

# SPRINGFIELD PLATEAU REGIONAL RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT

## APPENDICES

APPENDIX A	DECISION MATRIX FOR SCORING OF RESTORATION PROPOSALS
APPENDIX B	PROJECT EVALUATION AND SELECTION PROCESS
APPENDIX C	LIST OF OTHER RELEVANT REGULATIONS
APPENDIX D	DETAILED EXPLANATION OF AFFECTED RESOURCES
APPENDIX E	MISSOURI SPECIES OF CONSERVATION CONCERN
APPENDIX F	LIST OF PUBLIC LANDS IN THE SPRINGFIELD PLATEAU
APPENDIX G	EXEMPLAR REQUEST FOR PROPOSAL
APPENDIX H	TRUSTEES' RESPONSE TO COMMENTS RECEIVED ON THE DRAFT SPRINGFIELD PLATEAU REGIONAL RESTORATION PLAN



**APPENDIX A: DECISION MATRIX FOR PROPOSED RESTORATION PROJECTS IN  
THE SPRINGFIELD PLATEAU**

2. Examples of preferred resources and services, identified in the RFP (one or more of these may be included) (30 points possible):
  - a) Benefits federal- and state-listed species, or Missouri Species of Concern. (Score 0-5) \_\_\_\_\_
  - b) Restores lost human uses (e.g., drinking water, recreational opportunities). (Score 0-5) \_\_\_\_\_
  - c) Restores lost (or depressed) ecological services. (Score 0-5) \_\_\_\_\_
  - d) Restores or enhances native diversity and abundance. (Score 0-5) \_\_\_\_\_
  - e) Expands existing protected natural areas or creates greater connectivity between existing natural areas. (Score 0-5) \_\_\_\_\_
  - f) Ecosystem improvements are self-sustaining. (Score 0-5) \_\_\_\_\_
  
3. Benefits provided, as identified within the RFP (10 points possible):
  - a) Provides specific benefits or enhancements not provided by other restoration projects. (Score 0-3) \_\_\_\_\_
  - b) Complements planned response actions. Does not provide benefits already provided by response actions. (Score 0-4) \_\_\_\_\_
  - c) Provides the greatest scope of benefits to the largest area or natural resource population. (Score 0-3) \_\_\_\_\_
  
4. Time required for restoration (5 points possible):
  - a) Time required to return resources to baseline condition is minimized. Proposal identifies expected timeline to return to baseline. (Score 0-5) \_\_\_\_\_
  
5. No adverse environmental effects from actions (5 points possible):
  - a) Minimal impact to natural resources will occur from the proposed actions. (Score 0-5) \_\_\_\_\_
  
6. Cost-effectiveness (15 points possible):
  - a) Utilizes cost-effective means. (Score 0-3) \_\_\_\_\_
  - b) Additional funds (matching or scaled) are provided by proposal source (submitter) or to be pooled with other funding sources. (Score 0-7) \_\_\_\_\_
  - c) Project involves partnerships between multiple entities (Score 0-5) \_\_\_\_\_
  
7. Evaluation component (5 points possible):
  - a) Project includes a monitoring component. (Score 0-1) \_\_\_\_\_
  - b) Project identifies performance measures for successful restoration. (Score 0-2) \_\_\_\_\_
  - c) If goals of restoration are not being achieved, the project identifies the “next steps” to achieve restoration. (Score 0-2) \_\_\_\_\_

**APPENDIX A: DECISION MATRIX FOR PROPOSED RESTORATION PROJECTS IN  
THE SPRINGFIELD PLATEAU**

8. Probability of success (5 points possible):

- a) Uses established methods known to have a high probability of success. (Score 0-5) \_\_\_\_\_

**Total Points:** \_\_\_\_\_ **(100 possible points)**

**Comments:**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **Appendix B—Project Evaluation and Selection Process**

### **Springfield Plateau Regional Restoration Plan**

1. The Trustee Council (TC) will cause notice of a Request for Proposal (RFP) to be published in local newspapers and the TC websites with at least sixty (60) days for the proposal application process. The TC will hold at least one public meeting to discuss the particular RFP.
2. Following the RFP proposal submission deadline, the TC will meet to review the project proposals received based on the acceptability criteria. The TC will identify projects that do not meet the acceptability criteria and inform the submitter. At the same time, the TC will conduct a joint preliminary review of the Decision Matrix criteria to identify any potential common concerns with the projects that meet the acceptability criteria.
3. Each Trustee will separately evaluate and score the project proposals using the Decision Matrix ranking criteria, consulting internal and external experts relevant to the proposals.
4. The TC will reconvene to discuss their Decision Matrix ranking criteria evaluation of the projects, and to generate a mean score for each project. The object of this discussion is to prioritize and reach consensus on the submitted projects. The Trustees reserve the right to reject proposals even if they meet the acceptability criteria.
5. The projects will be ranked by the mean scores and recommended to the federal Authorized Official and the state Trustee for funding under the current RFP. The number of projects recommended will be dependent upon the allocation of funds for the particular RFP and on the requested funds of the priority projects.
6. In the event that the Trustee Council is in disagreement over potential restoration projects, the matter shall be elevated to the state and federal Trustees pursuant to the Memorandum of Understanding between the Missouri Department of Natural Resources and the United States Department of the Interior.

## Appendix C—List of Other Relevant Regulations

### Springfield Plateau Regional Restoration Plan

The Trustees have or will comply with all applicable laws, Executive Orders, policies, and regulations relating to NRDAR.

- *Clean Water Act of 1972, as amended.* The Clean Water Act (CWA) is the first federal statute to comprehensively authorize recovery of NRD. The CWA imposes strict liability on owner/operators for oil spills, but provides no specifics about what NRD was or how damages are calculated. The CWA mandates that any NRD recoveries are used to restore, replace or acquire the equivalent of the injured natural resources.
- *Endangered Species Act of 1973, as amended.* The Endangered Species Act (ESA) requires federal agencies to determine whether their actions may adversely affect any federally listed or proposed threatened or endangered species. If so, formal consultation pursuant to Section 7 of the ESA is initiated. As part of the public review and comment process, a copy of the draft SPRRP/EA is provided to the Service's Ecological Services Field Office in Columbia, Missouri to begin the consultation process.
- *Migratory Bird Treaty Act of 1918, as amended.* The Trustees will make every effort to insure that migratory bird species are protected and their habitats enhanced as a result of restoration activities selected under this plan.
- *National Historic Preservation Act of 1966, as amended.* The Service will provide the State of Missouri Historic Preservation Officer with the draft SPRRP/EA as part of the public review and comment process, requesting their input to ensure project compliance with Section 106 of the National Historic Preservation Act. There are no state or federally recognized local tribes with whom to consult on the issues of threatened or sensitive tribal sites, or traditional heritage properties.
- *National Wildlife Refuge (NWR) System Administration Act of 1966, as amended.* The Ozark Cavefish National Wildlife Refuge is located in the Springfield Plateau. The project alternatives in this SPRRP/EA will not have any significant adverse effects on the refuge. Projects proposed under the SPRRP could positively contribute to the management of Ozark Cavefish NWR.
- *Executive Order 11990, Protection of Wetlands.* Implementation of any project alternative in this SPRRP/EA is not anticipated to have or cause any significant adverse effects on wetlands.

- *Executive Order 11988, Floodplain Management*, directs all federal agencies to take action to avoid, to the extent possible, the long- and short-term impacts associated with the occupancy and modification of floodplains. The project alternatives in this SPRRP/EA will not have any significant adverse effects associated with modification and occupancy of floodplains.
- *Executive Order 12962, Aquatic Systems and Recreational Fisheries*. Executive Order 12962 directs federal agencies to add additional public access to fisheries nationwide by conserving, restoring, and enhancing aquatic systems. Implementation of some project alternatives in this SPRRP/EA may cause short-term adverse effects to aquatic systems but will be designed to minimize these effects and to maximize long-term benefits to aquatic systems.
- *Executive Order 13112, Invasive Species*. Implementation of any alternative in this SPRRP/EA will use existing integrated pest management strategies to prevent the introduction of invasive species, such as noxious weeds, and will not authorize or carry out actions that are likely to cause the introduction or spread of invasive species.
- *Executive Order 13186, Protection of Migratory Birds*. Implementation of any alternative in this SPRRP/EA is not anticipated to cause measurable negative effects on migratory bird populations.
- *Department of the Interior Departmental Manual, Parts 517 and 609, Pesticides and Weed Control*.  
Consistent with DOI policy, implementation of any alternative in this SPRRP/EA will use integrated pest management strategies. Pesticides will be used only after a full consideration of alternatives, and if used, the least hazardous material that will meet restoration objectives will be chosen.
- *DOI Departmental Manual Part 602: Land Acquisition, Exchange and Disposal*. Consistent with DOI policy, any selected alternative that involves land acquisition will comply with appropriate pre-acquisition standards, particularly American Society for Testing and Materials (ASTM) Standards on Environmental Site Assessments for Commercial Real Estate in effect at the time. Pre-acquisition assessments will be done by qualified individual(s) and will be done within 12 months of the date of acquisition. Any required approvals will be obtained, and acquisition conditions set out in Part 602 will be met.
- *341 FW 3. Pre-Acquisition Environmental Site Assessments*. All conditions set forth in FW3, including environmental site assessment requirements, including pre- and post-acquisition requirements, Level I, II, or III assessment, assessment standards and conditions, retention of records, and time limits will be met.

## **Appendix D—Detailed Explanation of Potentially Affected Resources**

### **Springfield Plateau Regional Restoration Plan**

#### **Physical Resources**

##### *Topography*

The Springfield Plateau is defined by smooth plains, lying higher in elevation than adjacent regions (Nigh and Schroeder, 2002). The Springfield Plateau lies within the Ozark uplift, an asymmetrical dome-shaped landform lying in southern Missouri and portions of Arkansas, Kansas, and Oklahoma. Within the Springfield Plateau, the strata of the Ozark uplift slopes gently westward (Nigh and Schroeder, 2002). The topography of the Springfield Plateau ranges from gently rolling plains to hills of up to 250 feet (in the northeastern and southeastern portions of the section) (Nigh and Schroeder, 2002).

##### *Bedrock*

The uppermost bedrock in the Springfield Plateau consists of Mississippian-age cherty limestones and limestones, with the exception of narrow elongated ridges of Pennsylvanian sandstone in the north-central portion of the Plateau (Nigh and Schroeder, 2002). Limestone in the region is intermittently resistant or soluble, resulting in smooth flat plains with abundant sinkholes, springs, and caves that define the region (Nigh and Schroeder, 2002). Mining of high-calcium limestone (primarily in Springfield and Joplin), and historical mining of lead and zinc ores (primarily in Jasper and Newton counties) is abundant in the region, and has resulted in a scarified landscape (Nigh and Schroeder, 2002).

##### *Soils*

Soils in the Springfield Plateau are composed of material weathered from cherty limestones and partially enveloped with loess (thinning in the east) (Nigh and Schroeder, 2002). Generally, soils in the Springfield Plateau are deep to very deep; moderately well drained to well drained; and, medium to fine textured (Nigh and Schroeder, 2002). Soils in level to moderately sloped areas consist of either thick dark surface layers of the Newtonia and Wanda series, or thin surface layers of the Peridge series (Nigh and Schroeder, 2002). Subsoils contain root-restricting fragipans that are low in porosity and organic content; and are of the Creldon, Hoberg, Keeno, and Viraton series (Nigh and Schroeder, 2002). Soils in moderately sloped to steeply sloped areas are cherty with red, loamy to clayey subsoils of the Goss, Eldon, Rueter, and Clarksville series (Nigh and Schroeder, 2002).

##### *Surface Water*

Due to the comparatively high elevation of the Springfield Plateau, streams drain radially from the plateau into adjacent areas, flowing west (i.e., Spring River and Shoal Creek),

north (i.e., Sac River), and south (i.e., James River and Finley Creek) down the plateau (Nigh and Schroeder, 2002).

Typical streams in the Springfield Plateau carry large bedloads of chert gravel and sand, contain bars and banks of gravel, and carry little suspended sediment (with the exception of high-flow periods) (Nigh and Schroeder, 2002). Streams in the region are prone to flash flooding, particularly late winter through early spring (Nigh and Schroeder, 2002). During dry seasonal periods, springs play a vital role in sustaining in-stream flow. Due to the karstic nature of the region, the Springfield Plateau contains numerous losing streams and springs. Springs are abundant and large in the Springfield Plateau, provide a significant contribution to the base-flow, and are responsible for decreased stream temperatures where they arise (Nigh and Schroeder, 2002).

Many streams in the Springfield Plateau have been altered by impoundments, built to supply flood control, municipal water, hydroelectric power, and recreational opportunities. Major impoundments in the Springfield Plateau include Stockton Lake on the Sac River; Fellows Lake and McDaniel Lake on the Little Sac River; Lake Springfield on the James River; and Joplin Water Supply Lake on Shoal Creek. Unintended consequences of the impoundments include altered water temperatures, limited fish migration, increased bank erosion and siltation, reduced water quality, loss of riparian corridors, and loss of invertebrates and spawning fish habitats (MDC, 1999).

The Springfield Plateau also contains numerous ponds, including natural sinkhole ponds, thousands of livestock watering ponds, and ponds formed in mining pits and depressions (Nigh and Schroeder, 2002).

### *Ground Water*

The Springfield Plateau lies within the Ozark Plateau's aquifer system, located throughout southern Missouri, southeastern Kansas, eastern Oklahoma and a large area of northwestern Arkansas. The aquifer system is comprised of three aquifers, named from shallowest to deepest: the Springfield Plateau aquifer, Ozark aquifer, and St. Francois aquifer.

The aquifers are composed of limestones, dolomites, and sandstones, separated by two shale confining units of minimal permeability (Miller and Appel, 1997). Recharge of aquifers occurs primarily through precipitation at outcrop areas, but also minimally across confining units (composed of impermeable shale and small amounts of permeable limestone) (Miller and Appel, 1997). Water primarily passes through the aquifers via fractures and bedding planes, resulting in the dissolution of carbonate rocks, enlarged byways, and additional karstic features (Miller and Appel, 1997). Water discharges from the aquifers as base flow into streams (Miller and Appel, 1997).

The Springfield Plateau aquifer is 200 feet thick on average, yielding less than 20 gallons of water per minute. It provides water that is "generally suitable" for use with dissolved-solids concentrations less than 1,000 milligrams per liter where the aquifer is unconfined

(Miller and Appel, 1997). Most water from the aquifer is used for domestic use and agricultural irrigation or stock-watering supplies (Miller and Appel, 1997).

The Ozark aquifer is the primary water source for the Ozark Plateau Physiographic Province (including the Springfield Plateau region) (Miller and Appel, 1997). It is the thickest aquifer within the Ozark Plateau aquifer system, ranging in depth from 800 to 1,500 ft. in southwestern Missouri (Imes, 1990), and providing more than 1,000 gallons per minute (Miller and Appel, 1997). Water from this aquifer is considered “suitable for most uses” with dissolved-solid concentrations less than 1,000 milligrams per liter (except in the westernmost parts of the aquifer) (Miller and Appel, 1997). Water from the Ozark aquifer is used for municipal, agricultural, industrial, and domestic supplies (Miller and Appel, 1997).

The St. Francois aquifer is 300-400 feet thick in south-central Missouri. Water is withdrawn from the aquifer only in the St. Francois Mountains, where the aquifer crops out or is close to the surface (Miller and Appel, 1997). Because of the depth required to access the St. Francois aquifer, it does not provide water for the Springfield Plateau region. Where water is withdrawn, water is considered “suitable for most uses” with dissolved-solid concentrations between 200 and 450 milligrams per liter (Miller and Appel, 1997).

## **Biological Resources**

### *Terrestrial Habitat*

Historically, the Springfield Plateau existed as a transition zone from prairie in the west to timber in the east (Nigh and Schroeder, 2002). Across this transition zone, the region changes from prairies in the west to oak savannas, to oak woodlands, to oak forests in the east (Nigh and Schroeder, 2002). The Springfield Plateau historically possessed scattered glades and limestone woodlands of uncommon tree composition, e.g., limestone woodlands of ash, sugar maple, walnut and oak trees (Nigh and Schroeder, 2002).

At present, the Springfield Plateau is dominated by pasture with small isolated woodlands of pioneer trees and shrubs (Nigh and Schroeder, 2002). Native prairies that were once expansive, now exist as small (< 150 acres) isolated tracts in the northwestern portion of the Springfield Plateau (Nigh and Schroeder, 2002).

Major natural community types in the Springfield Plateau include (Nigh and Schroeder, 2002):

- Midwest Dry-Mesic Chert and Limestone Prairies
- Little Bluestem Hardpan Prairie
- Central Post Oak Dry Barrens (Savanna)
- Post Oak-Blackjack Oak/Bluestem Dry Chert Woodland
- Chinquapin Oak-Ash (Eastern Red Cedar)/Bluestem Dry Limestone Woodland
- White Oak-Black Oak Dry-Mesic Chert Woodland
- White Oak-Mixed-Oak/Redbud Dry-Mesic Limestone Forest

Rare natural communities in the Springfield Plateau include chert, limestone, and hardpan prairies; chert glades (considered globally unique); high-quality limestone and sandstone glades; and, pristine high-quality caves (Nigh and Schroeder, 2002). These habitats are strongly associated with listed species in the Springfield Plateau (Nigh and Schroeder, 2002). State- and federally-listed species, such as cave dwelling species and near-endemic glade species, depend upon the persistence of these natural communities for their survival (Nigh and Schroeder, 2002).

### *Aquatic Habitat*

The James River, Sac River, and Spring River Basins encompass a large portion of the Springfield Plateau. Streams in the James River Basin are high in gradient and relief (i.e., 300-600 feet) with limestone and dolomite bluffs (MDC, 2009a). Streams in the Sac River Basin range from clear with chert and gravel streambeds to turbid with silt, sand, and gravel streambeds (MDC, 2011d). Streams in the Spring River are lower in gradient than other Ozark streams with long pools and short riffles of gravel and rock (MDC, 2011e).

Unique aquatic habitats in the Springfield Plateau include numerous springs, losing streams, sinkhole ponds, and caves (Nigh and Schroeder, 2002); steep-sided streams with limestone bluffs (MDC, 2009a); and cool/coldwater fisheries fed by multiple streams (MDC, 2009a). Many endemic species and state- and federally-listed species and species of concern depend upon the unique aquatic habitats found in the region.

### *Conservation Opportunity Areas*

Conservation Opportunity Areas (COAs) represent areas with unique species and habitats that are prioritized for conservation. The Missouri Department of Conservation (MDC) has identified three COAs in the Springfield Plateau, including the Shoal Creek, Spring River, and Golden Grasslands areas (Conservation Commission of Missouri, 2009) (Figure 4).

The Shoal Creek COA, located in the Spring River watershed and flowing through Joplin, boasts of a high-quality stream, tallgrass prairie restoration sites, and some of the best remaining chert glades in Missouri (Conservation Commission of Missouri, 2009). Shoal Creek is a biologically significant stream, containing several rare species of freshwater mussels and fish (Conservation Commission of Missouri, 2009). Diamond Grove Prairie and the George Washington Carver National Monument are some of the largest remaining tracts of tallgrass prairie in the Shoal Creek COA, and provide supporting habitat for state-endangered Greater prairie-chickens and unique plant life (Conservation Commission of Missouri, 2009). Chert glades and cliffs, located at Wildcat Park in Joplin, are home to specialized species of chert-glade plants and animals (Conservation Commission of Missouri, 2009).

The Spring River COA is located between the Ozark and prairie regions. As a consequence, the area has historically possessed a diverse mix of aquatic life, and unique

terrestrial habitats (Conservation Commission of Missouri, 2009). The aquatic biota of the Spring River include an abundance of fish, mussel, and crayfish species, including several species of conservation concern and several endemic species (Conservation Commission of Missouri, 2009). Terrestrial habitats surrounding the Spring River were historically dominated by communities such as native tallgrass prairies, oak savannas, bottomland woodlands, and riverfront forests (Conservation Commission of Missouri, 2009).

The Golden Grasslands COA is one of the last remaining places in Missouri where the state-endangered Greater prairie-chicken exists (Conservation Commission of Missouri, 2009). The COA, comprised primarily of private tracts of land, is composed of native prairie habitat and lands that are suitable for grassland restoration (Conservation Commission of Missouri, 2009). The Golden Grasslands COA includes 950 acres owned and protected by the Missouri Prairie Foundation.

#### *Federally- and State-listed Species and Candidate Species*

Federally-listed species include any plant or animal species listed as *endangered* or *threatened* in the Endangered Species Act of 1973 as Amended. *Endangered* species include any species that is in danger of becoming extinct. *Threatened* species include any species that is likely to become endangered in the foreseeable future. *Candidate* species include any species that is being reviewed by the Service for possible addition to the list of endangered and threatened species. Missouri state-listed species include any species listed as *endangered* in the Wildlife Code of Missouri (Rule 3 CSR10-4, 111 Endangered Species).

The Springfield Plateau houses more rare and endangered species than any other region in Missouri (Nigh and Schroeder, 2002). Twenty-one species in the Springfield Plateau are state or federally-listed, or are candidates for listing, including 14 species with federal status and 18 species with state status (Table 3). When issuing a request for restoration proposals, the trustees will identify the current list of state and federal species associated with the injury caused by the release or discharge of hazardous substances.

All known federal or state threatened or endangered species, or federal candidate species in the Springfield Plateau, are described here. The list of species provided in Table 3 was compiled from county-specific information available online from the MDC Heritage Program (MDC, 2011a) and the Service (USFWS, 2011). This list is current for the year 2011. More species may be added to this list as a result of newly discovered information.

#### *Birds*

Bachman's sparrow (*Aimophila aestivalis*) is a medium-sized sparrow with a long brown tail, flat forehead, and pleasant song. This species occupies glade habitats, characterized by open pine or oak-hickory woods with a well-developed understory of grass and shrubs (MDC, 2009b). Bachman's sparrow resides in southern Missouri in summer, on the

northern edge of its range (MDC, 2009b). It is state endangered due to declining glade habitats and invading cedar trees (MDC, 2009b). This species benefits from the protection of mature pine forests, managed for open grassy areas (MDC, 2009b).

American bittern (*Botaurus lentiginosus*) is a solitary medium-sized heron with a stocky build and stripes of brown, tan, and white. American bitterns prefer wetland marshes or extensive meadows, mixed with areas of dense vegetation and open waters (MDC, 2009b). It is a statewide summer resident in Missouri, listed as state endangered due to loss of wetland habitat (MDC, 2009b). Preservation of wetland areas is essential for the protection of this species.

Northern harrier (*Circus cyaneus*) is a medium-sized raptor with a long barred tail, distinctive white rump, and owl-like facial disk. This species relies upon open grasslands and marshes that are densely vegetated (MDC, 2009b). The northern harrier is a rare summer resident and uncommon winter resident, listed as state endangered (MDC, 2009b). It benefits from the preservation and development of marsh lands, human use restrictions, and crop rotation (MDC, 2009b).

Greater prairie-chicken (*Tympanuchus cupido*) is a stocky brown grouse with strong brown and white bars and a short rounded tail; males characteristically display orange neck sacs and ear-like feathers during mating dances. This species occupies large tracts of open grassland, preferring prairies of native grasses with an assortment of grass structures and species (MDC, 2009b). It is a rare permanent resident of southwest Missouri, listed as state endangered (MDC, 2009b). Protection of the greater prairie-chicken requires the preservation of native prairies, conversion of fescue grasses into native grasses, and prairie management regimes that incorporate a variety of burning and grazing (MDC, 2009b).

### *Mammals*

Black-tailed jackrabbit (*Lepus californicus*) is a large long-eared rabbit species that occupies large contiguous native grasslands, adjacent to legume and crop fields (MDC, 2009b). Black-tailed jackrabbits prefer grazed grasslands with scattered clumps of tall vegetation (MDC, 2009b). This species occurs in the southwest and central plains of Missouri, and is state endangered (MDC, 2009b). Black-tailed jackrabbits benefit from the preservation of native grasslands and the development and maintenance of food plots (MDC, 2009b).

Gray bat (*Myotis grisescens*) is 3-4 inches in length and is distinguished from other species by wing membranes that attach at the ankle (rather than the toe) (MDC, 2009b). Gray bats hibernate and roost in caves undisturbed by humans, and forage over streams, rivers, and reservoirs (MDC, 2009b). They require a corridor of mature trees between cave and foraging sites (MDC, 2009b). This species is primarily found in the Ozark highlands, but also occurs throughout Missouri where there are caves (MDC, 2009b). It is both federally endangered and state endangered due to deforestation around caves and foraging areas, alteration of riparian habitats, human disturbance of caves, and flooding

of caves from the development of reservoirs (MDC, 2009b). Management efforts to protect the gray bat include the acquisition of caves, installation of cave gates, and the maintenance of foraging habitats, such as riparian corridors and old growth forests (MDC, 2009b).

Plains spotted skunk (*Spilogale putorius interrupta*) is black with distinct white facial spots and four to six broken white stripes along the sides and back. This species is a habitat generalist, occupying fencerows, vegetated gullies and brushy borders, brush piles, snags, rocky outcrops, open prairies, and riparian woodlands (MDC, 2009b). The plains spotted skunk occurs rarely in northern Missouri and in small sections of the Ozarks. It is state endangered in Missouri, primarily due to changing agricultural practices, such as the removal of hedgerows, “cleaner” harvest practices, and loss of habitat with a shift from small to large-scale farms (MDC, 2009b). This species benefits from the preservation of small glades and rocky outcroppings, and the maintenance and development of edges, hedgerows, and brush piles on farms (MDC, 2009b).

### *Fish*

The Ozark cavefish (*Amblyopsis rosae*) lacks eyes and is a small and colorless fish with a flattened head, slightly protruding lower jaw, and rounded tailfin (MDC, 2009b). This species occupies cave streams and springs with a gravel substrate, located in areas with limestone or dolomite bedrock. The distribution of Ozark cavefish in Missouri is limited to karst areas in the Springfield Plateau. The Ozark cavefish is state endangered and federally threatened due to groundwater pollution and human disturbances (MDC, 2009b). Management efforts to protect the Ozark cavefish include reducing human disturbance by acquiring caves and restricting cave entrances, and controlling pollution from sinkholes and recharge areas (MDC, 2009b).

Arkansas darter (*Etheostoma cragini*) is a small darter with vertical cross-bars and fine black speckles; breeding males develop a bright orange belly. Arkansas darters occupy shallow spring-fed streams with sandy bottoms, and prefer slow moving shallow waters partially covered with aquatic vegetation (particularly watercress) (MDC, 2009b). This species is uncommon across its range. Within Missouri, the Arkansas darter occurs in the Spring River basin. It is considered “rare” in Missouri (by MDC) and is a candidate for federal listing. The decline of this species is primarily due to loss of habitat from water withdrawals and diversions, water pollution, and alteration of riparian corridors (MDC, 2009b). This species benefits from the re-establishment of riparian corridors, exclusion of livestock from streams, and restriction of reservoir construction (MDC, 2009b).

Niangua darter (*Etheostoma nianguae*) is a slender colorful darter with dark cross-bars along the back, and orange spots on the upper sides. This species inhabits shallow pools, stream margins, and stream runs in small to medium-sized streams (MDC, 2009b). Niangua darters prefer silt-free waters with gravel or rock bottoms (MDC, 2009b). The Niangua darter lost suitable habitat due to reservoir construction, stream channelization, and increasing loads of sediments and nutrients (MDC, 2009b). Subsequently, this species is confined to the Osage River basin in west-central Missouri, and is state

endangered and federally threatened (MDC, 2009b). Management actions that benefit this species include fencing-out cattle from streams, re-establishing riparian corridors, and avoiding new reservoir construction (MDC, 2009b).

Redfin darter (*Etheostoma whipplei*) has a small pointed head with light olive mottling; breeding males develop conspicuous red dots along the sides of the body, and display vivid red and blue dorsal fins. Redfin darters occupy riffles and pools in small to medium-sized streams with gravel bottoms (MDC, 2009b). The redfin darter occurs in Jasper and Barton Counties, in the Spring River basin. This species is listed as state endangered. Redfin darters benefit from the control of in-stream sedimentation, prevention of water pollution, and maintenance of streamside vegetation (MDC, 2009b).

Neosho madtom (*Noturus placidus*) is the smallest catfish in Missouri; it is mottled dark and light brown with dark bars on the tail fin. Neosho madtoms move through loose gravel of riffles and runs located in moderately large clear streams (MDC, 2009b). The range of the Neosho madtom is currently limited in Missouri to the Spring River, located in Jasper County (MDC, 2009b). This species has declined in numbers due to its susceptibility to drought, habitat disturbances, and water pollution (MDC, 2009b). It is state endangered and federally threatened. The Neosho madtom benefits from the re-establishment of riparian corridors, reduction of water pollution, and gravel miners' adherence to the sand and gravel removal guidelines (MDC, 2009b).

### *Mollusks*

The pink mucket (*Lampsilis abrupta*) is a rounded to slightly elongate mussel with a thick smooth yellowish-brown shell. The pink mucket burrows into beds of gravel, cobble, and sand in large streams (MDC, 2009b). This species is uncommon throughout its range (MDC, 2009b). In Missouri, the pink mucket is present in the Meramec, Gasconade, Black, and Osage Rivers (MDC, 2009b). It is state and federally endangered on account of habitat loss, siltation, and deterioration of water quality. The pink mucket benefits from control of erosion and water pollution (MDC, 2009b).

The Neosho mucket (*Lampsilis rafinesqueana*) is a rounded to slightly elongate mussel with a thin brown shell; green rays (chevrons) are evident on mussels under three years of age. The Neosho mucket burrows into fine to medium gravel in medium-sized rivers (MDC, 2009b). Within Missouri, this species occupies habitat in the Spring River basin (MDC, 2009b). It is a candidate for federal listing as a result of lost habitat and declining water quality (MDC, 2009b). The Neosho mucket benefits from the control of erosion and water pollution (MDC, 2009b).

The rabbitsfoot (*Quadrula cylindrica cylindrica*) is a rectangular shaped mussel with a green or light brown shell containing numerous tubercles, pustules, and chevron-shaped markings (INHS, 2011). It is found in medium to large rivers in mixed sand and gravel substrates (INHS, 2011). In smaller streams it can be found on gravel bars close to fast currents, and often at the top of the substrate (MDC, 2011f). This species occupies streams in southwestern and southeastern Missouri, such as the St. Francis River and

Spring River basins (MDC, 2011f). This species is rare throughout its range and is a candidate for federal listing as a result of lost habitat and declining water quality (MDC 2011f). The rabbitsfoot benefits from the control of erosion and water pollution.

### *Insects*

The American burying beetle (*Nicrophorus americanus*) is a large carrion beetle with distinctive orange and black patterns on its wing covers (MDC, 2011g). The burying beetle received its name for its habit of burying carcasses in soil and laying eggs inside carrion, as a means to sustain their larvae once hatched (USFWS, 2011b). It lives for only one year, and produces approximately 15 offspring during its lifetime. The American burying beetle is a habitat generalist, and requires quail-sized carcasses for reproduction (USFWS, 2011b). This species was historically found throughout Missouri, but was last reported in Newton county in the 1970s (USFWS, 2011b). The reasons for the decline of this species are unknown. The species was the first insect species to be listed as federally endangered (in 1989); it is also listed as state endangered. Presently (in 2011), the Service is working with the St. Louis Zoo to breed and reintroduce this beetle into its native habitat in southwest Missouri (USFWS, 2011b).

### *Plants*

Geocarpon (*Geocarpon minimum*), also known as “Earth Fruit,” is a small succulent plant, reddish-purple in color with inconspicuous flowers. This species is naturally restricted to sandstone outcrops of the southwestern Missouri glades (MDC, 2009b). Geocarpon is historically rare, and is threatened by the conversion of glades to pasture and the invasion of fescue (MDC, 2009b). It is state endangered and federally threatened. The survival of this Missouri endemic depends upon the maintenance and preservation of sandstone glade habitats (MDC, 2009b). Management for this species should exclude invading plants, reduce woody vegetation by fire suppression, eliminate overgrazing, and restrict construction and development in glade habitats (MDC, 2009b).

Mead’s milkweed (*Asclepias meadii*) is a long-lived perennial herb belonging to the milkweed family (USFWS, 2005). It has a tall single slender stem; milky sap; and opposite, narrow tapered leaves (USFWS, 2005). Mead’s milkweed blooms from May through mid-June, displaying yellow/creamy-green flowers, contained in clusters of 5 to 14 flowers (MDC, 2011h). It occurs in moderately dry to dry upland tallgrass prairies, or in glades (MDC, 2011h; USFWS, 2005). Within Missouri, Mead’s milkweed is primarily found in the western and southwestern counties (MDC, 2011i). It is a state endangered species and a federally threatened species, primarily as a result of lost tallgrass prairie habitat, habitat fragmentation, and early haying (which removes immature fruits from the plant) (USFWS, 2005). Management for this species should include delaying haying until September (after the fruits mature), periodic prescribed prairie burning, and rotational grazing (USFWS, 2005).

Missouri bladder-pod (*Physaria filiformis*) is a small yellow-flowered plant in the mustard family (MDC, 2009); its spherical fruits (“bladders”) contain seeds (MDC,

2009b). Missouri bladder-pod is primarily found in limestone glades and rocky open areas, but also occurs in grazed pastures and alongside roads on limestone outcrops or in rocky open woods (MDC, 2009b). Within Missouri, this species is restricted to the limestone glades of the Plateau. Due to its naturally restricted habitat, and threats from encroaching woody vegetation and introduced grasses, the Missouri bladder-pod is state and federally endangered (MDC, 2009b). This species is a poor competitor with cedar trees, cheat grass, and fescue (MDC, 2009b). Consequently, the survival of this species depends upon the proper management of limestone glades to exclude introduced grasses, reduce woody vegetation (i.e., by prescribed burns), and restrict construction and development in glade habitats (MDC, 2009b).

Virginia sneezeweed (*Helenium virginicum*) is a golden-flowered fibrous rooted perennial, belonging to the aster family (USFWS, 2000). This plant stands at 1 to 5.5 feet tall with a simple stem (MDC, 2011j). Flowering occurs from July through November, revealing a nearly ball-shaped central disk with golden wedge-shaped petals (USFWS, 2000). The Virginia sneezeweed occurs near seasonally wet sinkhole ponds with acidic clayey soils overlain with limestone bedrock (MDC, 2011j). At the time of its listing (in 1998) the Virginia sneezeweed was thought to occur only in sinkhole ponds in Virginia. Populations of the Virginia sneezeweed have since been discovered in the Missouri Ozarks in the south-central and southwestern counties (MDC, 2011j). The Virginia sneezeweed is a state endangered and federally threatened species, primarily as a result of lost habitat (due to urbanization) and incompatible agricultural practices.

Western prairie fringed orchid (*Platanthera praeclara*) produces flower stalks up to 47 inches tall; each stalk contains up to 40 white flowers about an inch long (USFWS, 2003). It occurs in moderately wet portions of upland and bottomland prairies and sedge meadows, often on calcareous or loess-derived soils (MDC, 2011k). Within Missouri, it is primarily found in northwestern counties, but also historically occurred in southwestern counties. The western prairie fringed orchid is state endangered and federally threatened, primarily due to a loss of suitable habitat (as a result of conversion of prairie into cropland), introduced alien plants, mowing during the growing season, fire suppression, and the application of insecticides that threaten the hawkmoth (a pollinator that this species depends upon) (MDC, 2011k; USFWS, 2003).

### *Missouri Species of Concern*

In addition to the “listed” species, the Missouri Department of Conservation maintains a database of rare plants and animals – the “Missouri Species of Concern” (MDC, 2011b). Plants and animals are given a numeric rank (S1 through S5) based upon number of occurrences within Missouri. Missouri’s species of concern are classified as *critically imperiled* (S1), *imperiled* (S2), or *vulnerable* (S3). *Critically imperiled* species typically have 5 or fewer occurrences or very few remaining individuals (<1,000); *imperiled* species typically have 6 to 20 occurrences or few remaining individuals (1,000 to 3,000); *vulnerable* species typically have 21 to 100 occurrences or between 3,000 and 10,000 individuals. The number of critically imperiled, imperiled, or vulnerable species that

occupy the Springfield Plateau totals 76 species, and can be found in Appendix E of this document (MDC, 2011b).

### *Extirpated Species*

*Extirpated* species are species that previously existed in Missouri, but are no longer found in Missouri (MDC, 2011c). The extirpation of a species is of concern because all species have a unique role (or “niche”) that they fulfill in an ecosystem. Extirpated species in the Springfield plateau include elk, bison, gray wolf, red wolf, and American burying beetle. Some extirpated species are being reintroduced into Missouri. The desired endpoint of species reintroductions is to both reestablish populations of the extirpated species and also to benefit the ecosystem by replacing the lost functionality. Examples of reintroduction plans currently underway in Missouri include plans for the American burying beetle, bison, and elk. When appropriate, the restoration of injured resources may include the reintroduction of previously extirpated species.

The iconic bison is one of the largest animals in North America. They are native to Missouri’s prairies where they play key ecological roles. Where they exist, bison increase native plant diversity and help control dominant prairie plants as they graze on dominant sedges and grasses and provide healthy disturbances in a prairie ecosystem (i.e., through wallowing, tree horning, and roaming) (TNC, 2011). Unfortunately, due to the overhunting of bison and changes in prairie management (e.g. competition from cattle grazing, plowing, and fire suppression), bison were extirpated from Missouri shortly after the 1840s (MDC 2011). Bison have since been reintroduced to some of Missouri’s prairies. For example, a herd of 100 bison live at Prairie State Park in Barton County, and plans are underway to reintroduce more bison herds in Missouri.

Elk were historically found throughout Missouri, but were likely extirpated from Missouri by 1865 (MDC, 2010). The MDC developed a restoration plan for elk in the state of Missouri, and is reintroducing elk in areas where suitable habitat was found and where other management considerations were met (Conservation Commission of Missouri, 2010). Elk reintroduction programs in other states have been successful and provided natural resource management, recreational, and economic benefits to the public (Conservation Commission of Missouri, 2010). Areas suitable for elk reintroductions include areas with forest openings, glades, and open woodland habitats that provide an understory of herbaceous vegetation (Conservation Commission of Missouri, 2010). Other important factors used to select areas for elk reintroductions include high public land ownership and access; low public road density; low density of row crops and livestock; and landowner support (Conservation Commission of Missouri, 2010).

### *Migratory Bird Species*

The Springfield Plateau is located within the Mississippi Flyway, one of the major migration routes in the United States. The Missouri portion of the flyway is narrower than portions north of it, resulting in increased numbers of migratory bird species in Missouri. The number of bird species identified in the Springfield Plateau totals more

than 250 species, according to the MDC's Fish and Wildlife Information System (MDC, 2009b).

### *Game Animals*

Commonly hunted game mammals in the Springfield Plateau include white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*) and eastern cottontail rabbit (*Sylvilagus floridanus*). Other game or furbearing mammals include, but are not limited to, black bear (*Ursus americanus americanus*), badger (*Taxidea taxus*), beaver (*Castor canadensis carolinensis*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes fulva*), mink (*Mustela vison letifera*), muskrat (*Ondatra zibethicus*), opossum (*Didelphis virginiana virginiana*), raccoon (*Procyon lotor hirtus*), and striped skunk (*Mephitis mephitis avia*). Beaver, gray and red fox, mink, and muskrat are also listed as commercial species.

Popular sportfish in the Springfield Plateau's reservoirs and streams include, but are not limited to, a variety of bass species, such as largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), white bass (*Morone chrysops*), and spotted bass (*Micropterus punctulatus*); muskellunge (*Esox masquinongy*), black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis annularis*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), flathead catfish (*Pylodictis olivaris*), channel catfish (*Ictalurus punctatus*), and walleye (*Lepomis gulosus*). Coolwater fish, such as rainbow trout (*Oncorhynchus mykiss*), are also present in the Sac River and James River basins. Commercial fish in the Springfield Plateau include freshwater drum (*Aplodinotus grunniens*), bigmouth buffalo (*Ictiobus cyprinellus*), common carp (*Cyprinus carpio*), river carpsucker (*Carpiodes carpio*), channel catfish (*I. punctatus*), and flathead catfish (*P. olivaris*).

Commonly hunted game birds in the Springfield Plateau include wild turkey (*Meleagris gallopavo silvestris*), quail (*Colinus virginianus*), and mourning dove (*Zenaida macroura carolinensis*).

## **Socioeconomic Resources**

### *Recreational Resources*

Game animals in the Springfield Plateau provide hunting and fishing opportunities for people living in or near the region, and result in significant annual revenue for the area. Fishing and hunting expenditures in Missouri totaled nearly \$2.2 billion in 2006, according to the most recent *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (USFWS et al., 2006).

The Springfield Plateau contains 80,000 acres of public lands (Figure 5) (Nigh and Schroeder, 2002). The public lands in the Springfield Plateau provide recreational opportunities such as hunting, fishing, swimming, boating, bird watching, camping, and hiking (Nigh and Schroeder, 2002).

Stockton Lake State Park is the only state park in the Springfield Plateau. With 61,000 acres of land and water, areas associated with Stockton Lake comprise a large portion of the designated public land in the region (Nigh and Schroeder, 2002). Two national parks, Wilson's Creek National Battlefield and George Washington Carver National Monument, exist in the region. Prominent conservation areas (owned by the MDC), such as Fort Crowder, Talbot, Compton Hollow, Bois D' Arc, Pleasant Hope, and Little Sac Woods, and lands managed by The Nature Conservancy exist to preserve some of the region's unique natural features (Nigh and Schroeder, 2002). A listing of the public lands (to date) in the Springfield Plateau is provided in Appendix F.

### *Demographics*

Early occupants of the Springfield Plateau include the Great Osage Indians, and western migrating groups, such as the Kickapoo, Shawnee, Delaware, and Cherokee Indians (Nigh and Schroeder, 2002). Migrants to the region primarily arrived from neighboring eastern states (Kentucky, Tennessee, Indiana, and Illinois); others emigrated from European countries, particularly Germany (Nigh and Schroeder, 2002).

Rural populations in the Springfield Plateau peaked in growth by the early nineteenth century while urban centers continually expanded (Nigh and Schroeder, 2002). The primary urbanized areas in the Springfield Plateau include the cities of Springfield (Greene County), and Joplin (Jasper County). According to the 2006 U. S. Census Bureau survey, these urbanized areas support an estimated 254,799 people in Greene County and 112,505 people in Jasper County (U. S. Census Bureau, 2006).

### *Economics and Land Use*

Historically, agriculture and mining were the primary components of the Springfield Plateau's economy. The economy of the early 1800s was dominated by the farming of livestock, corn, and wheat (Nigh and Schroeder, 2002). By the 1850s and 60s the region became known worldwide for its production of lead and zinc. Mining of these ores became concentrated in Jasper and Newton counties, and continued until ore reserves were nearly depleted around 1966 (Nigh and Schroeder, 2002).

At present, the economy of the Springfield Plateau is driven by wholesale trade, retail trade, and manufacturing (U. S. Census Bureau, 2006). The agriculture sector remains an important component in the region's economy. Agriculture in the region is dominated by the livestock industry, notably beef and dairy cattle production in Greene county, and poultry farming in Barry and Newton counties (Nigh and Schroeder, 2002). The Springfield Plateau is Missouri's leading dairy cattle region (Nigh and Schroeder, 2002). Hay, sorghum, and wheat crops are also important to the area (Nigh and Schroeder, 2002). Today, high-calcium limestone and gravel mining occur in the Springfield and Joplin areas.

The economies within the Springfield Plateau dictate land use. Land use in Springfield, Joplin, and Neosho is dominated by urbanization (Nigh and Schroeder, 2002). Throughout the region, crops occupy the best soils and smoothest lands, grasslands are used for beef and dairy cattle, and mined lands remain as derelict tracts (Nigh and Schroeder, 2002).

## Appendix E—Missouri Species of Concern in the Springfield Plateau

### Springfield Plateau Regional Restoration Plan

Common Name	Scientific Name	State Rank
<b><u>Amphibians</u></b>		
grotto salamander	<i>Typhlotriton spelaeus</i>	S2,S3
northern crawfish frog	<i>Rana areolata circulosa</i>	S3
ringed salamander	<i>Ambystoma annulatum</i>	S3
wood frog	<i>Rana sylvatica</i>	S3
<b><u>Birds</u></b>		
American bittern	<i>Botaurus lentiginosus</i>	S1
Bachman's sparrow	<i>Aimophila aestivalis illinoensis</i>	S1
bald eagle	<i>Haliaeetus leucocephalus alascensis</i>	S3
barn owl	<i>Tyto alba</i>	S3
black vulture	<i>Coragyps atratus</i>	S3
black-crowned night heron	<i>Nycticorax nycticorax hoactli</i>	S3
cerulean warbler	<i>Dendroica, cerulea</i>	S2,S3
chestnut-sided warbler	<i>Dendroica pensylvanica</i>	S3
great egret	<i>Ardea alba</i>	S3
greater prairie-chicken	<i>Tympanuchus cupido pinnatus</i>	S1
greater roadrunner	<i>Geococcyx californianus</i>	S3
interior least tern	<i>Sterna antillarum athalassos</i>	S1
king rail	<i>Rallus elegans</i>	S1
little blue heron	<i>Egretta caerulea caerulea</i>	S3
loggerhead shrike	<i>Lanius ludovicianus migrans</i>	S2
Mississippi kite	<i>Ictinia mississippiensis</i>	S3
northern harrier	<i>Cirus cyaneus</i>	S2
painted bunting	<i>Passerina ciris ciris</i>	S3
peregrine falcon	<i>Falco peregrinus tundrius</i>	S1
sharp-shinned hawk	<i>Accipiter striatus velox</i>	S2
short-eared owl	<i>Asio flammeus flammeus</i>	S2
snowy egret	<i>Egretta thula thula</i>	S1
sora	<i>Porzana carolina</i>	S2
Swainson's hawk	<i>Buteo swainsoni</i>	S2
Virginia rail	<i>Rallus limicolalimcola</i>	S2
<b><u>Crustaceans</u></b>		
bristly cave crayfish	<i>Cambarus setosus</i>	S3
Williams' crayfish	<i>Orconectes williamsi</i>	S2

**Fish**

Arkansas saddled darter	<i>Etheostoma euzonum</i>	S2
blacknose shiner	<i>Notropis heterolepis</i>	S2
bluestripe darter	<i>Percina cymatotaenia</i>	S2
bluntnose shiner	<i>Cyprinella camura</i>	S2,S3
channel darter	<i>Percina copelandi</i>	S3
ghost shiner	<i>Notropis buchanani</i>	S2
highfin carpsucker	<i>Carpionodes velifer</i>	S2
least darter	<i>Etheostoma microperca</i>	S2
longnose darter	<i>Percina nasuta</i>	S1
mooneye	<i>Hiodon tergisus</i>	S3
Neosho madtom	<i>Noturus placidus</i>	S1
Niangua darter	<i>Etheostoma, nianguae</i>	S2
Ozark cavefish	<i>Amblyopsis rosae</i>	S2
plains topminnow	<i>Fundulus sciadicus</i>	S3
redfin darter	<i>Etheostoma whipplei</i>	S1
silver chub	<i>Macrhybopsis storeiana</i>	S3
southern brook lamprey	<i>Ichthyomyzon gagei</i>	S2S3
western slim minnow	<i>Pimephales tenellus tenellus</i>	S3

**Insects**

a heptageniid mayfly	<i>Stenonema bednariki</i>	S3
Espana cave springtail	<i>Pseudosinella espana</i>	S3

**Mammals**

black-tailed jackrabbit	<i>Lepus californicus melanotis</i>	S1
gray bat	<i>Myotis grisescens</i>	S3
Indiana bat	<i>Myotis sodalis</i>	S1
long-tailed weasel	<i>Mustela frenata primulina</i>	S3
plains spotted skunk	<i>Spilogale putorius</i>	S1

**Mollusks**

Neosho mucket	<i>Lampsilis rafinesqueana</i>	S2
Ouachita kidneyshell	<i>Pytochobranhus occidentalis</i>	S3
pink mucket	<i>Lampsilis abrupta</i>	S2
purple lilliput	<i>Toxolasma lividus</i>	S2
rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	S1
western fanshell	<i>Cyprogenia aberti</i>	S2

**Plants**

Auriculate false foxglove	<i>Agalinis auriculata</i>	S3
broadwing sedge	<i>Carex alata</i>	S2,S3
Bush's poppy mallow	<i>Callirhoe bushii</i>	S2
geocarpon	<i>Geocarpon minimum</i>	S2
Missouri bladderpod	<i>Physaria filiformis</i>	S3

netted chain fern	<i>Woodwardia areolata</i>	S2
Ozark chinquapin	<i>Castanea pumila ozarkensis</i>	S2
Ozark wake robin	<i>Trillium pusillum ozarkanum</i>	S2
pale avens	<i>Geum virginianum</i>	S1
slender pondweed	<i>Potamogeton pusillus pusillus</i>	S1
tradescent aster	<i>Symphotrichum dumosum strictior</i>	S2
yellow-eyed grass	<i>Xyris torta</i>	S1

**Reptiles**

Texas horned lizard	<i>Phrynosoma cornutum</i>	S2
great plains skink	<i>Plestiodon obsoletus</i>	S2

## Appendix F—List of Protected Lands in the Springfield Plateau

### Springfield Plateau Regional Restoration Plan

County	Public Land	Ownership
Barry	Cassville Ranger Station Historic District	National Register District
	David W. Courdin Waldensian Homestead	National Register District
	Mark Twain National Forest MPS	National Register District
	The Waldeasian Church and Cemetery of	National Register District
Barton	Cook Meadow Prairie	The Nature Conservancy
	Golden Prairie	MO Prairie Foundation
Cedar	Stockton Reservoir	MO Dept. of Conservation
	Stockton State Park	MO Dept. of Natural Resources
	Turkey Creek Conservation Area	MO Dept. of Conservation
Christian	Delaware Town Access	MO Dept. of Conservation
	Wilson’s Creek National Battlefield	National Parks
Dade	Corry Flatrocks	The Nature Conservancy
	Fiddlers Ford Access	MO Dept. of Conservation
	Horse Creek Prairie Conservation Area	MO Dept. of Conservation
	Indigo Prairie Conservation Area	MO Dept. of Conservation
	Niawathe Prairie	The Nature Conservancy
	Niawathe Prairie Conservation Area	MO Dept. of Conservation
	Sloan (Dr. O. E. and Eloise) Conservation	MO Dept. of Conservation
	Stockton Reservoir	MO Dept. of Conservation
	Penn-Sylvania Prairie	MO Prairie Foundation
	Coyne Prairie	MO Prairie Foundation
Welsch Tract	MO Prairie Foundation	
Greene	Bois D’ Arc Conservation Area	MO Dept. of Conservation
	Campbell Avenue Historic District	National Register District
	Commercial Street Historic District	National Register District
	Crighton (Joe) Access	MO Dept. of Conservation
	Finkbiner Transfer and Storage Company	National Register District
	Little Sac Woods Conservation Area	MO Dept. of Conservation
	Mid-town Historic District	National Register District
	Nathan Boone Homestead State Historic	MO Dept. of Natural Resources
	Phenix Access	MO Dept. of Conservation
	Rock Fountain Court Historic District	National Register District
	Rocky Barrens	The Nature Conservancy
	Rocky Barrens Conservation Area	MO Dept. of Conservation
	Sare (Dale) Conservation Area	MO Dept. of Conservation

	South Avenue Commercial Historic District	National Register District
	South-McDaniel-Patton Commercial	National Register District
	Springfield Conservation Nature Center	MO Dept. of Conservation
	Springfield National Cemetery	National Register District
	Springfield Public Square Historic District	National Register District
	Springfield Warehouse and Industrial	National Register District
	St. John's Mercy Hospital	National Register District
Greene	Walnut Street Commercial Historic District	National Register District
	Walnut Street Historic District	National Register District
	West Walnut Street Commercial Historic	National Register District
	Woods-Evertz Stove Co. Historic District	National Register District
Hickory	Murphy (John F.) Memorial State Forest	MO Dept. of Conservation
Jasper	66 Drive-In Historic District	National Register District
	Battle of Carthage State Historic Site	MO Dept. of Natural Resources
	Carl Junction Access	MO Dept. of Conservation
	Carthage South Historic District	National Register District
	Cassill Place Historic District	National Register District
	Fifth and Main Historic District	National Register District
	La Russell Access	MO Dept. of Conservation
	Stones Corner Access	MO Dept. of Conservation
	William H. Phelps Country House	National Register District
Lawrence	Chesapeake Fish Hatchery	MO Dept. of Conservation
	Kickapoo Prairie Conservation Area	MO Dept. of Conservation
	Mt. Vernon Prairie	The Nature Conservancy
	Ozark Cavefish National Wildlife Refuge	U.S. Fish and Wildlife Service
	Paris Springs Access	MO Dept. of Conservation
	Providence Prairie Conservation Area	MO Dept. of Conservation
	Talbot (Robert E.) Conservation Area	MO Dept. of Conservation
McDonald	Buffalo Hills Natural Area	MO Dept. of Conservation
Newton	Allen Bridge Access	MO Dept. of Conservation
	Bicentennial Conservation Area	MO Dept. of Conservation
	Capps Creek Conservation Area	MO Dept. of Conservation
	Cherry Corner Access	MO Dept. of Conservation
	Diamond Grove Prairie Conservation Area	MO Dept. of Conservation
	First Battle of Newtonia Historic District	National Register District
	Fort Crowder Conservation Area	MO Dept. of Conservation
	George Washington Carver National	National Parks
	Goodman Tower Site	MO Dept. of Conservation
	Lime Kiln Access	MO Dept. of Conservation

	Neosho (Morse Park)	MO Dept. of Conservation
	Neosho Commercial Historic District	National Register District
	Neosho Towersite	MO Dept. of Conservation
	Ozark Cavefish National Wildlife Refuge	U.S. Fish and Wildlife Service
	Second Battle of Newtonia Site	National Register District
	Smack-out Access	MO Dept. of Conservation
	Tipton Ford Access	MO Dept. of Conservation
Newton	Walter Woods Conservation Area	MO Dept. of Conservation
	Wildcat Access	MO Dept. of Conservation
	Wildcat Glade Natural Area	MO Dept. of Conservation
Polk	Pleasant Hope Conservation Area	MO Dept. of Conservation
	Pomme de Terre Lake	MO Dept. of Conservation
	Stockton Reservoir	MO Dept. of Conservation
	Twenty-five Mile Prairie Conservation Area	MO Dept. of Conservation
	La Petite Gemme	MO Prairie Foundation
Stone	Hayes Spring Conservation Area	MO Dept. of Conservation

## **Appendix G—Exemplar Request for Proposals Springfield Plateau Regional Restoration Plan**

### **Request for Proposals Natural Resource Damage Restoration Projects for the [Company Name] Settlement**

#### **I. Introduction**

This Request for Proposal (RFP) for restoration projects relates to the [Company]. Monies recovered from a Natural Resource Damage Assessment and Restoration (NRDAR) settlement with [Company] are being made available for public proposals by the Missouri Trustee Council in accordance with the Springfield Plateau Regional Restoration Plan (SPRRP). The Missouri Trustee Council (hereafter referred to as “Trustees”) is comprised of the Missouri Department of Natural Resources and U.S. Department of the Interior, U.S. Fish & Wildlife Service. The SPRRP provides a process framework that governs the approach for restoration project identification, evaluation, selection and implementation presented within this RFP.

The purpose of this exemplar RFP is to identify the categories of information that should be included in future RFPs issued under the SPRRP. Each RFP will be different, tailored to the specific circumstances of the type of the release and potential injury sustained and the related restoration goals of the Trustees.

#### **A. Springfield Plateau Regional Restoration Plan**

The SPRRP was developed under the Natural Resource Damages (NRD) regulations implementing the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, more commonly known as the federal “Superfund” law) to describe the process that will be used by Natural Resource Damages Assessment and Restoration (NRDAR) Trustees to identify appropriate actions to restore, rehabilitate, replace, and/or acquire natural resources equivalent to those injured by hazardous substance releases. The SPRRP fulfills requirements under the National Environmental Policy Act of 1969 (NEPA) by taking a “hard look” at the environmental consequence of proposed federal actions, to disclose pertinent information about the actions to the public and provide public review and comment on federal actions that affect environmental resources. This exemplar RFP is part of the public review process.

The development of the SPRRP is a coordinated effort among state and federal natural resource Trustees, governmental entities, and the public. The SPRRP is jointly administered by the Trustees to assist in carrying out their natural resource trust mandates under CERCLA and the Clean Water Act. Natural resource damages received, either through negotiated or adjudicated settlements, must be used to restore, rehabilitate, replace and/or acquire the equivalent of those natural resources injured and services lost.

The goals of the ecoregional restoration plan are to:

- 1) Identify the natural resources and services potentially injured by hazardous substances in the Springfield Plateau;
- 2) Develop a RFP process through which the Trustees will evaluate and select restoration projects to achieve restoration of natural resources and their services (specific restoration goals identified as part of the RFP process).
- 3) Expedite and potentially reduce the cost of the NRDAR process; provide for consistency and predictability by detailing the NRDAR process, thereby minimizing uncertainty to the public and industry; and,
- 4) Expedite and maximize restoration of injured natural resources and lost services.

Goals for specific restoration projects will be outlined as part of the RFP process.

This RFP is compliant with the preferred alternative selected in the SPRRP. The preferred alternative (SPRRP, Section 5, Alternative D) is a combination of primary and compensatory restoration. As identified in the SPRRP, priority is given to primary restoration, whenever feasible. However, the Trustees will implement compensatory, off-site restoration when distinct advantages in cost-effectiveness or unique opportunities in protecting or enhancing important natural resources arise.

**Primary restoration** refers to restoration projects that restore resources that were directly injured by a release of hazardous substances. **Compensatory restoration**, for the purposes of this RFP, refers to projects that occur off-site, or in areas not directly affected by a release of hazardous substances. Restoration projects are designed to compensate for natural resources injured by the release of hazardous substances to baseline conditions. For natural resource damage assessment purposes, baseline conditions are defined as the conditions that would have existed in the assessment area had the release of the hazardous substances under investigation not occurred.

This exemplar RFP identifies information that will be requested in a restoration RFP including:

- site-specific information as to the type of natural resources potentially injured and/or services lost;
- location of the potentially injured natural resources and/or lost services;
- whether primary restoration is a viable alternative;
- restoration goals associated with the NRDAR claim and settlement for the [Company Name]; and
- restoration funds available.

Specifications and requirements for restoration projects and proposal submissions will be provided in the restoration RFP.

## **B. Site, Claim and Settlement Information:**

This section will contain a description of operations and other activities of the Company and any relevant history of the operation. This description will include specific locations of operations as well as the nature, type, duration of the release of hazardous substances.

This section will also contain a description of the nature of the injury, identifying the type of resources which were injured as a result of the release of hazardous substances

This section will also contain a description of the settlement when final and the total amount of restoration funds available for the RFP.

This section will also contain a description of remedial actions, if any, schedule of remediation and coordination of restoration projects with the proposed and/or ongoing remedial actions in the geographic area.

## **C. Geographic Priority Areas for Restoration**

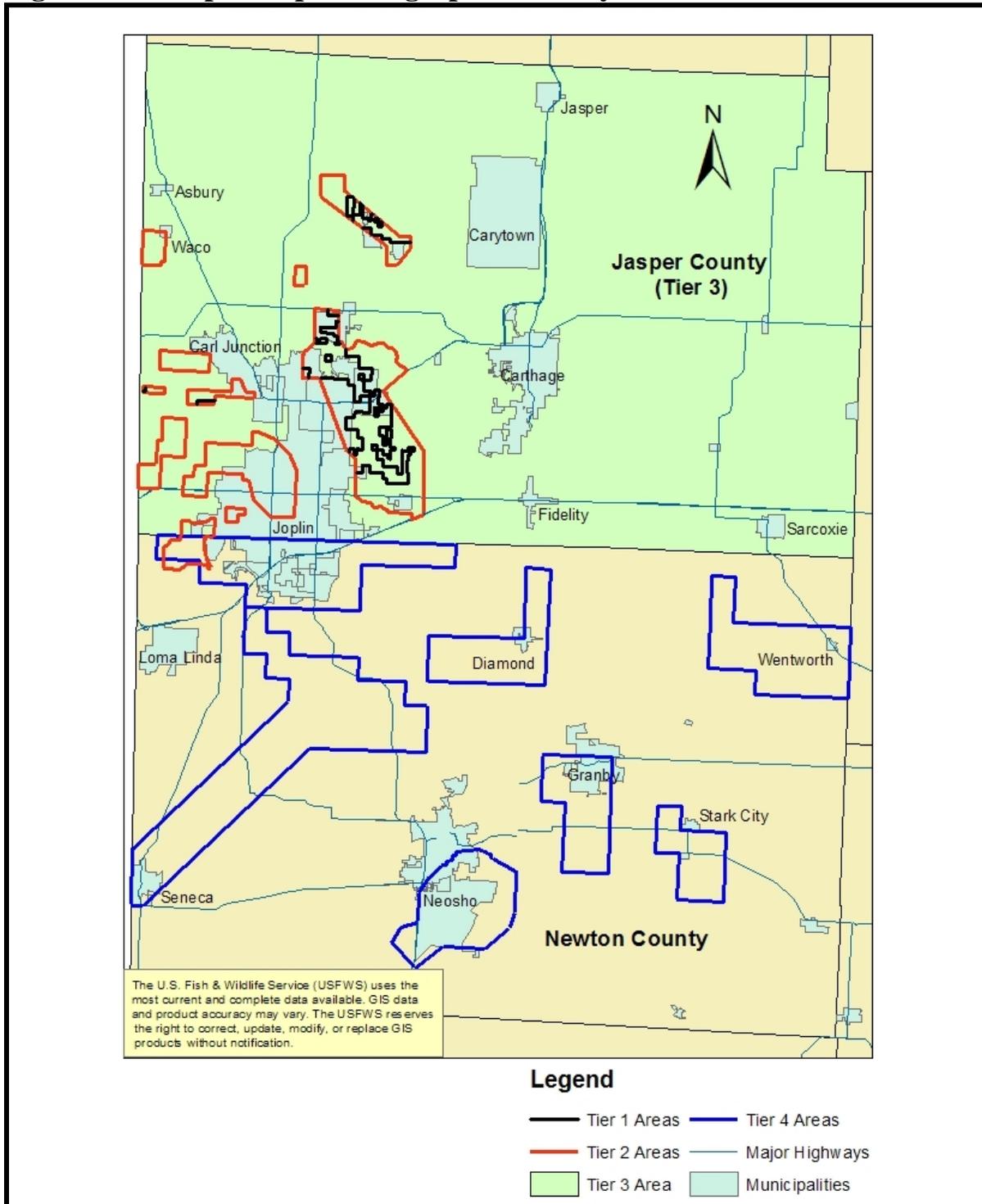
The Trustees have prioritized areas for restoration in a tiered approach as a means of complying with the SPRRP preferred alternative and to provide restoration specific for the resources injured by releases of hazardous substances from [Company's] operations. The RFP will specify the criteria used to identify tiered priority areas. This tiered approach is intended to be flexible, allowing the Trustees to designate the number of tiered priority areas as is appropriate for the specific site.

An example of criteria used to establish tiered priority restoration areas is as follows:

1. Tier 1 areas are the highest priority areas. They are within the Site and are directly impacted by Company's operations.
2. Tier 2 areas are the secondary priority areas. They are within the identify site but are not directly impacted by Company's operations.
3. Tier 3 priority areas are within an identified priority area but are outside the boundaries of the identified Site.
4. Tier 4 priority areas are the lowest priority areas. They are not within the Site or the identified priority area, but are in a lower priority or more distant geographic area.

High priority areas will score higher in the Trustee Decision Matrix included in Appendix A. Projects outside of these priority areas will still be eligible for funding under this RFP but will not receive prioritization. The RFP will provide a map of priority restoration areas.

**Figure 1. Example Map of Geographic Priority Areas for Restoration**



## **G. Restoration Goals for [Company] RFP**

NRDAR projects must have a nexus or connection to the injured resources. The injured trust resources within the identified geographic areas include certain injured resources, such as migratory birds and endangered species, other terrestrial and aquatic resources and supporting habitats, and groundwater resources. The restoration goals of the Company settlement funds in priority order are to:

List of priorities for RFP here such as:

1. improve or protect riparian corridor habitat;
2. protect federally threatened, endangered, and candidate aquatic species and their habitat;
3. improve or protect upland migratory bird habitat; and
4. enhance and protect groundwater recharge areas.

**Please note:** This list of restoration priorities is not inclusive and serves as an example for illustrative purposes only.

## **II. Restoration Project Descriptions**

This example RFP is not being used to solicit actual restoration proposals. In the future, actual RFPs may solicit restoration project proposals within the categories listed below, in order of restoration priority based on restoration goals listed above. It is possible, if not desirable, for a single project to meet multiple restoration goals and fit within multiple restoration categories.

**Please note:** These Restoration Projects descriptions will vary for each RFP; however, the following descriptions are included to improve the understanding of the type of information which will be provided on which a project may be developed.

### **A. Riparian Corridor Restoration of Degraded Streams or Wetlands**

This restoration category is a high priority for the Trustees because it meets multiple restoration goals. Restored riparian corridor improves migratory bird habitat and protects downstream habitat for federally-listed aquatic species. Several tributary streams within the geographic area have been remediated through excavation of contaminated sediment and bank soils. However, the remedial actions have not restored habitat to baseline conditions. Therefore, additional improvements are needed to maximize the habitat value of remediated riparian corridor. Restoration of on-site streams has additional benefits of providing a nexus to the resource injuries.

## **B. Enhancement and Protection of Groundwater Recharge Areas**

This restoration category is a high priority for the Trustees because it meets multiple restoration goals. Enhancing and protecting groundwater recharge areas improves human and ecological uses. A substantial portion of the groundwater resources within the [geographic area] has been classified as being “technically impractical” to remediate. Therefore, enhancement of existing groundwater recharge areas, or protection of high quality groundwater recharge areas will maximize the value of existing groundwater resources.

## **C. Enhancement of Un-contaminated Uplands**

A high priority upland enhancement project is prairie restoration. Oak savanna or other forest restoration projects are slightly lower priority, respectively. Upland restoration could include burning and/or other methods to control invasive species, re-vegetating to restore native flora, erosion controls, and some type of financial and/or legal assurance of long-term maintenance and protection. Upland prairie habitat is also important migratory bird habitat.

## **D. Acquisition/Legal Protection of High Quality Natural Areas**

In some cases, existing high quality habitat can be protected through acquisition or through conservation easements. These areas may be in such a high quality condition that they require little to no enhancement or physical restoration. Property purchase or conservation easements/agreements could be the primary mechanism to ensure high quality habitats are protected from development or other degradation over the long-term. The Trustees desired habitats for protection in priority order include riparian corridors, wetlands, prairies, savannas, and other woodlands or forest.

## **E. Natural Resource Restoration-Based Human Use Enhancement Projects**

This project category includes construction of some type of enhancement that would increase access, enjoyment, understanding, and/or use of natural resources. Examples of these types of projects include trail construction, constructing boat ramps, educational kiosks, signs, or environmental-based education programs or materials. These types of human-use/educational projects also increase the value when combined with other restoration projects.

## **F. Primary Restoration of Contaminant Impacted Lands**

Primary restoration refers to actions that improve or restore habitat directly affected by a release of a hazardous substance. The Trustees and other agencies and researchers have developed plans and techniques for primary restoration of barren or partially barren contaminated soil. Preferably primary restoration takes place in conjunction with the response agency’s remedial action. In the case where it can be demonstrated that there will be no remedial action on a property, primary restoration is possible. Otherwise, primary restoration can take place only after or (preferably) in conjunction with remedial actions. Primary restoration of contaminated land must involve an evaluation of the potential injury that may result from the remaining contamination, coordinated by the Trustees. If injury exists at a proposed site, the restoration proposal must include measures to reduce the exposure and/or toxicity of contaminants, in addition to site re-vegetation and ensuring future protection and maintenance.

### III. Restoration Project Specifications

**Please note:** These Restoration Project Specifications descriptions will vary for each RFP, however, for illustrative purposes only, the following descriptions are included to improve the understanding of the type of information which will be provided on which a project may be developed.]

Restoration project specifications required within each proposal are included below:

#### A. Riparian Corridor Restoration

In general, forested canopy is the most beneficial watershed land cover for stream health. A healthy wooded watershed provides for the interception and infiltration of rainfall, leaf litter filters and slows runoff, and the extensive interlocking root systems of forests provide resistance to erosion. The structure of the forested canopy provides shelter for a variety of wildlife, food for insects and other wildlife while growing, and the base of the food chain for stream systems after leaf-fall. The roots of trees near stream channels provide resistance to erosion and downed wood supplies habitat within the stream. In addition, stream health is enhanced by easy (low gradient) transitions between the stream channel and floodplains. Riparian corridor restoration may include lowering banks to provide flood storage and riparian wetland habitat where appropriate. Riparian corridor restoration proposals will include:

##### Site Preparation and Grading

The proposal will identify the degree of site preparation and grading needed prior to re-vegetation. The proposal will identify any bank re-grading, height, slope details, re-vegetation, and maintenance components. Low angles and low height banks are preferred over high banks and steep angles. Species of conservation interest may exist and should not be disturbed.

##### Re-vegetation

The proposal will identify the native Missouri tree species to be planted, using the Terrestrial Natural Communities of Missouri (riverfront forest, mesic bottomland forest or appropriate wetland chapters) as a guide. The proposal will identify the season and density of tree planting. For example, the Trustees recommend three gallon RPM (Root Production Method) trees to be planted on 30' centers in rows that can accommodate future mowing to control competing vegetation. Alternatively, tree planting at a minimum rate of 302 trees per acre on 12' centers for bare root trees. In addition, 50-100 native shrubs (e.g., gray dogwood, *Cornus obliqua*) per acre are recommended, and a native cover crop (e.g., Virginia wild rye, *Elymus virginicus*) seeded. The Trustees recommend planting in fall or early spring.

### Conservation Easements, Engineering Controls, and/or Property Purchase

The proposal will identify land in private ownership that requires access agreements necessary to achieve stream restoration. The proposal will identify other potential engineered or institutional controls to ensure long-term protection of stream and riparian corridor restoration areas such as fencing, alternative water supplies for livestock, temporary or permanent conservation easements including land-owner payment, including fee-title purchasing, if necessary. The proposal will identify who will hold the easement or title of the property, and will provide information on the time period of the easements or other protective mechanism. Conservation easements or other administrative mechanisms that protect land over longer time periods will be preferred over short-term protections, as reflected in the Appendix A Decision Matrix.

### Site Maintenance and Monitoring

The proposal will identify the maintenance and monitoring needed after re-vegetation. The proposal will describe the frequency and type of herbicide treatments, fire, and frequency of mowing or other cultural practices used to facilitate the success of tree planting or other vegetation.

## **B. Enhancement and Protection of Groundwater Recharge Areas**

Groundwater is a natural resource for which the State may have trusteeship pursuant to CERCLA and state statutes. Groundwater is frequently injured by releases of hazardous substances and/or pollutants at both abandoned and active sites. Groundwater provides many types of services such as human consumptive use and non-consumptive use services. Consumptive use services includes such services as providing drinking water supplies; groundwater contributing to lake water levels, yielding recreational benefits to the public, or irrigation for crops. Non-consumptive use services include such services as the value of groundwater for future generations; reserve stock against droughts, support of land surfaces to avoid subsidence or a buffer from saltwater intrusion. In addition, groundwater provides ecological services such as habitat, waters supplies for vegetation and wildlife, or maintenance of hydrologic flows.

### Site Description

A description of the size, location, natural features, and value of the property proposed for acquisition or other conservation easement should be included. Describe ownership and management of the land.

### Site Preparation and Enhancements

The proposal will identify the current condition of the property prior to any site preparation for enhancements. Species of conservation interest may exist and site preparation should be selected to promote these species. Native species, using the Terrestrial Natural Communities of Missouri, will be identified and planted as appropriate. The proposal will identify the season and density of planting, following recommendations from the Trustees. An appropriate annual native or sterile grass cover crop should be planted in the first growing season.

#### Conservation Easements, Engineering Controls and/or Property Purchase

The proposal will identify potential engineered or institutional controls to ensure long-term protection of restoration areas such as temporary or permanent conservation easements including land-owner payment, up to fee title purchasing, if necessary. The proposal will identify who will hold the easement or title of the property, and will provide information on the time period of the easements or other protective mechanism.

#### Site Maintenance and Monitoring

Acquisition projects that are selected will require a management plan. The management plan will detail methods for permanent protection and enhancement of injured resources. The proposal will identify the maintenance, if any, and monitoring needed for the long-term conservation of the site. The proposal will describe the frequency and type of herbicide treatments, fire, and frequency of mowing and/or other cultural practices used to facilitate long-term habitat stability.

### **C. Enhancement of Un-contaminated Uplands**

Pre-settlement natural community land cover in the geographic area is estimated to be composed of about two-thirds prairie and one-third woodlands. Tall-grass prairie and savannah historically dominated the uplands. Today native prairie is rare in the geographic area. Therefore, prairie restoration will be prioritized first and various forest/woodland restorations will be prioritized second.

#### Site Preparation and Grading

The proposal will identify the degree of site preparation (burning, herbicide application, and/or grading) needed prior to re-vegetation. Species of conservation interest may exist and site preparation practices should be selected to promote these species.

#### Re-vegetation

The proposal will identify the native species to be planted, using the Terrestrial Natural Communities of Missouri as appropriate for the prairie or woodland as a guide. The proposal will also identify the season and density of planting. The Trustees recommend planting for grassland species in late fall, winter, or early spring. An annual native or sterile grass cover crop should be planted in the first growing season.

#### Conservation Easements, Engineering Controls, and/or Property Purchase

The proposal will identify land in private ownership that requires access agreements necessary to achieve restoration. The proposal will identify other potential engineered or institutional controls to ensure long-term protection of restoration areas such as temporary or permanent conservation easements including land-owner payment, up to fee title purchasing, if necessary. The proposal will identify who will hold the easement or title of the property, and will provide information on the time period of the easements or other protective mechanism.

#### Site Maintenance and Monitoring

The proposal will identify the maintenance and monitoring needed after re-vegetation. The proposal will describe the frequency and type of herbicide treatments, fire, and frequency of mowing or other cultural practices used to facilitate the success of re-vegetation.

### **D. Acquisition/Legal Protection of High Quality Natural Areas**

#### Site Description

A description of the size, location, natural features, and habitat value of the property proposed for acquisition or other conservation easement should be included. Describe ownership and management of the land. Address what types of activities will take place on the property, if any.

#### Conservation Easements, Engineering Controls, and/or Property Purchase

The proposal will identify potential engineered or institutional controls to ensure long-term protection of restoration areas such as temporary or permanent conservation easements including land-owner payment, up to fee title purchasing, if necessary. The proposal will identify who will hold the easement or title of the property, and will provide information on the time period of the easements or other protective mechanism.

#### Site Maintenance and Monitoring

Acquisition projects that are selected will require a management plan. The management plan will detail methods for permanent protection and enhancement of injured resources. The proposal will identify the maintenance, if any, and monitoring needed for the long-term conservation of the site. The proposal will describe the frequency and type of herbicide treatments, fire, and frequency of mowing and/or other cultural practices used to facilitate long-term habitat stability.

### **E. Natural Resource Restoration-Based Human Use Enhancement Projects**

#### Enhancement Description

A description of the enhancement, location, and how it will directly or indirectly benefit natural resources should be included in the proposal.

#### Facility Maintenance and Monitoring

The proposal will identify the maintenance, if any, and monitoring needed for the long-term stability or operation of the human-use aspect.

### **F. Primary Restoration of Contaminant Impacted Lands**

#### Site Sampling, Preparation and Grading

These sites will require sampling for contamination prior to site preparation. If contaminant concentrations are known they should be included in the proposal. If

concentrations are unknown, the U.S. Fish and Wildlife Service should be contacted for sampling assistance prior to proposal submittal. The proposal will identify contaminated soil on-site, the degree of site preparation burning, herbicide application, and/or grading needed prior to re-vegetation.

#### Soil Amendments

If soil concentrations exceed ecological injury thresholds, soil amendments or other techniques that either reduce toxicity or reduce exposure can be employed. Soil amendments must be proven to reduce toxicity or remove exposure pathways (e.g. top soil added to bury heavy metal concentrations). The rate of amendment application should be identified in the proposal. Any soil amendment application will require additional evaluation by the Trustees to determine whether there are collateral environmental impacts prior to project approval.

#### Re-vegetation

The proposal will identify the native species to be planted, using the Terrestrial Natural Communities of Missouri as appropriate for the prairie or woodland as a guide. The proposal will identify the season and density of planting. The Trustees recommend planting for grassland species in late fall, winter, or early spring. An annual native or sterile grass cover crop should be planted in the first growing season.

#### Conservation Easements, Engineering Controls, and/or Property Purchase

The proposal will identify land in private ownership that requires access agreements necessary to achieve restoration. The proposal will identify other potential engineered or institutional controls to ensure long-term protection of restoration areas such as temporary or permanent conservation easements including land-owner payment, up to fee title purchasing, if necessary. The proposal will identify who will hold the easement or title of the property, and will provide information on the time period of the easements or other protective mechanism.

#### Site Maintenance and Monitoring

The proposal will identify the maintenance and monitoring needed after re-vegetation. The proposal will describe the frequency and type of herbicide treatments, fire, and frequency of mowing or other cultural practices used to facilitate the success of re-vegetation. In addition, monitoring of contaminants or nutrients (i.e., if soil amendments are used) may be necessary.

### **G. General Proposal Requirements**

In addition to the specifications listed above, all proposals must include the information provided below in the attached “**Restoration Project Information**” sheet.

#### **IV. Proposal Evaluation**

Proposals will be evaluated by a state and federal technical committee. The technical committee may include members with technical expertise (e.g., Missouri Department of Conservation) critical to evaluation of the RFP. The technical committee will evaluate each proposal in accordance with the Decision Matrix included in Appendix A of the SPRRP and the Proposal Evaluation Process included in Appendix B. The Trustee Council will review the Decision Matrix and make recommendations to their respective Authorized Official and designated Trustee, who will make the final selection for funding.

#### **V. Proposal Schedule**

Proposals will be due 60 days after issuance of the RFP. The Trustees may extend this due date, if insufficient proposals are received or other circumstances arise that warrant granting more time.

A pre-proposal conference hosted by the Trustees may be held within 60 days after release of the RFP. Additional on-site, pre-proposal conferences may be held at the discretion of the Trustees.

The Trustees will request additional information as necessary from proposal applicants within 30 days after the proposal due date. The Trustees will provide notification of selection to the Project Coordinator identified on the application within 90 days after the proposal submission.

#### **VII. Other Legal Contracting Requirements**

Successful projects will enter into a contractual or cooperative agreement with agency releasing the RFP. Additional contracting requirements may be applicable for successful projects. For example professional services or certain construction activities may require proof of insurance or bonding coverage. Successful applicants will be notified of contracting and cooperative agreement needs upon selection of proposals. Final approval of a project will occur at the completion of any necessary contracts or formalization of cooperative agreements.

## **VIII. Contacts**

RFP submittals should be mailed or submitted electronically to:

Fish and Wildlife Biologist  
U.S. Fish & Wildlife Service  
101 Park DeVille Dr. Suite A  
Columbia, Missouri 65203  
[Fake\\_Email@fws.gov](mailto:Fake_Email@fws.gov)

or

NRDAR Coordinator  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, Missouri 65102-0176  
[Fake.Email@dnr.mo.gov](mailto:Fake.Email@dnr.mo.gov)

If you have questions pertaining to this RFP, please contact the Service by phone or email at (573) 234-2132 or [Fake\\_Email@fws.gov](mailto:Fake_Email@fws.gov) .

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

### Guidelines for Completion

Please complete all of the information requested with the best information that you have available. Below are specific guidelines for completion.

### A. General Information

Organization: The name of the organization or agency submitting the information.  
If you are applying as an individual indicate by filling this section with "N/A".

Contact Name: The first and last name of a person who can be contacted for additional information.

Title: The title (or position) of the above individual.

Address: The mailing address of the above individual or organization.

Phone Number/Email: The phone number and email of the above individual.

Organization Website: The web page of the above organization or agency.

### B. Project Information

Type of Project: A project is considered a "Change to an Existing Project" if the project has been previously submitted through the NRDA project information sheet.

Project name: The common name of the project, usually a combination of location and restoration activity (e.g., Joplin Prairie Project).

Location: The location where the restoration activity will take place (e.g. Shoal Creek Falls).

State: Two-letter abbreviation of the state where the project will take place.

County: County where the project will be completed. If the project occurs across multiple counties list only the primary county name.

Watershed/Basin: The watershed where the project will be completed. If the project occurs across multiple watersheds list only the primary watershed.

Latitude/Longitude: Provide a latitude/longitude of the central location of the project activity. If the activity occurs over a large area you may also attach a map of the area of the activity.

Project Size: The size of the area where project activities will occur; designated by linear miles, acres, or tonnage (e.g., area of plantings in a riparian buffer).

Affected Area: The area affected or influenced by the project activity; designated by acres (e.g., area of water quality improvement as a result of riparian buffer plantings).

### C. Project Description

A description of the project objectives, activities to be completed and expected outcomes including information on the benefits of this project to the public and environment. If applicable, use this section to provide additional refinement to habitat and/or resource benefit (e.g., riparian corridor, endangered species). In addition, feel free to attach other information, maps, or diagrams concerning your project.

### D. Project Activity(s)

The type of activity the project will complete to address the impacts to priority resources or habitats. Check all that apply.

Restoration: Activities conducted to create or restore an injured resource or habitat.

Protection: Activities conducted to protect a resource or habitat by removing the threat to that resource or habitat.

Acquisition: The acquisition and conservation of land in perpetuity to protect priority resources or habitats.

Maintenance/Management: Activities conducted to maintain or manage the quality of a resource or habitat (e.g., prescribed burns).

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

### Guidelines for Completion (continued)

#### **E. Natural Resource Projects**

The type of resources that the project activities are located within or will benefit. Check all that apply.

Upland:	Regions located away from streams and the floodplains of rivers, streams, and other bodies of water.
Wetland:	Regions that are inundated or saturated by water (e.g., surface or groundwater) on a consistent basis to support saturation tolerant plant species.
Groundwater:	Regions located within caves, springs, or other karst features or that provide protection of groundwater resources.
Surface water:	Regions located within or adjacent to open water areas that occur within a defined channel.

#### **F. Resource Benefit(s)**

Primary resources that would benefit from the project. Check all that apply.

Birds:	All birds
Reptiles/amphibians:	Snakes, lizards, frogs, etc.
Fish:	All fish
Invertebrates:	Freshwater mussels, snails, crayfish, etc.
Terrestrial wildlife:	All upland animals
Vegetation:	All plants (e.g., submergent, emergent, and terrestrial)
Water:	Water quality
Sediment/benthos:	Sediment permanently inundated with water, and organisms associated with the sediment (e.g., crayfish)
Status species:	Will this project directly benefit State or Federally listed threatened and/or endangered species? If so, please list them. If not, please indicate N/A.

#### **G. Project Status**

Property/Resource Acquisition:	Acquisition of the property, resource, or landowner agreements (e.g., easements) in which the project activity will occur. Indicate the status by selecting NOT STARTED, IN PROGRESS, COMPLETED, or N/A.
Planning/Design:	Project planning and engineered design of the project activity. Indicate the status by selecting NOT STARTED, IN PROGRESS, COMPLETED, or N/A.
Permitting:	Acquisition of all local, state, and federal permits needed to implement the project activity (e.g., NEPA). Indicate the status by selecting NOT STARTED, IN PROGRESS, COMPLETED, or N/A.
Time to Implementation:	Number of months required to prepare for the start of project activity.
Time to Completion:	Following the start of the project, number of months required to complete the project activity. Is this project included under a regional or statewide plan/initiative? (YES or NO)

#### **H. Project Cost**

Estimated Cost:	The total cost of the project including any funds contributed by the applicant or other organizations (e.g., match funds).
Funding available:	Monies (from the applicant or partnering organizations/agencies) already committed for partial funding of the project activity. Indicate amount in the adjacent box.

#### **I. Project Partners**

Please provide the name, contact, and involvement (equipment, matching funds, design, etc.) of other organizations or agencies with the project activities.

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

### General Information

Organization \_\_\_\_\_ Date Submitted: \_\_\_\_\_

Contact Name (First Last) \_\_\_\_\_ Title \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Phone Number \_\_\_\_\_ Email \_\_\_\_\_

ext. \_\_\_\_\_

Organization Website \_\_\_\_\_

### Project Information

Type of Project \_\_\_\_\_

Project Name \_\_\_\_\_

Location \_\_\_\_\_

State(s) (Use 2-letter abbreviations separated by commas) \_\_\_\_\_ County \_\_\_\_\_ Watershed/Basin \_\_\_\_\_

Latitude (decimal degrees) \_\_\_\_\_ Longitude (decimal degrees) \_\_\_\_\_ Project Size (Choose one) \_\_\_\_\_ Affected Area \_\_\_\_\_

miles \_\_\_\_\_ acres \_\_\_\_\_ tons \_\_\_\_\_ acres \_\_\_\_\_

**Project Description:** Describe the project, including goals, and objectives. Describe how the restoration project will restore, rehabilitate, replace and/or acquire the equivalent of the natural resources injured by the release of hazardous substances into the environment. Describe the specific habitats, wetland types, or vegetation types and quantities to be protected, reestablished or enhanced, if applicable. Include a site map showing the habitats before and after completion of the project, a draft restoration design, pre-restoration site pictures, detailed maps, if possible, monitoring, and maintenance plans, and any relevant available project specifications.

Describe the surrounding land use. Adjacent property uses (either current or future planned uses) should not detract from the effectiveness of the restoration site. Include a description of the size of the project. The size of a habitat area is a major influence on fish and wildlife species diversity and population density. Other things equal, larger areas support more species and higher numbers of individuals per unit area than smaller habitat areas. Ranking will reflect an advantage to those sites which can demonstrate larger areas of permanently protected habitat for natural resources. If the restoration project is contiguous with currently protected habitat, provide details on this habitat.

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

---

**Project Activity(ies)**

(Check all that apply)

Restoration  
Protection

Land Acquisition

Maintenance/Management

---

**Natural Resource Project(s)**

(Check all that apply)

Upland  
Surface water

Wetland

Groundwater

---

**Resource Benefit(s)**

(Check all that apply)

Birds  
Reptiles/amphibians  
FishInvertebrates  
Terrestrial Wildlife  
VegetationWater  
Sediment/benthos

Will the project directly benefit State- or Federally-listed species? If so, please list them. If not, please indicate N/A

---

**Project Benefit(s):** Describe how the restoration project benefits natural resources or the uses of those resources injured by the release of hazardous substances into the environment. Projects will be evaluated in terms of whether the benefits can be quantified and the success of the project determined. Climate Change: Generally, restoration projects that serve to restore degraded environments, re-establish native vegetation, and improve the habitat of native species also serve to increase the sequestration of carbon in the biosphere and the pedosphere. Projects that seek to increase the size and connectivity of existing protected natural habitats will provide new migration corridors and may blunt some of the adverse effects of climate change on trust species. Projects that specifically seek to address natural resources injured as a result of the release of hazardous substances while mitigating the effects of climate change are preferred. Projects that solely focus on climate change are not the focus of the SPRRP and will not be funded under this process.

---

**Project Status**

Property/Resource Acquisition

Time to Implementation

Project Planning/Design

Project Permitting

Time to Project Completion

Is this project included under a regional or statewide plan?

If so please list:

---

**Project Cost(s)**

Estimated cost

Funding available

Amount of request (Total amount of funding requested, not to exceed the total amount of funds available in the settlement. Specific project budget requirements are outlined on the next page.)

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

**Proposed Budget:** Proposed Budget: Provide a detailed budget for the funding requested in descriptive summary categories such as personnel, materials, realty costs, monitoring etc. Proposals stating only a total cost with no budget breakdown will not be considered. Include information pertaining to any types of cost sharing, such as other funding sources or in-kind services that will add to the restoration project. Restoration projects supported, in part, from sources other than the [Company] settlement funds made available through this RFP will receive more points during the evaluation process than projects supported solely by these restoration funds. Cooperative projects, with matching dollars and/or in-kind services tied to activities that are compatible with the goals of the SPRRP, have a higher potential to meet community needs while restoring trust resources. Although [Company] settlement funds will not be expended on projects more appropriately funded from other sources, where compatible projects adjoin, funding from several sources could provide much greater benefits to impacted resources than many small, scattered projects. Projects should not duplicate or substitute for traditional funding sources.

The goal of the Trustees is to achieve the maximum amount of restoration (in terms of acres, habitat units, or fish and wildlife restored) with the least expenditure. Cost effective restoration is desirable. Cost overruns will be evaluated on a case-by-case basis and may not be covered by Trustee Restoration funds if insufficient justification is provided. This addresses the Technical Feasibility criteria listed under CERCLA and the NRDAR regulations (See the SPRRP, Section 3). Those projects which demonstrate ability to achieve larger amounts of restoration will rank higher during the evaluation process.

---

### Project Partners

Partner 1 Organization

Partner 1 Contact

Partner 1 Involvement

Partner 2 Organization

Partner 2 Contact

Partner 2 Involvement

Partner 3 Organization

Partner 3 Contact

Partner 3 Involvement

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

**Maintenance Requirements:** The proposal should identify the frequency and costs of long-term maintenance (include costs under Proposed Budget section). Proposals should thoroughly take into account long-term maintenance needs.

---

**Compliance with Applicable Laws and Regulations:** Implementation of the restoration project must be consistent with applicable Federal, State, and local laws, ordinances and policies. Address what laws, ordinances, zoning restrictions, policies or regulations are applicable to the project. Example: Will a 404 permit be required under the Clean Water Act? Are there federally-listed threatened or endangered species occupying the site and is an Endangered Species Act Section 7 consultation required? Describe what measures would be taken to secure required permits, who will obtain them and what obstacles may delay the attainment of the permits, if any. It is the project applicant's responsibility to comply with all applicable laws and ordinances.

---

**Timeline:** Outline the estimated time and steps or phases needed to complete the project, including an estimated completion date. Estimate how long the project will take to reach its full potential. Relative timeliness of the resource recovery action will be evaluated. The restoration project should make a significant contribution to restoration of natural resources injured without a protracted implementation or resource recovery period. Implementation times of less than three years are preferred. Projects with implementation times greater than three years will need to identify why a greater time period is required and the benefits to restoration of the injured resources with the longer restoration period

# Natural Resource Damage Assessment & Restoration (NRDAR)

## Restoration Project Information Sheet

---

**Permanence:** Address the longevity of the restoration project. Projects that provide restoration in perpetuity are a higher priority and will receive more points during the evaluation process than projects that expire within a defined time period, or require annual or periodic renewal. Explain the longevity of the project and how the project will ensure the longevity through the use of such instruments as conservation easements, cooperative agreements, or other legal means to guarantee management of the trust resources on behalf of the public.

**Measures of Success:** Develop a plan that measures or evaluates the success and the effectiveness of the restoration project. The measures of success should be related to the goals and objectives of the proposed project. The plan should include performance standards for all phases of the restoration project and describe how the project will be certified as complete and successful. The success, viability and sustainability of the restoration project should be documented at completion.

For example, in section I.-G. ("Restoration Goals"), one of the identified restoration goals for this RFP include restoring riparian corridors. Therefore, restoration projects attempting to restore riparian corridor resources will need to document a long term, quantitative increase in riparian corridor and, potentially, increases in migratory bird usage of the restored area. The Trustees will work directly with selected recipients of restoration funding to develop useful and effective restoration monitoring plans on a site specific basis if the recipient lacks the specific expertise to develop monitoring plans. An example of how to successfully conduct monitoring on riparian corridor restoration projects may be found at: <http://ucanr.org/freepubs/docs/8363.pdf>

**Disclaimer:** The submission of project information does **not** guarantee project funding. Projects will be evaluated using criteria identified in CERCLA, NEPA implementing regulations, and related laws. Selection and funding determinations will be made by the Trustee Council.

## **Appendix H—Trustee’s Response to Comments Received on the Draft Springfield Plateau Regional Restoration Plan and Environmental Assessment**

This appendix presents comments that were received on the draft Restoration Plan and Environmental Assessment (EA) and provides the Missouri Trustees for Natural Resource Damage Assessment and Restoration’s (Trustees) responses to the comments.

**Comment 1:** We received a total of 5 comments on the Draft Restoration Plan and EA that indicated general support for the Preferred Alternative (Alternative D). Favorable comments on Alternative D came from the Missouri Prairie Foundation (MPF), the Environmental Task Force of Jasper and Newton Counties, the Missouri Department of Conservation, Environ International Corporation on behalf of ASARCO, LLC, and the U.S. Environmental Protection Agency (USEPA).

**Response:** The Trustees appreciate the support of everyone that read and responded to the draft Restoration Plan and EA. We are glad that the Proposed Action is well received among state and local governments, environmental groups, and responsible parties.

**Comment 2:** Please include the MPF properties on your map of protected properties in the Springfield Plateau (SP). Comment included a list of MPF properties and their locational coordinates. Additionally, please consider including MPF properties in your Appendix F: List of Public Lands in the SP. Consider changing the name of this appendix to “List of Protected Lands in the Springfield Plateau” as this would cover both public and privately held lands protected for conservation purposes.

**Response:** The Trustees are happy to include MPF properties on their map and list of protected lands in the Springfield Plateau and will also change the title of Appendix F to “List of Protected Lands in the Springfield Plateau” per your comment.

**Comment 3:** Please consider the following suggestion for your Appendix D Affected Resources page 5.

Perhaps the second sentence of the paragraph about the Golden Grasslands COA could be changed from:

“The COA, comprised primarily of private tracts of land, is composed of native prairie and lands that are suitable for grassland restoration (Conservation Commission of Missouri, 2009).”

To

“The COA, comprised primarily of private tracts of land\*, is composed of native prairie and lands that are suitable for grassland restoration (Conservation Commission of Missouri, 2009).”

\*Includes 950 acres owned and protected by the Missouri Prairie Foundation

**Response:** The Trustees are happy to indicate that 950 acres of the Golden Grasslands COA are owned and protected by the MPF in Appendix D.

**Comment 4:** Please consider restoring streams in the SP using a prairie stream model and not a forested stream model. All of the affected streams are prairie streams and should be restored as prairie streams. Prairie streams are much different than streams with trees along their banks, fescue pasture streams, and cropland streams.

**Response:** Thank you for your input regarding potential stream bank restoration of streams in the SP. The Trustees agree that many of the streams within the SP would benefit from a prairie model of stream restoration, mostly involving the use of native grasses to re-vegetate bare stream banks and riparian corridors, especially in the context of restoration in an existing or restored prairie ecosystem. The Trustees disagree that all of the streams in the SP are categorized solely as prairie streams. Many of the streams in the southern portion of the SP have distinctly Ozark-like characteristics including karst features, bedrock and cobble bottoms, and spring and groundwater flow regimes. Consequently, stream bank and riparian corridor restoration will be implemented on a site by site basis, as appropriate for the surrounding ecosystem.

**Comment 5:** The draft restoration plan covers the entire Springfield Plateau, indicating that restoration projects can occur anywhere in this area. We don't however see anywhere in the document that priority will be given to projects in Jasper and Newton Counties, where all of the settlement funds to date to fund restoration projects, have come from (settlements from former mining companies). We would be concerned if funds from settlements from lead and zinc mining companies formerly located in Jasper and Newton Counties were used in areas where the natural area injury did not occur.

**Response:** The Trustees have written a regional restoration plan that does indeed cover the entire SP; however, it is not the intent of the Trustees to disburse existing restoration funds from Jasper and Newton Counties across the entire SP. The mechanism that ensures that restoration funds are spent at or near the site of natural resource injury can be found in Appendix A, the Decision Matrix for Scoring of Restoration Proposals. Fifteen percent of all available scoring is dedicated to geographical prioritization of projects. Therefore, projects that occur outside or away from the site of injury have a greatly decreased chance of being funded under this restoration plan. The Trustees are actively seeking restoration projects that serve to restore or replace injured natural resources and the services they provide in and near the communities most affected by the loss of these same resources and services. The Trustees would also like to note that not all of the settlements are mining related (*e.g.* the FAG Bearings settlement).

**Comment 6:** We would like to suggest that any potential effects or disturbance of fish and wildlife species be minimized to the extent possible through the use of BMPs for such activity.

**Response:** The goal of restoration work performed under this plan is to restore, enhance, and protect natural resources. Consequently, the Trustees will make every effort to ensure that adverse impacts to fish and wildlife species will be minimized to the greatest degree possible.

**Comment 7:** As locations for restoration activities are determined, we recommend avoiding and minimizing impacts to wetlands and streams as much as possible. In the event that there are jurisdictional wetlands impacted by these activities, we recommend that any mitigation should occur in the same HUC 8 or smaller watershed as the location of the project impacts. If changes occur in the project purpose, need, alternatives, or impacts between now and the time of issuance of a Finding of No Significant Impact, EPA’s 404 program reserves the ability to comment further on this project. This could include changes in regulation or processes, advances in the knowledge of the resources to be impacted, discovery of populations of threatened or endangered species, new best management practices, and/or improvement in stream or wetland restoration science.

**Response:** The Trustees will ensure that projects funded by this restoration plan have minimal or no adverse effects to wetlands or streams. The Trustees intent is to restore, enhance, and protect natural resources. We do not anticipate undertaking any restoration projects that would require mitigation for lost wetland acreage.

**Comment 8:** We would like to thank you for addressing the direct, indirect, and cumulative effects of each potential environmental consequence.

**Response:** The National Environmental Policy Act (NEPA) of 1969 requires all Federal agencies to contemplate the direct, indirect, and cumulative effects of each environmental consequence. We are glad to fulfill our responsibilities under NEPA.

**Comment 9:** The ASARCO Settlement Agreement defined the “Sites” as the Jasper and Newton County Superfund Sites and any location where hazardous substances from these sites may have come to be located. Therefore, we understand the funds from the ASARCO Settlement Agreement can only be used for a small subset of the area encompassed by the Springfield Plateau, but may include sites outside of the defined boundary of the Springfield Plateau if the events giving rise to a NRDAR claim are connected by political, jurisdictional, or previously delineated hazardous substances release boundaries (e.g. the Waco mining designated area in northwest Jasper County lies outside of the Springfield Plateau but within the Oronogo/Duenweg Superfund Site; thus it would be included within the SPRRP).

We suggest the accounting for the available funds for restoration be revised to define the available funds which:

- may be used for natural resource damage assessment for the Jasper and Newton County Superfund Sites (Section III, paragraph 4 of the Settlement Agreement originally consisting of \$3,250,000);
- may only be used for restoration work for the Jasper and Newton County Superfund Sites (Section III, paragraph 5 of the Settlement Agreement), and
- remaining funds from other NDAR Settlements that may be used at sites outside of the Jasper and Newton County Superfund Sites and any location where hazardous substances from these sites may have come to be located.

We believe a revised depiction of the accounting of available funds will focus the restoration efforts within the Jasper and Newton County Superfund Sites versus a perception that sufficient funding is available to pursue restoration projects throughout the various counties within the Springfield Plateau. We acknowledge that Appendix G Exemplar Request for Proposal identifies prioritized areas for restoration in Jasper and Newton Counties.

**Response:** Thank you for your suggestions regarding clarification on the accounting of the available funds for restoration. Please see our response to comment number 5, above, for the Trustees mechanisms for ensuring that restoration funds from a particular settlement are expended only on restoration of the injured natural resources or on the protection, acquisition, or restoration of nearby equivalent natural resources and the services they provide.

**Comment 10:** We also believe further evaluation is necessary to determine if funds from the ASARCO Settlement Agreement may be utilized for compensatory restoration since this type of restoration may consist of projects involving acquisition of comparable property at an off-site location that is not impacted by releases of the subject hazardous materials, and therefore may not be allowed by the ASARCO Settlement Agreement.

**Response:** The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended (42 U.S.C. §§ 9601, et seq.), including but not limited to section 107 of the act, and the Department of the Interior implementing regulations (43 C.F.R. Part 11), authorize the Trustees for natural resources to assess and recover damages for injury to natural resources from releases of hazardous substances and use the damages for restoration, replacement, or acquisition of equivalent natural resources and resource services. The DOI regulations impose no general preference for one restoration method over another

**Comment 11:** This Alternative (B), as well as Alternative D, allows for restoration of areas impacted by mine waste via transport and subsequent deposition of materials via erosional process such as wind and surface water. These Alternative descriptions appear to be in compliance with the ASARCO Settlement Agreement.

**Response:** It is the Trustees intent to remain in compliance with all settlement agreements with responsible parties and the Trustees appreciate your acknowledgement of this fact.

**Comment 12:** Will primary restoration in upland areas be prioritized to preclude re-contamination or further or on-going injury to other landscapes or geological domains at lower elevations as noted on page 13?

**Response:** Primary restoration is the stated preference of the Trustees (See Sec. 3.5 and Appendix G), and as such projects proposing primary restoration of injured natural resources will receive prioritization via Appendix G, the Trustees Request for Proposals (RFP) and Appendix A, the Decision Matrix for Scoring of Restoration Proposals. The individual RFPs will discuss whether primary restoration is a viable alternative for the particular RFP. While not specifically mentioned in Appendix A, restoration projects that preclude or prevent on-going injury to other resources will be scored favorably by other provisions of the Decision Matrix that encourage “minimal adverse impact to natural resources” and “complement ongoing response actions”.

**Comment 13:** Although ASARCO agrees that Alternative D provides the greatest amount of flexibility and is appropriately designated as the Preferred Alternative, ASARCO believes that the emphasis should be on Primary Restoration projects whenever possible and viable, and also compliant with the Settlement Agreement.

**Response:** Please see our response to comment 12, above, regarding the Trustees stated preference and prioritization of primary restoration at the site where injury to natural resources occurs. The selected alternative will be consistent with statutory mandates and regulatory requirements that specify that recovered damages are used to undertake feasible, safe, and cost-effective projects that address injured natural resources, consider actual and anticipated conditions, have a reasonable likelihood of success, and are consistent with applicable laws, regulations and policies.

The SPRRP evaluates the alternatives, taking into account a variety of factors including:

1. Technical feasibility (*i.e.*, whether it is possible to implement the alternative);
2. The relationship of the expected costs of the proposed actions to the expected benefits from the restoration, rehabilitation, replacement, and/or acquisition of equivalent resources;
3. The relative cost-effectiveness of different alternatives (*i.e.*, if two alternatives are expected to produce similar benefits, the least costly one is preferred);
4. The results of actual or currently planned response actions;
5. The potential for collateral injury to the environment if the alternative is implemented;
6. The ability of the natural resources to recover with or without each alternative, and the time required for such recovery;
7. The natural recovery period determined in § 11.73(a)(1);
8. Potential effects on human health and safety;
9. Consistency with relevant federal and state policies;
10. Compliance with applicable federal and state laws.

43 C.F.R. § 11.82(d)

**Comment 14:** I did not see any timeline for the next steps to move the restoration projects forward.

**Response:** Thank you for this excellent suggestion. A timeline of the steps necessary for funding restoration projects will be included in section 7, “Consultation and Coordination with the Public and Others” in the final draft of the restoration plan and EA.

**Comment 15:** How will the Trustees identify the restoration sites (i.e., injured natural resources) and prioritize them to maximize the limited resources available and the potential environmental benefits?

**Response:** The Trustees have decided to prioritize broad classes of natural resources for restoration through our Request for Proposal process as detailed in the restoration plan, Section 6. Our first RFP prioritizes riparian corridor restoration along streams affected by the release of hazardous substances in Jasper and Newton Counties. Subsequent RFPs will also specifically address resources classes such as upland terrestrial resources, aquatic resources, and groundwater resources. The Trustees are currently developing a strategic spending plan for restoration funds in coordination with USEPA's remedial schedule for several Superfund sites and will publish the spending plan when it is completed.

**Comment 16:** Is there an opportunity to leverage state Natural Resource Damage funds with the Natural Resource Damage Assessment and Restoration settlement funds for the restoration projects?

**Response:** It is the intention of the Trustees to leverage other sources of funding to maximize the effectiveness of the limited amount of restoration funds that are available in the SP. State-only NRD settlement monies could potentially be used in conjunction with joint NRD settlement monies for projects assuming there is a nexus to the state-only monies received for the injured resources and approval by the designated state trustee. The State of Missouri intends to use the Springfield Plateau Regional Restoration Plan to implement restoration projects funded with state-only settlements.

**Comment 17:** Have the Trustees considered partnerships with other state and federal agencies or state programs? For example, the county Soil & Water Conservation Districts provide cost share funding for riparian corridors. Restoration/rehabilitation of degraded riparian corridors is cited several times as possible restoration measures.

**Response:** The Trustees are actively developing partnerships with multiple local, state, and federal agencies to maximize the effectiveness of the current restoration funds available in the SP. The Trustees agree that many of our restoration goals and priorities are in alignment with other agencies.

**Comment 18:** In Alternative C, acquisition of equivalent resources (AER) lists restoration options which may be needed. Would you not expect that the restoration measures for AER to be considerably less than for Alternative B? Will the cost of restoration under Alternative B versus acquiring an AER under Alternative C be a consideration in the decision making process?

**Response:** The Trustees agree that AER may often be less expensive than primary restoration options contemplated in Alternative B. Cost effectiveness is a required factor to be considered under the DOI regulations in selecting an alternative for restoration and is one of the scoring criteria in the Trustees' Decision Matrix (Appendix A), and, consequently, will be considered in the decision making process.

**Comment 19:** Section 3.4.4, 6<sup>th</sup> bullet statement - I was puzzled regarding the statement of "propagation and re-stocking of T&E, game, and non-game aquatic species" since this section is on groundwater quality. This measure would not appear to be applicable here.

**Response:** This bulleted statement was included to cover instances where cave or karst fauna may be re-stocked into known or potential habitat in the SP.

**Comment 20:** Section 3.5 - Is it possible under Alternative D to use a combination of options? For example, would it be possible that primary restoration may be feasible for part of a site but not the entire site?

**Response:** It is certainly possible to use a combination of restoration options at a single site. The ability to contemplate and enact multiple restoration techniques is one of the reasons why the Trustees preferred Alternative is Alternative D.