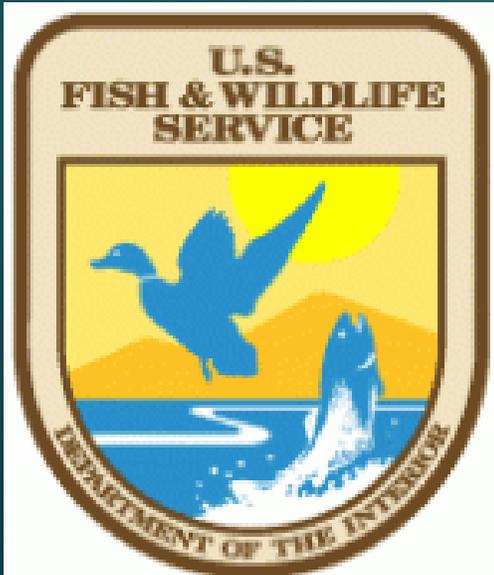


Big River at Calico Creek

Natural Resource Damage Assessment and Restoration:

Stream, Riparian, Floodplain and Upland Habitats
Draft Restoration Plan and Environmental
Assessment



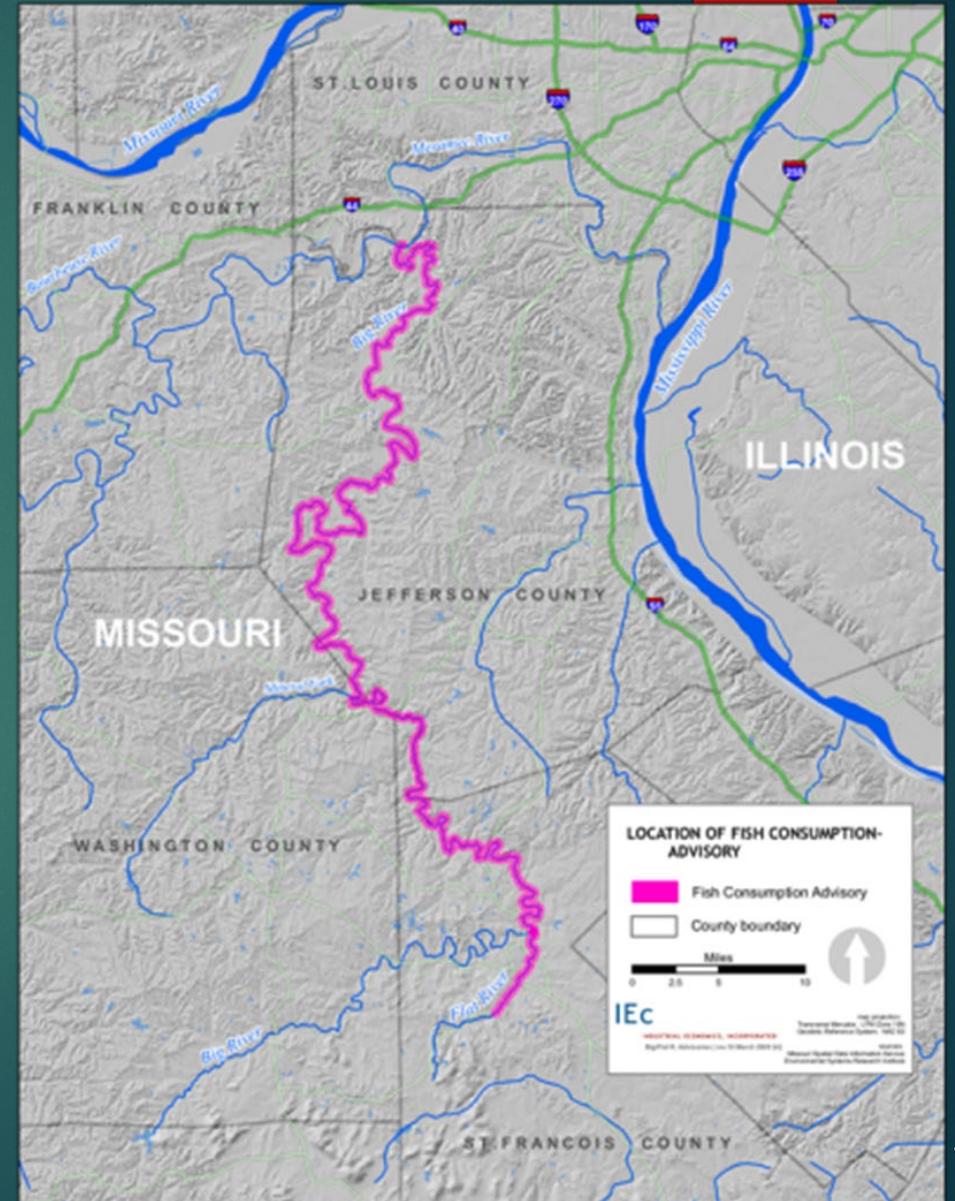
What is NRDAR?

Natural
Resource
Damage
Assessment &
Restoration

The U.S. Fish and Wildlife Service (FWS) and Missouri Department of Natural Resources (MDNR) (jointly the Trustees) have recovered restoration funds from potentially responsible parties to fund projects in and along the Big River which restore injured resources & compensate the public for lost resource services.

Project Geographic Context

- Big River Site includes the Big River Mine Tailings Site and Southwest Jefferson County Lead Mine Superfund Sites
- Stream sediments and floodplains are impacted by lead mining releases from St. Francois County all the way to the confluence of the Meramec River.
 - ▶ Fish consumption advisory
 - ▶ Certain bottom-feeding fish contain lead concentrations that warrant an advisory from the Missouri Department of Health and Senior Services recommending people not consume them.
- The Southeast Missouri Lead Mining District was once the highest producing lead district in the world.



Natural Resource Damage Assessment

Aquatic Injuries

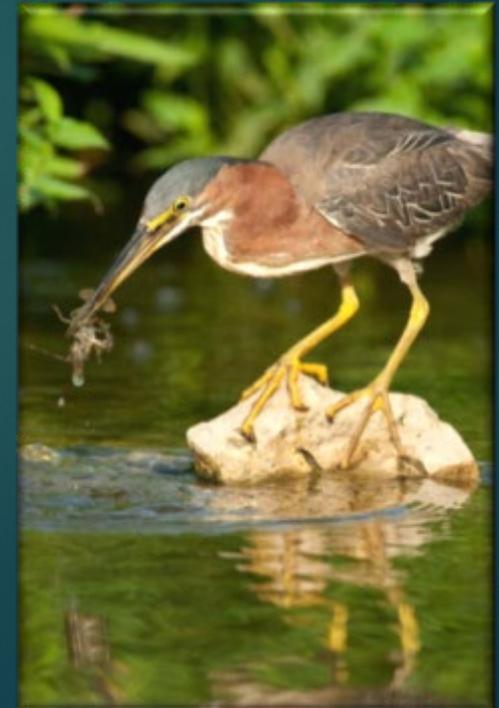
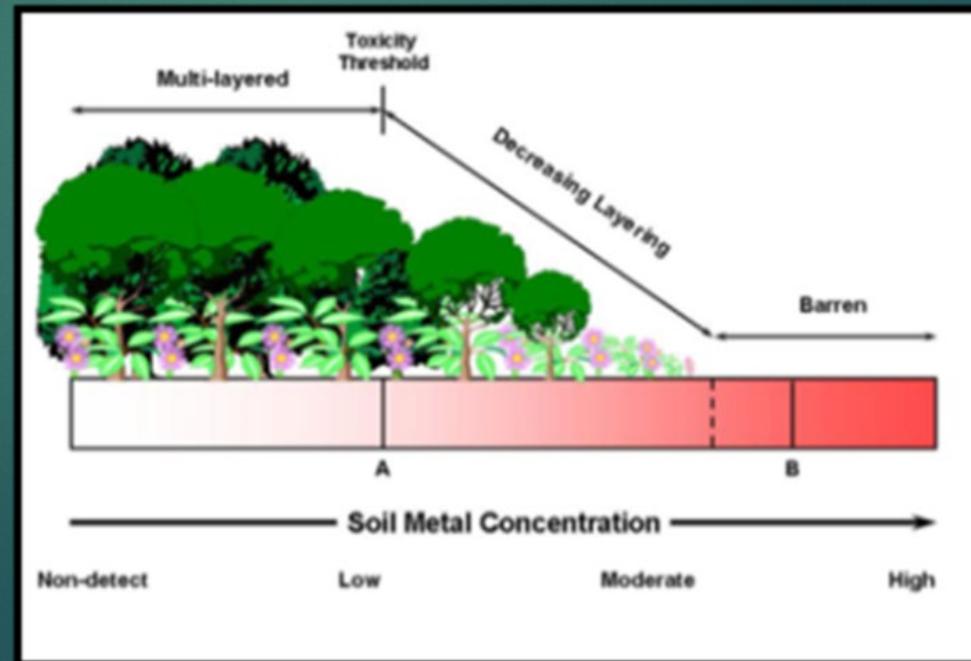
The FWS in partnership with MDNR (co-Trustee), Missouri Department of Conservation (MDC), and U.S. Geologic Survey (USGS) have documented injury from heavy metals to freshwater mussels (including endangered species), crayfish, and riffle dwelling fish, in addition to the fish consumption advisory.



Natural Resource Damage Assessment

Terrestrial Injuries

- The FWS in partnership with MDNR (co-Trustee), and USGS have documented injury from heavy metals to migratory birds and plant communities



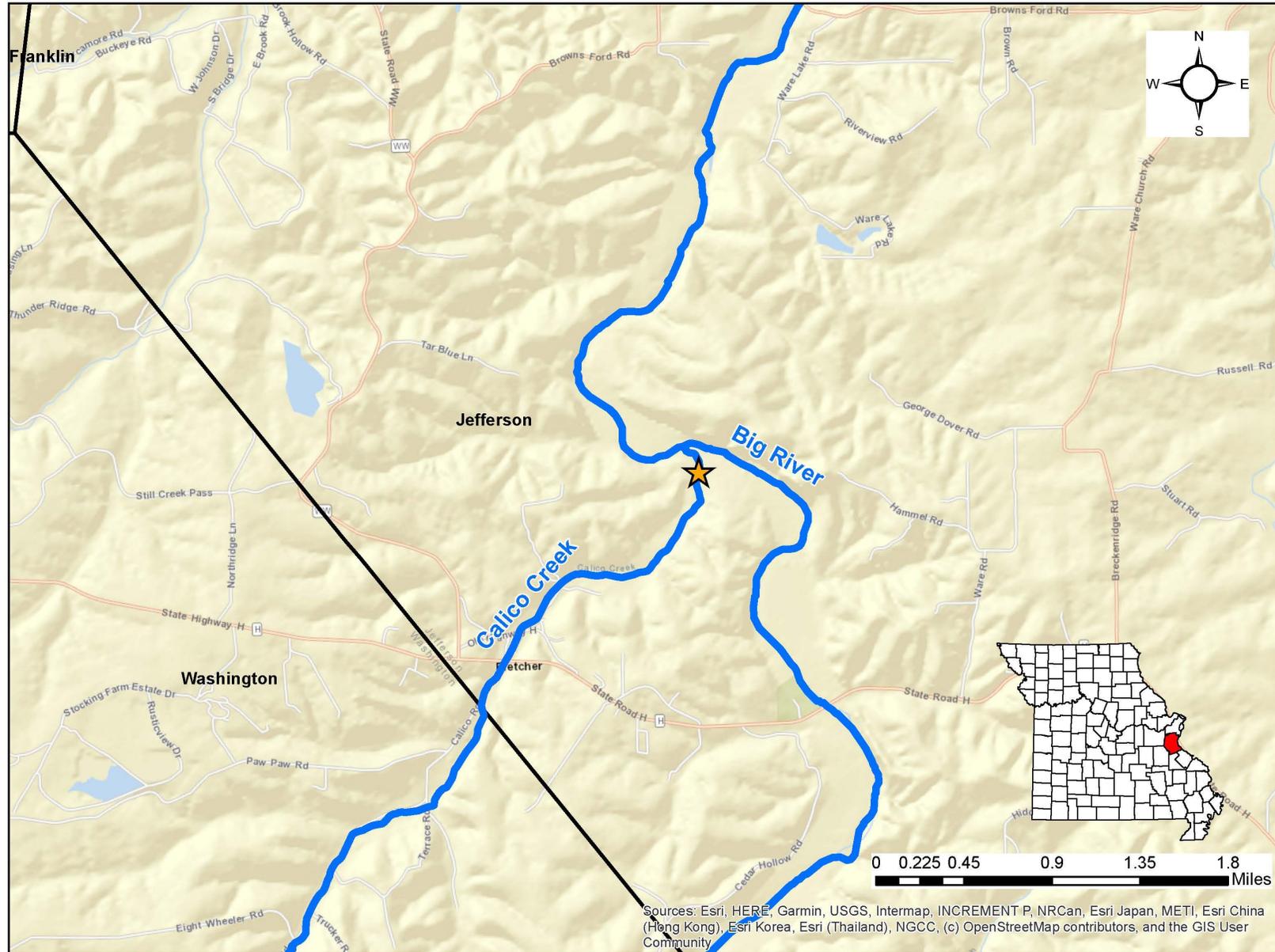
Southeast Missouri Ozarks Regional Restoration Plan and Environmental Assessment (SEMORRP)

- Covers the Meramec, Upper St. Francis, Upper Black, Current, and Eleven Point Watersheds
- Provides guidelines on expenditure funds for of restoration projects in SEMO.
- Restoration funds available for the Big River – Asarco settlement currently \$24M remaining
- Current Proposed Calico Creek Restoration Plan/Environmental Assessment (RP/EA) tiers off of SEMORRP



Big River Calico Creek Proposed Project Location

U.S. Fish and Wildlife Service and Missouri DNR are seeking public comment on the Restoration Plan/Environmental Assessment for the project located in southwest Jefferson County



Goals for the Calico Creek RP/EA Project

- **Goal 1**: enhance or restore adversely affected stream segments and associated fish and wildlife habitat
- **Goal 2**: enhance or restore degraded terrestrial habitat, particularly those supportive of migratory birds and sensitive species; and
- **Goal 3**: protect, via conservation easements, the conservation value of upland and aquatic habitats.

Relationship to U.S. Army Corps of Engineers (USACE)

Meramec Basin Ecosystem Feasibility Study Construction Phase

- Calico Creek bank stabilization and riparian corridor revegetation was one of the projects designed in the Meramec Feasibility Study (FS)
- Potential that NRDAR funds and in-kind contributions will be used to match additional federal funds for bank stabilization and sediment removal projects at other locations along the Big River
- Potentially ~\$92 M worth of projects – 65% USACE/35% Trustee Match for eligible projects

EPA/USACE Calico Creek Bank Stabilization Project



- Originated as U.S. Corps of Engineers Meramec FS Project
- Adapted as joint partnership between EPA, USACE and Missouri NRDAR Trustees as pilot project
- EPA and USACE- Bank Stabilization
- NRDAR Trustees- Riparian corridor, floodplain and upland restoration

Calico Creek Bank Stabilization EPA/USACE Pilot Project

8

LPTSP (BANK 1) & WEIRS (BANKS 1 AND 2)

- Hybrid of Traditional and Biotechnical techniques
- Use of stone, earthwork, and vegetation to stabilize and redirect

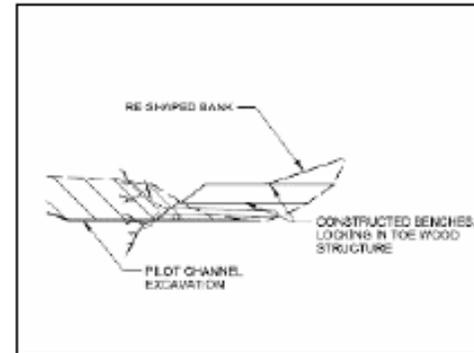
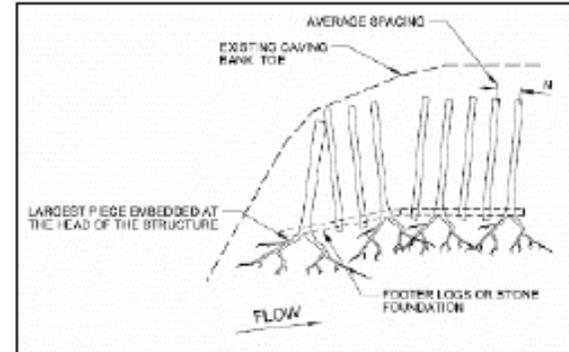


USACE Photos (3/15, 3/20 & 8/9/2017): USEPA Hybrid Environmental Stabilization Pilot Project, Washington County, MO



Calico Creek Bank Stabilization EPA/Corps Pilot Project

TOE WOOD STABILIZATION (BANK 3)

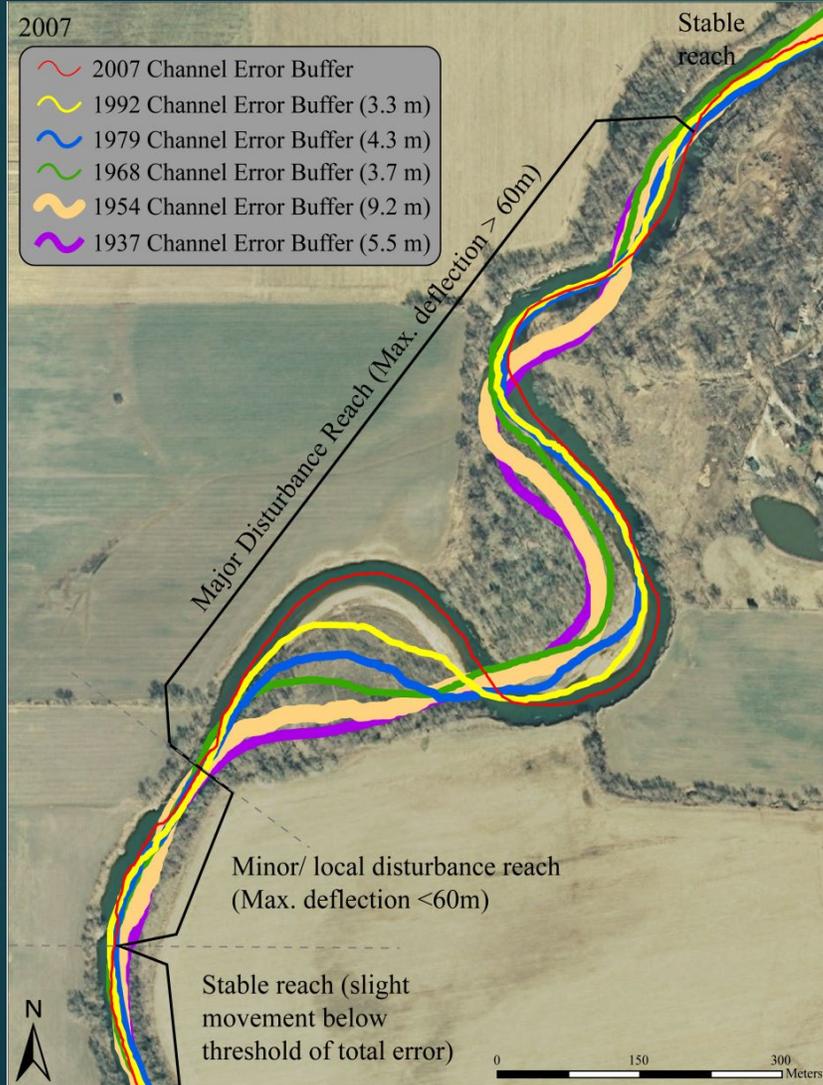


Toe Wood Structure typical details. Meramec Ecosystem Restoration Feasibility Study (USACE, Draft 2018) Reference Rosgen, 2009

Toe Wood with Live-brush layering (LBL) bank stabilization on LaBarque Creek, Eureka, MO. Construction photo courtesy of The Nature Conservancy



Meramec River Basin Ecosystem Restoration Feasibility Study



Big River Issues Identified by Corps' Meramec FS:

- Loss of soil and quantity of sediment entering the Big River from bank erosion
- Excess mining-derived/contaminated in-stream sediment



NRDAR Calico Creek Restoration Plan and Environmental Assessment

National Environmental Policy Act and Superfund require evaluation of various alternatives:

- Alternative A No Action Alternative
- Alternative B ~75 acres Riparian corridor plantings
- Alternative C ~125 acres Floodplain soil revegetation and management including 25 acres of phosphate/lime treatment of soil
- Alternative D ~ 385 acres Upland timber stand improvement
- Alternative E (Preferred) Combination of Alternatives B-D and include active Alternatives contain with long-term protections and management (easements and funding for upkeep).

Alternative A

No Action Alternative

- Under this alternative, the Trustees would rely on natural recovery and would take no direct action to restore natural resources or compensate for interim lost natural resource services.
- Trustees would not be able to spend existing funds to conduct active restoration.
- Local citizens and visitors recreating in the affected areas would not benefit from improved ecological resources, such as fish populations and wildlife habitat providing wildlife viewing opportunities.
- Agricultural land would continue to be lost due to stream bank erosion.

Alternative B

Riparian Corridor Restoration

- Revegetation of 75 acres of riparian corridor adjacent to EPA/Corps Bank Stabilization Project
- Funded conservation easement of re-vegetated area
- Funds for long-term upkeep of project
- \$207,000 estimated costs



Alternative C

Big River Flood Plain Restoration

- Revegetation of 75 acres of floodplain adjacent to riparian corridor
- Manage existing 25 acres of existing bottom land forest
- Phosphate and lime treatment of 25 acres of land to address soil contamination
- Funded conservation easement of project area (125 acres)
- Funds for long-term upkeep of project
- \$524,000 estimated costs



Restoration Alternative D

Upland Timber Stand Improvement

- Timber thinning of 190 acres
- Prescribed burns for 195 acres of woodland and glades
- Funded conservation easement of project area (385 acres)
- Funds for long-term upkeep of project
- \$494,000 estimated costs

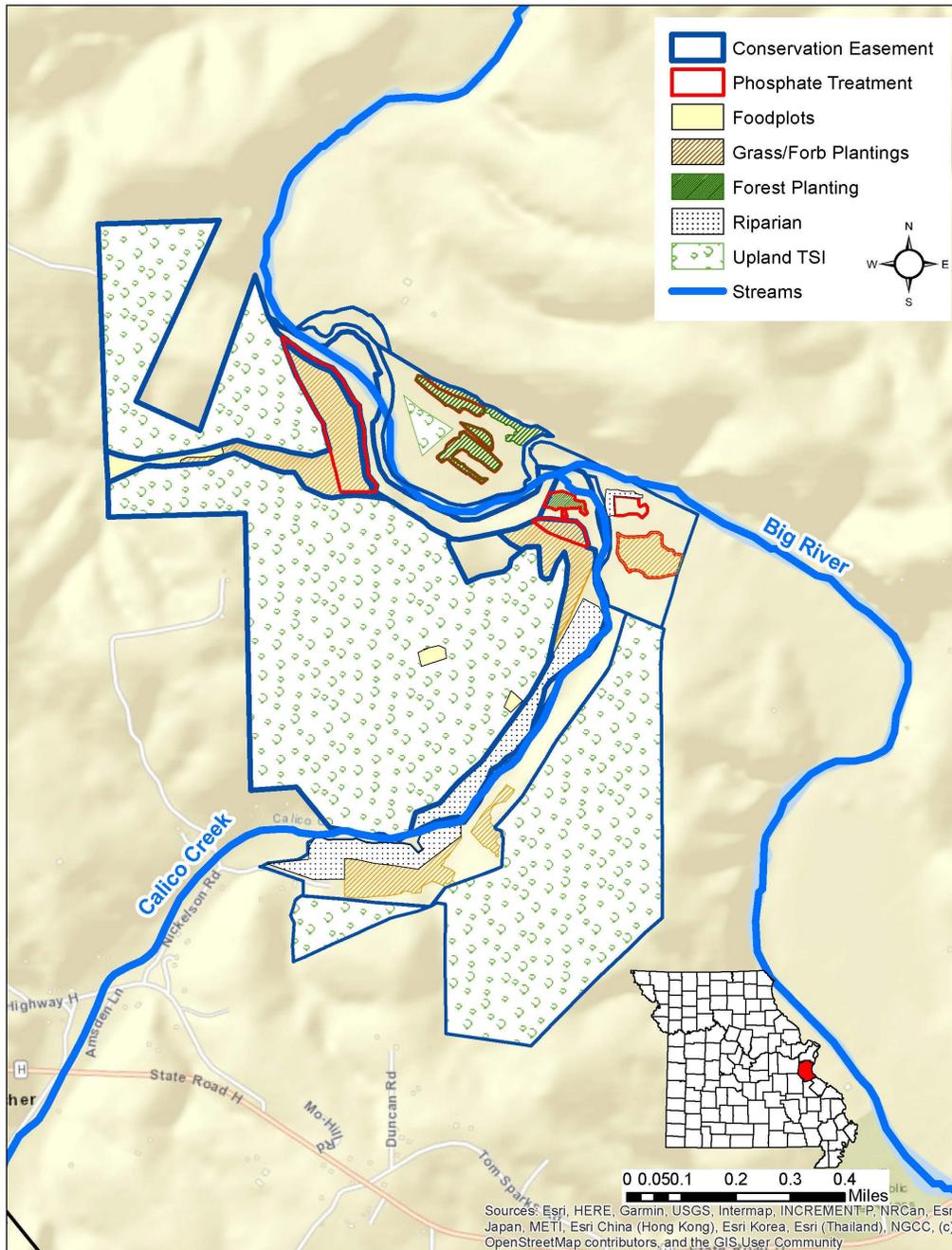


Alternative E - Trustees Calico Creek (Preferred) Restoration Components:

Combines Benefits of Alternatives B-D

- ~75 acres Riparian corridor plantings
- ~125 acres Floodplain soil revegetation and management including 25 acres of phosphate/lime treatment of soil
- ~385 acres Upland timber stand improvement
- ~560 acres Permanent or temporary easements and long-term upkeep funds
- \$1.225 M estimated costs

Proposed Restoration Project Map Preferred Alternative



- The preferred alternative would result in 560 acres of improved habitat along the Big River and Calico Creek, floodplains, and uplands.
- Increased stability of EPA/USACE bank stabilization project
- Direct and indirect economic benefits to contractors, businesses, and laborers

Public Participation



The Draft RP/EA will be open for public comment for 45 days from the date of publication (June 16, 2020). Comments will be accepted until July 31, 2020.

Submit comments by writing or emailing:

Dave Mosby

U.S. Fish and Wildlife Service

101 Park DeVille Dr., Suite A

Columbia, MO 65203

dave_mosby@fws.gov

Or call 573-476-9552

A copy of the draft Big River at Calico Creek Restoration Plan/Environmental Assessment is available online at:

<https://www.fws.gov/midwest/es/ec/nrda/SEMONRDA/pdf/draft%20Calico%20RP%20EA%206-16-20%20%20final.pdf>

Questions?

- dave_mosby@fws.gov (573) 476-9552
- eric.gramlich@dnr.mo.gov (573) 522-1347



Lower Big River
Mussel Bed
Jefferson County, MO