

Current River Hills Conservation Strategies

- Improve water quality and habitat for aquatic species of conservation concern.
- Conserve and restore large blocks of healthy forest and woodland natural communities with an emphasis on private lands.
- Reduce damaging harvest practices on private lands through increased logger training and incentives.
- Conserve caves and springs.
- Locate and conserve the highest quality examples of all natural community types.
- Control unwanted non-native invasive plants and animals.
- Work with willing landowners to implement conservation practices.
- Educate the public about caves and spring systems.
- Promote cane establishment on appropriate sites along the Current River.



Cliff White, Missouri Department of Conservation

Over 1 million people visit the Ozark National Scenic Riverways each year – many of them canoe or float the Current and Jacks Fork Rivers.

Priority Research and Inventory Needs

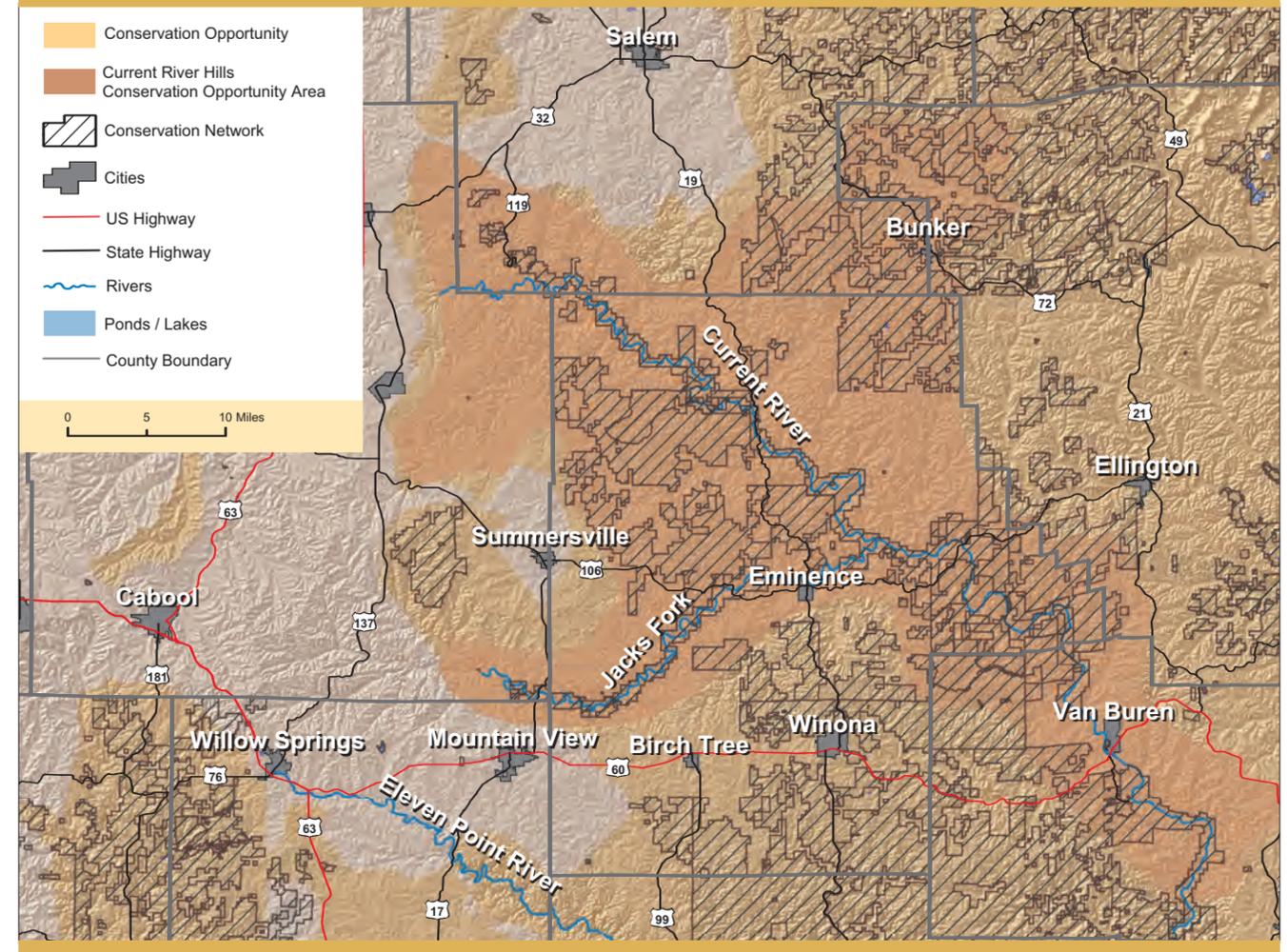
- **Inventory caves; conduct dye-trace studies to improve understanding of recharge zones.**
- **Contact private landowners to better assess landowner management objectives and opportunities for management assistance.**
- **Inventory natural communities, including woodlands, forests, glades, fens, and karst features using newest methods and technology.**
- **Conduct inventories for flatwoods and other unstudied woodland natural communities; nominate best examples as Missouri Natural Areas.**
- **Inventory extent of non-native invasive plants and animals.**
- **Research the impact of recreational use on water quality and aquatic habitats.**
- **Review agencies' practices on conservation lands to ensure that conservation actions match stated goals.**

Conservation Partners

Existing: Ozark Regional Land Trust (ORLT); Pioneer Forest; The Nature Conservancy – Missouri Chapter (TNC); Cave Research Foundation; Missouri Cave and Karst Conservancy; U.S. Forest Service (USFS); National Park Service (NPS); Missouri Department of Natural Resources (DNR); Missouri Department of Conservation (MDC)

Potential: Audubon Missouri; Central Hardwoods Joint Venture; Jack's Fork Watershed Committee; National Wild Turkey Federation (NWTF); Scenic Rivers Watershed Partnership; Missouri Ozarks Regional Explorers; U.S. Fish and Wildlife Service (USFWS)

Current River Hills Conservation Opportunity Area



Funding Sources

Existing: NPS annual budget; MDC annual budget; MDC State Wildlife Grants; DNR annual budget; USFS annual budget; TNC annual budget; Pioneer Forest annual budget; ORLT annual budget

Promising Future Sources: NWTF Wild Turkey Super Fund; MDC Landowner Incentive Program; MDC Forest Legacy Program; USFWS Partners for Fish and Wildlife Program; Missouri Conservation Heritage Foundation Grants; L-A-D Foundation Grants; NRCS Wildlife Habitat Incentive Program

Existing Conservation Network

Ozark National Scenic Riverways (Jacks Fork Natural Area, Big Spring Pines Natural Area, Mill Mountain Natural Area, Cardareva Bluff Natural Area, Prairie Hollow Gorge Natural Area, Big Spring Natural Area); Angeline Conservation Area (Pipestem Hollow Natural Area, Spurgeon Hollow Natural Area); Sunlands Conservation Area (Sunlands Natural Area);

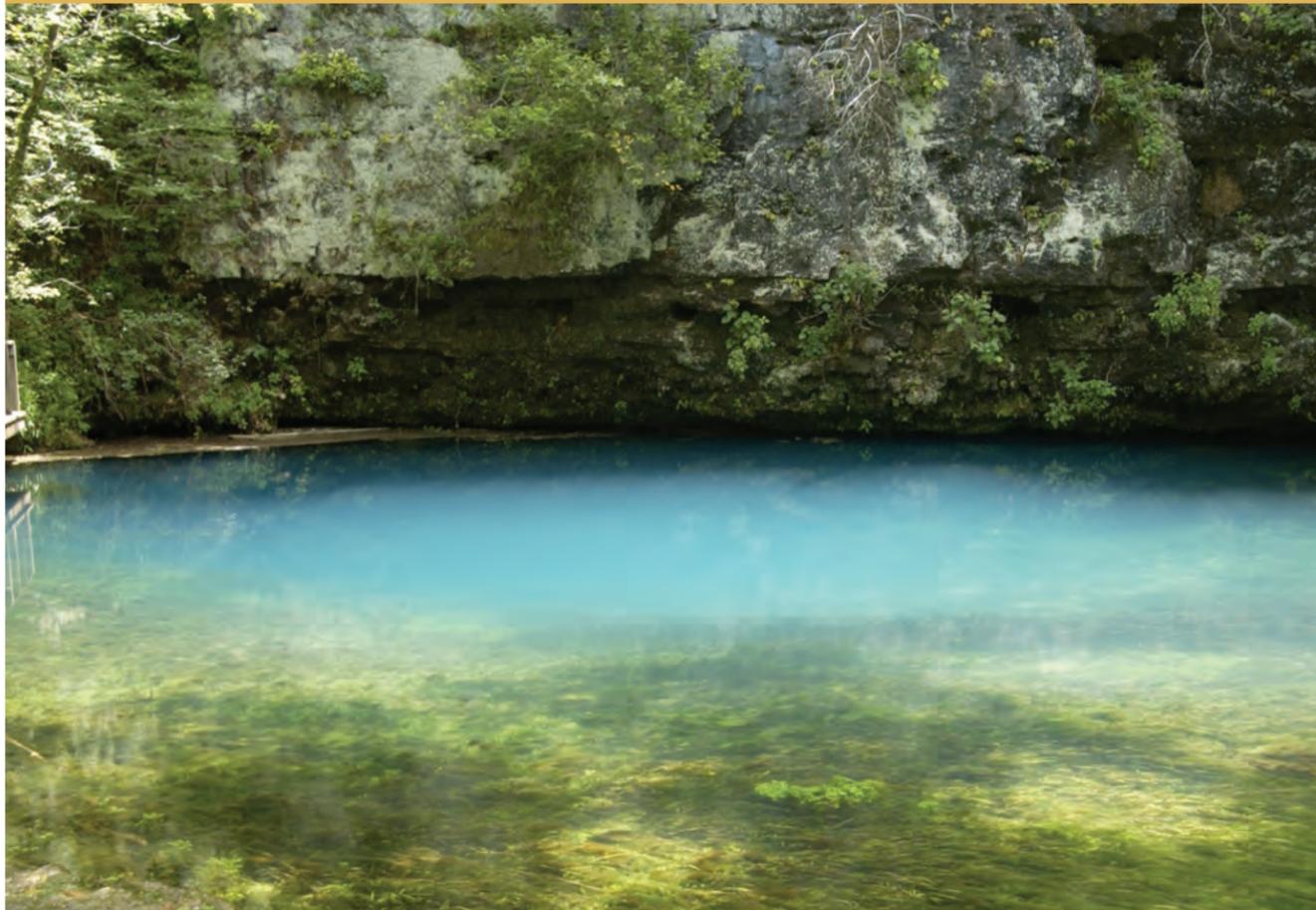
Current River Conservation Area (Blue Spring Natural Area); Peck Ranch Conservation Area (Stegall Mountain Natural Area, Golden Seal Natural Area, Mule Hollow Glade Natural Area); Rocky Creek Conservation Area (Powder Mill Cave Natural Area); Cedar Grove Conservation Area; Montauk State Park (Montauk Fish Hatchery and Trout Park, Montauk Upland Forest Natural Area); Mark Twain National Forest – Salem/Potosi District (Blair Creek Raised Fen Natural Area); Mark Twain National Forest – Doniphan/Eleven Point District; Chilton Creek Preserve; Thorny Mountain Preserve; Shut-in Mountain Fens Preserve; Alton Box – Pulltite Preserve; Bat Cave Preserve; Pioneer Forest (Pioneer Natural Area, Current River Natural Area, Scenic Easements, Virgin Pine Reserve, Cave Spring); Barn Hollow Natural Area; Triple Sink Natural Area; Bee Rock Sink Natural Area; Gilmore Pond Natural Area; Buttin Rock Access; South Prong Access; Hunter Towersite; Montauk Towersite; Pigeon Creek Conservation Easement



The male scarlet tanager is one of the most brilliantly colored birds in Missouri forests.

Jim Rathert, Missouri Department of Conservation

Blue Spring Natural Area



Blue Spring Natural Area on the Current River is a large, beautiful, undisturbed spring and spring branch. At 300 feet, it is Missouri's deepest spring and the sixth largest based on an average daily flow of 90 million gallons.

Jim Rathert, Missouri
Department of Conservation

Conservation Challenges

The Current River Hills is in the heart of one of the largest forested areas in the Midwest. Care of the landscape has important implications for the long-term survival of forest interior birds and other forest-dwelling wildlife. It is home to many natural communities, rare plants and animals, as well as two nationally significant rivers. The existing conservation network provides opportunity for resource conservation as well as for public use of these outstanding resources. Potential challenges to

conservation success include problematic invasive plants and animals (e.g. spotted knapweed, garlic mustard, sericea lespedeza, multiflora rose, zebra mussels, Asiatic clams, gypsy moths and Japanese honeysuckle), economic realities of landowners, lack of inventory data, limited staff time and increasing demand for industrial development, road-building and recreational use (ATVs, horses, boating).

To learn more about the Current River Hills Conservation Opportunity Area, please contact:



Missouri Department of Conservation
Wildlife Division
P.O. Box 180
Jefferson City, MO 65102-0180

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Current River Hills Conservation Opportunity Area



Ozark
Highlands



The Current River Hills include the forests, woodlands, glades, fens and caves surrounding the Current and Jacks Fork Rivers.

Lee Hughes, Missouri Department of Conservation

The Current River Hills Conservation Opportunity Area (COA) includes one of the largest tracts of forests and woodlands in the lower Midwest. The region is best known for extensive shortleaf pine-oak forests and woodlands that supported an exceptional timber boom at the turn of twentieth century. Open oak and pine woodlands with bluestem grass occupied higher, gentler ground and exposed slopes. Oak and shortleaf pine forests were best developed on the roughest lands. The landscape features glades, cliffs, fens, sinkhole ponds, caves, springs and streams.

Much of the Current River Hills is underlain by soluble rock, giving rise to sinkholes, caves and springs. There are over 300 recorded caves within the boundaries of Ozark National Scenic Riverways. Sixty percent of the Current and Jacks Fork Rivers' flow comes from seven major springs and 51 springs of various sizes. The Current River

is noted by The Nature Conservancy as the most significant mid-sized river in midcontinental North America. Both the Current River and Jacks Fork River are designated as Outstanding National Resource Waters.

Pioneer Forest is a large, privately-owned forest within the Current River Hills COA. For more than 50 years, they have used single-tree selection harvests in managing the forest to restore high quality oak-hickory forests and woodlands, establish sustainable harvests and protect significant natural communities.

The Current River Hills provide habitat for many Ozark animals, including dark-sided salamanders, gray bats, pileated woodpeckers, Ozark hellbenders and checkered madtoms. Noteworthy plants include harebell, small white lady-slipper and Southern monkshood. The existing conservation network provides an opportunity to conserve wildlife at a landscape scale.

Eleven Point Hills Conservation Strategies

- Restore shortleaf pine woodlands, areas of concentrated glades, high quality fen complexes and other natural communities.
- Restore riparian natural communities, including giant cane stands.
- Implement recovery actions for the Ozark hellbender.
- Conserve hibernacula, maternity colonies and habitat for bats.
- Control problematic invasive plants and animals.
- Involve and integrate willing partners, local communities and individuals.
- Provide financial incentives for private landowners to meet desired resource management conditions; seek conservation easements through willing participants.
- Initiate one pilot conservation strategy for each feature (terrestrial, aquatic and karst).
- Protect the landscape's best examples of terrestrial and aquatic natural communities and geological features as Missouri Natural Areas.



Paul W. Nelson, U.S. Forest Service

Tree thinning and prescribed burns are essential activities for restoring shortleaf pine woodlands.

Priority Research and Inventory Needs

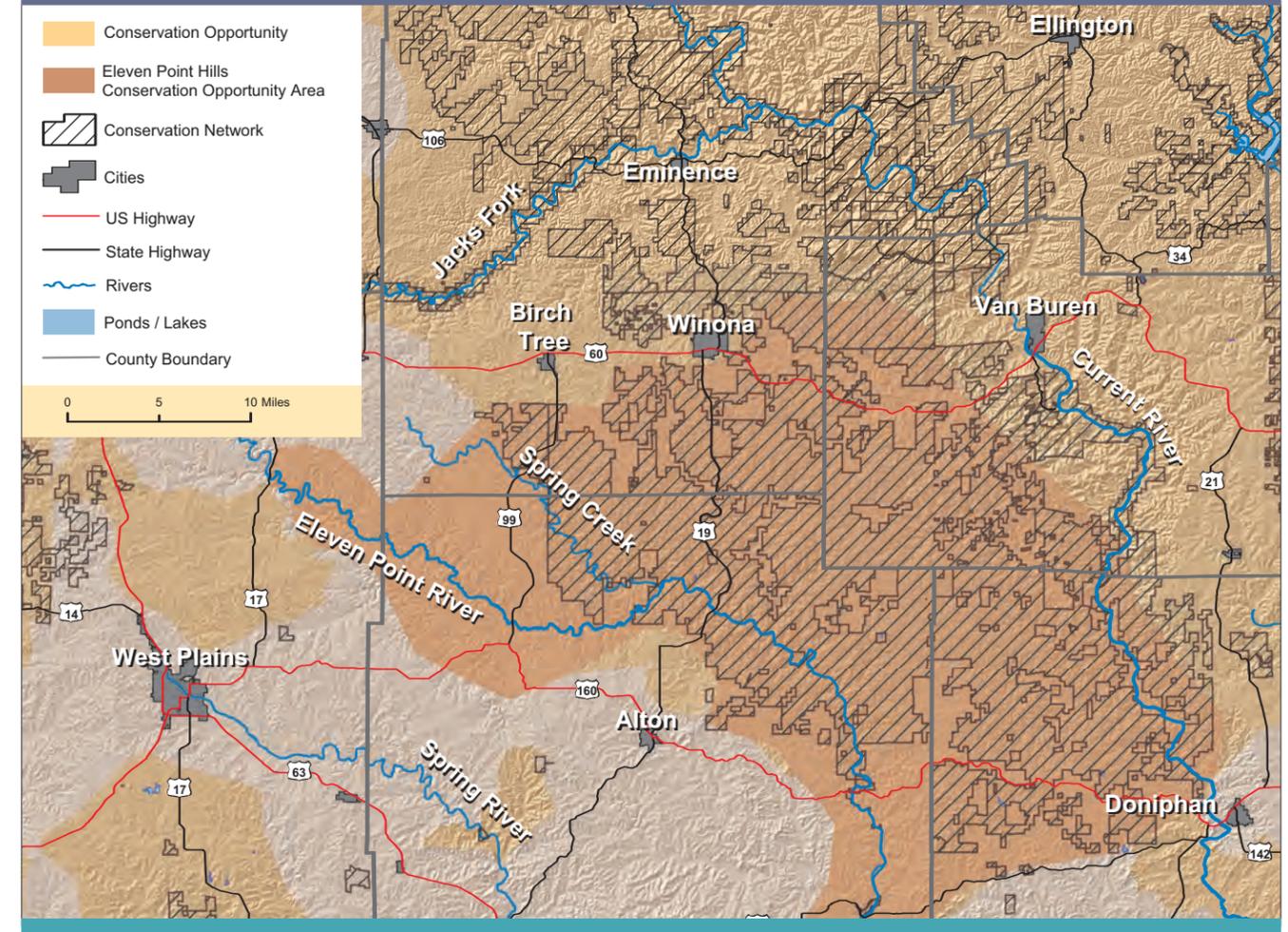
- Inventory and prioritize restoration opportunities. Inventory flatwoods and other woodland natural communities.
- Assess the effects of highway corridors on wildlife crossings and wildlife migrations.
- Expand inventory of problematic non-native invasive plants and animals.
- Inventory and reassess county natural feature surveys based on revised natural community classification system.
- Assess status and condition of species of conservation concern by revisiting known Heritage sites.
- Compile benchmark water quality data for the Eleven Point River.
- Conduct dye tracing to expand knowledge about subterranean hydrological characteristics.
- Review agency management practices on public lands to ensure actions match stated goals and adjust accordingly.

Conservation Partners

Existing: The Nature Conservancy – Missouri Chapter; Eleven Point River Conservancy; Central Hardwoods Joint Venture; National Park Service (NPS); U.S. Forest Service (USFS); Missouri Department of Conservation (MDC)

Potential: Cave Research Foundation; Missouri Speleological Society; Missouri Cave and Karst Conservancy; Missouri Ozark Regional Explorers; Scenic Rivers Watershed Partnership; Ozark Regional Land Trust; Quail Unlimited; Cornell Laboratory of Ornithology; National Wild Turkey Federation (NWTf); Missouri Conservation Heritage Foundation (MCHF); Arkansas Natural Heritage Program; Natural Resources Conservation Service (NRCS); U.S. Fish and Wildlife Service (USFWS); Missouri Department of Natural Resources (DNR)

Eleven Point Hills Conservation Opportunity Area



Funding Sources

Existing: USFS annual budget; NPS annual budget; MDC annual budget; National Fish and Wildlife Federation Grant; Missouri Bird Conservation Initiative Grant; L-A-D Foundation Grant; DNR Special Area Land Treatment Program; DNR Soil and Water Conservation Cost-Share Grants; DNR Soil and Water Conservation Loan Interest-Share Program

Promising Future Sources: NWTf Wild Turkey Super Fund; MDC State Wildlife Grants; MDC Wildlife Diversity Funds; MDC Forest Legacy Program; USFWS Partners for Fish and Wildlife Program; DNR 319 Grants; MCHF Grants; Missouri Department of Transportation Intermodal Surface Transportation Efficiency Act Grants

Existing Conservation Network

Mark Twain National Forest – Doniphan/Eleven Point District (Irish Wilderness, Bald Hill Glade Natural Area, Big Barren Creek Natural Area, Brushy Pond Natural Area, Cowards Hollow Natural Area, Cupola Pond Natural Area, Haney Pond Natural Area, Marg Pond Natural Area, Red Maple Pond Natural Area, Tupelo Gum Pond Natural Area, Wells Branch Fen Natural Area); Ozark National Scenic Riverways (Tunnel Bluff Woods Natural Area); Peck Ranch Conservation Area (Grassy Pond Natural Area, Mule Hollow Glade Natural Area); Birch Creek Conservation Area; Fourche Creek Conservation Area; Thomasville Towersite; Myrtle Access

Summer tanagers live in open woodlands. Their numbers should increase after prescribed burning and tree thinning are used as woodland management techniques.



Jim Rathert, Missouri Department of Conservation

Pine Woodland Restoration



The U.S. Forest Service is working with The Nature Conservancy to restore 10,000 acres of shortleaf pine woodland near Winona. When restored, this woodland complex may become suitable for the reintroduction of the red-cockaded woodpecker and brown-headed nuthatch, two birds once found in pine woodlands but now extirpated from Missouri.

Paul W. Nelson, U.S. Forest Service

Conservation Challenges

The Eleven Point Hills Conservation Opportunity Area is embedded in one of the largest intact native landscapes in Missouri. Great potential exists for large-scale natural community restoration. Potential challenges to conservation success include problematic invasive plants and animals, lack of understanding of natural community management, threats to karst features, limited

information due to lack of inventory data, land fragmentation and habitat destruction due to expanding home development, highway improvements, utilities and conversion to pasturelands, lack of funding and staff, loss of plant and animal diversity due to fire suppression, past logging practices, history of overgrazing and increasing demands for recreational use.

To learn more about the Eleven Point Hills Conservation Opportunity Area, please contact:



Missouri Department of Conservation
Wildlife Division
P.O. Box 180
Jefferson City, MO 65102-0180

Eleven Point Hills

Conservation Opportunity Area



Ozark
Highlands



The Eleven Point River was one of the nation's first to be selected as a National Wild and Scenic River.

Jim Rathert, Missouri Department of Conservation

The Eleven Point River meanders through the picturesque Ozark hills of southern Missouri. Its course is cut in the shadows of steep bluffs, through sloping forested valleys and low-lying riparian ecosystems. Barely more than a small stream at its upper reaches, it gains width and depth as it proceeds southeastward. Springs pouring from dolomite bluffs or rushing up from a vast network of underground flow systems provide a continuous source of water.

The Eleven Point Hills Conservation Opportunity Area (COA) lies in some of the most rugged and least developed portions of the Missouri Ozarks. Historically, it contained Missouri's most extensive shortleaf pineries, historical habitat for the red-cockaded woodpecker.

Additionally, the deeply dissected hills adjacent to the Eleven Point and Current Rivers contain relict populations of plants associated with steep bluffs, cave entrances, fens, springs and sinkholes.

The appearance of this present-day landscape is much different than that of the past. Nearly all virgin pine and oak hardwood forests and woodlands were removed during the late 1800s to early 1900s. Domestic livestock roamed freely for over a century, eliminating much of the historic native grass and wildflower cover. Woody groundcover has flourished – a byproduct of overgrazing and fire suppression. The Eleven Point River COA contains excellent opportunities for restoring rare natural communities and associated plants and animals.

Golden Grasslands Conservation Strategies

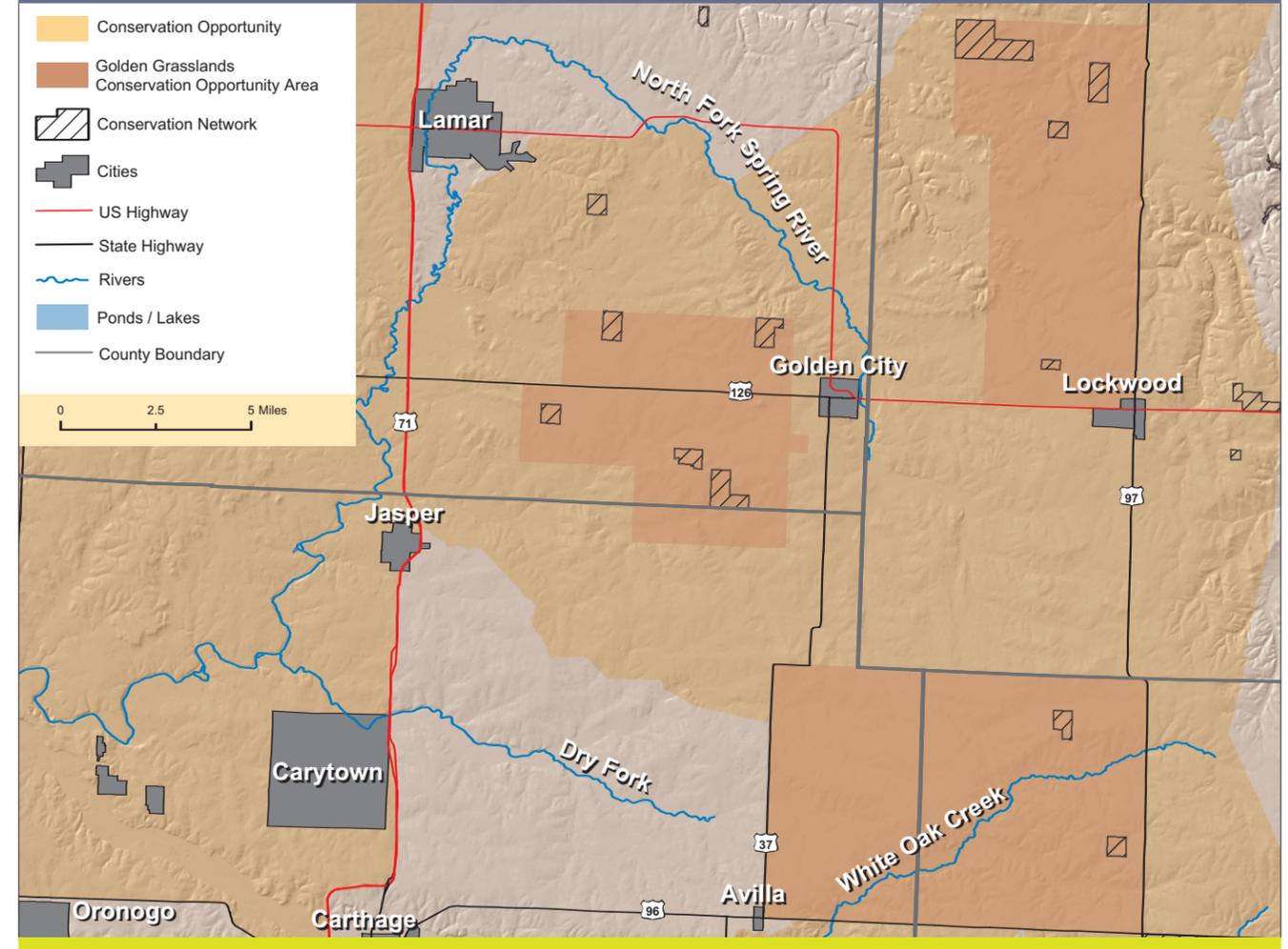
- Increase the amount of land under permanent conservation protection.
- Implement best management plans for grazing on private lands.
- Implement a prairie idling incentive program to make prescribed fire on overgrazed native fields feasible.
- Develop an incentive program to pay for tree removal costs on private land.
- Replace woody fencerows with native shrubs to benefit animals such as bobwhite quail.
- Construct amphibian breeding sites that mimic bison wallows.
- Control invasive plants and animals (e.g. sericea lespedeza).
- Conduct landowner field days and workshops.
- Establish a grass-fed beef certification program.



*Dwindling prairie habitat, and the demise of the creatures that depend on it, sparked the formation of the **Grasslands Coalition** in 1998. The Coalition works to help the public understand the importance of grasslands and focuses on improving grassland habitat in areas that could make a significant and lasting difference to species like the prairie-chicken.*

Jim Rathert, Missouri Department of Conservation

Golden Grasslands Conservation Opportunity Area



Priority Research and Inventory Needs

- Determine the best long-term methods for controlling sericea lespedeza.
- Evaluate patch-burn grazing techniques.
- Inventory the distribution and abundance of native prairie plants.

Conservation Partners

Existing: Missouri Prairie Foundation (MPF); The Nature Conservancy – Missouri Chapter (TNC); Natural Resources Conservation Service (NRCS); U.S. Fish and Wildlife Service (USFWS); Missouri Department of Conservation (MDC)

Potential: Audubon Missouri; National Wild Turkey Federation; Ozark Regional Land Trust; Quail Unlimited (QU); private landowners



Jim Rathert, Missouri Department of Conservation

Funding Sources

Existing: TNC annual budget; MPF annual budget; MDC annual budget; MDC Private Lands Cost Share Program; MDC Wildlife Diversity Funds; National Fish and Wildlife Foundation Grant; Missouri Bird Conservation Initiative Grant; NRCS Grassland Reserve Program; USFWS Partners for Fish and Wildlife; USFWS Private Stewardship Program

Promising Future Sources: QU Quail Habitat Incentive funds; NRCS Farmland Protection Program; MDC State Wildlife Grants; MDC Landowner Incentive Program

The pale purple coneflower (left) is a characteristic prairie plant. The showy flowers produced throughout the summer are a good nectar source for butterflies. Insects do much of the work on the prairie: they are important pollinators, help build soil by cycling nutrients and provide food for birds and other animals.

Existing Conservation Network

Golden Prairie; Dorris Creek Conservation Area; Horse Creek Prairie Conservation Area; Indigo Prairie Conservation Area; Niawathe Prairie Conservation Area and Natural Area; Pa Sole Prairie Conservation Area; Providence Prairie Conservation Area; Kickapoo Prairie Conservation Area; Sloan Conservation Area; Stony Point Prairie Conservation Area; Talbot Conservation Area; Treaty Line Prairie Conservation Area; Cook Meadow; Penn-Sylvania Prairie

Prairie Sunrise



The diversity of grassland wildlife has diminished as prairie habitats have been converted to cropland or fescue. Native tallgrass prairies once covered 34 percent of Missouri but now occupy less than 0.5 percent of the land. The rarity of our remaining prairies makes the efforts to protect them all the more valuable.

Jim Rathert, Missouri Department of Conservation

Conservation Challenges

Golden Grasslands remains one of the last places in Missouri to find greater prairie-chickens. Obstacles to securing their local populations include high land prices and fluctuating commodity prices, low levels of public

understanding about prairie habitat and native grassland management, lack of funding for existing programs, conflicting program rules, constant change in rules and goals of conservation programs and lack of available staff time.

To learn more about the Golden Grasslands Conservation Opportunity Area, please contact:



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Golden Grasslands Conservation Opportunity Area



Ozark Highlands



Greater prairie-chicken numbers have declined since the 1960s, largely due to habitat loss. The Golden Grasslands Conservation Opportunity Area provides large expanses of the open grasslands they prefer.

Noppadol Paothong

The Golden Grasslands Conservation Opportunity Area (COA) includes two focus areas identified by the Missouri Grasslands Coalition as important landscapes for the recovery of the greater prairie-chicken. The landscape is a combination of existing native prairie habitat, land suitable for grassland restoration and open land suitable for grassland wildlife. Approximately 95 percent of the COA is privately owned.

The Golden - Dorris Creek Focus Area features 22,000 acres of flat to rolling grasslands and crop fields. Residential and commercial development is unlikely in the near future. Crops are grown on approximately 70 percent of the area, primarily in cucumber production. Many landowners welcome financial assistance for

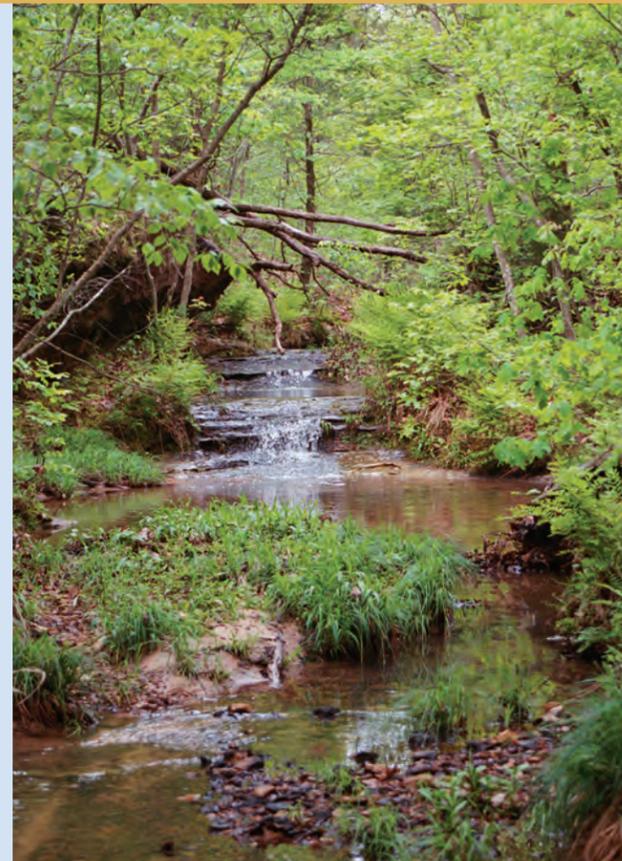
habitat management practices (e.g., removing woody vegetation along fence rows). A prairie restoration of nearly 3,000 acres is feasible near Missouri Prairie Foundation's Golden Prairie.

The Stony Point - Horse Creek Focus Area (28,000 acres) represents one of the best opportunities for private prairie restoration statewide. The landscape supports a significant amount of tallgrass prairie remnants, although much of it has been overseeded with fescue and will require restoration. Fescue, an aggressive invasive grass, crowds out beneficial native prairie plants.

Much of the Golden Grasslands COA also overlaps with newly designated Missouri Department of Conservation Quail Focus Areas.

LaBarque Creek Watershed Conservation Strategies

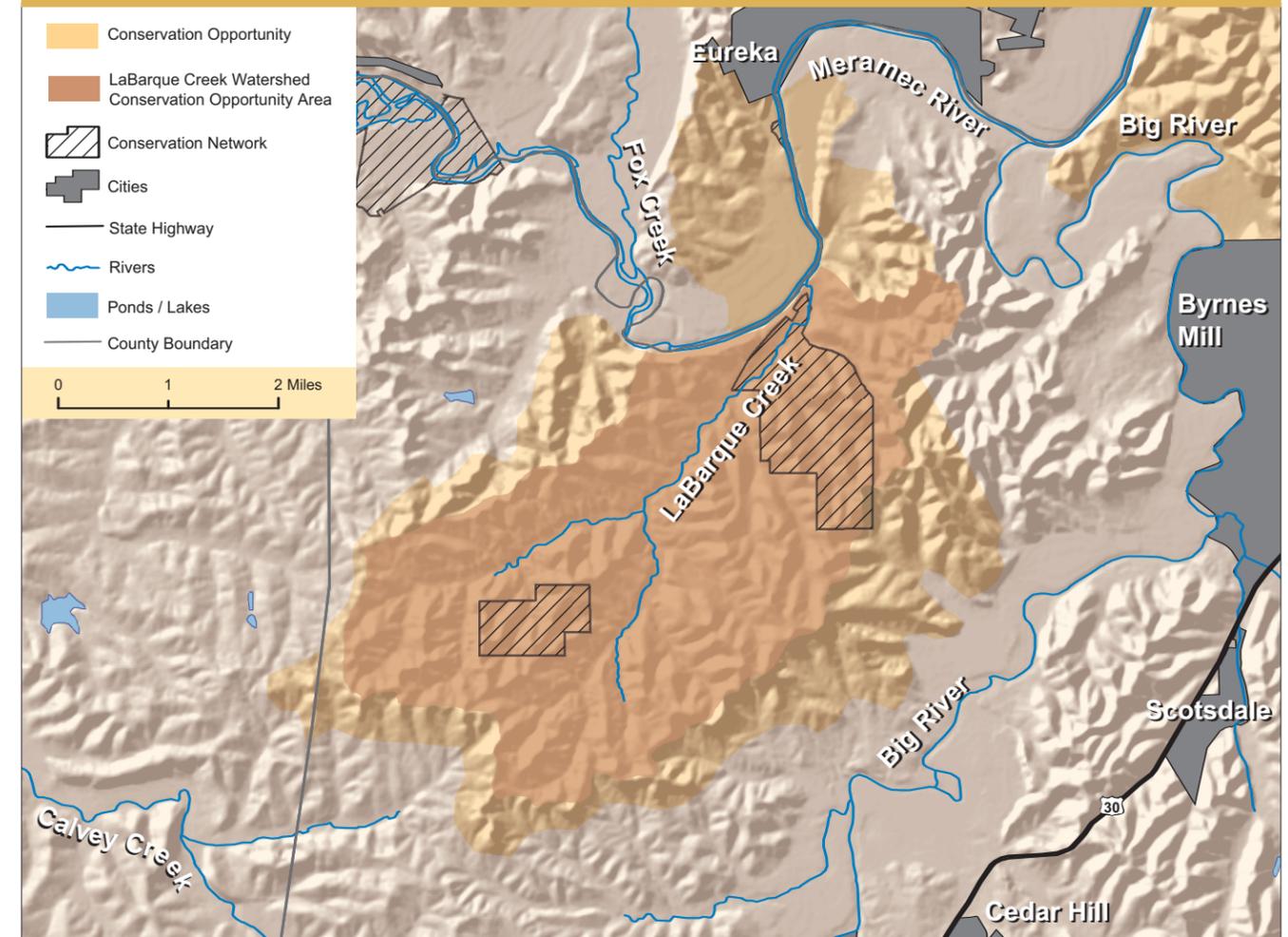
- Protect and enhance aquatic biodiversity.
- Protect and enhance terrestrial biodiversity.
- Engage residents and other stakeholders as partners in conserving the watershed.
- Use watershed planning in the LaBarque Creek Watershed as a model for watershed planning in Jefferson County and throughout the Meramec Basin.
- Permanently conserve watershed integrity through best management practices and permanent land protection tools (easement, acquisition or other special practices).



Tracy Boaz, Missouri Department of Conservation

LaBarque Creek's forested stream banks prevent soil erosion and protect water quality.

LaBarque Creek Watershed Conservation Opportunity Area



Priority Research and Inventory Needs

- Inventory aquatic invertebrates.
- Develop appropriate methods and standards to test water quality and quantity.
- Use models to determine stormwater and sediment control needs for individual homes and subdivisions (existing and planned).
- Investigate the effects of septic systems, lagoons, roads and bridges on stream health; develop best management practices.
- Inventory terrestrial natural communities (including invasive and exotic species).
- Conduct stakeholder surveys.
- Find private funding sources.

Conservation Partners

Existing: The Nature Conservancy – Missouri Chapter (TNC); Ozark Regional Land Trust; Trust for Public Land; The Open Space Council; Missouri Conservation Heritage Foundation (MCHF); East-West Gateway Council of Governments; U.S. Army Corps of Engineers - St. Louis District; Jefferson County Government; LaBarque Creek Watershed Partners (including residents); Natural Resources Conservation Service; Environmental Protection Agency (EPA); Missouri Department of Conservation (MDC)

Potential: Audubon Missouri; St. Louis Audubon Society; Wild Canid Research and Survival Center; Webster Groves Nature Study Society; Washington University; Pacific Ring; Meramec River Recreation Association; Stream Teams; National Wild Turkey Federation (NWTF); Missouri Department of Natural Resources (DNR); U.S. Fish & Wildlife Service (USFWS)

Funding Sources

Existing: TNC annual budget; MDC annual budget; EPA Region 7 funds; MCHF Stream Stewardship Trust Fund

Promising Future Sources: MDC State Wildlife Grants; MDC Wildlife Diversity Funds; MDC Forest Legacy Program; MDC Private Lands Cost Share Program; USFWS Partners for Fish & Wildlife Program; DNR 319 Grants; MCHF grants; NWTF Wild Turkey Super Fund

Existing Conservation Network

LaBarque Hills Preserve; Hilda Young Conservation Area; Wild Canid Research and Survival Center

Bleeding shiners are one of 36 species of fish found in LaBarque Creek. Their habitat range is limited to streams in the Ozark Highlands of Missouri and Arkansas.



Cliff White, Missouri Department of Conservation

Sandstone Cliffs



Tracy Boaz, Missouri Department of Conservation

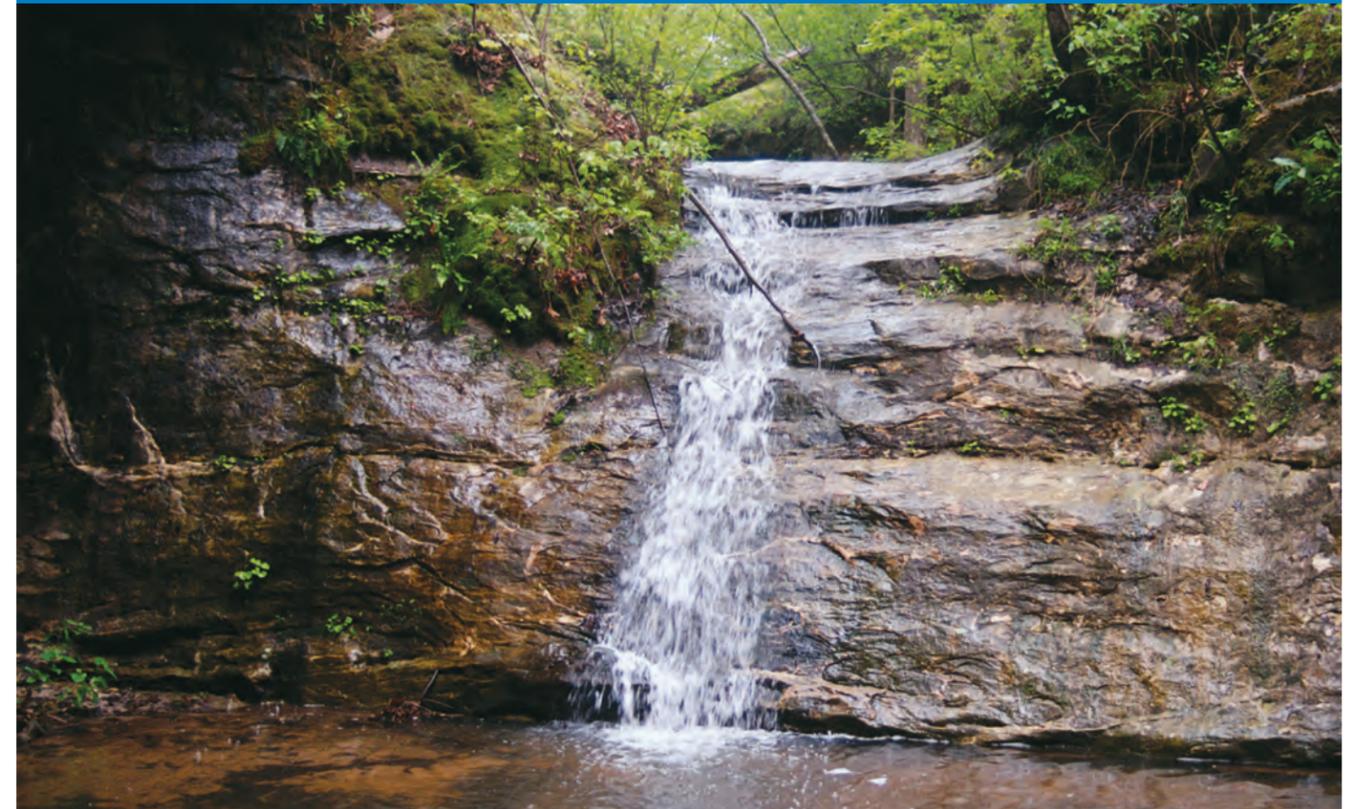
The LaBarque Creek Watershed contains numerous sandstone cliffs ranging in height from 10 to 40 feet. Sandstone rock, evidence that an ancient sea once covered much of Missouri, forms when sand particles compact together over millions of years.

LaBarque Creek Watershed

Conservation Opportunity Area



Ozark Highlands



Tracy Boaz, Missouri Department of Conservation

LaBarque Creek is one of Jefferson County's healthiest Ozark streams.

Conservation Challenges

The LaBarque Creek Watershed demonstrates a healthy and functioning landscape near a highly urbanized region. Potential challenges to conservation success include development pressure

(inside and outside the Conservation Opportunity Area), lack of funding and staff time, landowner participation and encroachment of invasive and exotic species.

To learn more about the LaBarque Creek Watershed Conservation Opportunity Area, please contact:



Missouri Department of Conservation
Wildlife Division
P.O. Box 180
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The LaBarque Creek Watershed features a high quality stream and rugged sandstone terrain surprisingly close to St. Louis. A combination of ecological values and development patterns make the watershed an excellent candidate for conservation efforts.

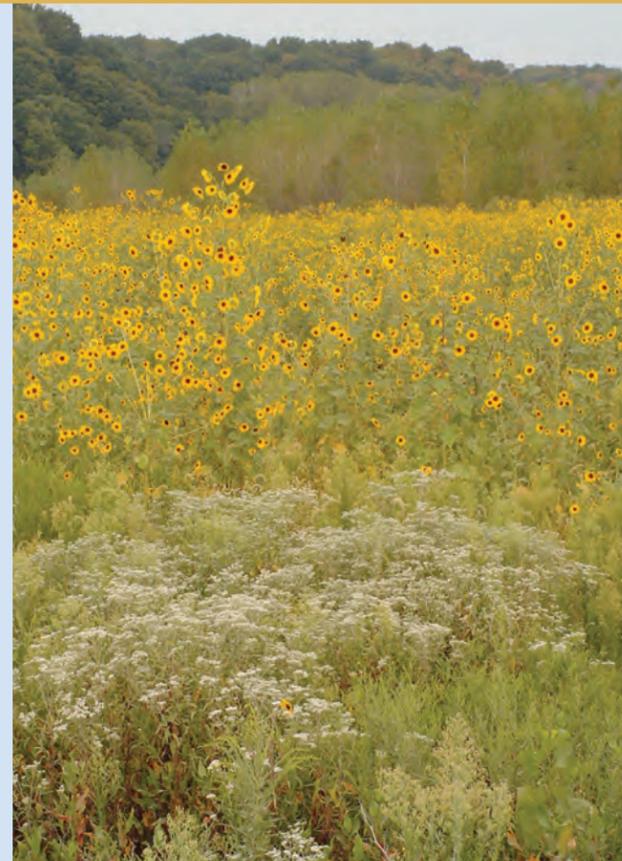
The 13 square mile wooded watershed lies in northwest Jefferson County and enters the Meramec River. The LaBarque Creek Watershed contained approximately 1,300 residents in the year 2000, a density of roughly 100 people per square mile. However, the population is concentrated on only 20% of the watershed land.

The low level of disturbance in the watershed produces a high quality aquatic system. LaBarque Creek provides over six miles of permanently flowing stream that supports 36 species of fish, including black bass and sunfish. This level of stream diversity and richness can be found nowhere closer to the St. Louis area.

The Conservation Opportunity Area's underlying sandstone geology produces a dramatic landscape. Flowing water carves cliffs, waterfalls, bowls and overhangs into the soft sandstone. The resulting deep, sheltered moist canyons and ravines contain several state-listed plants found on only a few other sites in Missouri.

Manitou Bluffs Conservation Strategies

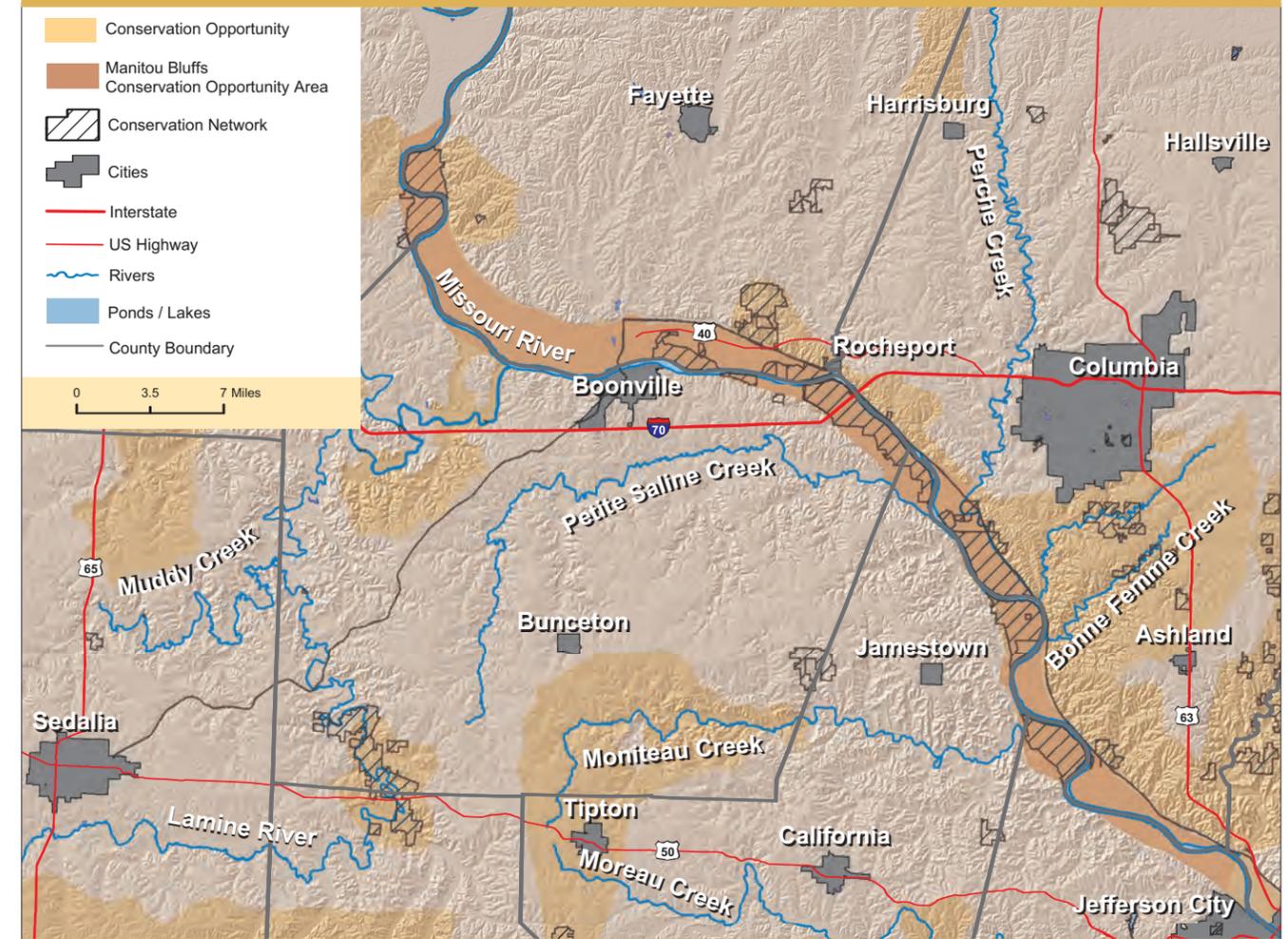
- Restore river habitats for native fish with shallow water habitat development, in-channel and backwater habitat restoration and allowing natural flooding where practical.
- Restore and manage bottomland forest habitat for native plants and animals.
- Restore and manage wetlands and wet prairie habitats to benefit resident and migratory wildlife.
- Conserve natural communities along the river bluffs.
- Manage populations of problematic exotic and invasive species (e.g. Asian carp, zebra mussel, purple loosestrife, Johnson grass, reed canary grass).
- Increase on-river recreational use.
- Partner with communities and landowners to expand outreach, education, interpretation and restoration opportunities related to Missouri River floodplain habitat and history.



Plants quickly regenerate in a former crop field on the floodplain. Bottomland forests once grew in this rich floodplain soil.

USFWS Big Muddy NFWR

Manitou Bluffs Conservation Opportunity Area



Priority Research and Inventory Needs

- Determine areas of highest restoration potential.
- Research the effects of invasive plants and animals on native plants and animals.
- Create a scientific clearinghouse to consolidate and share information about riverine studies and projects.
- Inventory mussels, reptiles, amphibians and birds.

Conservation Partners

Existing: Ducks Unlimited (DU); National Wild Turkey Federation (NWTf); Wetland Reserve Program Landowners; University of Missouri – Columbia; Natural Resources Conservation Service (NRCS); U.S. Army Corps of Engineers (USACE); U.S. Fish & Wildlife Service (USFWS); U.S. Geological Survey; U.S. Forest Service; Missouri Department of Natural Resources (DNR); Missouri Department of Conservation (MDC)

Potential: Audubon Missouri; Columbia Audubon Society; Friends of Big Muddy; Missouri River Communities Network; Missouri River Relief; Missouri Waterfowl Association; Missouri Native Plant Society; Central Hardwoods Joint Venture; The Nature Conservancy – Missouri Chapter; Missouri Conservation Heritage Foundation (MCHF)

Funding Sources

Existing: USFWS annual budget; MDC annual budget; USACE annual budget; DNR annual budget; DU Conservation Projects Program; NWTf Wild Turkey Super Fund; Farm Service Agency Conservation Reserve Program; NRCS Wetland Reserve Program

Promising Future Sources:

Environmental Protection Agency Grants; MCHF Stream Stewardship Trust Fund; National Fish and Wildlife Federation Grants; USFWS North American Wetland Conservation Act Grants; Soil and Water Conservation Districts State Cost Share Funds

Existing Conservation Network

Big Muddy National Fish and Wildlife Refuge (Lisbon Bottom Unit, Jameson Island Unit, Overton Bottoms North Unit); Overton Bottoms South Conservation Area; Eagle Bluffs Conservation Area; Marion Bottoms Conservation Area; Plowboy Bend Conservation Area; Franklin Island Conservation Area; Diana Bend Conservation Area; Rocheport Cave Conservation Area; KATY Trail State Park; Taylor's Landing Access; Providence Access; Hartsburg Access; Marion Access; Capitol View Access



The little blue heron is one of many wetland birds that can be found along rivers.

Jim Rathert, Missouri Department of Conservation

Shallow Water Habitat Restoration



Many native Missouri River fish need shallow water for nurseries. These shallow water habitats were nearly eliminated with flood control and navigational changes to the river. Lisbon Chute (above) developed naturally during the floods of 1993 and 1995. Today, it is managed by the U.S. Fish and Wildlife Service to maintain its shallow water areas.

HDR Company

Conservation Challenges

The Manitou Bluffs Conservation Opportunity Area has been altered by channelization of the river and the draining and conversion of the floodplain for agriculture. The purchase of large bottomland tracts by conservation partners has assisted in restoring floodplain natural communities. Allowing some conservation lands

to act as flood storage during high water will promote native plants and animals and help prevent flooding elsewhere. Potential challenges to conservation success include staff shortages, lack of consistent funding, altered river processes and the urbanization of bluffs.

To learn more about the Manitou Bluffs Conservation Opportunity Area, please contact:



Missouri Department of Conservation
Wildlife Division
P.O. Box 180
Jefferson City, MO 65102-0180

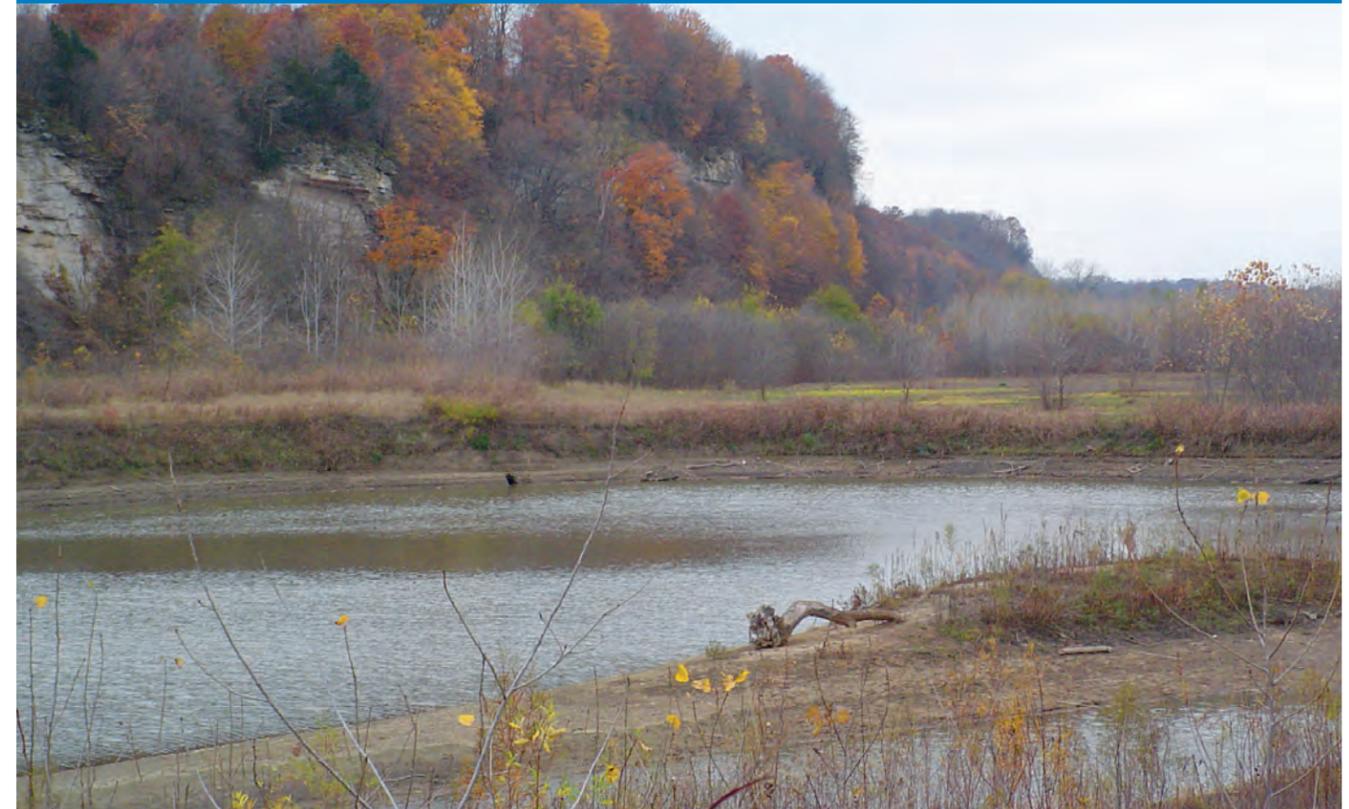
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Manitou Bluffs

Conservation Opportunity Area



Ozark Highlands



The Manitou Bluffs are named for Native American petroglyphs sketched on bluff faces near Rocheport.

USFWS Big Muddy NFWR

The Missouri River seen by the first European explorers was a broad, shallow, meandering river with many braided channels, sandbars and islands. This dynamic system of changing water levels resulted in sand flats, riverfront forests and bottomland forests. The river and its adjacent floodplain supported a remarkable abundance and diversity of wildlife. Native Americans heavily utilized these floodplains for their abundant natural resources.

The Manitou Bluffs Conservation Opportunity Area (COA) includes the Missouri River floodplain from north of Arrow Rock downstream to Jefferson City. Following the Great Flood of 1993, public agencies purchased approximately 22,850 acres in the Manitou Bluffs COA to rehabilitate fish and wildlife habitat. Conservation partners are working together to restore natural river habitats and lessen the effects of large-scale flooding events in the future.

Riverfront forests were once common along the Missouri River floodplain. Riverfront forests are found in overflow areas along rivers where floodwater scours and deposits silt, sand and gravel. Flash flooding is frequent and lasts a few hours to several days. Silver maples, green ash and slippery elm dominate the forest canopy. Animals include the great egret, great blue heron, wood duck, osprey and belted kingfisher.

Sandbars and mudflats are the direct products of flooding along a river. Trees and shrubs such as willow, sycamore and river birch stabilize sandbars and mudflats. Many grasses and herbaceous plants grow on the ground layer. Sandbars become riverfront forests when trees and shrubs mature enough to stabilize the soil. Sandbars and mudflats attract many animals including Blanchard's cricket frogs, spotted sandpipers and numerous dragonflies, damselflies, beetles and wasps.

Middle Meramec Conservation Strategies

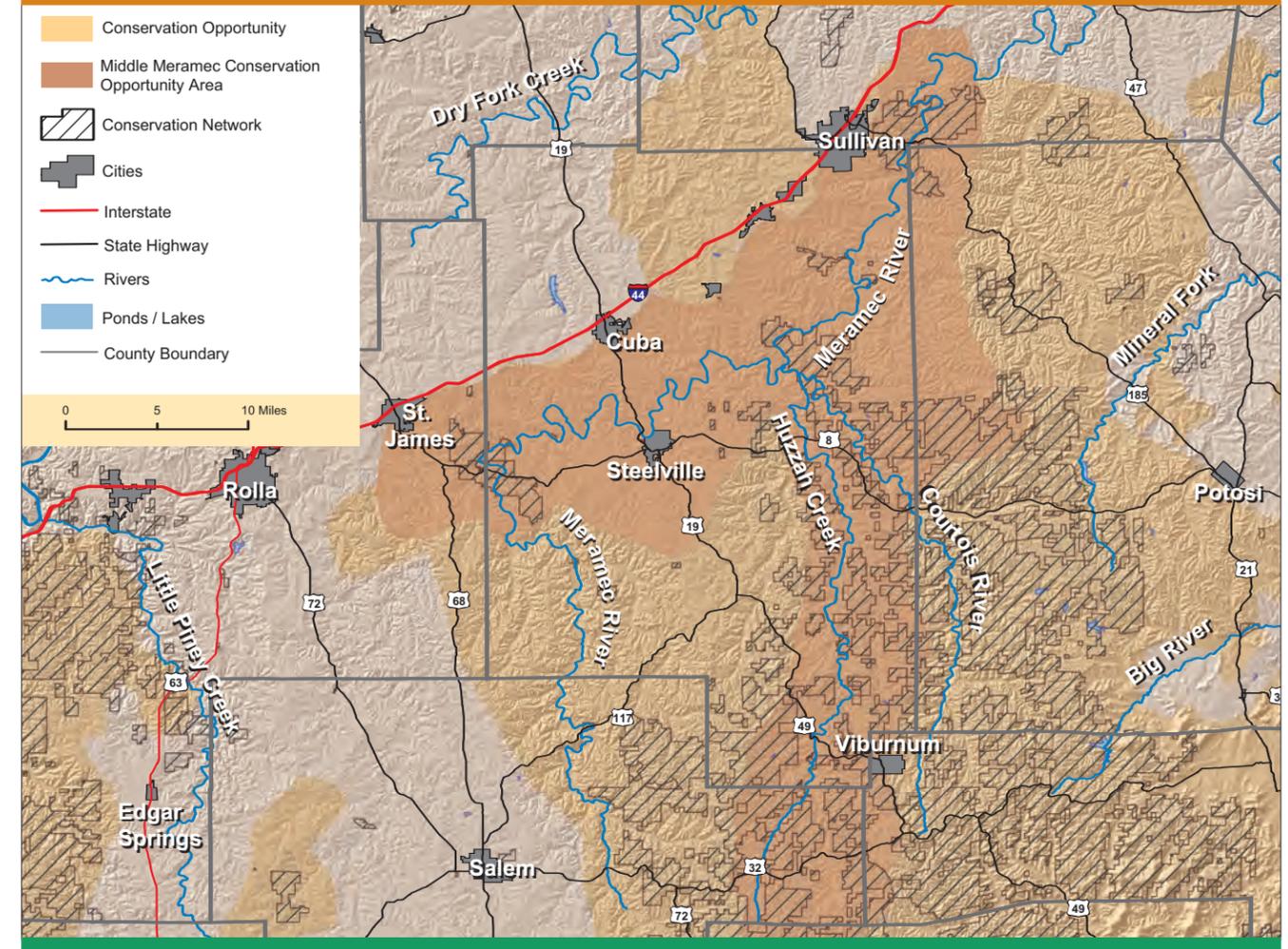
- Conserve the forested landscape, aquatic resources, numerous natural communities and species of conservation concern.
- Create a Middle Meramec partnership.
- Continue working to eradicate invasive species.
- Maintain and increase forested habitat for high-priority bird species.
- Conserve glades, fens and other natural communities.
- Protect and restore existing mussel and native fish populations.
- Improve water quality.



Jim Rathert, Missouri Department of Conservation

Fens are created when groundwater seeps onto watertight rock layers, creating permanent, shallow wetlands.

Middle Meramec Conservation Opportunity Area



Priority Research and Inventory Needs

- Consolidate existing data from multiple partners.
- Identify and inventory spring, cave and karst features and species.
- Identify and inventory all glade, woodland and fen communities.
- Inventory aquatic and terrestrial high priority species.
- Assess the effects of forest management practices on bat habitat.
- Inventory recharge zones and sources of point-source pollution that negatively affect aquatic resources.
- Determine effects of increased boat traffic on aquatic systems of the Meramec River.
- Research the habitat-associations of cerulean warblers and other high priority bird species.

Conservation Partners

Existing: The Nature Conservancy – Missouri Chapter (TNC); Ozark Regional Land Trust; National Wild Turkey Federation (NWTf); U.S. Forest Service (USFS); U.S. Fish and Wildlife Service (USFWS); Missouri Department of Natural Resources (DNR); Missouri Department of Conservation (MDC)

Potential: American Fisheries Society; Audubon Missouri; Central Hardwoods Joint Venture; Greenway Network, Inc.; The James Foundation; Northern Ozark Rivers Partnership; Open Space Council; Sierra Club – Ozark Chapter; St. Louis University’s Reis Biological Station; Washington University’s Tyson Research Center; Natural Resources Conservation Service (NRCS); National Park Service (NPS)

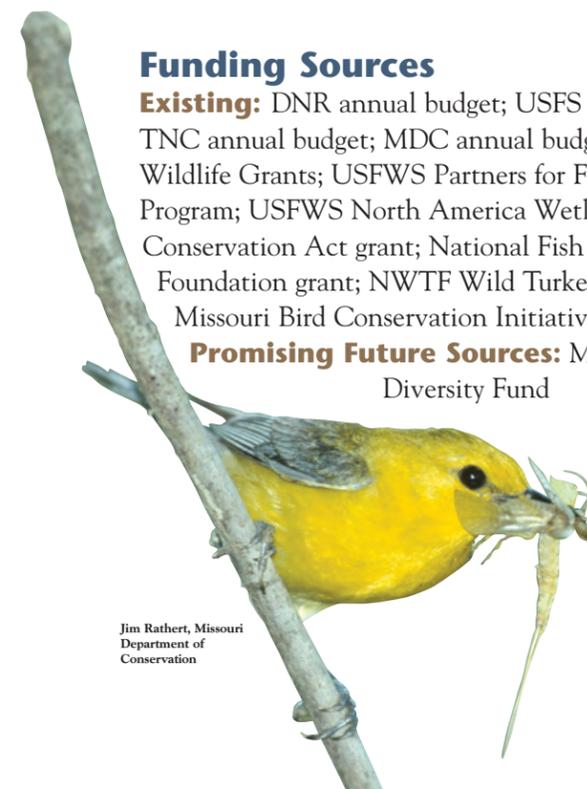
Funding Sources

Existing: DNR annual budget; USFS annual budget; TNC annual budget; MDC annual budget; MDC State Wildlife Grants; USFWS Partners for Fish and Wildlife Program; USFWS North America Wetlands Conservation Act grant; National Fish and Wildlife Foundation grant; NWTf Wild Turkey Super Fund; Missouri Bird Conservation Initiative grant

Promising Future Sources: MDC Wildlife Diversity Fund

Existing Conservation Network

Mark Twain National Forest–Salem/Potosi District; Meramec State Park (Meramec Upland Forest Natural Area); Onondaga State Park; Dillard Mill State Historic Site; Blue Springs Creek Conservation Area; Meramec Conservation Area; Huzzah Conservation Area; Onyx Cave Conservation Area; Woodson K. Woods Conservation Area (Springs End Forest Natural Area); Vilander Bluff Natural Area; Zahorsky Woods Preserve; Reis Biological Station; Riverview Access; Campbell Bridge Access; Sappington Bridge Access; Scott's Ford Access; Sand Ford Access; Leasburg Towersite; Rosati Towersite



Jim Rathert, Missouri Department of Conservation

The prothonotary warbler relies on wooded stream valleys, like those in the Middle Meramec COA, for its livelihood.

River of Life



Water quality in the Meramec River remains quite good. Over 100 kinds of fish can be found throughout its length. Trees along riverbanks help prevent erosion of soil and other pollutants from entering the river. In some locations this riparian corridor has been removed, resulting in increased sediments and poorer water quality.

Jim Rathert, Missouri Department of Conservation

Conservation Challenges

The Middle Meramec Conservation Opportunity Area contains a diversity of habitat types. Future obstacles to conservation success may include lack of enforcement of river easements, increasing

development and recreation pressures, limited funding and staffing and a lack of public awareness of conservation efforts.

To learn more about the Middle Meramec Conservation Opportunity Area, please contact:



Missouri Department of Conservation
Wildlife Division
P.O. Box 180
Jefferson City, MO 65102-0180

Middle Meramec

Conservation Opportunity Area



Ozark Highlands



The Middle Meramec landscape is embedded in one of the Midwest's largest expanses of timber.

Jim Rathert, Missouri Department of Conservation

The Middle Meramec Conservation Opportunity Area includes land within a roughly seven mile perimeter of the middle reaches of the Meramec River and its major tributaries. The topography is hilly, rugged and largely forested, with embedded glades, fens, caves, springs and other interesting natural features.

The Middle Meramec landscape supports a variety of plants and animals, from the aquatic spectaclecase mussel to the cave-dwelling grotto salamander. Sixty-five species and natural communities of conservation concern are recorded from this area, including the federally endangered Indiana bat, gray bat and Hine's emerald dragonfly. Cerulean warblers and other high-

priority interior forest birds are relatively abundant.

Prior to Euro-American settlement, the Middle Meramec was blanketed with oak and oak-pine forests and woodlands, with bottomland forests occurring along rivers and streams. Today, decades of fire suppression have eliminated the woodland ground flora. Much of the forest is now relatively even-aged second growth as a result of wide-spread logging in the early 1900s. Bottomland forests have been fragmented by pastures and development. The Meramec River's health is threatened by invasive species, some gravel mining practices and a reduction of wooded corridors along the river. Outdoor recreation and tourism play vital roles in local economies along the Meramec.