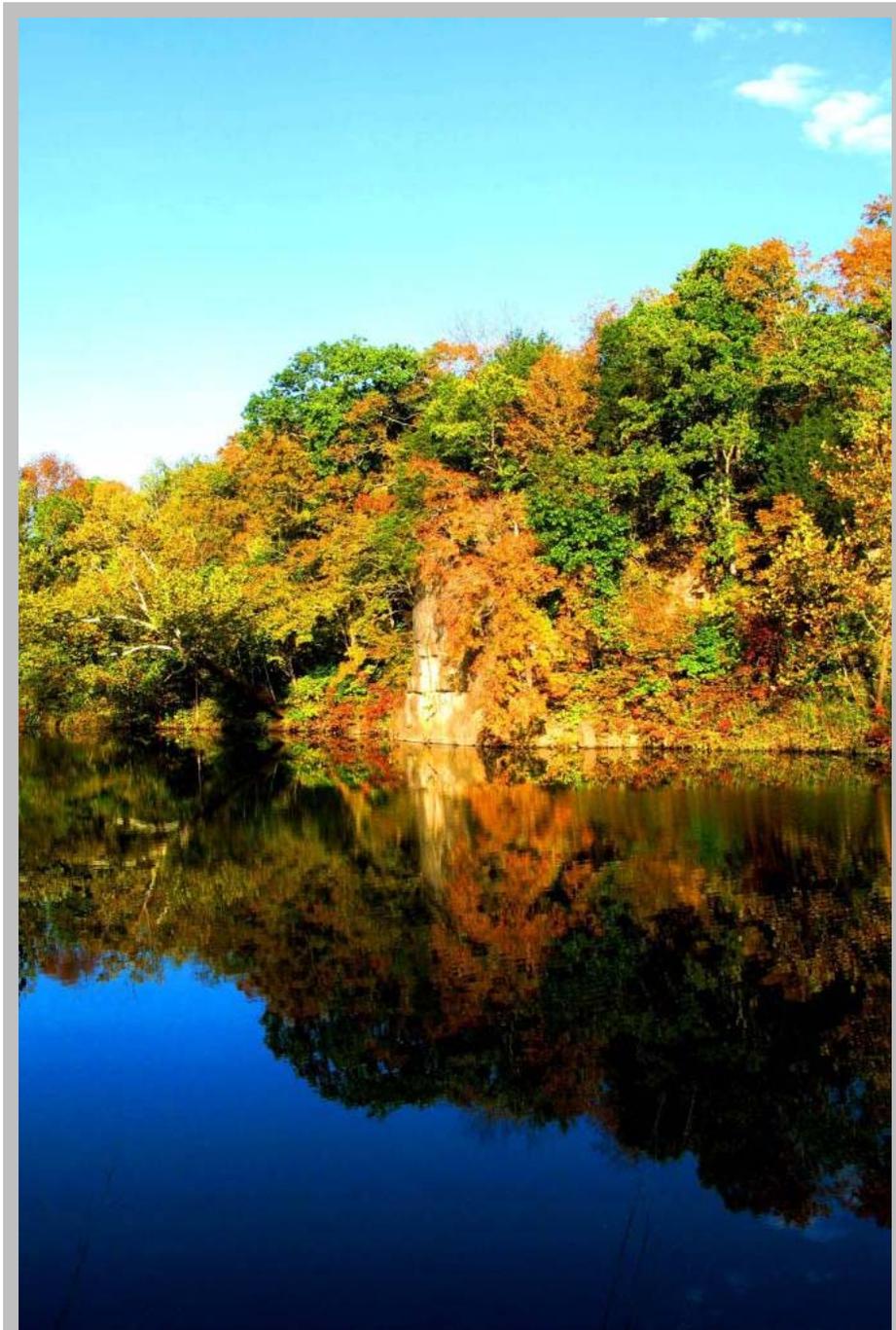


# Draft Southeast Missouri Ozarks Regional Restoration Plan and Environmental Assessment



**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

DRAFT

*On the Cover:* Bluffs along the Big River of southeast Missouri in the autumn. The Big River displays characteristics typical of many Ozark streams including an abundance of seeps, springs, caves, woodland and forest features that provide unique natural resource services. The southeast Missouri Ozarks are home to more than 200 endemic species. (Photo Credit U.S. Fish & Wildlife Service)

**TRUSTEES:** U.S. Department of the Interior  
U.S. Fish & Wildlife Service

U.S. Department of Agriculture  
U.S. Forest Service

Missouri Department of Natural Resources

**LEAD  
FEDERAL AGENCY:** U.S. Fish and Wildlife Service

**CONTACT:** John Weber  
Environmental Contaminants Specialist  
U.S. Fish and Wildlife Service,  
101 Park DeVille Dr. Suite A  
Columbia, MO 65203  
573-234-2132 x177  
Email: [John S Weber@fws.gov](mailto:John_S_Weber@fws.gov)

**RESPONSIBLE  
STATE AGENCY:** Missouri Department of Natural Resources

**CONTACT:** Tim Rielly  
Assessment and Restoration Manager  
Missouri Department of Natural Resources,  
P.O. Box 176  
Jefferson City, MO 65102-0176  
573-526-3353  
Email: [Tim.Rielly@dnr.mo.gov](mailto:Tim.Rielly@dnr.mo.gov)

**COOPERATING  
FEDERAL AGENCY:** U.S. Forest Service

**CONTACT:** Bill Mains  
Environmental Engineer  
U.S. Forest Service  
30239 South SR53  
Wilmington, IL 60481  
815-423-6370

**DATE:** August, 2013

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>SECTION 1 - INTRODUCTION</b>	<b>3</b>
1.1 General Information	3
1.2 Scope and Scale of the Southeast Missouri Ozarks Regional Restoration Plan	5
1.3 The Southeast Missouri Ozarks Regional Restoration Plan and the Request for Proposal Process	6
1.4 Authority and Legal Requirements	9
1.5 Summary of Natural Resource Damage Assessment and Restoration Settlement History in the Southeast Missouri Ozarks	11
<b>SECTION 2 - PURPOSE AND NEED FOR RESTORATION</b>	<b>13</b>
2.1 Residual Injury After Response Actions	13
2.2 The Southeast Missouri Lead Mining District	14
<b>SECTION 3 - RESTORATION ALTERNATIVES</b>	<b>15</b>
3.1 Introduction of Alternatives under the National Environmental Policy Act	15
3.2 Alternative A: No Action	16
3.3 Alternative B: Primary Restoration of Injured Natural Resources	16
3.4 Alternative C: Compensatory Restoration	20
3.5 Alternative D: Tiered Project Selection Process Evaluating the Feasibility of Primary Restoration and Compensatory Restoration (Preferred Alternative)	23
<b>SECTION 4 - AFFECTED RESOURCES</b>	<b>27</b>
4.1 Physical Resources	27
4.2 Biological Resources	28
4.3 Socioeconomic Resources	29
<b>SECTION 5 - ENVIRONMENTAL CONSEQUENCES</b>	<b>35</b>
5.1 Alternative A: No Action	35
5.2 Elements Common to Alternatives B, C, and D	36
5.3 Alternative B: Primary Restoration of Injured Natural Resources	38
5.4 Alternative C: Compensatory Restoration	39
5.5 Alternative D: Tiered Project Selection Process Evaluating the Feasibility of Primary Restoration and Compensatory Restoration (Preferred Alternative)	40
5.6 Summary of Environmental Consequences for Each Alternative	40

<b>SECTION 6 – COMPENSATORY RESTORATION PROJECT PROPOSAL PROCESS</b>	<b>43</b>
6.1 Compensatory Restoration	43
6.2 The Request for Proposal Process	43
6.3 Compensatory Restoration Project Proposal Criteria	45
6.4 Compensatory Restoration Project Proposal Acceptability Criteria	49
6.5 Compensatory Restoration Project Proposal Ranking Criteria	50
<b>SECTION 7 – PRIMARY RESTORATION IMPLEMENTATION PROCESS</b>	<b>53</b>
7.1 Primary Restoration Considerations	53
7.2 Primary Restoration Project Criteria	54
7.3 Additional National Environmental Policy Act Considerations for Primary Restoration	57
<b>SECTION 8 – STRATEGIC RESTORATION IMPLEMENTATION PLAN</b>	<b>58</b>
<b>SECTION 9 - CONSULTATION AND COORDINATION WITH THE PUBLIC AND OTHERS</b>	<b>59</b>
9.1 Public Participation	59
9.2 Public Meetings, Presentations, and Scoping for Restoration	59
9.3 National Historic Preservation Act Compliance	59
9.4 Endangered Species Act Compliance	60
9.5 Administrative Record	60
<b>SECTION 10 – LIST OF PREPARERS</b>	<b>61</b>
<b>SECTION 11 – LIST OF AGENCIES AND PERSONS CONSULTED</b>	<b>61</b>
<b>SECTION 12 – REFERENCES CITED</b>	<b>62</b>

# LIST OF FIGURES

FIGURE 1. SOUTHEAST MISSOURI OZARKS BOUNDARIES	7
FIGURE 2. WATERSHEDS OF MISSOURI	8
FIGURE 3. SELECT PROTECTED LANDS IN THE SOUTHEAST MISSOURI OZARKS	33
FIGURE 4. CONSERVATION OPPORTUNITY AREAS IN THE SOUTHEAST MISSOURI OZARKS	34

DRAFT

# LIST OF TABLES

TABLE 1. EXISTING NRDAR SETTLEMENTS IN THE SOUTHEAST MISSOURI OZARKS	12
TABLE 2. COMPARISON OF ALTERNATIVES A, B, C, AND D	25
TABLE 3. THREATENED, ENDANGERED, AND CANDIDATE SPECIES IN THE SOUTHEAST MISSOURI OZARKS	31
TABLE 4. COMPARISON OF THE EFFECTS OF ALTERNATIVES A, B, C, AND D	41
TABLE 5. ACCEPTABILITY CRITERIA FOR COMPENSATORY RESTORATION PROJECT PLANNING	49
TABLE 6. COMPENSATORY RESTORATION PROJECT RANKING CRITERIA	50

# APPENDICES

APPENDIX A	DECISION MATRIX FOR SCORING OF RESTORATION PROPOSALS
APPENDIX B	EVALUATION AND SELECTION PROCESS FOR COMPENSATORY RESTORATION PROJECTS
APPENDIX C	LIST OF OTHER RELEVANT STATUTES, REGULATIONS, OR GUIDANCE
APPENDIX D	DETAILED EXPLANATION OF AFFECTED RESOURCES IN THE SOUTHEAST MISSOURI OZARKS
APPENDIX E	2012 MISSOURI SPECIES OF CONSERVATION CONCERN IN THE SOUTHEAST MISSOURI OZARKS
APPENDIX F	LIST OF PUBLIC LANDS IN THE SOUTHEAST MISSOURI OZARKS
APPENDIX G	EXEMPLAR REQUEST FOR PROPOSALS

# LIST OF ACRONYMS

<b>AO</b>	AUTHORIZED OFFICIAL
<b>CERCLA</b>	COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, & LIABILITY ACT
<b>CFR</b>	CODE OF FEDERAL REGULATIONS
<b>CFLRP</b>	COLLABORATIVE FOREST LANDSCAPE RESTORATION PROJECT
<b>COA</b>	CONSERVATION OPPORTUNITY AREA
<b>CWA</b>	CLEAN WATER ACT
<b>DOI</b>	UNITED STATES DEPARTMENT OF THE INTERIOR
<b>EA</b>	ENVIRONMENTAL ASSESSMENT
<b>EIS</b>	ENVIRONMENTAL IMPACT STATEMENT
<b>EPA</b>	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
<b>FONSI</b>	FINDING OF NO SIGNIFICANT IMPACT
<b>FWS</b>	UNITED STATES FISH & WILDLIFE SERVICE
<b>HPO</b>	HISTORIC PRESERVATION OFFICER
<b>LCC</b>	LANDSCAPE CONSERVATION COOPERATIVE
<b>MDC</b>	MISSOURI DEPARTMENT OF CONSERVATION
<b>MDNR</b>	MISSOURI DEPARTMENT OF NATURAL RESOURCES
<b>MTNF</b>	MARK TWAIN NATIONAL FOREST
<b>NEPA</b>	NATIONAL ENVIRONMENTAL POLICY ACT
<b>NHPA</b>	NATIONAL HISTORIC PRESERVATION ACT
<b>NOAA</b>	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
<b>NRDAR</b>	NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION
<b>OPA</b>	OIL POLLUTION ACT
<b>RFP</b>	REQUEST FOR PROPOSALS
<b>SEMO</b>	SOUTHEAST MISSOURI OZARKS
<b>SEMOLMD</b>	SOUTHEAST MISSOURI LEAD MINING DISTRICT
<b>SEMORRP</b>	SOUTHEAST MISSOURI OZARKS REGIONAL RESTORATION PLAN
<b>SHPO</b>	STATE HISTORIC PRESERVATION OFFICE
<b>SRIP</b>	STRATEGIC RESTORATION IMPLEMENTATION PLAN
<b>T&amp;E</b>	THREATENED AND ENDANGERED
<b>USDA</b>	UNITED STATES DEPARTMENT OF AGRICULTURE

# EXECUTIVE SUMMARY

The Trustees for natural resources in southeast Missouri include the U.S. Fish & Wildlife Service, the U.S. Forest Service, and the Missouri Department of Natural Resources. Pursuant to applicable regulations, the Trustees have initiated natural resource damage assessments at different sites throughout the Southeast Missouri Lead Mining District and have successfully recovered money damages to use to restore impacted natural resources and their services. The Trustees authored this Southeast Missouri Ozarks Regional Restoration Plan (SEMORRP or plan) to describe the restoration objectives and processes for programming existing restoration funds as well as future recoveries of restoration funds derived from the Natural Resource Damage Assessment and Restoration (NRDAR) process.

The purpose of this document is twofold: (1) serve as an Environmental Assessment (EA) and (2) as a Regional Restoration Plan. The EA is designed to consider alternatives which will restore, rehabilitate, replace, and/or acquire the equivalent of natural resources and services potentially injured by the release of hazardous substances into the Southeast Missouri Ozarks (SEMO). Additionally, this plan serves to facilitate public involvement in the restoration plan and to comply with environmental decision-making requirements. Development of the SEMORRP was initiated by the Trustee Council for NRDAR cases occurring in the Southeast Missouri Lead Mining District (SEMOLMD).

The SEMOLMD remains the largest lead (Pb) production area in the U.S., and for parts of its history, the leader world-wide. The SEMOLMD has several geographically and temporally distinct areas of mining. Directly south of St. Louis, MO, mining at the Big River Mine Tailings site dates from the 19<sup>th</sup> century through the 1970's. The Madison County Mine Site is located 15 to 30 miles south of the Big River Mine Tailings site and is home to some of the oldest mining operations in Missouri, dating to approximately 1740. Approximately 50 miles to the west, mining in the Viburnum Trend began in the 1950's and continues today as the largest producer of Pb in the U.S. The legacy of heavy-metal mining is large-scale ecological injury to thousands of acres of terrestrial habitat and hundreds of miles of streams. Large portions of the district are National Priority List (NPL) Superfund Sites due to heavy metal contamination. Other sites such as the Viburnum Trend are not covered by NPL designation, but still cause widespread injury to natural resources and the services they provide.

The SEMORRP is developed to identify a preferred alternative to restore injured natural resources and to establish criteria for selecting projects to implement such restoration alternatives. Under the Trustees' preferred Alternative (D), compensatory restoration projects, or projects occurring away from the site of injury, will be selected and funded by the Trustees via a Request for Proposals (RFP) approach. Each RFP will include such information as the type of natural resources injured and/or services lost; location of the potentially injured natural resources and/or lost services; and the amount of restoration funds available. Selection of successful restoration project proposals will follow the publicly available guidelines discussed in Section (6) of this plan. It is the Trustees' intent to work closely with local stakeholders to develop successful compensatory restoration projects under the preferred alternative.

Primary restoration projects, or those projects serving to directly restore natural resources injured by the release of hazardous substances, will be implemented by the Trustees where feasible and appropriate under Alternative D. It is also the Trustees' intention to work directly with impacted private and public landowners at the sites of natural resource injury to implement site specific and appropriate primary restoration projects utilizing this plan. The Trustee(s) will develop primary restoration project proposals and will jointly evaluate and select proposed primary restoration projects using the Decision Matrix described in Appendix A. Selection of successful primary restoration project proposals will follow the publicly available guidelines discussed in Section (7) of this plan.

In order to provide greater transparency to the public regarding the Trustees' intentions for the disposition of restoration funds, the Trustees have developed a Strategic Restoration Implementation Plan (SRIP). The SRIP identifies the anticipated timeframe and the estimated amounts of restoration funds that will be issued by the Trustees for both compensatory and primary restoration. The SRIP will remain a free standing, bi-annually updated document to facilitate public input, changes in site conditions, and the involvement of response agencies. The SRIP is discussed further in Section (8) of this plan.

The preferred Alternative (D) will allow the Trustees both the flexibility to work with the public to identify and select appropriate compensatory and primary restoration projects and the precision to locate and determine restoration projects that adequately compensate the public for the loss of natural resources and services in the SEMO.

## **SECTION 1 - INTRODUCTION**

### **1.1 General Information**

This document is both the Southeast Missouri Ozarks Regional Restoration Plan (SEMORRP) and Environmental Assessment (EA) (40 C.F.R. § 1506.4). The proposed action is to establish and implement the Southeast Missouri Ozarks Regional Restoration Plan. The EA is being developed pursuant to the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4370, and its implementing regulations, 40 C.F.R. Part 1500 and 43 C.F.R. Part 46. The Federal Water Pollution Control Act (CWA, commonly known as the Clean Water Act) [33 U.S.C. §§ 1251-1387] and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, more commonly known as the Federal “Superfund” law) [42 U.S.C. §§ 9601-9675], and its implementing regulations (40 C.F.R. Part 300 and 43 C.F.R. Part 11) authorize states, federally recognized Tribes, and certain federal agencies with authority to manage or control natural resources, to act as “Trustees” on behalf of the public, and to restore, rehabilitate, replace, and/or acquire natural resources equivalent to those injured by hazardous substances releases. Similar to the CWA and CERCLA, the Oil Pollution Act of 1990 (OPA) [33 U.S.C. §§ 2701-2762] and its implementing regulations, 15 C.F.R. Part 990, also authorize Trustees to pursue natural resource damages on behalf of the public for injury to, destruction of, loss of, or loss of use of natural resources, including the costs of assessing the damage. Additionally, Section 644.096 RSMo authorizes the State of Missouri to bring a cause of action and seek actual damages against any person violating the provisions of the state’s Clean Water Law (CWL), for actual damages to restore any waters of the State to their condition prior to the violation.

The SEMORRP will be jointly administered and used by the Missouri Natural Resource Trustee Council (Trustees) to assist in carrying out their natural resource trust authorities under CERCLA, OPA, and CWA. The Trustees for the SEMORRP include the State of Missouri (represented by the Missouri Department of Natural Resources (MDNR)), the United States Department of Agriculture (represented by the United States Forest Service (Forest Service)) and the United States Department of the Interior (DOI) (represented by the United States Fish and Wildlife Service (Fish & Wildlife Service or FWS)). The Trustees have developed a restoration plan for the entire SEMO region in order to guide the restoration of natural resources injured by the release of hazardous substances. Natural resource damages received, either through negotiated or adjudicated settlements, must be used to restore, replace, rehabilitate, and/or acquire the equivalent of those natural resources injured and natural resource services lost.

The goals of this regional plan are to:

- 1) Identify the natural resources and services potentially injured by the release of hazardous substances in the Southeast Missouri Ozarks;
- 2) Develop a request for proposal (RFP) process to evaluate and select compensatory restoration projects to achieve restoration strategies (specific restoration goals identified as part of the RFP process);

- 3) Identify types and examples of primary restoration projects that will be implemented by the Trustees and/or their contractors;
- 4) Gain efficiencies in the natural resource damage assessment and restoration (NRDAR) process; provide for consistency and predictability by detailing the NRDAR process, thereby minimizing uncertainty to the public; and,
- 5) Expedite restoration of potentially injured natural resources and lost services with existing restoration funds.

#### *1.1.1 Natural Resources, Services, Restoration and Damages Defined*

Natural resources means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, any state or local government or Indian tribe, as defined in 40 C.F.R. § 300.5.

Natural resource services may be classified as follows:

- *Ecological services* - the physical, chemical, or biological functions that one natural resource provides for another. Examples include provision of food, protection from predation, and nesting habitat, among others; and
- *Human services* - the human uses of natural resources or functions of natural resources that provide value to the public. Examples include fishing, hunting, nature photography, and education, among others.

In considering both natural resources and services, the Trustees are addressing the physical and biological environment, and the relationship of people with that environment.

Natural resource restoration may be classified as follows:

- *Primary restoration* - any action taken to return an injured natural resource and its services to its baseline condition. Restoration projects that directly restore natural resource injuries caused by the release of hazardous substances are considered primary restoration. An example of primary restoration is the removal of contaminated materials from an ecosystem where they are causing injury to natural resources; and

For purposes of this restoration plan the term “Compensatory Restoration” will be used to refer to the following restoration types:

- *Acquisition of Equivalent Resources or Replacement*: the substitution of an injured resource with one that provides the same or substantially similar services (43 C.F.R. §§ 14(a) and (ii)). An example is the purchase of a property containing high-quality natural resources that is threatened with development or destruction; and

- *Compensatory Restoration*: any action taken to offset the interim losses of natural resources from the date of the event until recovery (USBLM, 2008). An example of compensatory restoration is the removal of undesirable eastern red cedar trees from a glade habitat to compensate for injuries to substantially similar natural resources that occurred elsewhere.

## 1.2 Scope and Scale of the Southeast Missouri Ozarks Regional Restoration Plan

The SEMORRP is designed to be flexible, allowing existing and future recovered natural resource damages to be used to implement restoration projects consistent with the Preferred Alternative. The SEMORRP and EA are not intended to quantify the extent of restoration needed. Scaling restoration alternatives to ensure that the public is adequately compensated for injured natural resources and lost services will be done on a case by case basis.

As restoration proceeds and the Trustees gain knowledge through monitoring of what projects provide the greatest benefits and ecological value, modifications to the SEMORRP may be made. The Trustees reserve the right to modify the SEMORRP as necessary, including the use of an adaptive management approach as identified in 43 C.F.R. §46.145. Any supplemental document or analysis to the SEMORRP will be provided for public review and comment and finalized before any modifications are implemented.

The geographic scope of the SEMORRP is intentionally broad so that it may address all releases, discharges, spills or other incidents, occurrences, or events (hereinafter referred to as “events”) in the Southeast Missouri Ozarks (SEMO), which: 1) affect coexisting or contiguous natural resources under the legally authorized trusteeship and jurisdiction of, the Trustees; and 2) give rise to a claim for natural resource damages under the authorities listed below. Therefore, at the time of publication, NRDAR restoration funds have been recovered for some but not all SEMO watersheds. Mere inclusion of a watershed in the SEMORRP does not pre-dispose those watersheds for expenditures of existing NRDAR restoration funds. Priority for expenditures of NRDAR restoration funds will consider proximity to the natural resource injury as described in Sections 6 and 7.

Sites outside of the defined boundary of the SEMORRP may be considered for restoration activities under this plan if the events giving rise to a NRDAR claim are connected by political, jurisdictional, or previously delineated hazardous substances release boundaries (*e.g.* the Herculaneum Smelter Site in northeast Jefferson County is adjacent to the SEMO boundary, and may be included within the SEMORRP at a future time).

For purposes of *this restoration plan alone*, the SEMO are defined as watersheds of the following rivers as they exist only in the uplands of the Missouri Ozarks: the Big River, the Black River, the Bourbeuse River, the Current River, the Eleven Point River, the Meramec River, and the St. Francis River (Figure 1). An important limitation is that this restoration plan covers only the portions of the above rivers’ watersheds as they exist in the Ozark highlands, and not in the alluvial plain of the Mississippi River.

Figure 1 also shows the boundaries of the southeast Missouri Ozarks for purposes of this restoration plan. Section (4) of this document provides further discussion of the physical,

biological, and socioeconomic characteristics of the region. Figure 2 shows the watersheds of Missouri.

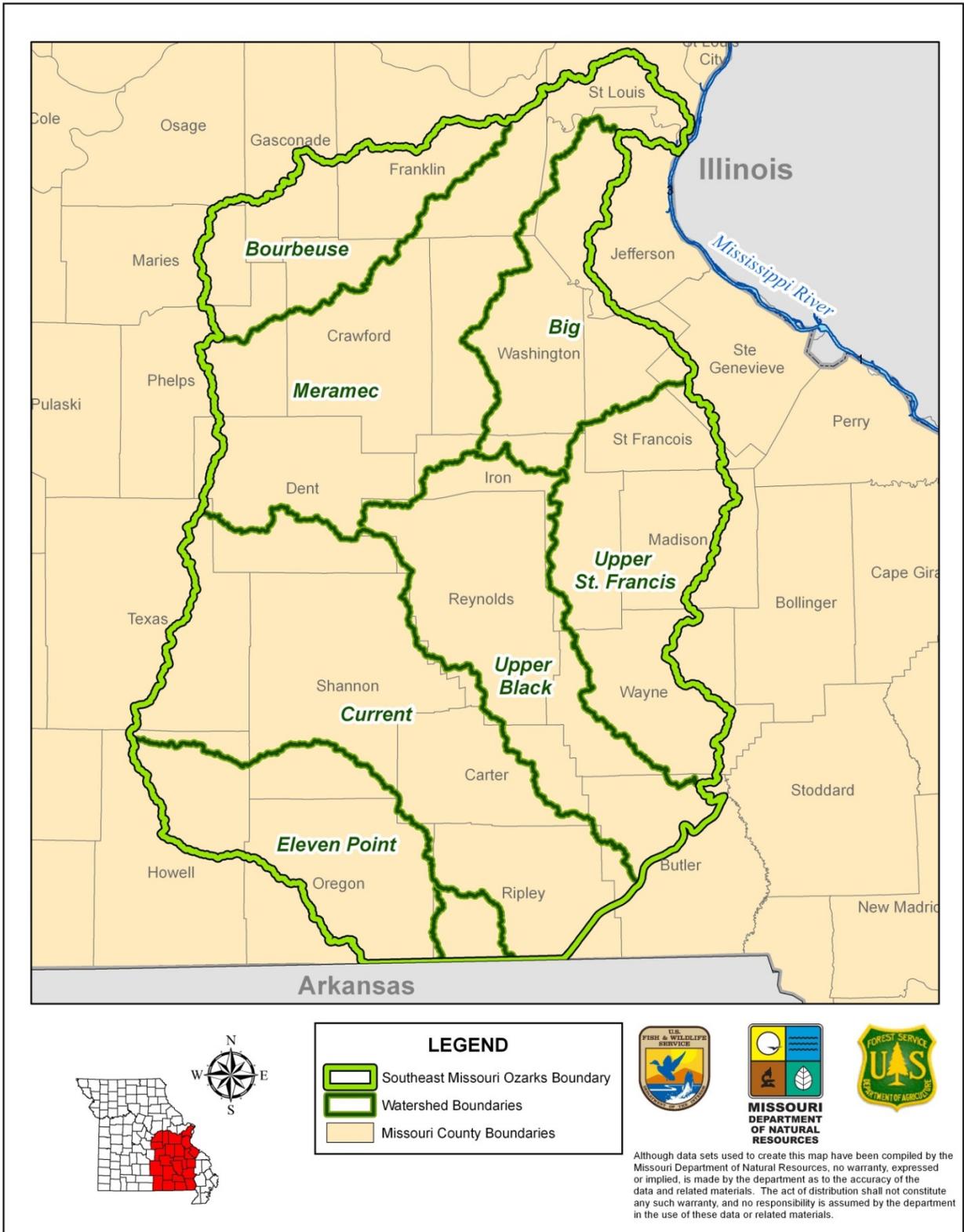
### **1.3 The Southeast Missouri Ozarks Regional Restoration Plan and the Request for Proposal Process**

The Trustees have designed a dual process restoration plan that allows them to use the overarching SEMORRP as an umbrella to cover multiple NRDAR settlements. The process in the plan will allow for direct funding of restoration and compensatory actions by the Trustees, with a separate public Request for Proposal process for non-Trustee activities as defined below:

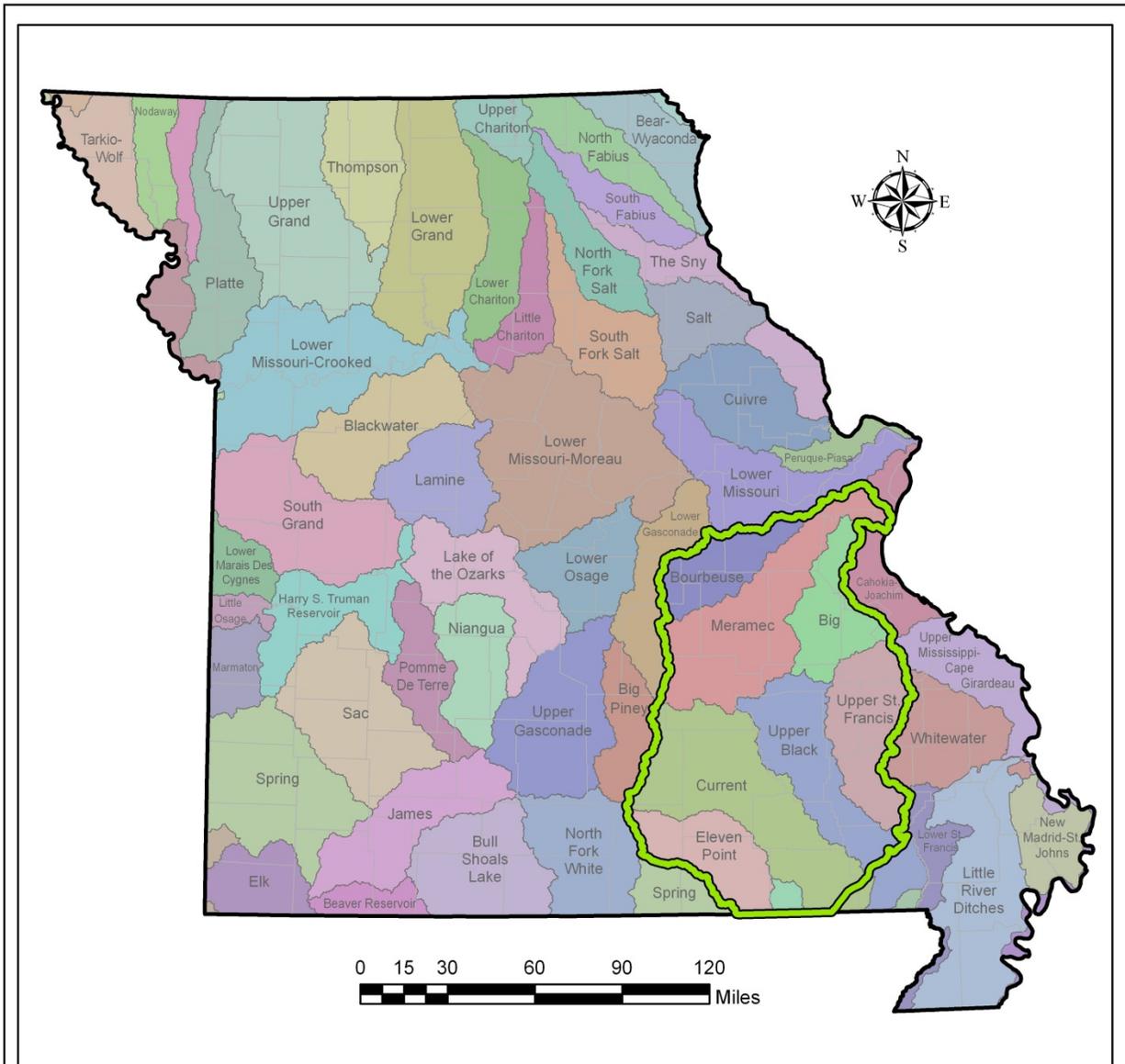
1. Natural resource damages are monies recovered from a potentially responsible party (sometimes referred to herein interchangeably as “restoration funds” or “settlement funds”).
2. The Trustees develop a Request For Proposal (RFP) which identifies: potentially injured resources, location of the release and where the injury to natural resources occurred or continues to occur, natural resources for which the Trustees have trusteeship, damages amount(s), restoration goals, and potential metrics to measure restoration success. Appendix G provides an example of an RFP for restoration projects;
3. The Trustees will cause the RFPs to be made publicly available. The general public, non-governmental organizations, and/or local, state and federal governments and entities (including the Trustees) may submit restoration proposals meeting the criteria described in the RFP and the SEMORRP. The RFPs will identify the time period in which proposals may be received for consideration by the Trustee Council;
4. The Trustee Council members will evaluate project proposals received from the RFP using the Decision Matrix described in Section (6) of this document and attached as Appendix A. The Trustee Council will follow the project selection process outlined in Appendix B;
5. The Trustees will continue to issue RFPs for desired compensatory restoration goals until injury to natural resources and services lost have been compensated, restoration is completed and the restoration funds allocated to compensatory projects are expended.

Due to the complex nature of implementing primary restoration at the site of injured natural resources, the Preferred Alternative (D) presented in this restoration plan specifies that the Trustees will implement restoration technologies at sites covered under this plan. Additionally, the Trustees may also implement compensatory actions. Further information regarding the process the Trustees will use to evaluate and select restoration projects are found in Section (6) “Compensatory Restoration Project Proposal Process” and Section (7) “Primary Restoration Implementation Process” of this document.

**FIGURE 1. SOUTHEAST MISSOURI OZARKS BOUNDARIES**



**FIGURE 2. WATERSHEDS OF MISSOURI**



**LEGEND**

 Southeast Missouri Ozarks Boundary

 Missouri County Boundaries



Although data sets used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

## 1.4 Authority and Legal Requirements

This SEMORRP was prepared jointly by the Trustees. The Fish & Wildlife Service is acting for DOI as the designated natural resource trustee under Section 107(f) of CERCLA, 42 U.S.C. § 9607(f), Section 311 of the CWA, 33 U.S.C. § 1321, and other applicable laws, including Subpart G of the National Contingency Plan, 40 C.F.R. § 300.600-300.615.

Pursuant to CERCLA, the Governor of the State of Missouri has designated the Director of the Missouri Department of Natural Resources as the Trustee for the State's natural resources. Further, the authorities under which the State of Missouri may act include, but are not limited to, the Missouri Constitution, 1945, Art. IV, Sections 40(a)-47; Chapter 252, RSMo, Department of Conservation – Fish & Game; Chapter 254, RSMo, State Forestry Law; Chapter 644, RSMo, Missouri Clean Water Law; Sections 260.350-260-434, RSMo, Missouri Hazardous Waste Management Law; Sections 260-500 et seq., RSMo, Missouri Hazardous Waste Clean Up Law; and the regulations duly promulgated under the statutes set out above.

The Forest Service is acting for USDA as the designated natural resource trustee under Section 107(f) of CERCLA, 42 U.S.C. § 9607(f), Section 311 of the CWA, 33 U.S.C. § 1321, and other applicable laws, including Subpart G of the National Contingency Plan, 40 C.F.R. § 300.600-300.615.

The Trustee Council comprised of the MDNR, the Forest Service, and the Fish & Wildlife Service, will make recommendations to their respective Trustee and Authorized Official (AO), on behalf of the public to assess natural resource injuries and recover damages for injured natural resources and losses of services attributed to releases of hazardous substances. The DOI AO is the official delegated the authority to act on behalf of the Secretary of the DOI to conduct a natural resource damage assessment, restoration planning and implementation. The DOI AO for this plan is the Region 3 Regional Director for the FWS. The USDA AO is the official delegated authority to act on behalf of the Secretary of Agriculture to conduct a natural resource damage assessment, restoration planning and implementation. The USDA AO for this plan is the Region 9 Regional Forester. The state designated Trustee is the Director of the MDNR and is responsible for conducting natural resource damage assessments, restoration planning, and implementation. The federal AOs represent the interests of the DOI and USDA, including all affected Bureaus and Agencies, and the state Trustee represents the interests of the State of Missouri.

Future NRDAR claims may involve other Trustees, e.g., if the claim is for injury on Department of Defense (DOD) lands, the DOD would become an additional federal Trustee. If other Trustees are involved in a NRDAR case, then the SEMORRP will be reviewed by the additional Trustee(s) to determine if it is adequate for future restoration using recoveries of natural resource damages. If the SEMORRP is determined to be insufficient for future needs by the other Trustee(s), then a restoration plan specific to that case will be developed.

Actions undertaken by the Federal Trustees to restore natural resources or services under CERCLA and other federal laws are subject to the NEPA; and the regulations guiding its implementation at 40 C.F.R. Parts 1500 and 43 C.F.R. Part 46. NEPA and its implementing

regulations outline the responsibilities of federal agencies under NEPA. Federal agencies contemplating implementation of a major federal action must produce an environmental impact statement (EIS) if the action is expected to have significant impacts on the quality of the human environment. When it is uncertain whether a contemplated action is likely to have significant impacts, federal agencies prepare an EA to evaluate the need for an EIS. If the EA demonstrates that the proposed action will not have a significant negative impact on the quality of the human environment, the Fish & Wildlife Service will issue a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA, and no EIS is required. However, if there is a finding of significant impact to the human environment, then an EIS will be developed. For a proposed restoration plan, if a FONSI determination is made, the Trustees may then issue a final restoration plan describing the potential restoration alternatives. The Regional Director for the U.S. Fish and Wildlife Service Region 3 is the Responsible Official for the NEPA.

In accordance with NEPA and its implementing regulations, the SEMORRP summarizes the current environmental setting, describes the purpose and need for restoration actions, identifies potential alternative actions, assesses their applicability and potential impact on the quality of the physical, biological and cultural environment, and outlines public participation in the decision-making process. This information will be used to make a threshold determination as to whether preparation of an EIS is required prior to selection of the final restoration alternatives.

Other regulations that may guide the Trustees in the implementation of the SEMORRP are found in Appendix C.

#### *1.4.1 Applicability to the Oil Pollution Act*

This document was developed to establish and implement restoration to compensate for injuries to natural resources and their services arising from the release of hazardous substances within the SEMO. As previously identified, the CERCLA authorizes states, federally recognized Tribes, and certain federal agencies that have authority to manage or control natural resources, to act as “Trustees” on behalf of the public, and to restore, rehabilitate, replace, and/or acquire natural resources equivalent to those injured by hazardous substance releases. Likewise, the Oil Pollution Act (OPA) authorizes federal and state governments and federally recognized Tribes to make the public whole for injuries to natural resources and their services resulting from an incident involving a discharge or substantial threat of a discharge of oil incident.

The development of the SEMORRP is a coordinated effort among state and federal natural resource agencies, local governments and entities, and the public. Further, the SEMORRP broadly describes the Trustees’ priorities and objectives for restoring all injured natural resources and/or lost services in the SEMO and would be relevant to injured natural resources and/or lost services arising from events. As such, the SEMORRP will meet OPA’s use of a regional restoration plan as identified in Subchapter E of the OPA implementing regulations, 15 C.F.R. §990.56 (b) and will expedite restoration implementation when an incident involving a discharge or threat of a discharge of oil occurs. The Trustees intend to refer to this SEMORRP to inform restoration in the event of natural resource injury resulting from the discharge of oil and subsequent recovery of associated damages. In addition, pursuant to the DOI’s NEPA regulations, the Responsible Official may use the NEPA analysis contained in this

SEMORRP/EA for future oil spill restoration projects, where and when appropriate 43 C.F.R. § 46.120.

#### *1.4.2 The Natural Resource Damages Assessment and Restoration Process under CERCLA*

Pursuant to Executive Order 12580, the responsibility for promulgating NRDAR regulations was delegated to the Department of the Interior. Type A regulations use a computer-based model to assess injuries resulting from chemical and/or oil discharges in coastal and marine environments. Type B assessments are more individualized and take into account more site specific conditions and impacts on the natural resources and services. Both Type A and Type B regulations contain four sequential phases for assessing injuries and determining damages. Generally Type A regulations are not applicable to Missouri. For the purposes of this SEMORRP, the four Type B phases are discussed below.

*Phase 1: Pre-assessment Screen.* A pre-assessment screen, a prerequisite to conducting a formal natural resource damage assessment, is prepared based on readily available information to determine if additional assessment is warranted and whether there is a reasonable probability of making a successful claim. Five criteria (43 C.F.R. §11.23(e)) must be met and notification provided to the potentially responsible parties prior to moving forward to the next phase.

*Phase 2: Assessment Plan.* The assessment plan outlines potential studies planned to determine injuries to natural resources and/or services; provides an overview of environmental impacts; and describes the NRDAR process. The assessment plan ensures that any natural resource assessment of potential injuries is conducted in a planned and systematic manner and that the methodologies chosen demonstrate reasonable costs. The draft plan is made available for public review and comment prior to finalization.

*Phase 3: Assessment.* The purpose of the assessment phase is to collect, compile and analyze data necessary to determine injury (exposure of natural resources to release or discharges); quantify injuries (nature and extent of the injury); and determine damages (monetary value of injured resources plus compensable value of the services lost).

*Phase 4: Post-Assessment.* During this phase, the Trustees prepare a Report of Assessment documenting all determinations, data, test results and related findings. A reasonable number of restoration alternatives including natural recovery are usually developed. A preferred alternative is selected based on several factors, including, but not limited to, technical feasibility, relationship of costs to benefits, and integration with response actions.

### **1.5 Summary of NRDAR Settlement History in the Southeast Missouri Ozarks**

At the publication of this document the Trustees have achieved several NRDAR settlements. The settlements (Table 1) provide the impetus for the creation of the SEMORRP. It is the Trustees' goal that, once restoration funds are received by the Trustee(s), restoration will begin in as timely a fashion as is possible. However, some circumstances may preclude the initiation of restoration. For example, even if restoration funds are available, starting restoration may be premature if response actions at the site are not complete. Additionally, the Trustees may defer use of some restoration funds until an evaluation of the success and extent of previous restoration

can be completed. Further details regarding individual settlements will be provided in each of the RFPs developed for those settlements and/or other recovered natural resource damages. An example RFP is included as Appendix G.

**Table 1. Existing NRDAR Settlements in the Southeast Missouri Ozarks**

<b>Settlement</b>	<b>Settlement Date</b>	<b>Available Restoration Funds*</b>
ASARCO: Big River Mine Tailings	12/15/2009	\$33,376,090
ASARCO: Madison County	12/15/2009	\$1,648,155
ASARCO: West Fork Mine and Mill	12/15/2009	\$1,227,292
ASARCO: Sweetwater Mine and Mill	12/15/2009	\$2,472,249
ASARCO: Glover Smelter	12/15/2009	\$2,454,584

\* RESTORATION FUNDS AT THE TIME OF PUBLICATION

## **SECTION 2 - PURPOSE AND NEED FOR RESTORATION**

The purpose of this document is twofold: (1) serve as an Environmental Assessment (EA) and (2) as a Regional Restoration Plan. The EA is designed to consider alternatives which will restore, rehabilitate, replace, and/or acquire the equivalent of any natural resources and services potentially injured by the release of hazardous substances into the SEMO, pursuant to applicable state, and federal laws and regulations. Additionally, this plan serves to facilitate public involvement in the restoration plan and to comply with environmental decision-making requirements.

The SEMORRP is developed to identify a preferred alternative or alternatives to restore injured natural resources and to establish criteria for selecting projects to implement such restoration alternatives. The SEMORRP broadly describes the Trustees' priorities and objectives for restoring injured natural resources and lost services in the SEMO. Selected compensatory restoration projects will be funded by the Trustees, Requests for Proposals will be issued for some compensatory restoration projects, while other compensatory restoration projects may be both funded and implemented by the Trustees. Each RFP will include, but is not limited to, such information as the type of natural resources injured and/or services lost; location of the potentially injured natural resources and/or lost services; and the amount of restoration funds available. Primary restoration projects will be implemented by the Trustees and/or their contractors where feasible and appropriate.

Any selected restoration project will be consistent with this SEMORRP, statutory mandates and regulatory procedures, and applicable laws and policies for restoring, replacing, rehabilitating and/or acquiring the equivalent of potentially injured natural resources and lost services.

### **2.1 Residual Injury After Response Actions**

Restoration under the NRDAR process is designed to complement removal and response actions performed by the Environmental Protection Agency (EPA) and/or other agencies that are underway or planned. The extent to which response actions return natural resources and the services they provide to their baseline condition (i.e., the level of services that would have existed but for the release) are considered in the restoration planning process. Generally the response action focuses on risks to human health and the environment posed by hazardous substances contamination. Simultaneous or subsequent restoration activities initiated by the natural resource Trustees address injuries to natural resources and their services resulting from releases of hazardous substances which may be unaddressed by response actions ("residual injury"). Additionally, natural resource Trustees are responsible for assessing and restoring natural resources to compensate the environment and the public for injuries that may have occurred during the response process and may persist into the future.

In addition to primary restoration costs, or the costs associated with directly restoring the injured resource to its baseline condition, damages can also include compensation for the loss of natural resource services pending restoration. The period of injury from the time the injury occurred until baseline recovery is achieved is referred to as "compensable loss". The SEMORRP is applicable to restoration for all types of natural resource injuries.

## 2.2 The Southeast Missouri Lead Mining District

The primary impetus behind the creation of the SEMORRP is the availability of restoration funds recovered through the settlements identified in Table 1. The SEMOLMD remains one of the largest lead producing regions of the world. The mining district covers multiple counties located from 40 to 90 miles south and southwest of the City of St. Louis, MO. Mining began in the 1700s in an area now called the Old Lead Belt in parts of St. Francois, Jefferson, Franklin, Madison, Washington, Perry, and St. Genevieve Counties. Mining and ore processing in the Old Lead Belt ceased in the 1970s, but waste from mining operations of the preceding 150 years is still a prevalent feature of the landscape. As a result of the ongoing releases of hazardous substances from the mining, beneficiation, transportation, and smelting activities, numerous sites in the Old Lead Belt have been added to the NPL by the EPA including:

- Annapolis Lead Mine
- Big River Mine Tailings Site
- Furnace Creek, Washington County Lead District
- Madison County Mines Site
- Old Mines, Washington County Lead District
- Potosi, Washington County Lead District
- Richwoods, Washington County Lead District
- Southwest Jefferson County Site

In addition to the NPL sites listed above, there are numerous Superfund Response sites in the SEMOLMD that currently are not listed on the NPL such as the Viburnum Trend, also known as the New Lead Belt. Mining exploration in the Viburnum Trend began in the 1950s, and mining, beneficiation, transportation, and smelting continue presently.

As a result of the extent and level of contamination of natural resources in SEMOLMD from the release of hazardous substances associated with mining, beneficiation, transporting, and smelting of ore, the federal and state natural resource trustees initiated NRDAR activities at numerous sites within SEMOLMD and these are ongoing. Natural Resource Damage Assessments have shown heavy metal contamination affecting thousands of acres of land, dozens of miles of streams, and terrestrial and aquatic life that depend on these habitats.

## SECTION 3 - RESTORATION ALTERNATIVES

### 3.1 Introduction of Alternatives under the National Environmental Policy Act

The following alternatives were developed to evaluate and recommend a preferred alternative to meet restoration goals in the SEMO. Evaluation of alternatives to the proposed action, in this case for restoration of injured natural resources, is a requirement under the NEPA process. Alternatives A, B, C, and D, as presented below, offer a variety of restoration options from which a preferred alternative will be selected at the conclusion of the restoration planning process. For the action Alternatives B, C, and D, restoration projects will be evaluated and selected using the same criteria as outlined in Sections (6) and (7) of this document. The no action Alternative (A) does not require this same level of implementation. Public review and coordination for Alternatives B, C, and D will be the same as described in Section (8) of this document. Table 2 provides a summary comparison of the Alternatives discussed in this section.

#### 3.1.1 Important Considerations in Developing Restoration Alternatives

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 and their services, consider actual and anticipated conditions, have a reasonable likelihood of success, and are consistent with applicable laws, regulations and policies.

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

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

#### 43 C.F.R. § 11.82(d)

The selected alternative must restore, rehabilitate, replace and/or acquire the equivalent of those natural resources and their services potentially injured by the releases of hazardous substances within the SEMO subsection boundary. Because the SEMO includes a complex community of invertebrates, fish, wildlife, plants and humans, the Trustees intend to address areas of potential improvement for the ecosystem as a whole in order to restore the lost resources and services.

The Responsible Federal Official will select one of the EA alternatives and will determine, based on the facts and recommendations contained within the EA, and public comment, whether this EA is adequate to support a FONSI, or whether an Environmental Impact Statement needs to be prepared. NEPA compliance is a federal requirement and not applicable to NRDARs that only involve the state Trustee.

### **3.2 Alternative A: No Action**

The No Action Alternative, required by NEPA and the NRDAR regulations, 43 C.F.R. § 11.82(c)(2), consists of no change in the current programs pursued outside the NRDAR. It is the basis against which other alternatives can be compared. It is the alternative by which restoration is obtained by natural recovery. If this Alternative is implemented, the Trustees would not initiate specific actions to restore injured natural resources and their services to baseline conditions or compensate the environment and the public for natural resource injuries caused by the releases of hazardous substances into the environment.

Under this Alternative, the state and federal agencies and landowners would continue to manage, conserve and protect the sites within the SEMO as outlined in current programs and regulations and within applicable budget constraints. However, no additional action would be taken to compensate for injuries to natural resources or their services. In addition, the terms of existing Consent Decrees require recovered natural resource damages be spent to restore, replace, rehabilitate and/or acquire the equivalent of potentially injured natural resources and their service and, under this Alternative, the restoration funds would not be expended.

### **3.3 Alternative B: Primary Restoration of Injured Natural Resources**

Primary restoration is any action taken to return an injured natural resource and its services to its baseline condition. Alternative B describes restoration projects that directly restore natural resource injuries caused by the release of hazardous substances through means of primary restoration. This alternative would compensate for injury to natural resources by restoring the same resources that have been adversely impacted to a condition where they can provide the level of services available prior to the release of hazardous substances. Under this Alternative, sites that cannot feasibly be returned to baseline condition would not be considered for further funding opportunities.

Natural resource-based restoration projects include activities such as upland restoration, wetland, floodplain and riparian corridor restoration, aquatic resource restoration, groundwater or cave/karst restoration, and other projects designed to reduce the exposure of natural resources

under the Trustees' jurisdictions to residual hazardous substances. Alternative B would limit the Trustees to engaging solely in primary restoration of injured natural resources at the site of the release of hazardous substances or where those substances come to be located in the environment. No compensatory restoration projects would occur under this alternative.

Under this alternative, a mix of primary restoration projects would be selected to restore a broad array of natural resource services throughout the area impacted by the release. Selecting a mix of primary restoration projects allows for the recovery of a wide range of injured resources as well as flexibility for cost-effectiveness and feasibility due to different constraints related to the ecology of the area, residual hazardous substance following clean-up or remediation, or ability to find willing participants.

All restoration under this Alternative would only be considered in areas where the landowner is willing and the surrounding land uses indicate that the restoration will remain viable wildlife habitat. The Trustees may conduct primary restoration on existing public land, or may use conservation easements in perpetuity for restored natural resources. The length of the conservation easement may be less than in perpetuity, but the length of time will be determined on a site by site basis. The preservation of restored properties would be obtained through fee title purchase, environmental covenants, or contracts as designated by the Trustees. Land acquired for primary restoration can be conveyed to individual state, tribal, or local government agencies, land trusts, or non-government conservation organizations following specific procedures and standards for each entity. The federal government may also acquire property if it meets the restoration criteria and is contained within existing comprehensive conservation plan, such as the Mark Twain National Forest Plan and/or other property acquisition boundaries. While the primary purpose of the preservation of land is to protect and preserve high quality natural resources, portions of the acquired properties may be made available to the public for natural resource-based recreational activities such as wildlife viewing, hiking, fishing, hunting or educational opportunities.

The main benefit of Alternative B is that it provides the clearest linkage to injury, since the affected resources themselves will be restored. This Alternative also reduces ongoing injury from residual contamination. The next five subsections, 3.3.1 through 3.3.5, present a suite of primary restoration choices that could be selected under this Alternative, though the list is not exhaustive and could include numerous others as approved by the Trustees. The identified resource categories (i.e., upland resources, wetlands) are under the jurisdiction of the Trustees-- both as natural resources and as supporting habitat for natural resources under the Trustees' jurisdiction (i.e., migratory birds).

### *3.3.1 Upland Resource Restoration Projects*

The upland settings in the SEMO provide important habitat for migratory birds and other natural resources and may be injured by the release of hazardous substances. Releases of hazardous substances that occur in upland settings may erode, flow, or percolate into other landscapes or geological domains continually being released into the environment and causing ongoing injury.

As a consequence, restoration of injured upland resources becomes a significant component of the SEMORRP. Specific upland restoration projects could include but are not limited to:

- Ecological enhancement of response activities performed by the EPA or other agency
- Re-establishment of native upland vegetation
- Propagation and re-stocking of federally and state-listed Threatened and Endangered (T&E) species
- Utilization of accepted methods for restoration of residual injury not addressed fully by the response action
- Removal of invasive species
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

### *3.3.2 Wetland, Floodplain, and Riparian Corridor Restoration Projects*

Wetlands serve as natural water filters and sequestration sites for many different types of environmental contaminants. As a consequence, hazardous substances may accumulate in wetland environments above thresholds of toxicological concern. Wetland, floodplain, and riparian corridor restoration and reestablishment would help restore resources that may be impaired or destroyed in the SEMO by the release of hazardous substances. Restoration of injured wetlands would provide increased nesting opportunities and increased food for a wide variety of fish, birds and other wildlife, as well as increased sediment storage capacity within the watershed. The Trustees envision that wetland, floodplain, and riparian corridor resources reestablishment and enhancement may include active restoration projects such as but not limited to:

- Ecological enhancement of response activities performed by the EPA or other agency
- Removal or stabilization of contaminants from wetlands, floodplains, and riparian corridors where not fully addressed by EPA or other agency
- Restoration of floodplain forests
- Re-establishment of interconnections between surface water and injured wetland, floodplains, and riparian corridors
- Propagation and re-stocking of T&E, game, and non-game wetland species
- Removal of invasive plant species
- Disruption of (or not repairing) agricultural drain systems
- Re-establishment of wetland, floodplain, and riparian corridor plants and other native vegetation
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

Wetland, floodplain, and riparian corridor reestablishment and enhancement projects that will improve water quality and provide habitat for biological resources are preferred. Wetland, floodplain, and riparian corridor restoration would only be considered in areas where the landowner is willing and the surrounding land uses indicate that the restoration will remain viable. The Trustees prefer conservation easements or other contractual agreements in perpetuity

for restored natural resources. The length of the conservation easement may be less than in perpetuity, but the length of time will be determined on a site by site basis.

### *3.3.3 Surface Water Quality and Aquatic Resource Restoration Projects*

The release of hazardous substances, for example from industrial sources or un-reclaimed mine lands, may impair water quality and aquatic resources within the SEMO. To address past and potential future injury, water quality and aquatic resource improvement projects may include many project categories, but are not limited to those listed below:

- Ecological enhancement of response activities performed by the EPA or other agency
- Stabilization of contaminated or eroding stream banks
- Stabilization of soils that represent residual injury in contaminated floodplains
- Restoration of floodplain forests
- Natural stream channel design/restoration of channelized streams
- Restoration of mine drainage seeps or mine waste adjacent to waterways
- Establishment or protection of injured riparian corridors with native species
- Propagation and re-stocking of T&E, game, and non-game aquatic species
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

Surface water quality and aquatic resource restoration projects such as these would provide ecological services similar to those lost due to the release of hazardous substances. Surface water protection and enhancement projects that will improve water quality and provide habitat for biological resources are preferred.

### *3.3.4 Groundwater Quality and Resource Restoration Projects*

The release of hazardous substances can impair groundwater quality as well as karst and cave resources within the SEMO. For example, these resources may be affected by seepage and percolation of contaminants from un-reclaimed and abandoned surface and underground mining, industrial releases of hazardous chemicals from storage pits, releases of hazardous substances due to dumping or accidental spills, as well as other sources. To address past and potential future injury, groundwater quality and karst/cave resource improvement projects may include many of the types of project categories, but are not limited to those listed below:

- Treatment of contaminated groundwater for beneficial use
- Ecological enhancement of response activities performed by the EPA or other agency
- Removal and disposal of contaminated soils and overburden that contribute to injured groundwater
- Closure of voids that allow contamination to enter groundwater directly
- Propagation and re-stocking of T&E species, and other karst dwelling species
- Protection of recharge areas/establishment of groundwater protection zones
- Implementation of source control and water conservation projects

- Riparian restoration along losing streams
- Implementation of water treatment structure projects to intercept and treat groundwater discharge to surface water
- Implementation of permeable pavement and other projects designed to minimize storm water runoff to surface water
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

Groundwater quality and karst/cave habitat restoration projects such as these would provide ecological services potentially similar to those lost due to the release of hazardous substances. Groundwater protection and enhancement projects that will improve groundwater quality for drinking water and provide habitat for biological resources are preferred. Groundwater is a major source of domestic and municipal drinking water in the SEMO and is also utilized for agricultural and industrial purposes. The karstic nature of some of the SEMO aquifers may result in an increased susceptibility to contamination from point and non-point sources. As a result, many opportunities exist to protect or enhance recharge to the aquifer(s).

### **3.4 Alternative C: Compensatory Restoration**

Alternative C allows only for the consideration of Compensatory Restoration. CERCLA authorizes Trustees to replace or acquire natural resources and their services equivalent to those injured by hazardous substance releases, in lieu of or in addition to, direct restoration of the injured resources themselves. Under this Alternative, primary restoration *will not* occur. Natural resource-based restoration projects could occur in the same resource categories described in Alternative B; however, *all* of the restoration activities would take place away from the natural resources injured by the release of hazardous substances. Instead of primary restoration projects, compensatory restoration activities will be used to compensate the environment and the public for the natural resources potentially injured.

Restoration under this Alternative would only be considered in areas where the landowner is willing and the surrounding land uses indicate that the restoration will remain viable. Preservation of restored properties would be obtained through fee title purchase or environmental covenants. The Trustees prefer conservation easements in perpetuity for restored natural resources on private land. The length of the conservation easement may be less than in perpetuity, but the length of time will be determined on a site by site basis.

Land acquired can be conveyed to individual state, tribal, or local government agencies, land trusts, or non-government conservation organizations following specific procedures and standards for each entity. The federal government may also acquire property if it meets the restoration criteria and is contained within existing comprehensive conservation plan and/or other property acquisition boundaries. While the primary purpose of the preservation of land is to protect and preserve high quality natural resources, some or all of the acquired properties may be made available to the public for natural resource based recreational activities such as wildlife viewing, hiking, fishing, hunting or educational opportunities.

Similarly to Alternative B, a mix of natural resource restoration, enhancement, and acquisition projects can be selected to provide a broad array of natural resource services throughout the SEMO area. Selecting a mix of compensatory restoration projects allows for the recovery of a wider range of resources as well as more flexibility for cost-effectiveness and feasibility due to different constraints related to the ecology of the area or ability to find willing participants. Potential benefits of this approach to restoration include creating tracts of continuous high quality habitat or connecting existing habitats. This approach keeps the important linkages between physical, chemical and biological properties of the overall ecosystem.

The next five subsections, 3.4.1 through 3.4.5, present a suite of compensatory restoration choices that could be selected under this Alternative, though the list is not exhaustive and could include numerous others as approved by the Trustees.

#### *3.4.1 Upland Resource Restoration, Enhancement and Creation*

The difference between Alternative B and this category of projects is the potential location of the compensatory restoration projects away from areas directly impacted by the release in question. Under this Alternative, upland restoration projects could include:

- Acquisition or protection through conservation easements of high quality glade, grassland, forest, and savannah environments in the SEMO.
- Propagation and re-stocking of T&E, game, and non-game species
- Restoration/rehabilitation of degraded glade, grassland, forest, and savannah environments
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

#### *3.4.2 Wetland, Floodplain, and Riparian Corridor Restoration, Reestablishment or Enhancement Projects*

The difference between Alternative B and this category of projects is the potential location of the compensatory restoration projects away from areas directly impacted by the release in question. Under this Alternative, wetland, floodplain, and riparian corridor restoration projects could include:

- Acquisition or protection through conservation easements of native wetland, floodplain, and riparian corridor
- Restoration/rehabilitation of degraded wetland, floodplain, and riparian corridor
- Conversion of non-native wetland, floodplain, and riparian corridor into native species composition
- Acquisition or protection through conservation easements or other contractual mechanisms of high quality seeps, springs, and swamp environments
- Propagation and re-stocking of T&E, game, and non-game species
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

### *3.4.3 Surface Water Quality and Aquatic Resource Improvement Projects*

The difference between Alternative B and Alternative C for this category of projects is the potential location of the compensatory restoration projects away from areas directly impacted by the release in question. Under this Alternative, surface water and aquatic resource restoration projects could include:

- Acquisition or protection through conservation easements or other contractual mechanisms of native riparian corridor/forested floodplain remnants in the SEMO
- Restoration/rehabilitation of degraded riparian corridors
- Stabilization of eroding stream banks
- Natural stream channel design/restoration of channelized streams
- Propagation and re-stocking of T&E, game, and non-game aquatic species
- Acquisition or protection through conservation easements or other contractual mechanisms of high quality seeps, springs, and swamp environments
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

### *3.4.4 Groundwater Quality and Resource Improvement Projects*

The only difference between Alternatives B and C for this category of projects is the potential location of the compensatory restoration projects away from the site of the release of hazardous substances or where they come to reside in the landscape. Under this alternative, groundwater restoration projects could include:

- Acquisition or protection through conservation easements of high quality caves, karst areas, seeps and springs
- Acquisition or protection through conservation easements of cave/karst recharge zones
- Closure of voids that allow contamination to enter groundwater directly
- Establishment of drinking water protection zones
- Restoration/rehabilitation of degraded cave/karst recharge zones
- Installation of cave closure devices
- Propagation and re-stocking of T&E, game, and non-game aquatic species
- Riparian restoration along losing streams
- Implementation of water treatment structure projects to intercept and treat groundwater discharge to surface water
- Implementation of permeable pavement and other projects designed to minimize storm water runoff and increase recharge
- Other projects that serve to reestablish natural characteristics that have been eliminated would be utilized, as appropriate.

### *3.4.5 Public Education and Enjoyment Projects*

This category of projects is intended to promote the improvement in the quality of life for SEMO communities whose use and enjoyment of natural resources may have been lost or diminished

as a result of the release of hazardous substances. Projects could include educational programs that promote hiking and bird watching opportunities, trash clean-ups (stream teams) and education about the importance of water quality to life in the project area. These projects would facilitate protection and conservation of trust resources resulting in enhanced public access to, and thus appreciation of, natural resources.

### **3.5 Alternative D: Tiered Project Selection Process Evaluating the Feasibility of Primary Restoration or Compensatory Restoration (Preferred Alternative)**

Alternative D examines the feasibility of primary restoration at each site and also allows for consideration of other restoration alternatives if a return to baseline level of services is not feasible. CERCLA authorizes Trustees to replace or acquire natural resources capable of providing the baseline level of services equivalent to those injured by hazardous substance releases, in lieu of or in addition to, primary restoration of the injured resources themselves. Natural resources may also be rehabilitated with actions that increase the ecological integrity or viability of resources and their services. Possible actions and types of restoration to be considered under Alternative D may include both primary and compensatory restoration.

This Alternative includes all the categories of potential projects outlined in Alternative B and Alternative C. Alternative D is different from Alternatives B and C in that it allows the Trustees to use a combination of primary and compensatory restoration activities and projects to accomplish restoration goals at or near the site. Consequently, Alternative D allows for the restoration, rehabilitation, replacement, and/or acquisition of equivalent resources within the SEMO. Like Alternative B, primary restoration is preferred but a combination of any or all categories of restoration may be considered and determinations of the appropriate type will be site-dependent. In cases where primary (on-site) restoration is not feasible, compensatory restoration will allow flexibility for adequate compensation of the public for the resources.

Both primary and compensatory restoration projects will be evaluated and selected using a matrix of factors (“Decision Matrix”) including criteria to give appropriate weight to the factors used to rank the projects. The Decision Matrix is included in Appendix A. The Decision Matrix will be used to evaluate all compensatory restoration projects regardless of whether they are implemented directly by the Trustees. The Trustees will solicit compensatory restoration project proposals from non-profit organizations, local, state and federal agencies, and the general public using the RFP approach. Please see the Appendix G for an exemplar RFP. The exemplar RFP serves as a model for future RFPs. Additional details regarding the RFP process can be seen in Section (6) of this document.

Due to the inherent complexity of implementing primary restoration projects at a site potentially contaminated with hazardous substances, the Trustees will retain responsibility to implement all appropriate primary restoration projects under this Alternative. Further details regarding the primary restoration process can be seen in Section (7) of this document.

The next five subsections, 3.5.1 through 3.5.5, present a suite of choices that could be selected under this Alternative, though the list is by no means exhaustive and could include others as approved by the Trustees.

### *3.5.1 Upland Resource Restoration, Enhancement and Creation*

Under this resource category of restoration projects, Alternative D allows the Trustees to select potential restoration projects discussed in both Alternatives B and C that serve to most efficiently return the site to pre-release conditions and/or compensate the public for the loss of upland natural resource services if primary restoration is not indicated. Alternative D restoration projects will be evaluated and selected using the guidelines established in Sections (6), (7), and the Decision Matrix.

### *3.5.2 Wetland, Floodplain, and Riparian Corridor Restoration, Reestablishment or Enhancement Projects*

Under this category of restoration projects, Alternative D allows the Trustees to select potential restoration projects discussed in both Alternatives B and C that serve to most efficiently return the site to pre-release conditions and/or compensate the public for the loss of wetland, floodplain, and riparian corridor natural resource services. Alternative D restoration projects will be evaluated and selected using the guidelines established in Sections (6), (7), and the Decision Matrix.

### *3.5.3 Surface Water Quality and Aquatic Resource Improvement Projects*

Under this category of restoration projects, Alternative D allows the Trustees to select potential restoration projects discussed in both Alternatives B and C that serve to most efficiently return the site to pre-release conditions and/or compensate the public for the loss of surface water and aquatic resource services. Alternative D restoration projects will be evaluated and selected using the established in Sections (6), (7), and the Decision Matrix.

### *3.5.4 Groundwater Quality and Resource Improvement Projects*

Under this category of restoration projects, Alternative D allows the Trustees to select potential restoration projects discussed in both Alternatives B and C that serve to most efficiently return the site to pre-release conditions and/or compensate the public for the loss of groundwater resources. Alternative D restoration projects will be evaluated and selected using the established in Sections (6), (7), and the Decision Matrix.

### *3.5.5 Public Education and Enjoyment Projects*

Under this category of restoration projects, Alternative D allows the Trustees to select potential restoration projects discussed in Alternative C that serve to educate and/or compensate the public for the loss of any natural resources or natural resource. Alternative D restoration projects will be evaluated and selected using the guidelines established in Sections (6), (7), and the Decision Matrix. As with all selected restoration projects, public education and enjoyment projects must be directly related to the resources that were lost or injured by the release of hazardous substances.

**Table 2. Comparison of Alternatives A, B, C, and D**

<b>Actions</b>	<b>Alternative A (No Action)</b>	<b>Alternative B Primary Restoration Projects</b>	<b>Alternative C Compensatory Restoration Projects</b>	<b>Alternative D Primary Restoration and Compensatory Restoration Projects (Preferred)</b>
Restore injured upland resources	No	Yes	No, compensatory restoration allowed at off-site locations, acquisition of equivalent resources possible.	Yes
Preserve existing high-quality upland resources	No	No	Yes	Yes
Restore injured wetland, floodplain, and riparian corridor and associated resources	No	Yes	No, compensatory restoration allowed at off-site locations, acquisition of equivalent resources possible.	Yes
Preserve existing high-quality wetland, floodplain, and riparian corridor resources	No	No	Yes	Yes
Restore injured surface water systems and aquatic resources	No	Yes	No, compensatory restoration allowed at off-site locations, acquisition of equivalent resources possible.	Yes

**Table 2 Continued**

<b>Actions</b>	<b>Alternative A (No Action)</b>	<b>Alternative B Primary Restoration Projects</b>	<b>Alternative C Compensatory Restoration Projects</b>	<b>Alternative D Primary Restoration and Compensatory Restoration Projects (Preferred)</b>
Preserve existing high-quality surface water systems and aquatic resources	No	No	Yes	Yes
Restore injured groundwater, cave, and karst systems	No	Yes	No, compensatory restoration allowed at off-site locations, acquisition of equivalent resources possible.	Yes
Preserve existing high-quality groundwater, cave, and karst systems	No	No	Yes	Yes
Improve outdoor recreational opportunities/enhance public awareness	No	Yes	Yes	Yes

## **SECTION 4 - AFFECTED RESOURCES**

The purpose of this section is to briefly describe the physical, biological, and socioeconomic resources that are potentially affected by the implementation of the SEMORRP and the selected Alternative discussed in Sections (3) and (5). More detailed descriptions of the affected resources are provided in Appendix D.

The SEMO are part of a distinctive biogeographic region termed the Ozark Highlands that includes most of southern Missouri, much of northern Arkansas and small parts of neighboring states. For purposes of the SEMORRP, the SEMO are defined by the following seven watersheds: the Big River, the Black River, the Bourbeuse River, the Current River (includes the Jacks Fork River), the Eleven Point River, the Meramec River, and the upper portion of the St. Francis River (Figure 1). Differences in landform, lithology, soils, and vegetation produce a grouping of sixteen ecological subsections collectively known as the Ozarks as defined by Nigh and Schroeder's 2002 Atlas of Missouri Ecoregions. Seven of these 16 Ozark ecological subsections are also within in the SEMO (Figure 2). The following ecological subsections are located in the SEMO: Central Plateau (CP), Meramec River Hills (MRH), St. Francois Knobs and Basins (SKB), Current River Hills (CRH), Black River Ozark Border (BRO), and Inner Ozark Border (IOB).

### **4.1 Physical Resources**

#### *4.1.1 Geology*

The SEMO is part of the Ozark Highlands, a low structural dome of horizontally bedded strata which have been subjected to ongoing erosion for over 250 million years into a heavily dissected plateau (Nigh and Schroder, 2002). This incredibly long period of uninterrupted erosion, combined with the central location of the SEMO in North America has created a region of unique ecosystems.

Overall, the SEMO contains a diverse representation of various geologic formations ranging in age from Pennsylvanian to Precambrian which includes the Cambrian age cherty dolomites and sandstones, Ordovician cherty dolomites and the Precambrian igneous rock. The dolomites are soluble and create impressive local karst, including some very large springs, extensive caverns and numerous dry valleys (Nigh and Schroder, 2002).

#### *4.1.2 Surface Water*

The streams of the SEMO are an outstanding and internationally recognized natural resource. Streams in the SEMO are typically clear with chert gravel and cobble, and limestone or dolomite boulders and bedrock. Streams in the SEMO generally occupy narrow, entrenched valleys and often lose water to underground karst features. Accordingly, other streams receive water from springs and seeps (Nigh and Schroder, 2002). Substantial portions of many of the rivers in the SEMO are protected within state and federal parks and forests.

#### *4.1.3 Groundwater*

Groundwater in the SEMO is comprised of two primary aquifers, the Ozark aquifer and the St. Francois aquifer. The Ozark aquifer is the most economically and ecologically significant

aquifer of the area. Conversely, only a minor portion of the St. Francois aquifer is found at the surface near the northeast boundary and subtending the Ozark aquifer elsewhere.

The Ozark aquifer is the primary water source for the Ozark Plateau Physiographic Province (Miller and Appel, 1997). It is the thickest aquifer within the Ozark Plateau aquifer system, averaging 1,000 feet in depth in south-central Missouri, and providing more than 1,000 gallons per minute (Miller and Appel, 1997). Water from the Ozark aquifer is used for municipal, industrial, and domestic supplies (Miller and Appel, 1997).

The St. Francois aquifer subtends the Ozark aquifer and is 300-400 feet thick in south-central Missouri. Water is withdrawn from the aquifer principally in the St. Francois Mountains, where the aquifer crops out or is close to the surface (Miller and Appel, 1997). The aquifer is at the surface at that location due to uplift and subsequent erosion. Where water is withdrawn, it is considered “suitable for most uses,” and has typical yields of 60 to 150 gallons per minute (Miller and Vandyke, 1997).

## **4.2 Biological Resources**

### *4.2.1 Terrestrial and Aquatic Habitats*

Before settlement, the Ozarks were mainly timbered with oak and oak-pine forests and woodlands (Nigh and Schroeder, 2002). Open oak and pine woodlands with bluestem grass occupied higher, gentler ground and steep exposed slopes (Nigh and Schroeder, 2002). Closed forest of oak, shortleaf pine, and mixed deciduous species were best developed on the roughest, most dissected lands (Nigh and Schroeder, 2002). Glades, fens, and sinkhole ponds added to the diversity (Nigh and Schroeder, 2002). Bottoms were mainly forested with mixed hardwood and riverfront sycamore-cottonwood types (Nigh and Schroeder, 2002).

At present, the SEMO are still mainly timbered, except for cleared bottomlands and some ridges (Nigh and Schroeder, 2002). The forests and woodlands have been altered by past management practices and have become much more dense, shortleaf pine is less abundant, and much of the forest is dominated by oak of nearly even age (Nigh and Schroeder, 2002). Remnants of the lowland forest that once covered the region occur in small, managed tracts and in most locations without levees to protect them from flooding (Nigh and Schroeder, 2002).

Rare natural communities in this region include dolomite cliff communities, caves, springs, fens, and sinkhole ponds (Nigh and Schroeder, 2002). Most glade/woodland complexes have been overgrown with cedar, except in the St. Francois Mountains, where numerous high quality igneous glades still exist (Nigh and Schroeder, 2002).

### *4.2.2 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 numerous COAs in the SEMO, including the LaBarque Creek Watershed, Middle Meramec, St. Francois Knobs, Current River Hills, and Eleven Point River Hills areas (Conservation Commission of Missouri, 2009) (Figure 4).

#### 4.2.3 Federally- and State-listed Species

The SEMO is home to more rare and endangered species than any other region in Missouri (Nigh and Schroeder, 2002). Thirty-four species in the SEMO are state or federally-listed, or are candidates for listing, including 19 species with federal status and 15 species with state status (Table 3). The list of species provided in Table 3 was compiled from county-specific information available online from the MDC Heritage Program (MDC, 2012a) and the FWS (USFWS, 2012a); this list is current for the year 2013.

#### 4.2.4 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, 2012b). Plants and animals are given a numeric rank (S1 through S5) based upon number of occurrences within Missouri. The number of species of concern within the numeric rank of S1 through S2 that occupy the SEMO totals 337 species (Appendix E) (MDC, 2012b).

#### 4.2.5 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. Some extirpated species are being reintroduced into Missouri. Examples of reintroduction plans currently underway in Missouri include plans for the American burying beetle, bison, and elk.

#### 4.2.6 Migratory Bird Species

The SEMO is located within the Mississippi Flyway, one of the major migration routes in the United States. More than 350 species of migratory birds utilize the SEMO as a migratory pathway, according to the MDC’s Fish and Wildlife Information System (MDC, 2009b). Additionally, the SEMO are host to more than 115 nesting species of migratory birds, and significant portions of the populations of Whip-poor-Wills (*Caprimulgus vociferous*), Kentucky Warblers, (*Oporornis formosus*), and Summer Tanagers (*Piranga rubra*) (Poole and Gills, 1998).

### 4.3 Socioeconomic Resources

#### 4.3.1 Recreational Resources

Fish and wildlife in the SEMO 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 SEMO contains over 1.2 million acres of public lands (Figure 3) (Nigh and Schroeder, 2002). The public lands in the SEMO provide recreational opportunities such as hunting,

fishing, swimming, boating, bird watching, camping, and hiking (Nigh and Schroeder, 2002). A listing of the public lands (to date) in the SEMO is provided in Appendix F.

#### *4.3.2 Demographics, Economics and Land Use*

##### *Demographics*

Early occupants of the SEMO include the Osage and western migrating groups, such as the Shawnee, Delaware, and Cherokee Indians (Nigh and Schroeder, 2002). Most early settlement was by Creoles of French Canadian ancestry, Americans from Kentucky, Tennessee, and other parts of Appalachia, and Caribbean African slaves. Mining attracted immigrants from Europe (Nigh and Schroeder, 2002).

The best agricultural lands were taken well before the Civil War, but growth in the mining industries after the war kept the population growing into the twentieth century (Nigh and Schroeder, 2002). Rural populations have declined except in the recreation industry along the major streams (Nigh and Schroeder, 2002).

##### *Economics and Land Use*

Surface lead mining began around 1720 and disturbed many acres of land and repeated timber cutting for fuel caused many tracts to become denuded of timber by the early nineteenth century (Nigh and Schroeder, 2002). The early settlers also mined the bat guano (potassium nitrate) in caves to make gunpowder (Nigh and Schroeder, 2002). Early agriculture involved open range grazing of cattle and hogs in the hills and small patches of croplands in the bottoms (Nigh and Schroeder, 2002). The timber industry is still predominant in the area (Nigh and Schroeder, 2002). Deep subterranean lead mining began shortly after the Civil War and continues today in the Viburnum Trend Lead Mining District (Nigh and Schroeder, 2002).

Today, agriculture is predominantly hay and cattle raising (Nigh and Schroeder, 2002). Lead, and other metals mining continue as major activities, and recreation and tourism has grown around streams, caves, and springs (Nigh and Schroeder, 2002). Timber is still cut for pallets, barrel staves, flooring and charcoal (Nigh and Schroeder, 2002). At the time of publication, the areas of fastest growth are in commercial and services sectors along the I-44 corridor and the Potosi, Bonne Terre, and Farmington areas (Nigh and Schroeder, 2002).

**Table 3. Threatened, Endangered, and Candidate Species in the Southeast Missouri Ozarks**

Common Name	Scientific Name	State Status	Federal Status
<b><u>Birds</u></b>			
American bittern	<i>Botaurus lentiginosus</i>	Endangered	
Northern harrier	<i>Circus cyaneus</i>	Endangered	
Peregrine falcon	<i>Falco peregrinus</i>	Endangered	
Swainson's warbler	<i>Limnothlypis swainsonii</i>	Endangered	
Bachman's sparrow	<i>Peucaea aestivalis</i>	Endangered	
<b><u>Mammals</u></b>			
Gray bat	<i>Myotis grisescens</i>	Endangered	Endangered
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered
Plains spotted skunk	<i>Spilogale putorius interrupta</i>	Endangered	
<b><u>Mollusks</u></b>			
Spectaclecase	<i>Cumberlandia monodonata</i>		Endangered
Elephant-ear	<i>Elliptio crassidens</i>	Endangered	
Curtis' pearlymussel	<i>Epioblasma florentina curtisii</i>	Endangered	Endangered
Snuffbox	<i>Epioblasma triquetra</i>	Endangered	Endangered
Ebonyshell	<i>Fusconaia ebena</i>	Endangered	
Pink mucket	<i>Lampsilis abrupta</i>	Endangered	Endangered
Scaleshell	<i>Leptodea leptodon</i>	Endangered	Endangered
Sheepnose	<i>Plethobasus cyphus</i>	Endangered	Endangered
Rabbitsfoot	<i>Quadrula c. cylindrica</i>		Candidate
Winged mapleleaf	<i>Quadrula fragosa</i>	Endangered	Endangered
<b><u>Fish</u></b>			
Lake sturgeon	<i>Acipenser fulvescens</i>	Endangered	
Crystal darter	<i>Crystallaria asprella</i>	Endangered	
Swamp darter	<i>Etheostoma fusiforme</i>	Endangered	
Goldstripe darter	<i>Etheostoma parvipinne</i>	Endangered	

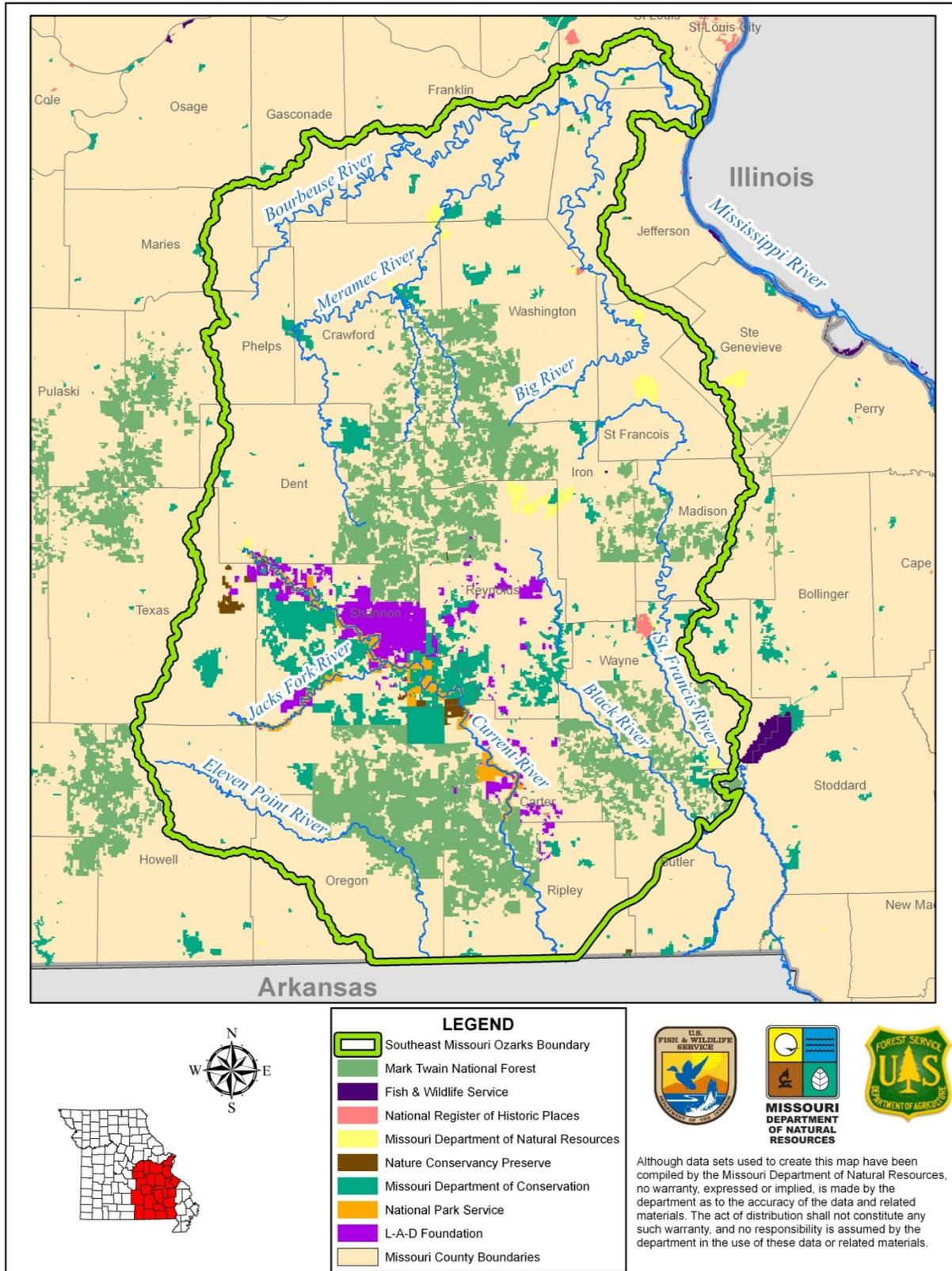
---

**Table 3 Continued**

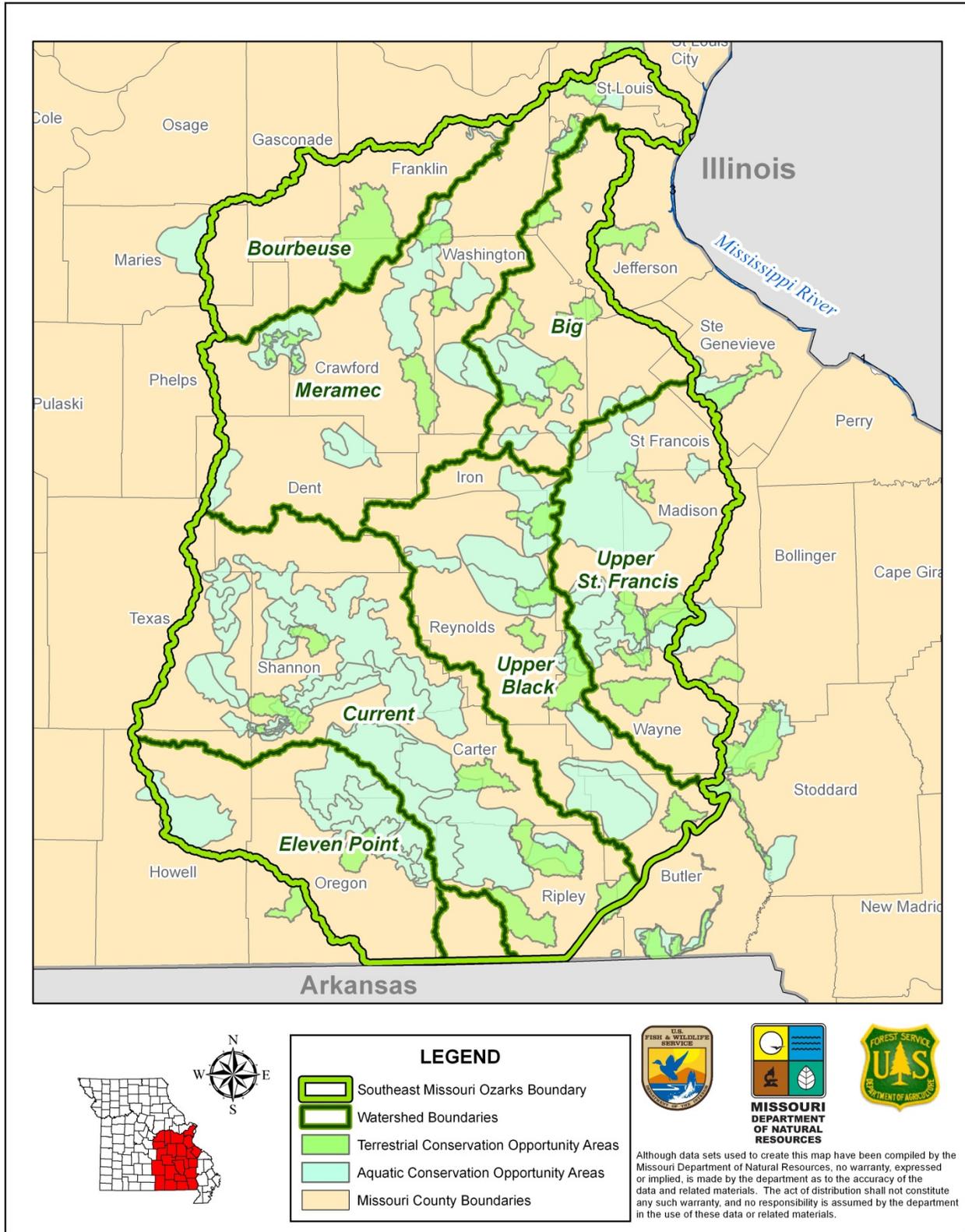
---

Common Name	Scientific Name	State Status	Federal Status
Sabine shiner	<i>Notropis sabine</i>	Endangered	
Mountain madtom	<i>Noturus eleutherus</i>	Endangered	
Longnose darter	<i>Percina nasuta</i>	Endangered	
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Endangered
<b><u>Insects</u></b>			
Hine's emerald dragonfly	<i>Somatochlora hineana</i>	Endangered	Endangered
<b><u>Amphibians</u></b>			
Eastern hellbender	<i>Cryptobranchus alleganiensis alleganiensis</i>	Endangered	
Ozark hellbender	<i>Cryptobranchus alleganiensis bishopi</i>	Endangered	Endangered
<b><u>Plants</u></b>			
Mead's milkweed	<i>Asclepias meadii</i>	Endangered	Threatened
Decurrent false aster	<i>Boltonia decurrens</i>	Endangered	Threatened
Virginia sneezeweed	<i>Helenium virginicum</i>	Endangered	Threatened
Pondberry	<i>Lindera melissifolia</i>	Endangered	Endangered
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i>	Endangered	Threatened
Running buffalo clover	<i>Trifolium stoloniferum</i>	Endangered	Endangered

**FIGURE 3. SELECT PROTECTED LANDS IN THE SOUTHEAST MISSOURI OZARKS**



**FIGURE 4. CONSERVATION OPPORTUNITY AREAS IN THE SOUTHEAST MISSOURI OZARKS**



## **SECTION 5 - ENVIRONMENTAL CONSEQUENCES**

The purpose of this section is to evaluate and explain the potential environmental impacts of the selection of a particular Alternative. The four alternatives reviewed in this document are discussed here to reveal their differences and to provide insight into the selection of the Trustees' Preferred Alternative.

### **5.1 Alternative A: No Action**

#### *5.1.1 Habitat Impacts*

Under this Alternative, no natural resources would be restored, enhanced, or acquired beyond what is currently being done within mandates, policies and budgets. The public would not be compensated for injuries to natural resources from the release of hazardous substances into the environment because no restoration linked to the injuries would occur.

#### *5.1.2 Biological Impacts*

Natural resources harmed by the release of hazardous substances into the environment would not be restored, rehabilitated, replaced or the equivalent acquired. Local populations of fish and wildlife species, including migratory birds, throughout the SEMO that rely on streams and associated upland, wetland, floodplain, and riparian corridor, surface water, and ground water habitats would not increase sufficiently to compensate for past losses. Ongoing residual injury would occur.

#### *5.1.3 Listed, Proposed, and Candidate Species*

Negative impacts to listed species would not be reduced under this alternative.

#### *5.1.4 Cultural Resources*

No cultural resources would be altered from their current condition.

#### *5.1.5 Environmental Justice*

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 Federal Register 7629 (1994)), directs federal agencies to incorporate environmental justice in their decision making process. Federal agencies are directed to identify and address as appropriate, any disproportionately high and adverse environmental effects of their programs, policies and activities on minority or low-income populations.

Under the No Action Alternative (A), wildlife viewing and environmental education opportunities would not improve through enhancement projects. Thus, the local environment would remain impacted while natural recovery occurs. While affluent individuals can afford to

travel and pay for non-impacted outdoor experiences located elsewhere, low-income individuals are less capable of doing so.

#### *5.1.6 Socioeconomic Impacts*

This alternative would not result in any positive direct or indirect impacts on the local economy. This alternative would not result in additional lands that could provide increased recreational opportunities and related economic development in the area.

#### *5.1.7 Cumulative Impacts*

If this alternative were implemented, the cumulative impacts would be adverse to the environment. Injuries to the environment likely would persist for some time into the future and would not be compensated for. The exclusive reliance on existing programs, regulations and policies do not necessarily provide for long-term restoration and preservation of high quality upland, wetland, floodplain, and riparian corridor, aquatic, and groundwater resources or additional services to compensate for injuries suffered.

### **5.2 Elements Common to Alternatives B, C, and/or D**

#### *5.2.1 Habitat Impacts*

Restoring, enhancing, or protecting upland, wetland, floodplain, and riparian corridor, aquatic, and groundwater resources negatively impacted by hazardous substances improves the ecological functions of the SEMO that are essential for many species. In addition, resource restoration and preservation may also improve public use and enjoyment of these resources. Benefits of upland, wetland, floodplain, and riparian corridor, aquatic, and groundwater resource improvements or enhancement would include improved water quality, restored habitat for fish and wildlife species, and increased ecological productivity. Improving the quality of vegetation and habitat for fish and wildlife would provide similar ecological functions as those potentially injured by hazardous substances.

Under Alternatives B, C, and D there would be minimal short-term impacts to habitat due to the needed manipulation of soil and sediments to complete upland, wetland, floodplain, and riparian corridor, and aquatic habitat restoration or enhancement projects.

#### *5.2.2 Biological Impacts*

Alternatives B, C, and D would benefit a wide suite of species found in the SEMO. Improvements to the habitats of species are expected to result in commensurate increases in the abundance and diversity of species that utilize the newly restored, created, or protected habitats. There would be minimal negative impacts to biological resources from human disturbance in relation to use of preserved areas and natural resource-based public use projects. The public use projects would also protect and potentially minimize human disturbance to fish and wildlife by controlling human impacts on those resources.

### 5.2.3 *Listed, Proposed, and Candidate Species*

State- and federally-listed or endangered species would receive further aid in the recovery of the species if Alternative B, C, or D were implemented. Protective measures would be taken during implementation of any projects to prevent any impact to these sensitive species. Adherence to the restrictions proscribed in the protective measures will provide for no adverse effects on the listed species. For federally-listed species, consultation under the Endangered Species Act will be conducted as described in Section 9.4 of this report.

#### 5.2.3.1 *Birds*

The State endangered Swainson's warbler and the State endangered Bachman's sparrow may use uplands restored or acquired under Alternative B, C, or D.

#### 5.2.3.2 *Mammals*

The gray bat and Indiana bat may benefit from caves and karst systems restored, protected, or acquired under alternatives B, C, or D. The State endangered plains spotted skunk may benefit from the preservation of small glades and rocky outcroppings, and also the maintenance and development of edges and brush piles restored under Alternatives B, C, and D.

#### 5.2.3.3 *Aquatic organisms*

State and federally-listed mussel species like the Pink mucket, the Rabbitsfoot, the Snuffbox, the Spectaclecase, and other mussel species require clean waterways and specific fish host species for their young. Mussel abundance and diversity may return or increase in surrounding waterways as aquatic stream habitat is restored, water quality is improved, and (as needed) mussels and their host species are propagated and reintroduced in the SEMO waterways. The Ozark hellbender may also benefit from restoration or acquisition projects under Alternative B, C, or D.

State- and federally-listed fish species like the crystal darter and the Niangua darter may benefit from aquatic habitat restoration or acquisition projects in Alternative B, C, or D.

#### 5.2.3.4 *Insects*

The state- and federally-listed Hine's emerald dragonfly may benefit from wetland, floodplain, and riparian corridor restoration and acquisition projects under Alternative B, C, or D.

#### 5.2.3.5 *Plants*

State- and federally-listed plant species like the running buffalo clover, Virginia sneezeweed, eastern prairie fringed orchid, and Mead's milkweed may benefit from upland restoration and acquisition projects under Alternative B, C, or D.

### 5.2.4 *Cultural Resources*

Projects covered under this EA such as planting riparian buffers, stabilizing stream banks, acquiring tracts of native prairie, restoring abandoned mine lands, and development for public uses or other eventual development on acquired lands have the potential to affect properties meeting the criteria for the National Register of Historic Places and other cultural resources. Specific areas for upland and wetland, floodplain, and riparian corridor restoration and land acquisition have not been determined. When project areas are determined during preparation of a RFP, and prior to making final decisions about these projects, the Field Supervisor at the Columbia, Missouri Ecological Field Office of the Fish and Wildlife Service, will initiate consultation with the Missouri State Historic Preservation Officer (SHPO) and, with the assistance of the FWS Regional HPO, will complete the Section 106 process. 36 C.F.R. Part 800. If the project occurs on the Mark Twain National Forest, then the Forest Supervisor will initiate the consultation and the Mark Twain National Forest Heritage Staff will oversee the Section 106 compliance.

#### *5.2.5 Environmental Justice*

Upland, wetland, floodplain, and riparian corridor, aquatic, and cave/karst preservation would involve transactions with willing landowners. Any impact to the local population, such as displacing fishermen from a particular section of stream, would be temporary and localized, with the goal of improved resources in the future. While the primary purpose of the restoration of this land to benefit fish and wildlife, portions of the acquired properties may be used by the public for natural resource based recreational/educational activities such as wildlife viewing. Aquatic habitat improvement would also enhance recreational opportunities in and around the SEMO.

#### *5.2.6 Socioeconomic Impacts*

Protection of prairies, wetland, floodplain, and riparian corridor, riparian buffers, and caves would provide wildlife viewing, fishing and hunting, and help create positive economic impacts on the local economy. Aquatic habitat improvements or enhancements would provide more opportunities for public enjoyment of natural resources. Acquisition procedures of land or purchase of conservation easements would involve transactions with willing land owners who would be paid fair market value.

#### *5.2.7 Elements Common to All Impacts*

Ongoing sources of contaminant release to the ecosystem, such as pollution associated with development would continue to affect the SEMO where restoration projects would be implemented under Alternatives B, C, and D. These additional sources of impact may also inhibit the ability of the natural resources to fully recover or may negatively impact restoration projects undertaken by the Trustees.

### **5.3 Alternative B: Primary Restoration of Injured Natural Resources**

#### *5.3.1 Cumulative Impacts*

Alternative B would limit the Trustees solely to primary restoration of natural resources at the site of the release of hazardous substances or where those substances come to be located in the environment. No compensatory restoration projects would occur under this alternative. Selection of Alternative B would compel the Trustees to spend restoration funds only at the site of release, without regard to other mitigating factors such as the local environment, prospects for restoration success, and long-term project viability due to external pressures. As a result, the Trustees may be compelled to spend large sums of money to directly restore resources that have limited value due to the surrounding environment (*e.g.* a restored woodland surrounded by urban development).

Cumulative impacts from the primary restoration implemented under Alternative B would still positively affect the region as a whole. Primary restoration is the Trustees stated preference for all potentially injured natural resources. However, the cumulative effect of primary restoration projects from Alternative B is expected to be less than cumulative benefits of the comprehensive restoration options offered by Alternative D. Due to the limitation of the ability of the Trustees to only consider primary restoration, Alternative B is less desirable than Alternative D., To begin restoring the resources of the SEMO that have been injured by the release of hazardous substances and achieving maximum benefit from restoration projects implemented, the Trustees need to have the flexibility to request and implement projects that best suit the needs, local conditions, and local communities affected by the injured natural resources while still meeting our legal requirements.

## **5.4 Alternative C: Compensatory Restoration**

### *5.4.1 Cumulative Impacts*

Alternative C would limit the Trustees solely to compensatory restoration projects. No primary restoration of injured natural resources to their baseline condition would occur under this Alternative. Selection of Alternative C would compel the Trustees to spend restoration funds solely off-site from the injured natural resources. Consequently, the Trustees would be without the ability to directly restore injured natural resources, even in situations where primary restoration is feasible, cost-effective, and desired by the local community.

Under Alternative C ongoing adverse effects from residual injury to natural resources would not be diminished, as primary restoration would not occur and the source of injury would not be eliminated.

Nonetheless, cumulative impacts from the compensatory restoration implemented under Alternative C will still positively affect the SEMO. Alternative C will provide for opportunities to add to and connect the currently protected resources over a larger geographic area than Alternative B. Consequently, Alternative C may also establish larger tracts of contiguous high quality habitat that would benefit many fish and wildlife species in the area.

However, the overall effect of restoration projects under Alternative C is expected to be less than the cumulative benefits of the comprehensive restoration alternatives offered by Alternative D. Due to these limiting factors, Alternative C is less desirable than Alternative D. To achieve maximum benefit from those restoration projects implemented, the Trustees need to have the

flexibility to request and implement projects that best suit the environmental needs, local conditions, and local communities affected by the injured natural resources while still meeting our legal requirements.

## **5.5 Alternative D: Tiered Project Selection Process Evaluating the Feasibility of Primary Restoration or Compensatory Restoration. (Preferred Alternative)**

### *5.5.1 Cumulative Impacts*

As the synthesis of restoration projects presented in both Alternatives B and C, Alternative D would contribute most to the efforts of the Trustees to restore natural resources in the SEMO. With the ability to selectively decide between primary restoration, off-site restoration/resource enhancement, or acquisition of equivalent resources, the Trustees can plan for and seek projects that will best restore natural resources to their baseline level of services or acquire the equivalent of such resource services. As a result, large tracts of injured natural resources can be considered for restoration, and where on-site restoration is impracticable, or less appropriate, suitable off-site restoration projects can be considered and implemented. The Trustees would use the project selection criteria as outlined in Sections (6) and (7) of this document to judiciously select the most appropriate restoration projects.

The inclusion of a greater diversity of projects under Alternative D allows for greater input and impact by local communities, organizations, and agencies. Accordingly, Alternative D provides for increased cooperation between the Trustees and the abovementioned entities towards the completion of conservation, natural resource enhancement, and restoration goals. Because of the ability to consider a greater diversity of projects, Alternative D may result in the establishment of larger tracts of continuous high quality habitat that would benefit species in the SEMO area than possible under either Alternatives B or C.

Cumulative impacts from the primary restoration and compensatory restoration projects implemented under Alternative D would result in the greatest positive impact for the SEMO as a whole. The overall effect of restoration projects under Alternative D is expected to be significantly greater than cumulative benefits offered by Alternative B or Alternative C.

## **5.6 Summary of Environmental Effects for Each Alternative (Table 4)**

**Table 4. Comparison of the Effects of Alternative A, B, C, & D,**

<b>Attributes</b>	<b>Alternative A (No Action)</b>	<b>Alternative B Primary Restoration</b>	<b>Alternative C Compensatory Restoration</b>	<b>Alternative D Primary Restoration, and Compensatory Restoration</b>
Uplands	Continued net loss of resources	Increase of upland resources associated with the restoration of injured sites	Uplands away from the site are restored and/or protected, additional protection from degradation or development. On-site injured resources remain unaddressed	Injured uplands are directly restored where appropriate; uplands are preserved, enhanced, or protected when primary restoration is not indicated
Wetland, floodplain, and riparian corridor	Expected continued net loss of resources	Increase of wetland, floodplain, and riparian corridor resources associated with the restoration of injured sites	Wetland, floodplain, and riparian corridor away from the site are restored and/or protected, additional protection from degradation or development. On-site injured resources remain unaddressed	Injured wetland, floodplain, and riparian corridor are directly restored where appropriate; wetland, floodplain, and riparian corridor are preserved, enhanced, or protected when primary restoration is not indicated
Aquatic resources	Continued degradation and loss of resources	Increase of aquatic resources associated with the restoration of injured sites	Aquatic resources away from the site are restored and/or protected, additional protection from degradation or development. On-site injured resources remain unaddressed	Injured aquatic resources are directly restored where appropriate; aquatic resources are preserved, enhanced, or protected when primary restoration is not indicated
Surface water	Remain degraded due to land use issues and historic pollution in sediments	Increase of surface water quality associated with the restoration of injured sites	Surface water quality away from the site is restored and/or protected, additional protection from degradation or development. On-site injured resources remain unaddressed	Injured surface waters are directly restored where appropriate; surface waters are preserved, enhanced, or protected when primary restoration is not indicated
Ground water, cave and karst resources	Continued degradation and loss of resources	Increase of ground water quality associated with the restoration of injured sites	Groundwater resources away from the site are restored and/or protected, additional protection from degradation or development. On-site injured resources remain unaddressed	Injured ground water/cave/karst resources are directly restored where appropriate; ground water/cave/karst resources are preserved, enhanced, or protected when primary restoration is not indicated
Biological resources	Continued injury	Increase in abundance with restoration of injured sites	Increase in abundance in locations other than the site of injury.	Biological resources increase in abundance at the site of injury where primary restoration is implemented and at off-site locations when compensatory restoration is indicated
Listed threatened or endangered species	Negative impacts would continue	Potential recovery of species in the area of primary restoration	Protection of species through acquisition of existing resources. On-site injured resources remain unaddressed.	Potential recovery of listed species at the site of primary and compensatory restoration. Protection of species through acquisition of existing resources

**Table 4 Continued**

<b>Attributes</b>	<b>Alternative A (No Action)</b>	<b>Alternative B Primary Restoration</b>	<b>Alternative C Compensatory Restoration</b>	<b>Alternative D Primary Restoration and Compensatory Restoration</b>
Cultural resources	No change in current condition.	Adverse impacts are possible	Adverse impacts are possible	Adverse impacts are possible
Environmental justice issues	Degraded resources impacting communities are not restored.	Degraded resources impacting communities are directly restored	Degraded resources impacting communities are not restored. Persons distant from the site more directly benefit from restoration	Degraded resources impacting communities are restored or the public is compensated for their loss with appropriate off-site restoration projects
Socioeconomic issues	Local economy would remain the same due to continued injury without restoration	Local economy could potentially increase due to funds spent on primary restoration	Increase likelihood of restoration benefiting regional economy due to greater geographic region	Local economy likely to benefit from the restoration of injured sites, funds expended on restoration, and enhanced wildlife, fishing, hiking, viewing, etc. opportunities.
Recreational use, environmental education and resource enjoyment	No enhancement or increase in recreational opportunities or environmental education	Potential enhancement of wildlife viewing and fishing opportunities at the site only.	Allows for enhancement of wildlife viewing and fishing opportunities as well as enhancement of understanding of the ecosystem in areas similar to the injured resources.	Allows for enhancement of wildlife/bird viewing and fishing opportunities as well as enhancement of understanding of the ecosystem both at the site and at off-site areas designed to compensate the public.
Cumulative impacts	Potential decrease in abundance of biological resources, continued loss of upland and wetland, floodplain, and riparian corridor resources, continued degradation of groundwater	Increased abundance of biological resources and greater diversity in the aquatic and terrestrial biotic communities; some ecosystem functions restored.	Increased abundance of terrestrial and aquatic communities only at locations other than the site of release. Natural resources at the site of injury remain injured.	Increased abundance of biological resources and greater diversity of aquatic and terrestrial biotic communities; ecosystem functions are able to be restored. Local communities have more opportunities for increased natural resources and enjoyment.

## **SECTION 6 – COMPENSATORY RESTORATION REQUEST FOR PROPOSAL PROCESS**

### **6.1 Compensatory Restoration**

Compensatory restoration is one of two options for restoration which the Trustees may exercise to compensate the public for loss of natural resources and the services they provide. As discussed in Section 1 of this restoration plan the term “Compensatory Restoration” will be used to refer to the following restorations types:

- Acquisition of Equivalent Resources or Replacement: the substitution of an injured resource with one that provides the same or substantially similar services. 43 C.F.R. §§ 14(a) and (ii). An example of AER is the purchase of a property containing high-quality natural resources that is threatened with development or destruction; and
- Compensatory Restoration: any action taken to offset the interim losses of natural resources from the date of the event until recovery (USBLM, 2008). An example of compensatory restoration is the removal of undesirable eastern red cedar trees from a glade habitat to compensate for injuries to substantially similar natural resources that occurred elsewhere.

Compensatory restoration is distinguished from primary restoration (discussed in Section (7)) in that it enhances resources or services different from those injured, with the difference being either the type of services restored or the location where services are restored.

By law, the Trustees are responsible to the public to use recovered restoration funds solely for the restoration of natural resources injured by the release of hazardous substances, and/or pollutants. The Trustees must ensure that there is a connection between the injury and the restoration project implemented. The Trustees are accountable to the public for how the restoration funds are expended and must comply with requirements under NEPA and CERCLA. There is no intent by the Trustees to delegate these responsibilities to other parties or organizations.

### **6.2 The Request for Proposal Process**

Compensatory Restoration projects will be evaluated and selected through a Request for Proposal or RFP process. In order to maximize the ecological benefit of the natural resource damage recoveries, it is the intent of the Trustees to utilize this RFP process to assist in the identification of compensatory restoration projects for implementation. Issuance of an RFP by the Trustees will be triggered by a number of factors, including but not limited to the availability of restoration funds, staff time and availability, input from stakeholders, the schedule of CERCLA response actions at a particular site, and the nature of the resource injury. Issuance of an RFP will be announced by multiple media sources and a public meeting near the targeted geographical priority area discussed in the RFP. The Trustees will work with stakeholders and amongst themselves to identify projects which meet the restoration criteria and goals contained within this SEMORRP. The Trustee Council will evaluate and make the final recommendations

on the selection of projects. The exemplar RFP contained in Appendix G serves as a model for future RFPs. It contains the restoration project RFP format and guidance for a hypothetical restoration fund.

Potential stakeholders include, but are not limited to, private landowners, municipalities, county and local governments, state and federal agencies, private and public entities, and private and public nonprofit organizations interested in implementing restoration projects to restore injured natural resources and their services. Restoration project proposals prepared by local agencies or groups are more likely to be supported by the community overall because they will better reflect local interests and priorities. Overall effectiveness of the SEMORRP will increase through leveraging public and private contributions (dollars and services) and coordination with other area enhancement projects. Note that the Trustees can submit projects through the RFP process. These project submittals will be evaluated objectively using the same criteria as non-trustee submittals. If the RFP process does not result in any proposals that adequately meet the goals laid out in the RFP, the Trustees reserve the right to re-issue the RFP at a later date.

Restoration projects should not duplicate or substitute for traditional funding sources or program responsibilities; they should be in addition to existing responsibilities. Basic principles such as fish and wildlife biology, landscape ecology, botany, wetland, floodplain, and riparian corridor ecology, and hydrology are important concepts to utilize in the development of quality restoration projects that restore both habitat structure and function and comply with the goals of the SEMORRP. Maximizing resources and leveraging monies for restoration projects is strongly encouraged. The Trustees may condition proposal funding offers on land management requirements such as sustainable forestry.

#### *6.2.1 Communication with the Trustees*

The Trustees will use their websites for a multitude of purposes, including, but not limited to: the announcement of public meetings, acceptance of comments on the SEMORRP, announcement of scheduled releases of RFPs, publication of dates for project proposal submission, publication of RFPs, announcement of selected restoration projects, and general communication of restoration efforts in the SEMO. Requests for Proposals will also be advertised on <http://www.grants.gov>. Project submission details and requirements will be included in each individual RFP that the Trustees release. The FWS' NRDAR website is located at <http://www.fws.gov/midwest/es/ec/nrda/SEMONRDA/index.html>. The MDNR's NRDAR website is located at <http://www.dnr.mo.gov/env/hwp/sfund/nrda.htm>. Hard copies of all materials on the websites will also be available in the FWS' office in Columbia, Missouri, and the MDNR's office in Jefferson City, Missouri.

The Trustees reserve the right to initiate or return communications in any form to project proposal submitters to request clarifications in their proposal documents. The Trustees will notify each submitter separately regarding their selection or failure to be selected for funding under a specific RFP. The public will be notified of selected restoration project proposals via the Trustees' respective NRDAR websites and via local repositories.

## **6.3 Compensatory Restoration Project Proposal Evaluation Criteria**

Sections 6.3.1 through 6.5 below provide detailed information regarding the criteria for compensatory restoration project proposals. The scoring criteria or Decision Matrix (Appendix A) which the Trustees will use to score individual restoration project proposals is included as Appendix A. Appendix B details the full process which the Trustee Council will use to screen and select successful restoration project proposals.

### *6.3.1. Benefit Scope*

Wherever possible, natural resource functions that are self-sustaining and essential to maintain the resource will be restored or enhanced and protected. Projects that provide long-term benefits that begin immediately after project implementation are preferred, assuming that any operation and maintenance activities required for long-term success will be conducted. Projects that provide a broad scope of measurable benefits to a wide area or wildlife resource will be given priority. Those that are focused on a limited set of benefits to a limited area or wildlife resource are less preferred. Restoration projects should not have disproportionate high costs or low benefits to a small area. Projects that benefit more than one injured natural resource will also be given priority. Projects that use reliable, tested methods are preferred to those that rely on untested methods. Natural resource-based restoration projects with a high ratio of expected benefits to expected cost will be preferred. This aspect may be assessed relative to other proposed projects that benefit the same resource. Projects promoting species native to the SEMO will be preferred.

### *6.3.2 Quantifiable Benefit*

Restoration projects with quantifiable benefits and easily discernible success endpoints are a higher priority than projects that do not include these measures. Restoration project proposals shall include performance measures to determine whether the restoration actions are effective in providing the public with similar services and values to those lost due to the release of hazardous substances into the environment. A timeline outlining the implementation and establishment of the restoration project will be used by the Trustees to determine completion and success of the project. The overall success of the Trustees' restoration plan will depend upon the success of each restoration project.

### *6.3.3 Potential Impact*

Priority will be given to restoration projects that avoid or minimize negative impacts to natural resources or environmental degradation. Temporary degradation which is necessary for project success will not preclude the selection of a restoration project. Mitigation measures, if necessary, should be identified in the proposal. The Trustees will require that all appropriate permits are obtained and regulations followed. All projects selected for implementation will comply with applicable and relevant laws, policies and regulations.

#### 6.3.4 Voluntary Land Acquisition/Easements

Protection of resources through acquisition of land or conservation easements will only be from willing sellers or participants. Landowners will be under no obligation to sell or provide a conservation easement for the purposes of implementing a restoration project. Neighbors adjacent to land purchased for preservation under this restoration plan will retain all of their current rights to their lands. The Trustees are required to pay fair market value for land purchased. Fair market value will be determined through established appraisal procedures.

#### 6.3.5 Geographic Area

All potential compensatory restoration projects will be evaluated for their proximity to the injury. Priority will be given to projects that seek to restore or compensate the public for injury in the geographic area identified by the Trustees. All restoration projects that are authorized under this plan will seek to restore or replace natural resources within a defined geographic area as indicated in the RFP, unless the Trustees determine that all other options are exhausted.

Geographical priorities will be influenced by the following factors:

- 1) proximity to the impacted natural resources and/or lost services; and
- 2) quality of restoration opportunities (areas with substantial ecological opportunities are preferred).

#### 6.3.6 Climate Change

The climate of the Earth is changing with the potential to cause changes in ecosystems and mass species extinctions. The FWS is committed to examining every activity it performs for its implications for climate change, (USFWS, 2009). Consequently, the restoration project proposals will also be evaluated in the context of climate change—both its implications for and its adaptability to climate change. In particular, restoration project proposals should address how the proposed project incorporates one or more of the four basic climate change adaptation approaches or strategies identified by the FWS: Resistance, Resilience, Response, and Realignment. ([www.wildlifeadaptationstrategy.gov/](http://www.wildlifeadaptationstrategy.gov/)). Further information about the FWS' perspective and plan for Climate Change can be found at:

<http://www.fws.gov/home/climatechange/index.html>.

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 soil. 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 SEMORRP and will not be funded under this process.

### *6.3.7 Landscape Conservation Cooperatives*

By leveraging resources and strategically targeting science to inform conservation decisions and actions, Landscape Conservation Cooperatives (LCCs) are a network of partnerships working in unison to ensure the sustainability of America's land, water, wildlife and cultural resources. LCCs are applied conservation science partnerships focused on a defined geographic area that informs on-the-ground strategic conservation efforts at landscape scales. LCC partners include federal agencies, states, tribes, non-governmental organizations, universities and others. LCCs enable resource management agencies and organizations to collaborate in an integrated fashion within and across landscapes. General information regarding LCCs is available at: <http://www.fws.gov/science/shc/lcc.html>.

The SEMO falls within the Interior Highlands section of the Gulf Coastal Plains and Ozarks LCC. The Trustees plan to utilize the expertise of the Gulf Coastal Plains and Ozarks LCC and coordinate their activities to the greatest and most environmentally beneficial degree possible.

### *6.3.8 Strategic Habitat Conservation*

Strategic Habitat Conservation is a structured, science-driven approach for making efficient, transparent decisions about where and how to expend FWS resources for species, or groups of species, that are limited by the amount or quality of habitat. It is an adaptive management framework integrating planning, design, delivery and evaluation. The purpose of the Strategic Habitat Conservation framework is to ensure that the FWS uses the best process to make decisions about local conservation actions to achieve broad-scale objectives as efficiently as possible. Further information regarding Strategic Habitat Conservation is available at: <http://training.fws.gov/EC/resources/shc/shc.htm>.

A fundamental principle of Strategic Habitat Conservation is that every site has a unique management potential for every trust species. Consequently, this SEMORRP will evaluate projects for both selection and eventual success under the context of Strategic Habitat Conservation.

### *6.3.9 Missouri Conservation Opportunity Areas, Parks, and Other Public Lands*

The Missouri Department of Conservation's framework of COAs identifies the best places where partners can combine technology, expertise and resources for all wildlife conservation. Focused efforts in these COAs will ensure that Missourians continue to enjoy a rich and diverse natural heritage. Further information regarding COAs is available at: <http://mdc.mo.gov/landwater-care/priority-focus-areas/conservation-opportunity-areas>. The MDC has several COAs in the SEMO, including the LaBarque Creek, Middle Meramec, St. Francois Knobs, Current River Hills, and Eleven Point Hills COAs (Figure 4) (Conservation Commission of Missouri, 2009).

Restoration projects that serve to enlarge, buffer, connect, or restore existing protected natural resources in the SEMO will be given preference under the SEMORRP. Compensatory restoration projects funded under this plan do not have to specifically occur within or adjacent to a designated COA, park, or other public property; however, restoration projects that meet other

criteria and also occur within above described areas will receive additional points according to the Trustees' Decision Matrix, as outlined in Appendix A.

#### *6.3.10 The U.S. Forest Service's Mark Twain National Forest Plan*

The Mark Twain National Forest (MTNF) has developed and published an in-depth, descriptive analysis of current forest conditions as well as desired goals and objectives for future management activities on the entire Forest. It can be found on the Mark Twain National Forest website: [http://www.fs.usda.gov/detail/mtnf/landmanagement/?cid=fsm8\\_045643](http://www.fs.usda.gov/detail/mtnf/landmanagement/?cid=fsm8_045643). Where NRDAR restoration objectives and priorities align with MTNF management priorities, the Trustees will give preference to restoration projects implemented on the MTNF that serve to fulfill both sets of priorities, provided that the same or substantially similar natural resources or the services they provide injured by the release of hazardous substances are being restored. However, NRDAR restoration funds will not be used to replace or supplant normal funding sources for the MTNF. Compensatory restoration projects implemented on the MTNF should only be in addition to normal management activities.

#### *6.3.11 The U.S. Forest Service's Collaborative Forest Landscape Restoration Program*

The Forest Service's Collaborative Forest Landscape Restoration Program (CFLRP) is an innovative and pioneering program designed to prioritize the restoration of critical forest landscapes. The CFLRP is being implemented on a national scale and presents a unique opportunity to potentially complement NRDAR restoration in the MTNF. The goals of the CFLRP are further defined below:

The purpose of the CFLRP is to encourage the collaborative, science-based ecosystem restoration of priority forest landscapes. The Collaborative Forest Landscape Restoration Program expands collaborative landscape partnerships to:

- encourage ecological, economic, and social sustainability;
- leverage local resources with national and private resources;
- facilitate the reduction of wildfire management costs, through re-establishing natural fire regimes and reducing the risk of uncharacteristic wildfire;
- demonstrate the degree to which various ecological restoration techniques achieve ecological and watershed health objectives; and,
- encourage utilization of forest restoration by-products to offset treatment costs, to benefit local rural economies, and improve forest health.

<http://www.fs.fed.us/restoration/CFLRP/index.shtml/index.shtml>

The MTNF has successfully applied for funds under the CFLRP and will begin to implement their "Missouri Pine-Oak Woodland Restoration Project" using prescribed fire and mechanical treatments in priority areas of the Current River and the Black River Watersheds in Shannon, Carter, Wayne, Butler, Ripley, and Oregon counties. To the extent that the Trustees' Compensatory Restoration priorities align with the restoration priorities described in the MTNF's Pine-Oak Woodland Restoration Project, the Trustees will prioritize restoration projects that serve to fulfill both sets of priorities. Aligning the SEMORRP with existing restoration and

management plans allows the Trustees to leverage the previous planning efforts that have taken place in the SEMO, while still keeping a focus on restoring natural resources and services that were injured by the release of hazardous substance

### 6.3.12 Tribal Cultural Resources

The restoration of specific areas or resources with appreciable cultural value to Native American tribes is important to the Trustees. Although no federally recognized tribes currently reside in Missouri, several federally recognized tribes consider portions of the Forest to be important ancestral homeland areas. Mark Twain National Forest currently consults with 28 federally recognized tribes.

## 6.4 Compensatory Restoration Project Proposal Acceptability Criteria

Proposed compensatory restoration projects must meet the Acceptability Criteria (Table 5) to be considered further in the project selection process. These criteria were developed by the Trustee Council to aid in eliminating those projects that are inconsistent with the requirements of the NRDAR regulations. In essence, the Acceptability Criteria stipulate that a restoration project must comply with all applicable laws and regulations, address resources or services connected to those injured only by the release of hazardous substances and be technically feasible to implement. Proposed projects will be evaluated on a pass/fail system in relation to each criterion. If a proposed project passes each criterion, it will be evaluated further under the Restoration Ranking Criteria. If a proposed project fails any of the Acceptability Criteria, it will no longer be considered.

**Table 5. Acceptability Criteria for Compensatory Restoration Project Planning**

<b>Criteria</b>	<b>Interpretation</b>
Is compliant and consistent with federal and state laws, policies and regulations.	Project must be legal and protect public health, safety, and the environment.
Has demonstrated technical feasibility, and is within the funding limits identified in the RFP.	Projects must be feasible within the proposed budget.
Addresses impacted natural resources or services targeted for restoration within the RFP.	Projects must restore, rehabilitate, replace or acquire the equivalent of natural resources impacted by the release of hazardous substances in the SEMO.
Project will not be used for response actions, and will not be used to reduce or eliminate NRDAR liability by a Potentially Responsible Party (PRP).	Project addresses the specific concerns and criteria laid out by the Trustees.

## 6.5 Compensatory Restoration Project Proposal Ranking Criteria

The Trustees developed criteria to evaluate and rank potential compensatory restoration projects. These criteria (Table 6) reflect the Trustee requirements and priorities for NRDAR restoration as outlined in Section (6) and the Preferred Alternative. The purpose of the project ranking criteria is to provide a means of ranking potential restoration projects against each other by considering the objectives and requirements of the NRDAR restoration planning process. Proposed projects will then be rated by priority within each criterion. Projects with the highest ranking will undergo final review and selection for implementation by the Trustees. Only proposals meeting Acceptability Criteria (Section 6.4, Table 5) will be considered.

These evaluation criteria relate to whether the project meets the goals and objectives of the Trustees for restoration of the SEMO relating to project location, injury caused by release of the hazardous substance, restoration goals, project implementation, feasibility, cost-effectiveness, project types, timing, and duration of benefits provided by the project.

**Table 6. Compensatory Restoration Project Ranking Criteria**

Criteria	Interpretation
Project occurs in an identified priority geographic area.	Projects closer to the site of injury to natural resources are preferred to projects further from the site of release of hazardous substances.
Project occurs within or adjacent to a park, national forest, natural area, conservation area, or conservation opportunity area within the geographic area identified	Preference is given to the expansion and buffering of existing protected areas as well as those areas identified in existing landscape scale conservation planning efforts.
Restores or replaces injured, lost, or depressed ecological services.	Priorities include woodlands, glades, savannahs, wetland, floodplain, and riparian corridor, aquatic resources, groundwater, state and federal rare, threatened or endangered species, and native species.
Project fits within one or more of the restoration project categories identified as appropriate for restoring injured resources.	Projects addressing the identified restoration goals in the RFP will receive the highest priority for funding.
Benefits federal- and state-listed species, or Missouri Species of Concern.	Preference is given to projects that directly and indirectly benefit federal and state listed species and Missouri species of concern.
Restores lost human uses (e.g., drinking water, recreational opportunities).	Projects that serve restore lost human uses while simultaneously restoring natural resources and the services they provide will be given preference.

**Table 6 Continued**

Restores or enhances native diversity and abundance.	Projects which enhance the diversity and abundance of native Missouri flora and fauna will be preferentially funded over those projects which do not.
Creates greater connectivity between existing natural areas.	Connectivity between existing natural areas is importance for the maintenance of healthy gene flow. Consequently, the Trustees will give preference to projects that enhance or create connectivity.
Ecosystem improvements are self-sustaining.	Projects which do not require continual maintenance and investment of resources will be prioritized over projects that require continued operations and maintenance.
Provides specific benefits or enhancements not provided by other restoration or ongoing management projects.	Restoration project proposals which serve to fund projects not directly sponsored through traditional governmental or other funding methods will be prioritized.
Complements planned response actions. Does not provide benefits already provided by response actions.	To the extent practical, restoration projects should seek to complement known response actions if they exist at the specified sites. This requirement will not be listed for sites where response actions are not conducted.
Provides the greatest scope of ecological, cultural, and economic benefits to the largest area or resource.	To the degree that a bigger project results in greater good, bigger projects are better. Projects that benefit more than one injured resource or service will be given priority. Projects that avoid or minimize additional impacts to natural resources or environmental degradation will be given priority.
Time required to return resources to baseline condition is minimized.	Proposal identifies expected timeline to return to baseline.
Minimal adverse impact to natural resources will occur from the proposed actions over the long term.	Proposed project does not pose the risk of adverse environmental effects or the project proposal explicitly identifies steps which will be taken to mitigate the risk of adverse environmental impacts.
Is cost effective, including planning, implementation, and long-term operation, maintenance, and monitoring.	A project with a high ratio of expected benefits to expected costs is preferred. This may be assessed relative to other projects that benefit the same resource.
Additional funds (matching or scaled) are provided by proposal source (submitter) or to be pooled with other funding sources.	Proposals with other sources of funding, including in-kind services, will be given priority over project proposals that do not include other sources of project funding.

**Table 6 Continued**

Project involves partnerships between multiple entities.	Proposals received from a partnership of groups, agencies, landowners, or other consortia will be given priority by the Trustees.
Project involves a monitoring component.	Projects will be evaluated in terms of whether the benefits can be quantified and the success of the project determined. A restoration monitoring plan is included. Projects can be scaled to provide restoration of appropriate magnitude. Small projects that provide only minimal benefit relative to injured resources or larger projects that cannot be appropriately reduced in scope are less favored.
Project identifies performance measures for successful restoration.	Project identifies timeline for restoration success and specific quantitative or qualitative performance measures that can be used to identify the progress and completion of the project.
If goals of restoration are not being achieved, the project identifies the next steps to achieve restoration success.	Preference will be given to project proposals which explicitly identify mitigating steps which the submitter will take given scenarios where restoration success is not achieved within the timeframe, scope, or location described in the proposal.
Uses methods that are known to be technically practicable or has research to support the feasibility of the project.	Projects will be evaluated for their likelihood of success given the proposed methods. Factors that will be considered include whether the proposed technique is appropriate to the project, whether it has been used before, and whether it has been successful. Projects incorporating wholly experimental methods, research, or unproven technologies will be given lower priority.

## **SECTION 7- PRIMARY RESTORATION IMPLEMENTATION PROCESS**

### **7.1 Primary Restoration Considerations**

The Trustees have decided to include the ability to directly control the implementation of primary restoration at the sites where injury to natural resources has been determined by assessment studies. Primary restoration is defined as:

- Any action taken to return an injured natural resource and its services to its baseline condition. Restoration projects that directly restore natural resource injuries caused by the release of hazardous substances are considered primary restoration. An example of primary restoration is the removal of contaminated materials from an ecosystem where they are causing injury to natural resources.

By law, the Trustees are responsible to the public to use recovered restoration funds solely for the restoration of natural resources injured by the release of hazardous substances, and/or pollutants. The Trustees must ensure that there is a biological connection between the injury and the restoration project implemented. The Trustees are accountable to the public for how the funds are expended and must comply with requirements under NEPA and CERCLA. There is no intent by the Trustees to delegate these responsibilities to other parties or organizations.

Implementation of primary restoration at the site of natural resource injury may involve the following complications and complexities:

- Health and Safety Hazards
- Complex site ownership histories and permissions
- Lengthy permitting processes
- Limited suite of available sites for primary restoration
- The presence of residual contamination in remediated habitat that presents an attractive nuisance to wildlife unless properly restored
- Advanced technical issues not present at “normal” resource restoration projects
- Other considerations which may impair restoration success

Due to the likely presence of these confounding conditions at primary restoration sites, the Trustees determined that implementation of primary restoration projects on sites where hazardous substances have been released does not conform with an RFP process. Consequently, for the implementation of primary restoration at sites covered by this plan, the Trustees will not use an RFP process akin to the process described in Section (6) of this plan for compensatory restoration. Instead, the Trustees will implement primary restoration according to the details laid out below and in accordance with Section (8) of this plan.

In order to provide greater transparency to the public regarding the Trustees’ intentions for the disposition of funds discussed in Section (1.5), the Trustees have developed a SRIP. The SRIP identifies the anticipated timeframe and the estimated amounts of restoration funds that will be issued by the Trustees. The SRIP is discussed further in Section (8) of this plan.

## **7.2 Primary Restoration Project Proposals, Evaluation, and Implementation**

Sections 7.2.1 through 7.2.5 provide detailed information regarding primary restoration proposals which the Trustees will generate as well as the criteria which the Trustees will use to select and implement primary restoration projects consistent with the findings of the Trustees injury determination studies.

### *7.2.1 Primary Restoration Project Proposals*

The first step in the implementation of primary restoration projects is the generation of a primary restoration proposal from one or more of the Trustees. Proposals for primary restoration will be crafted to reflect the known suite of information regarding the NRDAR site where the Trustees' have made a successful claim. Proposals will contain information which is substantially similar to the information requested in the "Restoration Project Information Sheet" of Appendix G of this plan. At a minimum, Primary Restoration Project Proposals will include the following information:

1. Project cost and budget estimate

The Trustee(s) proposing a primary restoration project will provide an approximate budget estimate for the funding requested in descriptive summary categories such as personnel, surveying, easements, contractual services, materials etc. The Trustees will also include information pertaining to any types of cost sharing, such as other funding sources or in-kind services that will add the value of the proposal.

2. Timeline

The Trustee(s) will outline the estimated time and steps or phases needed to complete the primary restoration project including an estimated completion date as well as long term monitoring and maintenance requirements of the project.

3. Description of parcels, streams, or other areas currently being considered

The Trustee(s) will provide details on all potential land currently being considered for primary restoration. Details will include parcel size and location on a map, approximate size of restoration acreage (if different), general description of pre-restoration conditions of the land (wetland or upland, vegetation cover type, etc.), connectivity with nearby greenspaces, and any special conditions that may exist on the property (utilities, easements, etc).

4. Description of primary restoration technologies and techniques to be implemented

The Trustee(s) proposing a primary restoration project will discuss the technologies and techniques they are planning to implement at the restoration site. The discussion will include the scientific basis for the restoration technology, partners used in the development and implementation of the project, as well as the mechanisms and processes used to implement the restoration.

## 5. Benefit Scope

Primary restoration project proposals will describe the immediate and long term benefits of the restoration of the injured resource. Projects that provide long-term benefits that begin immediately after project implementation will be preferentially selected, assuming that any operation and maintenance activities required for long-term success will be conducted. Projects that provide a broad scope of measurable benefits to a wide area or wildlife resource will be given priority. Restoration projects should not have disproportionate high costs or low benefits to a small area. Projects that benefit more than one injured natural resource will also be given priority. Primary restoration projects with a high ratio of expected benefits to expected cost will be preferred. Projects utilizing species native to the SEMO will be required.

## 6. Quantifiable Benefit

The Trustee(s) will also discuss how the return of ecological services provided by the restored resources will be quantified. Restoration projects with quantifiable benefits and easily discernible success endpoints are a higher priority than projects that do not include these measures. Primary restoration projects proposed by the Trustees will include performance measures to determine whether the restoration actions are effective in providing the public with similar services and values to those lost due to the release of hazardous substances into the environment.

## 7. Potential Impact

Discussion of the potential impacts to the environment will be included in the primary restoration project proposals. Priority will be given to restoration projects that avoid or minimize negative impacts to natural resources or environmental degradation.

Temporary degradation which is necessary for project success will not preclude the selection of a restoration project. The Trustees will ensure that all appropriate permits are obtained and regulations followed. All projects selected for implementation will comply with applicable and relevant laws, policies and regulations.

## 8. Voluntary Participation in Primary Restoration and Easements

Landowners will be under no obligation to sell or provide a conservation easement for the purposes of implementing a primary restoration project. The Trustees will only implement primary restoration projects on the lands of willing owners without exception.

## 9. Climate Change

The climate of the Earth is changing with the potential to cause changes in ecosystems and mass species extinctions. The FWS is committed to examining every activity it performs for its implications for climate change, (USFWS, 2009). Consequently, all primary restoration projects will be evaluated in the context of climate change—both its implications for and its adaptability to climate change. Further information about the

FWS' perspective and plan for Climate Change can be found at:  
<http://www.fws.gov/home/climatechange/index.html>.

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 soils. 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 SEMORRP and will not be funded under this process.

### *7.2.2 Primary Restoration Project Proposals Selection and Evaluation*

Akin to compensatory restoration project selection and evaluation, the Trustees will use the Decision Matrix (Appendix A) to evaluate primary restoration proposals for suitability for implementation. Full details regarding the acceptability and ranking criteria in the decision matrix are discussed in Section (6) of this plan. The Trustee Council will jointly review and select primary restoration proposals to implement.

### *7.2.3 Public Participation and Primary Restoration*

Prior to the implementation of any selected primary restoration project the Trustees will advertise and conduct a public meeting to discuss, answer questions, and solicit public comment on the selected primary restoration project. The Trustees will accept comments in writing and via e-mail for a period of at least 30 days. The Trustees will respond in writing to all received comments prior to the implementation of any primary restoration projects.

### *7.2.4 Primary Restoration Project Implementation*

Though the Trustees will not use an RFP process to solicit primary restoration projects under the SEMORRP, the Trustees will utilize a similar process of advertising and requesting bids for professional services or goods necessary to complete selected primary restoration projects in accordance with applicable federal and state laws. In instances where the Trustees utilize a request for bids, a substantially detailed bid document will be prepared and shared throughout the geographic priority area for restoration via local media sources, the Trustees' websites, <http://www.grants.gov>, and other means in compliance with state and federal contracting laws.

Through a variety of forums and public listening sessions in the SEMO area, the Trustees have repeatedly heard from private landowners that they prefer to directly influence and assist in the implementation of primary restoration projects on their own property. The Trustees or their designees will make every effort to work directly with private landowners and public land managers to implement the most appropriate types of primary restoration at the site of injury to natural resources and the services they provide. Additionally, the Trustees will make a concerted effort to include incentives within their requests for bid documents that encourage respondents to utilize local contractors, materials, and labor as compliant with state and federal contracting laws.

Successful respondents to a request for bids will enter into a contractual agreement with one of the Trustees. Additional contracting requirements may be applicable for successful respondents. For example, professional services or certain construction activities may require proof of Errors and Omissions Insurance and securing of a Payment and Performance Bond. 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.

### *7.2.5 Communication with the Trustees*

Similarly to compensatory restoration, the Trustees will use their websites for a multitude of purposes regarding primary restoration, including, but not limited to: the announcement of public meetings, issuing requests for bids for aspects of the primary restoration process, announcement of primary restoration project schedules, and general communication of restoration efforts in the SEMO. The FWS' NRDAR website is located at <http://www.fws.gov/midwest/es/ec/nrda/SEMONRDA/index.html>. The MDNR's NRDAR website is located at <http://www.dnr.mo.gov/env/hwp/sfund/nrda.htm>. Hard copies of all materials on the websites will also be available in the FWS' office in Columbia, Missouri and the MDNR's office in Jefferson City, Missouri at the following addresses:

U.S. Fish & Wildlife Service  
Ecological Services Office  
Attn: John Weber  
101 Park DeVille Dr. Suite A  
Columbia, MO 65203

Missouri Department of Natural Resources  
Hazardous Waste Program  
Attn: Eric Gramlich  
P.O. Box 176  
Jefferson City, MO 65102-0176

The public will be notified of selected restoration projects via the Trustees respective NRDAR websites and via local outreach.

### **7.3 Additional National Environmental Policy Act (NEPA) Considerations for Primary Restoration**

In the course of the development of primary restoration proposals for specific sites that fall within the SEMO, it has come to the attention of the Federal Trustees that additional NEPA analyses may be required for certain restoration projects (*e.g.* in stream restoration of contaminated sediments in the Big River). The Federal Trustees will ensure that any necessary additional NEPA analyses are conducted prior to the implementation of restoration projects.

## **SECTION 8 – DRAFT STRATEGIC RESTORATION IMPLEMENTATION PLAN**

The Trustees have developed a stand-alone Draft Strategic Restoration Implementation Plan (SRIP) to accompany this restoration plan. The SRIP was designed to provide greater transparency regarding the Trustees' intentions, plans, and timeframes for restoration in the SEMO. The SRIP covers both compensatory and primary restoration in the SEMO and includes the following categories of information:

- Estimated amount of money to be released
- Estimated year of release
- Type of restoration (Primary or Compensatory) contemplated
- Natural Resource or Service Target (e.g. Riparian Corridor, Upland Migratory Bird Habitat, etc.)
- Geographic priority for restoration

The SRIP is designed as a stand-alone document in order to facilitate biannual updates to the information contained therein. Additionally, other entities such as the U.S. Environmental Protection Agency are formulating response plans at a number of Superfund sites within the geographic scope of this plan that may strongly affect the Trustees' strategic vision for restoration implementation. Consequently, the SRIP will remain a fluid document, independent of this restoration plan and be updated on a biannual basis in order to provide the public with a greater degree of access to important restoration information.

The SRIP will be located at: <http://www.fws.gov/midwest/es/ec/nrda/SEMONRDA/index.html>  
and at:  
<http://www.dnr.mo.gov/env/hwp/sfund/nrda.htm>

## **SECTION 9—CONSULTATION AND COORDINATION WITH THE PUBLIC AND OTHERS**

### **9.1 Public Participation**

Public review of the SEMORRP/EA is an integral component of the restoration planning and NEPA process. Throughout the public comment period, the Trustees will accept comments on this SEMORRP/EA. To insure that the public has ample opportunity to provide comments on the SEMORRP/EA, the Trustees will accept comments on the draft plan for 30 days and hold public meetings during this time to facilitate understanding of the draft plan. Next, the Trustees will respond to comments and incorporate changes to the draft document. Notification of comment period and public meetings will be made available on the Trustees' respective websites, local newspapers, and the Federal Register, among other sources.

Once the final SEMORRP has been published, the Trustee Council will publish RFPs for compensatory restoration under the SEMORRP and will begin to accept and review proposals for restoration projects. Public stakeholder meetings will be conducted to fully explain each RFP that is released by the Trustees. When the designated time frame for evaluation of proposals has expired, the Trustees will announce the selection and funding of projects that rank the highest. Project ranking will be based on the Decision Matrix found in Appendix A. The Trustees will continue to issue RFPs until all designated compensatory restoration funds are expended. Funds allocated to primary restoration will be spent as discussed in Section (7).

Prior to the implementation of any selected primary restoration project the Trustees will advertise and conduct a public meeting to discuss, answer questions, and solicit public comment on the selected primary restoration project. The Trustees will accept comments in writing and via e-mail for a period of at least 30 days. The Trustees will respond in writing to all received comments prior to the implementation of any primary restoration projects.

### **9.2 Public Meetings, Presentations, and Scoping for Restoration**

*This section will be filled out as the public meetings are scheduled and conducted.*

### **9.3 National Historic Preservation Act Compliance**

The FWS' Region 3 Regional Director will provide the SHPOs with this restoration plan and environmental assessment as part of the public review and comment process, drawing their attention to the recommended procedure for implementing Section 106 of the National Historic Preservation Act (NHPA) as described in 36 C.F.R. Part 800.

Cultural resources are those parts of the physical environment, natural and built, that have cultural value to some socio-cultural groups and human social institutions. Cultural resources include historic sites, archeological sites and associated artifacts, sacred sites, traditional cultural properties, cultural items (human remains, funerary objects, sacred objects, and objects of cultural patrimony), and buildings and structures. Most cultural resource concerns can be identified through the Section 106 process of the NHPA. To reduce paperwork, avoid

duplication, and expedite decision making, the Section 106 process as defined in 36 C.F.R. Part 800 will be followed for purposes of the environmental assessment.

Absent objections from HPOs or from other interested persons the NHPA is recognized as having legal standing (39 C.F.R. § 800.2(c)(3), (4), and (5)) in land acquisition projects, projects involving ground disturbance, and projects impacting buildings and structures 50 years and older, the FWS' representative on the Trustee Council will:

- 1) consult with the appropriate HPO for each specific project (undertaking) for the purpose of identifying cultural resources in the area of potential effect and obtain from the HPOs a determination of no historic properties or no effect on historic properties as outlined in Section 106 of the NHPA, and
- 2) provide the Regional HPO with sufficient documentation to determine if the Section 106 process has been completed prior to project implementation.

If the project occurs on the Mark Twain National Forest, then the Forest Supervisor and Mark Twain National Forest Heritage Staff will oversee the Section 106 compliance.

#### **9.4 Endangered Species Act Compliance**

One of the Fish & Wildlife Service's primary goals is to protect and benefit Threatened and Endangered Species. Consequently, after projects have been evaluated and deemed successful through the SEMORRP's RFP process, the FWS' case manager for projects in the SEMO will provide the FWS' Ecological Services Field Office with completed Intra-Service Section 7 consultation forms pursuant to Section 7 of the Endangered Species Act of 1973, as amended, 16 U.S.C. §§ 1531-1599, and its implementing regulations, 50 C.F.R. Part 402. Each project funded under this restoration plan will be evaluated for its potential effects to federally threatened, endangered and candidate species prior to the award of any restoration funds. Projects deemed to have an adverse effect on listed or candidate species or their critical habitats will not be funded under this plan.

#### **9.5 Administrative Record**

An administrative record pertaining to the implementation of this plan will be maintained at the U.S. Fish and Wildlife Service, Columbia, Missouri Ecological Services Field Office and at Missouri Department of Natural Resources in Jefferson City, Missouri. All pertinent documents relating to the restoration will be cataloged and an index will be available at <http://www.fws.gov/midwest/nrda/index.html> . The documents will be available to the public during normal office hours at:

U.S. Fish & Wildlife Service  
Ecological Services Field Office  
101 Park DeVille Dr. Suite A  
Columbia, MO 65203

Missouri Department of Natural Resources  
Hazardous Waste Program  
1738 East Elm Street  
Jefferson City, MO 65102-0176

## **SECTION 10 - LIST OF PREPARERS**

John Weber (Primary Author)  
Environmental Contaminants Specialist  
U.S. Fish and Wildlife Service

Hillary Wakefield  
Environmental Specialist  
Missouri Department of Natural Resources

Meagan Prestegard  
Environmental Engineer  
Missouri Department of Natural Resources

## **SECTION 11 – LIST OF AGENCIES AND PERSONS CONSULTED**

Katie LaJeunesse Connette  
Environmental Remediation Coordinator  
U.S. Forest Service

Scott Hamilton  
Environmental Contaminants Specialist  
U.S. Fish and Wildlife Service

Dave Mosby  
Lead Environmental Contaminants Specialist  
U.S. Fish and Wildlife Service

Tim Rielly  
Assessment and Restoration Coordinator  
Missouri Department of Natural Resources

Mike McKee  
Resource Scientist  
Missouri Department of Conservation

Paul Blanchard  
Resource Scientist  
Missouri Department of Conservation

Mike Alesandrini  
Senior Consultant  
URS Corporation

Amy Horner  
Attorney-Advisor  
U.S. Department of the Interior

Eric Gramlich  
NRDAR Unit Chief  
Missouri Department of Natural Resources

Bill Mains  
Environmental Engineer  
U.S. Forest Service

Steven Hirsch  
Attorney-Advisor  
U.S. Department of Agriculture

Jessica Blome  
Assistant Attorney General  
Missouri Attorney General's Office

## SECTION 12 – REFERENCES CITED

Conservation Commission of Missouri (CCM). 2012. “Comprehensive Wildlife Strategy: Conservation Opportunity Areas”. Internet. Retrieved from <http://mdc.mo.gov/nathis/cws/coa/> on 1 November 2012.

Conservation Commission of Missouri. “Elk restoration in Missouri.” 2010. Missouri Department of Conservation. 25pp.

Cornell Lab of Ornithology (CLO). 2011. “Birds in Forested Landscapes: Swainson’s Warbler”. Internet. Retrieved from <http://birds.cornell.edu/bfl/speciesaccts/swawar.html> on 9 November 2011.

Illinois Natural History Survey (INHS). 2011. “*Quadrula cylindrica* Rabbitsfoot”. Internet. Retrieved from [http://www.inhs.illinois.edu/animals\\_plants/mollusk/musselmanual/page32\\_3.html](http://www.inhs.illinois.edu/animals_plants/mollusk/musselmanual/page32_3.html) on 19 September 2011.

Imes, J.L. 1990. Major geohydrologic units in and adjacent to the Ozark Plateaus Province, Missouri, Arkansas, Kansas, and Oklahoma – Ozark Aquifer: U.S. Geological Survey Hydrologic Investigations Atlas HA-711-E. 3 sheets.

Miller, J.A., and C.L. Appel, 1997. Ground water atlas of the United States: Kansas, Missouri, and Nebraska HA 730-D U.S. Geological Survey.

Miller, D E., and J.E. Vandike. 1997. Missouri State Water Plan Series Volume II, Groundwater Resources of Missouri. Missouri Department of Natural Resources' Division of Geology and Land Survey, Water Resources Report No. 46. 210 p.

Missouri Audubon Society (MAS). 2011. “Annotated Checklist of Missouri Birds”. The Audubon Society of Missouri, July 2010. <http://mobirds.org/listing/listoflists.aspx>

Missouri Department of Conservation (MDC). 1997. “Big River: Inventory and Assessment for Big River Watershed.” 1997, July 31. Internet. Retrieved from <http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/big-river> on 21 September 2012.

MDC. 1998. “Meramec River: Executive Summary.” 1998, November. Internet. Retrieved from <http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/meramec-river> on 21 September 2012.

MDC. 1999. “Bourbeuse River: Executive Summary.” 1999, December. Internet. Retrieved from <http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/bourbeuse-river> on 21 September 2012.

MDC. 2001. "Jacks Fork River: Executive Summary." 2001, April. Internet. Retrieved from <<http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/jacks-fork-river>> on 25 October 2012.

MDC. 2001. "Eleven Point River: Executive Summary." 2001, March. Internet. Retrieved from <<http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/eleven-point-river>> on 21 September 2012.

MDC. 2001. "St. Francis River: Executive Summary." 2001, July. Internet. Retrieved from <<http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/st-francis-river>> on 21 September 2012.

MDC. 2003. "Current River: Inventory and Assessment for Current River Watershed." 2003, January. Internet. Retrieved from <<http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/current-river>> on 21 September 2012.

MDC. 2004. "Black River: Inventory and Assessment." 2004, February. Internet. Retrieved from <<http://mdc.mo.gov/landwater-care/stream-and-watershed-management/missouri-watersheds/black-river>> on 21 September 2012.

MDC. 2010. "Elk History and Restoration". 17 August 2010. Internet. Retrieved from <<http://mdc.mo.gov/conmag/2010/09/elk-history-and-restoration>> on 27 July 2011.

MDC. 2011 a. "Heritage Program". Internet. Retrieved from <<http://mdc.mo.gov/landwater-care/heritage-program>> on 3 July 2011.

MDC. 2011 b. "Detailed Report – Northern Harrier". Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=0400122](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400122)> on 19 September 2011.

MDC. 2011 c. "Detailed Report – Peregrine Falcon". Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=0400063](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400063)> on 19 September 2011.

MDC. 2011d. "Detailed Report – Swainson's Warbler". Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=0400340](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400340)> on 9 November 2011.

MDC. 2011e. "Detailed Report – Bachman's Sparrow". Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=0400252](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400252)> on 19 September 2011.

MDC. 2011f. "Endangered Species in the Field Guide – Gray Bat". Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/gray-bat>> on 22 July 2011.

MDC. 2011g. “Endangered Species in the Field Guide – Indiana Bat”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/indiana-bat>> on 22 July 2011.

MDC. 2011h. “Endangered Species in the Field Guide – Eastern Spotted Skunk”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/eastern-spotted-skunk>> on 4 November 2011.

MDC. 2011i. “Endangered Species in the Field Guide – Elephantear”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/elephantear-elephants-ear>> on 3 August 2011.

MDC. 2011j. “Endangered Species in the Field Guide – Snuffbox”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/snuffbox>> on 3 August 2011.

MDC. 2011k. “Endangered Species in the Field Guide – Ebonyshell”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/ebonyshell>> on 2 August 2011.

MDC. 2011l. “Detailed Report – Crystal Darter”. Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=0100051](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0100051)> on 10 September 2011.

MDC. 2011m. “Best Management Practices – Crystal Darter”. Internet. Retrieved from <[http://mdc.mo.gov/sites/default/files/resources/2010/08/9545\\_6485.pdf](http://mdc.mo.gov/sites/default/files/resources/2010/08/9545_6485.pdf)> on 13 September 2011.

MDC. 2011n. “Detailed Report – Longnose Darter”. Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=0100061](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0100061)> on 13 September 2011.

MDC. 2011o. “Best Management Practices – Longnose Darter”. Internet. Retrieved from <[http://mdc.mo.gov/sites/default/files/resources/2010/08/9548\\_6488.pdf](http://mdc.mo.gov/sites/default/files/resources/2010/08/9548_6488.pdf)> on 13 September 2011.

MDC. 2011p. “Endangered Species in the Field Guide – Hellbender”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/hellbender>> on 23 August 2011.

MDC. 2011q. “Endangered Species in the Field Guide – Mead’s Milkweed”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/meads-milkweed>> on 3 August 2011.

MDC. 2011r. “Detailed Report – Mead’s Milkweed”. Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=2001400](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=2001400)> on 3 August 2011.

MDC. 2011s. “Detailed Report – Virginia Sneezeweed”. Internet. Retrieved from <[http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis\\_Detail.aspx?id=2003311](http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=2003311)> on 3 August 2011.

- MDC. 2011t. “Endangered Species in the Fieldguide – Running Buffalo Clover”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/running-buffalo-clover>> on 3 August 2011.
- MDC. 2011u. “Bison”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/bison>> on 27 July 2011.
- MDC. 2012a. “Best Management Practices for Curtis Pearlymussel”. Internet. Retrieved from <[http://mdc.mo.gov/sites/default/files/resources/2010/08/9565\\_6505.pdf](http://mdc.mo.gov/sites/default/files/resources/2010/08/9565_6505.pdf)> on 31 October 2012.
- MDC. 2012b. “XPlor Field Guide: Lake Sturgeon”. Internet. Retrieved from <<http://xplor.mdc.mo.gov/discover-nature/field-guide/lake-sturgeon>> on 30 January 2012.
- MDC. 2012c. “Field Guide: Swamp Darter”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/swamp-darter>> on 2 November 2012.
- MDC. 2012e. “Field Guide: Goldstripe Darter”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/goldstripe-darter>> on 2 November 2012.
- MDC. 2012g. “Field Guide: Sabine Shiner”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/sabine-shiner>> on 2 November 2012.
- MDC. 2012h. “Field Guide: Mountain Madtom”. Internet. Retrieved from <<http://mdc.mo.gov/discover-nature/field-guide/mountain-madtom>> on 2 November 2012.
- MDC. 2012j. “XPlor Field Guide: Pallid Sturgeon”. Internet. Retrieved from <<http://xplor.mdc.mo.gov/discover-nature/field-guide/pallid-sturgeon>> on 30 January 2012.
- MDC. 2012l. “XPlor Field Guide: Decurrent False Aster”. Internet. Retrieved from <<http://xplor.mdc.mo.gov/discover-nature/field-guide/decurrent-false-aster>> on 31 October 2012.
- MDC. 2012m. “Missouri Species and Communities of Conservation Concern Checklist - January 2012”. Missouri Department of Conservation, Jefferson City. 51pp.
- Missouri Department of Resources (MDNR)-Water Resources Center. 2012a. “Salem Plateau Groundwater Province”. Internet. Retrieved from <<http://www.dnr.mo.gov/env/wrc/groundwater/education/provinces/salemplatprovince.htm>> on 26 October 2012.
- Nigh, T.A. and W.A. Schroeder. 2002. Atlas of Missouri Ecoregions. Missouri Department of Conservation, Jefferson City. 212 pp.
- Oklahoma Department of Wildlife Conservation (OKDWC). 2011. “Endangered species – Longnose Darter”. Internet. Retrieved from <<http://wildlifedepartment.com/wildlifemgmt/endangered/darter.htm>> on 13 September 2011.

Poole, A. and F. Gills, eds. 1998, *The Birds of North America*. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D. C.

The Nature Conservancy (TNC). 2011. "The bison are back!" Internet. Retrieved from <<http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/missouri/the-bison-are-coming.xml>> on 27 July 2011.

USBLM, 2008. *Natural Resource Damage Assessment and Restoration Handbook*. Internet. Retrieved from [http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information\\_Resources\\_Management/policy/blm\\_handbook.Par.38115.File.dat/H-1703-3.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.38115.File.dat/H-1703-3.pdf) on 31 October 2012.

USFWS. 2005. Mead's Milkweed Fact Sheet. June 2005. USFWS Endangered Species Division. Fort Snelling, Minnesota. 2 pp.

USFWS. 2006, March. Hine's Emerald Dragonfly Fact Sheet. USFWS Endangered Species Division. Fort Snelling, Minnesota. 2 pp.

USFWS, 2009, September. *Rising to the Challenge: Draft Strategic Plan for Responding to Accelerating Climate Change*. Internet. Retrieved from <http://www.fws.gov/home/climatechange/pdf/CCStrategicPlan.pdf>

USFWS. 2009, November. Winged Mapleleaf Fact Sheet. USFWS Endangered Species Division. Fort Snelling, Minnesota. 2 pp.

USFWS. 2011a. Spectaclecase Fact Sheet. January 2011. USFWS Endangered Species Division, Fort Snelling, Minnesota. 2 pp.

USFWS. 2011b. "Ozark Hellbender Fact Sheet". October 2011. USFWS Endangered Species Division, Fort Snelling, Minnesota. 2 pp.

USFWS- Raleigh Ecological Services Field Office. 2011c. "Pondberry (*Lindera melissifolia*)". 2011, August. Internet. Retrieved from [http://www.fws.gov/raleigh/species/es\\_pondberry.html](http://www.fws.gov/raleigh/species/es_pondberry.html) on 31 October 2012.

USFWS. 2012a. "Missouri Federally-Listed Threatened, Endangered and Candidate Species County Distribution". Internet. Retrieved from <<http://www.fws.gov/midwest/endangered/lists/missouri-spp.html>> on 26 October 2012.

USFWS. 2012b. "Curtis' Pearlymussel". Internet. Retrieved from <[http://www.fws.gov/ecos/ajax/docs/life\\_histories/F00J.html](http://www.fws.gov/ecos/ajax/docs/life_histories/F00J.html)> on 31 October 2012.

USFWS. 2012c. "Species Profile: Decurrent False Aster (*Boltonia decurrens*)". Internet. Retrieved from <<http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=Q26A>> on 31 October 2012.

USFWS, U. S. Department of Commerce and U. S. Census Bureau. 2006. *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*. 91pp.

Wisconsin Department of Natural Resources (WDNR). 2011. "Endangered Resources Program Species Information: Crystal Darter". Internet. Retrieved from <http://dnr.wi.gov/topic/EndangeredResources/Animals.asp?mode=detail&SpecCode=AFCQC01010> on 13 September 2011.