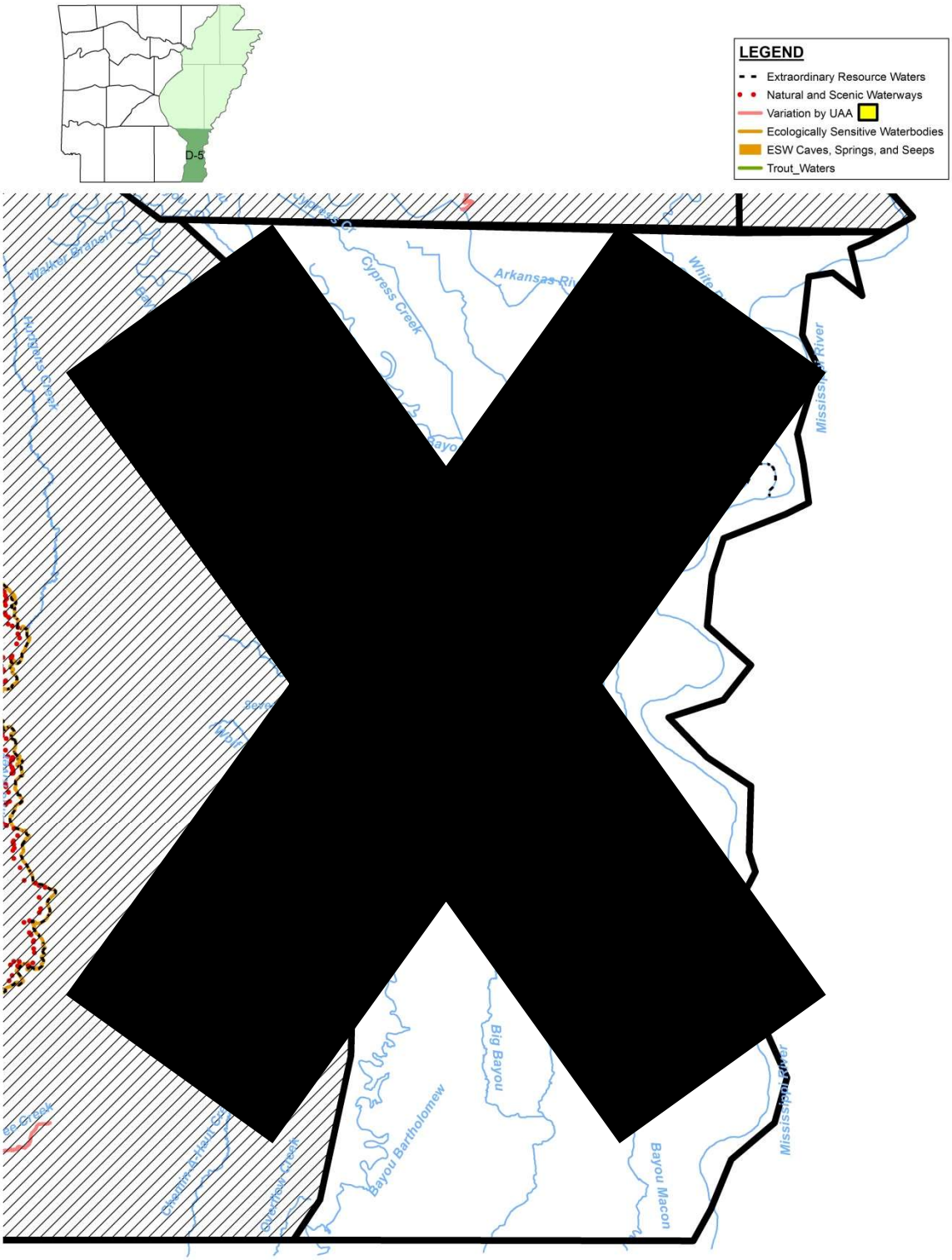
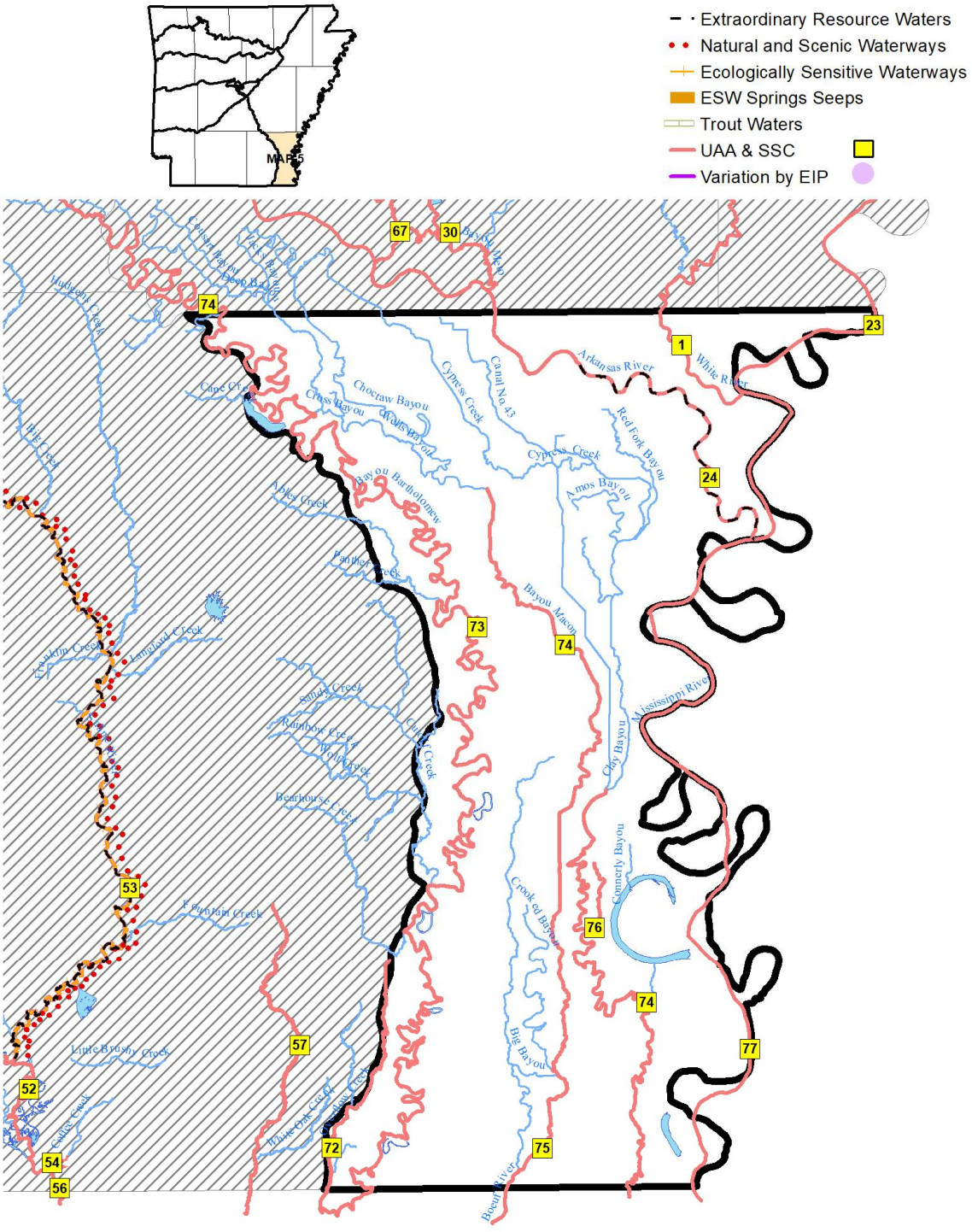


Plate D-5 (Delta)



Mississippi Alluvial Plain Plate 5



ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

8 CAR PT. 21~~RULE 2~~

APPENDIX B

Environmental Improvement Project

1

APPENDIX B: ENVIRONMENTAL IMPROVEMENT PROJECT

Stricken language would be deleted from present law. Underlined language would be added to present law

State of Arkansas *As Engrossed: S2/21/97*

81st General Assembly **A Bill** ACT 401 OF 1997

Regular Session, 1997 HOUSE BILL 1563

By: Representatives Sheppard, Wallis, Lancaster, Johnson, and Horn

By: Senator Mahony

For An Act To Be Entitled

"AN ACT TO ENCOURAGE LONG-TERM ENVIRONMENTAL PROJECTS; AND FOR OTHER PURPOSES."

Subtitle

"AN ACT TO ENCOURAGE LONG-TERM ENVIRONMENTAL PROJECTS."

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Legislative Findings and Intent.

The General Assembly hereby finds that many areas of the state would benefit from long-term environmental remediation projects that significantly improve the effects caused by industrial or extractive activities. However, commitments by private enterprise to remedy such damages are discouraged by the prospect of civil liability based upon rigid application of state water quality standards to the enterprises activities. The purpose of this act is to preserve the states approach to establishing water quality standards, while also encouraging private enterprises to make significant improvements to closed or abandoned sites that are of such magnitude that more than three (3) years will be required to complete the project.

SECTION 2. Definitions and Applicability.

For the purposes of this act:

(1) "Long-term Improvement Project" or "Project" means any remediation or reclamation project at closed or abandoned:

(A) Mineral Extraction Sites;

(B) Solid Waste Management Units as defined pursuant to the Arkansas Hazardous Waste Management Act;

(C) Oil and Gas Extraction Sites;

(D) Brownfield Sites as defined in Act 125 of 1995 or as may be amended; and

(E) Hazardous Substance Sites listed on the National Priority List (42 U.S.C. Section 9605), or State Priority List (Arkansas Code 8-7-509(e), or as may be amended.

(2) "Water Quality Standard" means standards developed through administrative rulemaking by the Commission;

(3) "Commission" means the Arkansas Pollution Control and Ecology Commission; and

(4) "Department" means the Arkansas Department of Pollution Control and Ecology.

SECTION 3. Procedures for approval of environmental projects, contents of applications, and public notice.

(a) A petitioner seeking approval of a change in water quality standards to accommodate a long-term environmental improvement project shall file with the Department a Notice of Intent, which includes as a minimum:

(1) A description of the water body or stream segment affected by the project;

(2) The existing ambient water quality for the use of criteria at issue;

(3) The affected water quality standard;

(4) The modifications sought;

(5) The proposed remediation activities;

(6) A proposed Remediation Plan, which shall contain:

(A) A description of the existing conditions, including identification of the conditions limiting the attainment of the water quality standards;

(B) A description of the proposed water quality standard modification, both during and post project;

(C) A description of the proposed remediation plan; and

(D) The anticipated collateral effects, if any, of the Remediation Plan; and

(7) A schedule for implementing the Remediation Plan that ensures that the post project water quality standards are met as soon as reasonably practicable.

(b) The department shall cause notice of the proposed project and associated water quality standard changes described in subsection (a) to be published for public notice and comment in the same manner as provided for permit applications in Arkansas Code 8-4-203(b), and shall advise the public that the details of the proposed project are available for public review.

(c) After considering comments from the public, the department shall notify the petitioner as to whether the proposed project is approved or denied. The department may deny approval of a project if it reasonably concludes that the plan is not complete, the plan is not technically sound, the schedule is unrealistic, the plan will not have an overall beneficial effect for the environment, or other appropriate reasons. Any department determination on the approval or denial of a project is subject to the appeal procedures applicable to permitting decisions set out in Arkansas Code 8-4-205.

(d) Upon approval of the project for further development, the petitioner shall prepare documentation required for third-party rulemaking by Arkansas Code 8-4-202 and established in administrative procedures.

SECTION 4. Modification of Water Quality Standards.

(a) The commission may approve a modification where the water quality standard is not being maintained due to conditions which may, in part or in whole, be corrected through the implementation of long-term measures. The commission shall establish such subcategory of use and modify such general and specific standards as it deems appropriate to reflect such modification while ensuring that the fishable/swimmable use is maintained. In all water quality standard changes associated with long-term environmental projects, the remedial action plan described in subsection (a) of Section 3 of this act shall be incorporated by reference in the statement of basis and purpose of the rule and shall be considered an essential condition of the modified water quality standard.

(b) Once the commission approves a water quality standard modification, the department shall ensure that conditions and limitations designed to achieve compliance with the plan are

established in applicable discharge permits, consent administrative orders, or such other enforcement measures deemed appropriate by the department. The department may allow modifications by the petitioner to the remediation plan and schedule as is deemed appropriate, provided that any such modifications to the original remedial action plan shall not render the project significantly less protective of the applicable use subcategory. Should the department find that the petitioner is not acting in good faith to complete the project in accordance with the approved plan, applicable and appropriate enforcement authority may be exercised subject to appeal to the commission.

(c) The department or the petitioner shall report annually to the commission on the progress of the project.

SECTION 5. Project Completion.

At the end of the project the post project water quality standards shall be in full force and effect.

SECTION 6.All provisions of this act of a general and permanent nature are amendatory to the Arkansas Code of 1987 Annotated and the Arkansas Code Revision Commission shall incorporate the same in the Code.

SECTION 7. If any provision of this act or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to this end the provisions of this act are declared to be severable.

SECTION 8. All laws and parts of laws in conflict with this act are hereby repealed.

/s/Sheppard et al
APPROVED: 3-07-97

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

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APPENDIX C

Scientific Names of Aquatic Biota

APPENDIX C: SCIENTIFIC NAMES OF AQUATIC BIOTA

Common Name	Species	Family
Alabama Shad	*Alosa alabamae*	Clupeidae
Alligator Gar	*Atractosteus spatula*	Lepisosteidae
Arkansas Darter	*Etheostoma cragini*	Percidae
Arkansas Fatmucket	*Lampsilis powelli*	Unionidae
American Eel	*Anguilla rostrate*	Anguillidae
Autumn Darter	*Etheostoma autumnale*	Percidae
Banded Sculpin	~~*Cottus*~~ *Uranidea carolinae*	Cottidae
Banded Pygmy Sunfish	*Elassoma zonatum*	Elassomatidae
Beaded Darter	*Etheostoma Clinton*	Percidae
Bigeye Shiner	*Notropis boops*	Cyprinidae
Black Redhorse	*Moxostoma duquesnei*	Catostomidae
Blackside Darter	*Percina maculata*	Percidae
Blackspot Shiner	*Notropis atrocaudalis*	Cyprinidae
Blacktail Redhorse	*Moxostoma poecilurum*	Catostomidae
Blacktail Shiner	*Cyprinella venusta*	Cyprinidae
Bleeding Shiner	*Luxilus zonatus*	Cyprinidae
Bleedingtooth Mussel	*Venustaconcha pleasii*	Unionidae
Bluegill	*Lepomis macrochirus*	Centrarchidae
Bluehead Shiner	*Pteronotropis hubbsi*	Cyprinidae
Blue Sucker	*Cycleptus elongates*	Catostomidae
Bluntnose Minnow	*Pimephales notatus*	Cyprinidae
Bluntnose Darter	*Etheostoma chlorosoma*	Percidae
Brown Bullhead	*Ameiurus nebulosus*	Ictaluridae
Caddo Madtom	*Noturus taylori*	Ictaluridae
Cardinal Shiner	*Luxilus cardinalus*	Cyprinidae
Common Carp	*Cyprinus carpio*	Cyprinidae
Channel Catfish	*Ictalurus punctatus*	Ictaluridae
Curtis Pearlymussel	*Epioblasma curtisi*	Unionidae
Crystal Darter	*Crystallaria asprella*	Percidae
Western ~~C~~creek Chubsucker	*Erimyzon ~~oblongus~~ claviformes*	Catostomidae
Creole Darter	*Etheostoma collettei*	Percidae
Current ~~River~~ Darter	*Etheostoma uniporum*	Percidae
Elktoe	*Alasmidonta marginata*	Unionidae
Ellipse	*Venustaconcha ellipsiformis*	Unionidae
Fat Pocketbook	*Potamilus capax*	Unionidae
Fawnsfoot	*Truncilla donaciformis*	Unionidae
Flat Floater	*Utterbackia suborbiculata*	Unionidae
Freshwater Drum	*Aplodinotus grunniens*	Sciaenidae
Dusky Darter	*Percina sciera*	Percidae
Duskystripe Shiner	*Luxilus pilsbryi*	Cyprinidae

Common Name	**Species**	**Family**
Emerald Shiner	*Notropis atherinoides*	Cyprinidae
Fantail Darter	*Etheostoma flabellare*	Percidae
Fawnsfoot	*Truncilla donaciformis*	Unionidae
Flier	*Centrarchus macropterus*	Centrarchidae
Freckled Madtom	*Noturus nocturnus*	Ictaluridae
Gilt Darter	*Percina evides*	Percidae
Gizzard Shad	*Dorosoma cepedianum*	Clupeidae
Golden Redhorse	*Moxostoma erythrurum*	Catostomidae
Goldstripe Darter	*Etheostoma parvipinne*	Percidae
Gravel Chub	*Erimystax x-punctatus*	Cyprinidae
Green Sunfish	*Lepomis cyanellus*	Centrarchidae
Greenside Darter	*Etheostoma blennioides*	Percidae
Gulf Mapleleaf	*Quadrula nobilis*	Unionidae
Hickorynut	*Obovaria olivaria*	Unionidae
Highfin Carpsucker	*Carpiodes velifer*	Catastomidae
Highland Darter	*Etheostoma teddyroosevelt*	Percidae
Kiamichi Shiner	*Notropis ortenburgeri*	Cyprinidae
Lake Sturgeon	*Acipenser fulvescens*	Acipenseridae
Largemouth Bass	*Micropterus salmoides*	Centrarchidae
Least Brook Lamprey	*Ichthyomyzon gagei*	Petromyzontidae
Least Darter	*Etheostoma microperca*	Percidae
Leopard Darter	*Percina pantherina*	Percidae
Lilliput	*Toxolasma parvum*	Unionidae
Longear Sunfish	*Lepomis megalotis*	Centrarchidae
Longnose Darter	*Percina nasuta*	Percidae
Louisiana Pearlshell	*Margaritifera hembeli*	Margaritiferidae
Louisiana Pigtoe	*Pleurobema riddellii*	Unionidae
Madtoms	*Noturus sp.*	Ictaluridae
Mooneye	*Hiodon tergisus*	Hiodontidae
Mosquitofish	*Gambusia affinis*	Poeciliidae
Neosho Mucket	*Lampsilis rafinesqueana*	Unionidae
Northern Hogsucker	*Hypentelium nigricans*	Catostomidae
Northern Studfish	*Fundulus catenatus*	Fundulidae
Ohio Pigtoe	*Pleurobema cordatum*	Unionidae
~~Orangebelly darter~~	~~*Etheostoma radiosum*~~	~~Percidae~~
Orangebelly Darter	*Etheostoma radiosum*	Percidae
Ouachita Darter	*Percina brucethompsoni*	Percidae
Ouachita Fanshell	*Cyprogenia cf. aberti*	Unionidae
Ouachita Kidneyshell	*Ptychobranchus accidentalis*	Unionidae
Ouachita Madtom	*Noturus lachneri*	Ictaluridae
Ouachita Rock Pocketbook	*Arcidens wheeleri*	Unionidae
Ouachita Mountain Shiner	*Lythrurus snelsoni*	Cyprinidae
~~Orangethroat~~ Ozark Darter	*Etheostoma sp. cf. spectabile*	Percidae
Ozark Cavefish	*Troglichthys rosae*	Amblyopsidae

Common Name	Species	Family
Ozark Hellbender	*Cryptobranchus alleganiensis bishopi*	Cryptobranchidae
Ozark Madtom	*Noturus albater*	Ictaluridae
Ozark Minnow	*Notropis nubilus*	Cyprinidae
Ozark Pigtoe	*Fusconaia ozarkensis*	Unionidae
Ozark Shiner	*Notropis ozarcanus*	Cyprinidae
Paddlefish	*Polyodon spathula*	Polyodontidae
Paleback Darter	*Etheostoma pallididorsum*	Percidae
Pealip Redhorse	*Moxostoma pisolabrum*	Catostomidae
Peppered Shiner	*Notropis perpallidus*	Cyprinidae
Pink Heelsplitter	*Potamilus alatus*	Unionidae
Pink Mucket	*Lampsilis abrupta*	Unionidae
Pirate Perch	*Aphredoderus sayanus*	Aphredoderidae
Pondhorn	*Uniomerus tetralasmus*	Unionidae
Pugnose Minnow	*Opsopoeodus emiliae*	Cyprinidae
Purple Lilliput	*Toxolasma lividus*	Unionidae
Pyramid Pigtoe	*Pleurobema rubrum*	Unionidae
Rabbitsfoot	*Theliderma cylindrical*	Unionidea
Rainbow	*Villosa iris*	Unionidae
Rainbow Darter	*Etheostoma caeruleum*	Percidae
Redfin Darter	*Etheostoma whipplei*	Percidae
Redfin Pickerel	*Esox americanus*	Esocidae
Redfin Shiner	*Lythrurus umbratilis*	Cyprinidae
Redspot Chub	*Nocomis asper*	Cyprinidae
Ribbon Shiner	*Lythrurus fumeus*	Cyprinidae
"Rock basses"	*Ambloplites sp.*	Centrarchidae
Rocky Shiner	*Notropis suttkusi*	Cyprinidae
Round Pigtoe	*Pleurobema sintoxia*	Unionidae
Sabine Shiner	*Notropis sabinae*	Cyprinidae
Saddleback Darter	*Percina vigil*	Percidae
Salamander Mussel	*Simpsonaias ambigua*	Unionidae
Scaleshell	*Leptodea lelptodon*	Unionidae
Scaly sand Darter	*Ammocrypta vivax*	Percidae
Shadow Bass	*Ambloplites ariommus*	Centrarchidae
Shoal Chub	*Macrhybopsis hyostoma*	Cyprinidae
Silver Redhorse	*Moxostoma anisurum*	Catostomidae
Slippershell Mussel	*Alasmidonta viridis*	Unionidae
Slenderhead Darter	*Percina phoxocephala*	Percidae
Slender Madtom	*Noturus exilis*	Ictaluridae
Slough Darter	*Etheostoma gracile*	Percidae
Smallmouth Bass	*Micropterus dolomieu*	Centrarchidae
Smallmouth Buffalo	*Ictiobus bubalus*	Catostomidae
Snuffbox	*Epioblasma triquetra*	Unionidae
Southern Cavefishes	*Typhlichthys sp.*	Amblyopsidae
Southern Hickorynut	*Obovaria jacksoniana*	Unionidae

Common Name	**Species**	**Family**
Southern Mapleleaf	*Quadrula apiculate*	Unionidae
Southern Pocketbook	*Lampsilis ornata*	Unionidae
Southern Redbelly Dace	*Chrosomus erythrogaster*	Cyprinidae
Speckled Pocketbook	*Lampsilis streckeri*	Unionidae
Spectaclecase	*Margaritifera monodonta*	Margaritiferidae
Spotted Bass	*Micropterus punctulatus*	Centrarchidae
Spotted Sucker	*Minytrema melanops*	Catostomidae
Sunburst Darter	*Etheostoma mihileze*	Percidae
Red~~S~~spotted Sunfish	*Lepomis ~~punctatus~~ miniatus*	Centrarchidae
Round Pigtoe	*Peurobema sintoxia*	Unionidae
Spotted Gar	*Lepisosteus oculatus*	Lepisosteidae
Stargazing Darter	*Percina uranidiea*	Percidae
Strawberry ~~River~~ Darter	*Etheostoma fragi*	Percidae
Striped Shiner	*Luxilus chrysocephalus*	Cyprinidae
Tadpole Madtom	*Noturus gyrinus*	Ictaluridae
Tapered Pondhorn	*Uniomerus declivis*	Unionidae
Texas Pigtoe	*Pleurobema riddellii*	Unionidae
Warmouth	*Lepomis gulosus*	Centrarchidae
Wedgespot Shiner	*Notropis greenei*	Cyprinidae
Western Fanshell	*Cyprogenia aberti*	Unionidae
Western Sand Darter	*Ammocrypta vivax*	Percidae
Western Starhead Topminnow	*Fundulus blairae*	Fundulidae
Winged Mapleleaf	*Quadrula fragosa*	Unionidae
Whitetail Shiner	*Cyprinella galactura*	Cyprinidae
Yellow Bullhead	*Ameiurus natalis*	Ictaluridae
Yellowcheek Darter	*Nothonotus moorei*	Percidae

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

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APPENDIX D

List of Current Extraordinary Resource Waters, Ecologically Sensitive Waterbodies, and Natural and Scenic Waterways

APPENDIX D: LIST OF CURRENT EXTRAORDINARY RESOURCE WATERS, ECOLOGICALLY SENSITIVE WATERBODIES, AND NATURAL AND SCENIC WATERWAYS

Extraordinary Resource Waters

Stream Name	Ecoregion	Plate
Alum Fork Saline River	Ouachita Mountains	OM-2
Archey Creek	Boston Mountains	BM-2
Arkansas River	~~Delta~~ Mississippi Alluvial Plain ~~D~~MAP-5	
Beech Creek	Boston Mountains	BM-3
Big Creek	Arkansas ~~River~~ Valley	A~~R~~V-3
Big Creek	Ozark Highlands	OH-4
Big Fork Creek	Ouachita Mountains	OM-1
Big Piney Creek	Boston Mountains	BM-2
Buffalo River	Boston Mountains	BM-1, BM-2
Buffalo River	Ozark Highlands	OH-2, OH-3
Bull Shoals Reservoir	Ozark Highlands	OH-2, OH-3
Cache River	~~Delta~~ Mississippi Alluvial Plain ~~D~~MAP-3	
Caddo River	Ouachita Mountains	OM-1, OM-2
Cadron Creek	Arkansas ~~River~~ Valley	A~~R~~V-2, A~~R~~V-3
Caney Creek	Ouachita Mountains	OM-1
Cossatot River	Ouachita Mountains	OM-1
Current River	Ozark Highlands	OH-4
DeGray Reservoir	Ouachita Mountains	OM-2
Devils Fork of Little Red River	Boston Mountains	BM-3
East Fork Cadron Creek	Arkansas ~~River~~ Valley	A~~R~~V-2, A~~R~~V-3
East Fork Illinois Bayou	Boston Mountains	BM-2
Eleven Point River	Ozark Highlands	OH-4
English Creek	Ozark Highlands	OH-4
Falling Water Creek	Boston Mountains	BM-2
Field Creek	Ozark Highlands	OH-4
Gut Creek	Ozark Highlands	OH-4
Hurricane Creek	Boston Mountains	BM-2
Illinois Bayou	Boston Mountains	BM-2
Kings River	Boston Mountains	BM-1
Kings River	Ozark Highlands	OH-2
Lake Ouachita	Ouachita Mountains	OM-1, OM-2
Lee Creek	Boston Mountains	BM-1
Lick Creek	Boston Mountains	BM-3
Little Missouri River	Ouachita Mountains	OM-1
Little Raccoon Creek	Boston Mountains	BM-3
Little Strawberry River	Ozark Highlands	OH-3
Middle Fork Illinois Bayou	Boston Mountains	BM-2
Middle Fork Little Red River	Boston Mountains	BM-2, BM-3

Middle Fork Saline River	Ouachita Mountains	OM-2
Moro Creek	~~Gulf Coastal~~ South Central Plains	~~GC~~SCP-2
Mountain Fork River	Ouachita Mountains	OM-1
Mulberry River	Arkansas ~~River~~ Valley	A~~R~~V-1
Mulberry River	Boston Mountains	BM-1, BM-2
Myatt Creek	Ozark Highlands	OH-3, OH-4
North Fork Cadron Creek	Arkansas ~~River~~ Valley	A~~R~~V-2, A~~R~~V-3
North Fork Illinois Bayou	Boston Mountains	BM-2
North Fork Saline River	Ouachita Mountains	OM-2
North Sylamore Creek	Ozark Highlands	OH-3
Raccoon Creek	Boston Mountains	BM-3
Richland Creek	Boston Mountains	BM-2
Salado Creek	Boston Mountains	BM-3
Saline River	~~Gulf Coastal~~ South Central Plains	~~GC~~SCP-2, ~~GC~~SCP-3
Saline River	Ouachita Mountains	OM-2
Second Creek	~~Delta~~ Mississippi Alluvial Plain	~~D~~MAP-4
South Fork Caddo River	Ouachita Mountains	OM-1
South Fork Saline River	Ouachita Mountains	OM-2
South Fork Spring River	Ozark Highlands	OH-3, OH-4
Spring River	Ozark Highlands	OH-4
Strawberry River	~~Delta~~ Mississippi Alluvial Plain	~~D~~MAP-1
Strawberry River	Ozark Highlands	OH-3, OH-4
Tomahawk Creek	Boston Mountains	BM-3
Turkey Creek	Boston Mountains	BM-3
Two Bayou Prairie	~~Delta~~ Mississippi Alluvial Plain	~~D~~MAP-3

Natural and Scenic Waterways

Stream Name	**Ecoregion**	**Plate**
Big Piney Creek	Boston Mountains	BM-2~~*~~[50]
Brushy Creek	Ouachita Mountains	OM-1
Buffalo River	Boston Mountains	BM-1, BM-2
Buffalo River	Ozark Highlands	OH-2, OH-3
Cossatot River	Ouachita Mountains	OM-1
Hurricane Creek	Boston Mountains	BM-2~~*~~[40]
Kings River	Boston Mountains	BM-1
Kings River	Ozark Highlands	OH-2
Little Missouri River	Ouachita Mountains	OM-1
Mulberry River	Arkansas ~~River~~ Valley	A~~R~~V-1
Mulberry River	Boston Mountains	BM-1, BM-2
North Sylamore Creek	Ozark Highlands	OH-3~~*~~[40]
Richland Creek	Boston Mountains	BM-2~~*~~[40]
Saline River	~~Gulf Coastal~~ South Central Plains	~~GC~~SCP-3

[50] * As designated in the National Wild and Scenic Rivers System

Strawberry River	Ozark Highlands	OH-3, OH-4

Ecologically Sensitive Waterbodies

Stream Name	Ecoregion	Plate
Alum Fork Saline River	Ouachita Mountains	OM-2
Archey Creek	Boston Mountains	BM-2
Beech Fork	Boston Mountains	BM-3
Black River	~~Delta~~ Mississippi Alluvial Plain ~~D~~MAP-1
Brushy Creek	Ouachita Mountains	OM-1
Caddo River	Ouachita Mountains	OM-1
Caney Creek	Ouachita Mountains	OM-1
Collier Creek	Ouachita Mountains	OM-1
Cossatot River	Ouachita Mountains	OM-1
Current River	Ozark Highlands	OH-4
Departee Creek	~~Delta~~ Mississippi Alluvial Plain ~~D~~MAP-1
Devils Fork Little Red River	Boston Mountains	BM-3
Eleven Point River	Ozark Highlands	OH-4
Grassy Lake	~~Gulf Coastal~~ South Central Plains ~~GC~~SCP-1
Illinois River	Ozark Highlands	OH-1
Little Missouri River	Ouachita Mountains	OM-1
Little Raccoon Creek	Boston Mountains	BM-3
Little ~~Red~~ River	~~Gulf Coastal~~ South Central Plains ~~GC~~SCP-1
Little Strawberry River	Ozark Highlands	OH-3
Lick Creek	Boston Mountains	BM-3
Lick Creek	Ouachita Mountains	OM-1
Mayberry Creek	Ouachita Mountains	OM-2
Middle Fork Little Red River	Boston Mountains	BM-2, BM-3
Middle Fork Saline River	Ouachita Mountains	OM-2
Mill Creek	Ouachita Mountains	OM-1
Missouri River	~~Gulf Coastal~~ South Central Plains ~~GC~~SCP-2
Mountain Fork River	Ouachita Mountains	OM-1
North Fork Saline River	Ouachita Mountains	OM-2
Otter Creek	Ozark Highlands	OH-3
Ouachita River	Ouachita Mountains	OM-1
Ouachita River	~~Gulf Coastal~~ South Central Plains ~~GC~~SCP-2, ~~GC~~SCP-4
Polk Creek	Ouachita Mountains	OM-1
Robinson Creek	Ouachita Mountains	OM-1
St. Francis River	~~Delta~~ Mississippi Alluvial Plain m~~D~~MAP-4
Saline River	Ouachita Mountains	OM-2
Saline River	~~Gulf Coastal~~ South Central Plains ~~GC~~SCP-3
South Fork Caddo River	Ouachita Mountains	OM-1
South Fork Ouachita River	Ouachita Mountains	OM-1
South Fork Saline River	Ouachita Mountains	OM-2
Ten Mile Creek	Ouachita Mountains	OM-2

Raccoon Creek	Boston Mountains	BM-3
Right Hand Chute Little River	~~Delta~~ Mississippi Alluvial Plain ~~D~~MAP-2	
Rock Creek	Ouachita Mountains	OM-1
Rock Creek	Ozark Highlands	OH-4
South Fork Little Red River	Boston Mountains	BM-2
Spring River	Ozark Highlands	OH-4
Straight Slough	~~Delta~~ Mississippi Alluvial Plain ~~D~~MAP-2, ~~D~~MAP-4	
Strawberry River	Ozark Highlands	OH-3, OH-4
Tomahawk Creek	Boston Mountains	BM-3
Turkey Creek	Boston Mountains	BM-3
Various springs & spring-fed tributaries	Ozark Highlands	OH-1, OH-2, OH-3
White River	Boston Mountains	BM-1
Yellow Creek	~~Gulf Coastal~~ South Central Plains ~~GC~~SCP-1	

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APPENDIX E

Criteria to be Considered in Determining Whether the Designated Use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway Should be Maintained

APPENDIX E: CRITERIA TO BE CONSIDERED IN DETERMINING WHETHER THE DESIGNATED USE OF EXTRAORDINARY RESOURCE WATER, ECOLOGICALLY SENSITIVE WATERBODY, OR NATURAL AND SCENIC WATERWAY SHOULD BE MAINTAINED

The determination of whether a designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway should be maintained in a given waterbody must be made on a case by case basis. At least 180 days prior to filing any petition authorized under Rule 2.310 to initiate rulemaking with the Commission to remove the designated use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway from a free flowing waterbody for the purpose of constructing a reservoir to provide a domestic water supply, the petitioner shall submit to the ~~Division~~ division information and supporting documentation which address each of the following:

(A) Describe generally and specifically the state of the existing water quality;
(B) Identify the presence of key and indicator species of fish adapted to flowing water systems and state the extent to which these species are present in the waterbody;
(C) Describe the extent to which water quality and physical habitat, including wetlands, support other plant or animal life and identify the species;
(D) Identify the presence of, and state the extent to which, other wildlife uses are dependent upon the waterbody;
(E) State the extent to which water quality and physical habitat support threatened, endangered, or endemic aquatic or semi-aquatic species and identify those species;
(F) Specify the extent to which the waterbody supports a high diversity of aquatic species and identify the presence and frequency of the species;
(G) Describe and identify the extent to which physical or chemical characteristics of the waterbody provide an unusual or uncommon aquatic habitat;
(H) Describe the extent to which physical or chemical characteristics give the waterbody unusual or unique aesthetic attributes;
(I) Specify the extent of the use of the waterbody for recreation in or on the water, such as fishing, swimming, and boating (including but not limited to canoeing, kayaking, or rafting), or use of the waterbody for commercial activity, including tourism;
(J) Identify and describe the intangible social values associated with the free flowing characteristics of the waterbody;
(K) Identify the presence and location of gorges, rapids, waterfalls, or other significant geologic features;
(L) Identify the presence and location of scenic areas and sites potentially impacted by the reservoir;
(M) Identify the presence and location of rare and/or irreplaceable natural areas potentially impacted by the reservoir;

(N) Identify the presence and location of known archeological sites potentially impacted by the reservoir;
(O) Identify the presence and location of historic resources potentially impacted by the reservoir;
(P) Delineate the extent to which the waterbody is located within the boundaries of, flows through, or is adjacent to state or federal forest land, parks, natural areas, nature preserves, refuges, or wildlife management areas;
(Q) Describe the extent to which the waterbody is used for educational, scientific, or research purposes;
(R) Identify the waterbody's use or potential use as an ecoregion reference stream;
(S) Describe the land uses, and the geographical extent of each, occurring within the watershed;
(T) Identify the presence and location of all permitted point sources discharging to the waterbody;
(U) Identify the presence and location of existing alterations, diversions or man-made impoundments; and
(V) Provide the frequency of occasions when there is no natural flow in the waterbody, and the Q7-10 flow values for the waterbody.

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APPENDIX F

Factors Considered In Adding the Designated Use of Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway to a Waterbody or Waterbody Segment

APPENDIX F: FACTORS CONSIDERED IN ADDING THE DESIGNATED USE OF EXTRAORDINARY RESOURCE WATER, ECOLOGICALLY SENSITIVE WATERBODY, OR NATURAL AND SCENIC WATERWAY TO A WATERBODY OR WATERBODY SEGMENT

The Commission shall consider the following supporting documentation in determining whether a waterbody should be designated as an Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway:

(A) Location – The waterbody is within the boundaries of or flows through or is adjacent to state or federal forest land, parks, natural areas, nature preserves, refuges, or wildlife management areas, or the watershed may include remote, primitive, or relatively undeveloped areas;
(B) Existing water quality – pristine, naturally-occurring, or unique;
(C) Ecological value – The presence of water quality and physical habitat that supports threatened, endangered, or sensitive species, the presence of any threatened, endangered, or sensitive species, and/or water quality that supports an exceptional high diversity of aquatic species (fish or benthic macroinvertebrates) as categorized by an appropriate index of biological integrity (IBI) protocol;
(D) Presence of physical or chemical characteristics that provide an unusual or uncommon aquatic habitat;
(E) Special attributes of the waterbody that make it an outstanding resource, including but not limited to the presence of archeological sites, historical sites, or rare or valuable wildlife habitat;
(F) Aesthetic Value- the presence of scenic areas or sites or scenic beauty resulting from natural features of the basin such as flow, topography, geology, ecology, physiography (i.e., waterfalls, gorges, rapids, or other special features), or the presence of characteristics giving the waterbody unique or unusual attributes;
(G) Recreational Value- Use of the waterbody for:
(1) Fishing, rafting, kayaking, camping, family outings, backpacking, bird watching, etc.,
(2) Presence of hiking trails or scenic road or highway alongside, and
(3) Attracting tourism;
(H) Use of the waterbody for educational, scientific, or research purposes;
(I) Presence of rare and/or irreplaceable natural areas; and
(J) Impacts the designation may have on current uses, upstream users, downstream users, and potential future uses of the waterbody or waterbody segment.