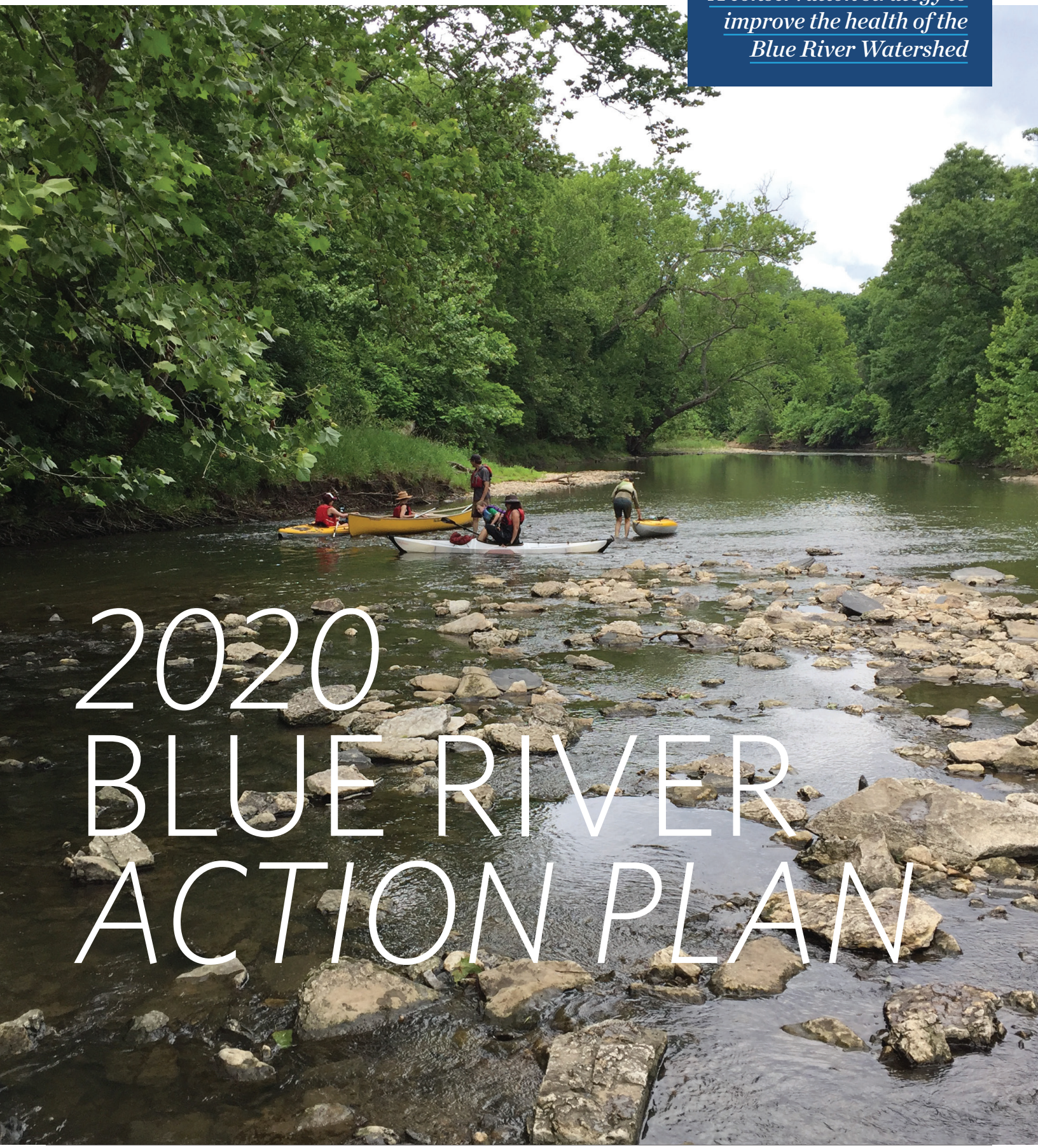
A conservation strategy to improve the health of the Blue River Watershed



2020 BLUE RIVER *ACTION PLAN*

INTRODUCTION

Kansas City is home to amazing natural resources that provide a source of pride and sense of place to people throughout the nine-county metropolitan area. Water resources, creeks, streams, and rivers, have played a critical role in defining its development and character.

The Blue River flows 42 miles northeast from its rural, undeveloped headwaters in Johnson County, Kansas through underserved communities and post-industrial stretches in Jackson County, Mo. and, finally, into the Missouri River, the source of the city's drinking water. The Blue River watershed is the largest in the city, covering 270 square miles and acting as home to half a million people. It is one of 20 Urban Waters Federal Partnership locations across the United States.

Water quality is poor in the Blue River and its three major tributaries, which are 303(d) listed streams, meaning they do not meet federal standards. According to the US Geological Survey, water quality is influenced by urbanization, point-source discharges, illegal dumping, urban run-off, physical stream conditions, and complex water-quality processes. Following a settlement with the Environmental Protection Agency, Kansas City, Mo. is under a Federal Consent Decree for using combined sewers to illegally dump wastewater into the Blue River. Much of the river is invisible to its neighbors in disinvested communities on the eastern side of the city, who are faced with disproportionate social and environmental challenges.

Heartland Conservation Alliance (HCA) and others are actively working to improve the health of this watershed by focusing resources in eight Action Areas that represent varying geographic areas and types of habitat. In each Action Area, this Plan outlines current and potential conservation projects of varying scale and type within the watershed. Action Areas were defined by examining information from the Mid-America Regional Council's (MARC) Natural Resources Inventory for the Kansas City area and from the Kansas City area Forest Conservation and Restoration Priorities map that was partially derived from an extensive i-Tree Eco study.



The Blue River spans two states, four counties and 20 municipalities. It is home to people and wildlife, and it offers a variety of benefits such as hiking and biking trails. The river has been recognized as an asset in four major regional planning efforts, all that have recommended its protection and restoration.

The Action Areas were determined because they:

- are highly visible to the public,
- offer public access to the Blue River,
- represent important habitat,
- provide good opportunities to enhance stormwater management,
- are located in and will benefit underserved communities, and
- provide opportunities to advance social and environmental equity.

What is a keystone habitat?

The Blue River Watershed was once a vast prairie with forested areas following the creeks and streams. As the area was settled and developed, much of the historic habitat was lost but remnants and pockets remain, especially along the river and other areas too difficult to develop. While each Action Area holds many types of habitat, the Blue River Action Plan focuses restoration and conservation on one keystone habitat that dominates each Area.

INTRODUCTION

The Blue River Action Plan summarizes and prioritizes decades of work to restore the health of the watershed, including the goals of four regional plans: Mid-America Regional Council's MetroGreen Plan, KC Water's Combined Sewer Overflow Plan, the Upper Blue River Watershed Plan, and Kansas City WildLands' Conservation Opportunity Action Plan. Heartland Conservation Alliance is dedicated to advancing and implementing the recommendations in these plans to establish a healthy and productive streamside riparian habitat. To explore the Action Areas and learn more about current projects within the Blue River watershed map, go online to: www.heartlandconservationalliance.org.

2016 ACTION PLAN 2020 COMMITTEE MEMBERS:
Wendy Sangster, Chair, Caitlin Dix, Jill Erickson, Tom Jacobs, Ginny Moore, Jeremy Peichel, Crew Schuster, Scott Schulte, Stephen Van Rhein, and Roberta Vogel-Leutung

2019 ACTION PLAN COMMITTEE MEMBERS:
Laurie Brown, Edd Brown, Joy Ellsworth, Jill Erickson, Ian Fannin Hughes, Bill Fessler, Molly Gosnell, Wendy Sangster, Scott Schulte, and Stephen Van Rhein

2020 ACTION PLAN COMMITTEE MEMBERS:
Adison Banks, Kelly Blandford, Laurie Brown, Jill Erickson, Ian Fanin-Hughes, Molly Gosnell, Brian Nowotny, Ann Pai, Scott Schulte, Stephen Van Rhein. 2020 Action Plan funded by The Conservation Fund and the Pisces Foundation. Design by Melissa Meyer.

To get involved in your community, please reach out to us at info@heartlandconservationalliance.org or call us at 816-759-7305, ext. 1148.



The Blue River Action Plan was developed to help guide policy- makers, community members, conservation partners, land owners, and land managers in achieving benefits from sound conservation practices.

What is a focal species?

People often assume that urban areas cannot support the habitat needed for plants and animals to thrive. The opposite is true, as urban areas are becoming increasingly critical for many plants and animals. In each Action Area, we highlight a plant or animal that is native to this region, which relies on key habitats to thrive. By improving the health of the Action Area, we can protect these focal species and help them thrive.

INDICATORS FOR HEALTH

Stakeholders identified six categories that represent the overall health of the Blue River. Each category is further divided into indicators that represent data collected for the grade. The Blue River Action Plan prioritizes projects to maintain or improve these indicators.

Community Connections
How do communities relate to the Blue River?

Development
How do development practices impact the Blue River?

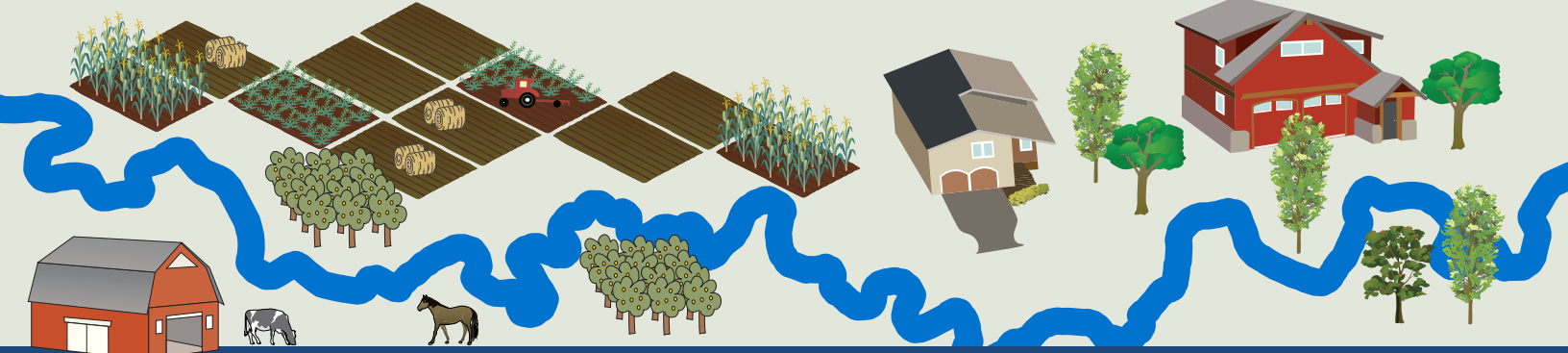
Governance
How are local government actions and policies affecting the Blue River?

Habitat
How much natural habitat exists along the Blue River to maintain a healthy ecosystem?

Recreation
How does the community interact with and seek enjoyment from the Blue River?

Water Quality
How clean is the water in the Blue River to provide for aquatic life and community recreation?

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UPPER BLUE RIVER

Wolf Creek to Indian Creek

SUMMARY The Upper Blue River Watershed encompasses 120,000 acres of land in both Kansas and Missouri, is home to 10 cities and stretches from Quivira Road and 191st Street to the confluence of Indian Creek near 99th Street and Holmes Road. The river itself begins at the confluence of Wolf Creek and Coffee Creek near 175th Street and Antioch Road.

ACTION AREAS AT A GLANCE



1—Blue River Headwaters
Keystone Habitat: Ephemeral streams
Total acres in Action Area: 17,828
Focal species: Redbelly snake *(Storeria occipitomaculata)*

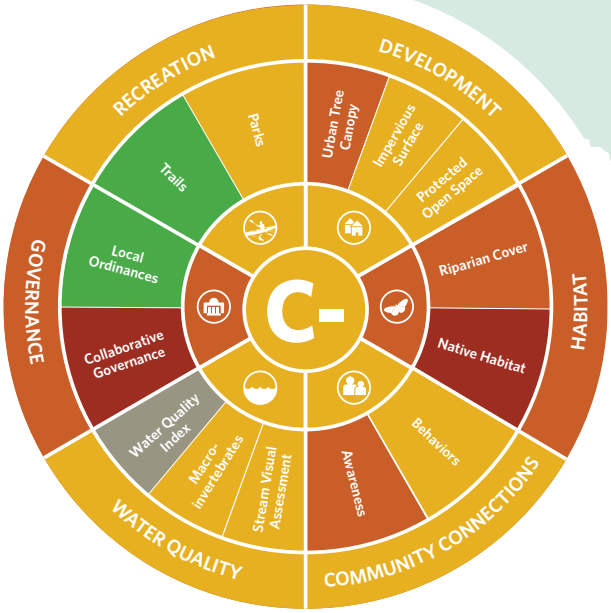


2—Blue River Parkway
Keystone Habitat: Healthy riparian corridor and floodplain
Total acres in Action Area: 923
Focal species: Pawpaw *(Asimina triloba)*



3—Alex George Park Wetland
Keystone Habitat: Bottomland forest and wetland
Total acres in Action Area: 1,416
Focal species: American beaver *(Castor Canadensis)*



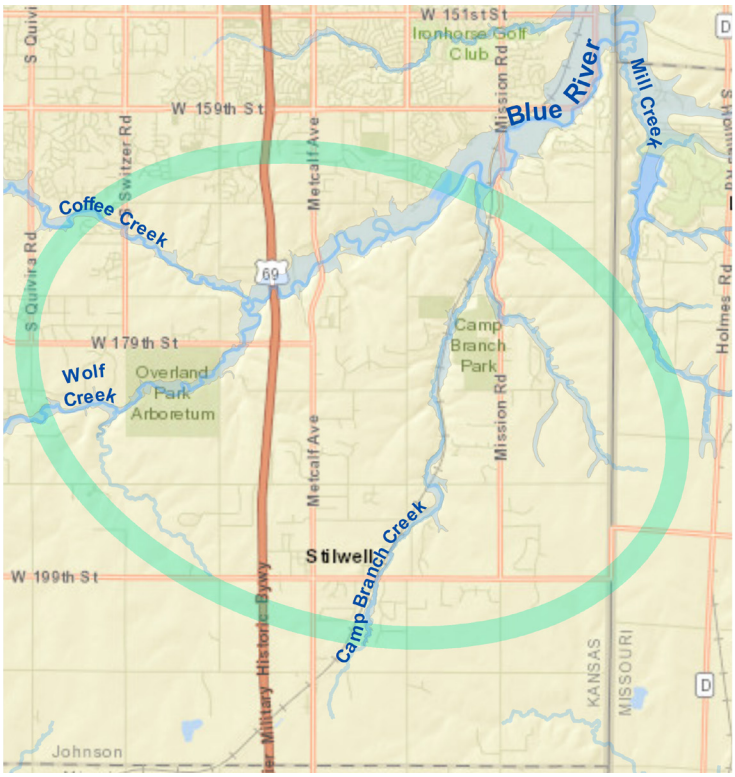


GRADE—WHAT DOES THIS GRADE MEAN? The Upper Blue River received a "C" in the 2019 Blue River Report Card. This watershed area has the best water quality in the Blue River, as a result of robust riparian stream corridors and the most acres of undeveloped land. However, this area received an "F" in Habitat because it has the lowest amount of tree cover and managed wildlands overall, which shows the impacts of both development and agriculture on native habitat. The greatest concerns for the Upper Blue River are the protection of undeveloped land, management of natural areas, and protection of good water quality. The areas in greatest need of improvement are collaborative governance between municipalities, improving tree cover, and enhancing the community's connection to the Blue River.

Upper Blue River

BLUE RIVER HEADWATERS

DESCRIPTION Wolf Creek and Coffee Creek come together, or confluence, near 175th Street and Antioch Road in Overland Park, Ks. to form the Blue River. The Upper Blue River Watershed lies primarily in Johnson County and contains roughly 5,000 acres of parks and public open space — only seven (7) percent of the total watershed. Where farms and agriculture once dominated this Action Area, it is currently a mix of new suburban and business developments. Many cities in the watershed are developing rapidly, threatening the health of aquatic and terrestrial ecosystems in all sub-watersheds.



Total Acres in Action Area: 16,271

What does a healthy Action Area look like? With proper land management, this Action Area will boast native-grassland with intermittent tree populations and a healthy network of ephemeral streams. The ease with which these grasslands and ephemeral streams can be developed necessitates the conservation of headwater land.

Keystone Ecosystems/Habitats: Ephemeral streams

In the United States almost 60 percent of stream miles are ephemeral, meaning they only flow seasonally or after storms. In Johnson County, ephemeral streams are primarily small spring-fed ponds and drainage channels that collect rainfall. These water sources are referred to as headwater streams and are critical to the health of the entire river network and downstream communities. Headwater streams trap floodwaters, recharge groundwater supplies, remove pollution, provide fish and wildlife habitat, and sustain the health of downstream rivers. Changes that harm these headwaters affect streams, lakes and rivers downstream. (Source: EPA.gov)



FOCAL SPECIES: Redbelly snake *(Storeria occipitomaculata)* has been listed as a Species in Need of Concern since 1987, redbelly snakes rely on hills and moist woodlands found near creeks and streams. The Kansas Dept. of Wildlife, Parks and Tourism recognizes this area as critical habitat.

Size: Length: 8-10"



The Blue River and associated wetlands provide critical habitat for plants and wildlife, water quality treatment, and improved infiltration of rainfall which lessens flood impact, recharges groundwater, and preserves base flow.

Upper Blue River

BLUE RIVER HEADWATERS

CONSERVATION STRATEGIES

Acres identified for restoration and protection:
3,000 acres

Description of Action Area Conditions
This Action Area scored an overall grade of "C-" in the 2019 Blue River Report Card. This Action Area is under severe threat from development that is removing natural vegetation, increasing impervious surfaces, degrading streambanks, and reducing tree canopy.

Action Area Management Goals
The key strategies for this action area include supporting Johnson County Parks and Recreation with sound management of natural resources, increasing publicly protected land, supporting private landowners with sound management of natural resources, and securing conservation easements with willing landowners. The goal is to protect and eventually restore riparian areas to address problems downstream such as pollution and flooding. Restoring natural vegetation on disturbed lands in floodplain areas will increase water quality and stormwater management capacity by providing flood capacity, slowing runoff, and encouraging filtration and infiltration.

Summary of Threats:
- Development damaging ephemeral streams, damaging and impairing natural stream buffers
- Channelization of streams to accommodate sewers, roads and new construction
- Lack of management of natural resources allowing invasive species to infest and damage areas
- Lack of collaborative governance to support best practices across jurisdictions



With rapid development, the area is also suffering loss of habitat and riparian cover.



A key management strategy to protect undeveloped land in the Upper Watershed is working with land owners to obtain conservation easements.

Summary of Conservation Priorities:
- Increase community awareness and knowledge about the Blue River with events and resources
- Purchase land to protect and protect land with conservation easements
- Support local elected officials in enforcing and increasing protection of streams and rivers
- Restore riparian areas by removing invasive species and replanting native vegetation
- Increase the total acres of managed natural vegetation in the Blue River
- Increase miles of trails to connect communities with the Blue River
- Monitor, assess, and report on the water quality of the Blue River

CHAMPIONS AND PROJECTS While many organizations and individuals are working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this plan, including: The Nature Conservancy Kansas, The Conservation Fund, Kansas Land Trust, Blue River Forest Experience, City of Overland Park, Ks., Johnson County Parks and Recreation, Heartland Conservation Alliance, Mike and Connie Chapman.

Upper Blue River

BLUE RIVER PARKWAY

DESCRIPTION This Action Area represents a portion of the Blue River Parkway, a linear park owned and managed by Jackson County Parks + Rec in partnership with Kansas City Parks and Recreation. The entire park system encompasses 2,255 acres. It borders the Blue River from Swope Park south to the southern end of Jackson County.



Total Acres in Action Area: 993

What does a healthy Action Area look like? With proper land management, this Action Area will provide healthy corridors for wildlife habitat and migrating birds, reduce flooding, and improve climate resiliency with large native climax canopy trees that naturally grow along rivers. There will be ample ways to connect and enjoy the river for recreations.

Keystone Habitat: Riparian forest

In the Blue River Parkway, river corridors serve as buffers between nature and developed areas. Wooded areas near streams or on the banks of streams are called riparian forests. They prevent erosion and trap sediment and polluted runoff. They also cool water, provide underwater habitat, and produce food for fish and wildlife. Streamside woodlands provide travel lanes, escape and nesting cover, and den trees, as well as hard and soft mast for food. Reptiles and amphibians use fallen trees as basking areas. More than 35 bird species rely on riparian forests for food and shelter. (Source: mdc.mo.gov)



Typical riparian tree species include sycamore, cottonwood, bur oak, silver maple, ash, pecan, and black walnut. Wildlife benefits from riparian forests.



FOCAL SPECIES: PawPaws *(asimina triloba)* grow in dense shade on moist slopes along streams and have edible fruit. They have a slender trunk and broad crown and grow in colonies. Pawpaws play an irreplaceable role in the Missouri ecosystems, feeding insects and larger animals that are adapted to eating them. In 2019, the Pawpaw became Missouri's official state fruit.

Size: Height: to 30 feet; grows in colonies.

Upper Blue River

BLUE RIVER PARKWAY

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 40 acres

Description of Action Area Conditions

The greatest concerns for the health of the Upper Watershed are protecting undeveloped land and existing habitat while increasing access. This Action Area scored a "D" for riparian cover in the 2019 Blue River Report Card. It is under severe threats from development in Martin City, just south of the Action Area. Development is increasing impervious surfaces, degrading streambanks, and reducing tree canopy. There is significant native habitat present in this Action Area, but it is under threat from invasive species, providing many opportunities for restoration and improvement.

Action Area Management Goals

A key strategy for this Action Area is working to support public land managers with assessing and managing natural resources. A key component of this strategy is providing public outreach and education. This Action Area focuses on protecting riparian corridors that are still largely intact but experiencing threats from development and invasive species. This Action Area represents the first phase to a conservation plan to restore more of the Parkway over time.

Summary of Threats:

- Severe flooding causing streambank erosion
- Illegal dumping of trash
- Lack of management of natural resources, allowing invasive species to infest and damage areas
- Lack of collaborative governance to support best practices



Summary of Conservation Priorities:

- Maintain and establish quality wildlife habitat by managing invasive species and expanding native riparian tree and shrub cover
- Engage surrounding communities in workdays and outdoor events to increase awareness
- Advocate for enforcement of stream setback ordinances to protect park land
- Collaborate with park departments to adopt management plans, manage natural resources, and protect land from development
- Support trail building and trail maintenance



Flooding and illegal dumping are significant threats to the health of the Blue River Parkway.



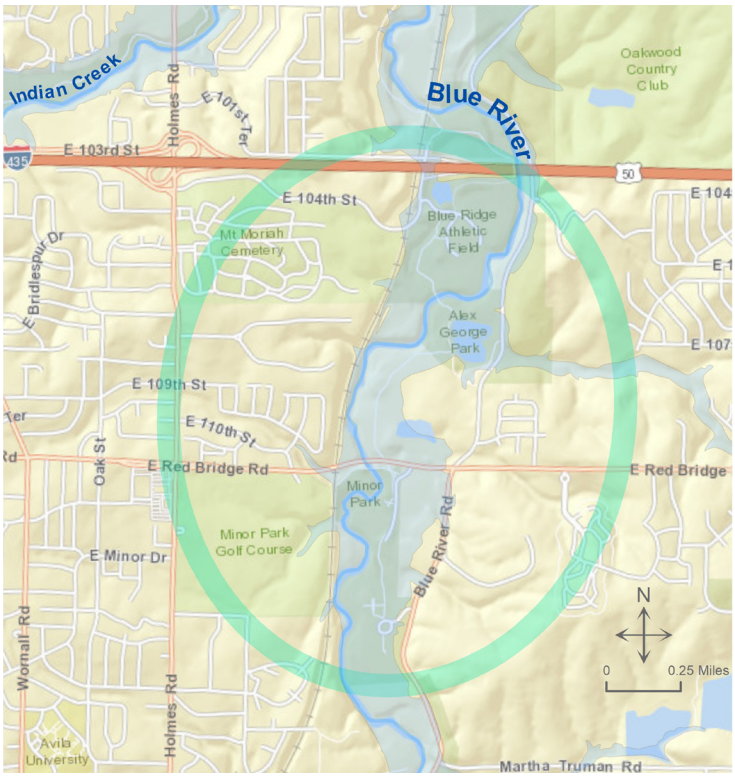
This area has many amenities and affords views and access to the Blue River. Some of the amenities include several miles of multi-use trails popular for mountain biking, Alex George Wetland, soccer complexes, remote controlled flying field at Minor Park, Blue River Glades, horse riding areas, picnic areas, and shelter houses.

CHAMPIONS AND PROJECTS While many organizations and individuals are working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this plan, including: Jackson County Parks + Rec, Urban Trail Co., Heartland Conservation Alliance, Kansas City WildLands.

Upper Blue River

ALEX GEORGE WETLAND

DESCRIPTION The Blue River meanders through two parks in this Action Area: Minor Park managed by Kanas City Parks and Recreation and Alex George Wetland managed by Jackson County Parks + Rec. The banks are severely eroded from flooding and are overgrown with invasive species. Minor Park provides playgrounds, recreation fields, shelters, and paved trails, as well as an arboretum created by Bridging The Gap and the historic Red Bridge over the river. The area also contains national historic pioneer trails as recognized by the National Parks Service. The surrounding neighborhoods are high density residential with some businesses built in the 1960s.



Total Acres in Action Area: 1,416

What does a healthy Action Area look like? With proper land management, this Action Area will boast a healthy wetland that provides habitat to wildlife, has a diversity of native trees, and is free from invasive species. The trails will be highly used, and illegal dumping is stopped.

Keystone Habitat: Bottomland forest and wetland

Since the 1700s, Missouri has lost more than 99 percent of its native prairies and about 85 percent of its native wetlands. Found along the banks of the Blue River, these forests and wetlands provide a wide variety of recreational opportunities such as fishing, photography, and wildlife observation. In fact, one-third of all plants and animals listed as threatened or endangered species in the United States depend on wetlands for their survival, and nearly 7,000 plant species live in U.S. wetlands, many of which can only survive in these wet environments. (Source: nps.gov)



FOCAL SPECIES: American Beaver *(Castor Canadensis)* rely on bottomland forests to survive. They live in and along streams, rivers, marshes, and small lakes. Beaver restoration efforts have brought their numbers to levels allowing an annual harvest.

Size: Total length: 34–54 inches; tail length: 9–17 inches; weight: 26–90 pounds.



Wetlands are needed as critical habitat for fish, waterfowl, and other wildlife. They purify polluted waters, and they help check the destructive power of floods and storms.

Upper Blue River

ALEX GEORGE WETLAND

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 60 acres

Description of Action Area Conditions

As noted in the 2019 Blue River Report Card, residents of south Kansas City have strong Community Connections to the Blue River, and this Action Area provides a number of opportunities to access the Blue River including trails and parks. However, native habitat and trails are threatened by invasive species, a lack of resources for management, pollution from runoff, and infill development. Neighborhoods along the Blue River in this Action Area experience severe flooding.

Action Area Management Goals

Key strategies for this action area include supporting Jackson County Parks + Rec with restoration plans for the wetland, including funding and hosting volunteer workdays. Engaging the communities around the park is important for long-term stewardship of the area. Natural areas are under threats from invasive species, especially bush honeysuckle. There are hiking trails in the area that can benefit from support and resources.

Summary of Threats:

- Invasive species, erosion of streambanks, sedimentation
- Lack of dedicated resources for natural resource management
- Collapse and closure of Blue River Road
- Illegal dumping along roads and in parks



Summary of Conservation Priorities:

- Establish thriving wetlands
- Restore eroded streambanks
- Remove honeysuckle and other invasive species
- Expand riparian corridor by planting native bottomland species
- Support opportunities for recreation, especially trails according to MetroGreen standards
- Increase diversity of trees and diversity of native species predicted to adapt well to climate change
- Advocate for retrofit stormwater management practices in the residential neighborhood
- Encourage large landowners to convert turf to native prairie or savannah



Alex George Lake was once a fishing lake, however over the years silt from erosion in the creek and runoff has reduced the depth of the lake to four feet which cannot sustain fish populations.



Public land managers are partnering with nonprofit organizations and community volunteers to restore the area to a healthy wetland by removing invasive bush honeysuckle and planting native trees and wetland plants.

CHAMPIONS AND PROJECTS While many organizations and individuals are working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this plan, including: Jackson County Parks + Rec, Heartland Tree Alliance, Heartland Conservation Alliance, Kansas City Parks and Recreation.



MIDDLE BLUE RIVER

Indian Creek to Brush Creek

SUMMARY The Middle Blue River encompasses 40,000 acres of land in Kansas and Missouri, and it is home to 200,000 people and 12 different cities. The watershed lies between Indian Creek near 99th Street and Holmes Road and Brush Creek near 47th Street and Hardesty Avenue.

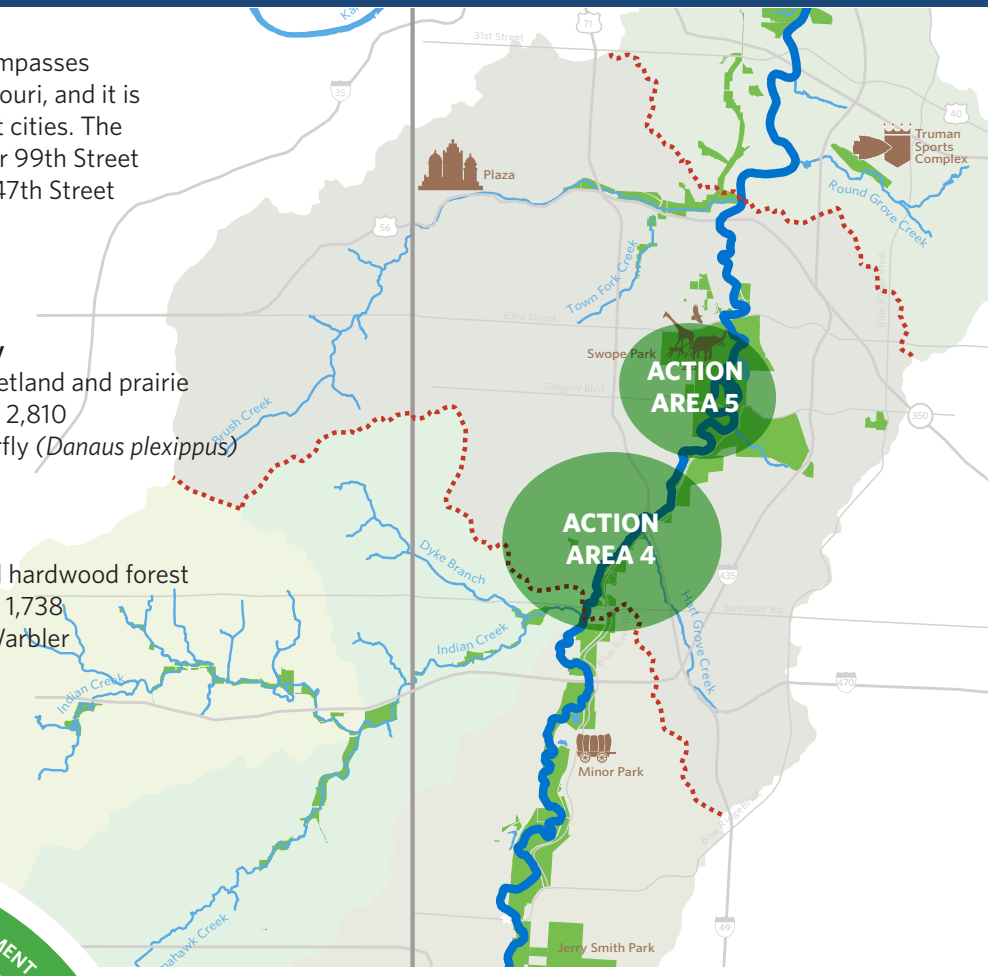
ACTION AREAS AT A GLANCE

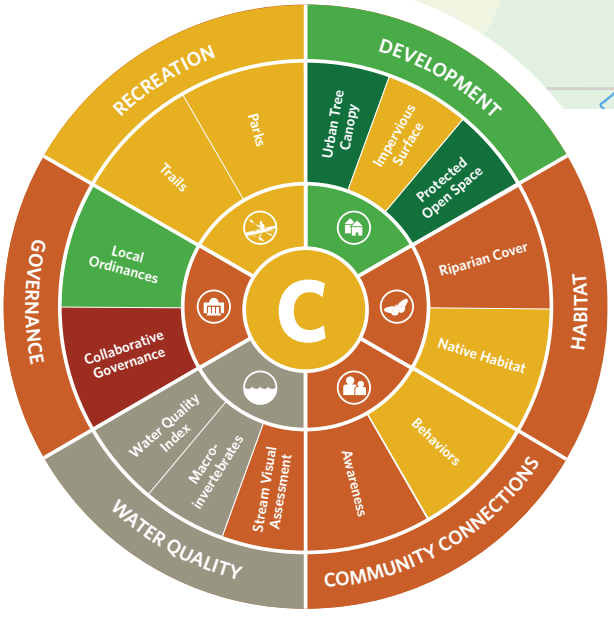


4—Marlborough Community
Keystone Habitat: Restored wetland and prairie
Total acres in this Action Area: 2,810
Focal species: Monarch butterfly *(Danaus plexippus)*



5—Swope Park
Keystone Habitat: Bottomland hardwood forest
Total acres in this Action Area: 1,738
Focal species: Prothonotary Warbler *(Protonotaria citrea)*



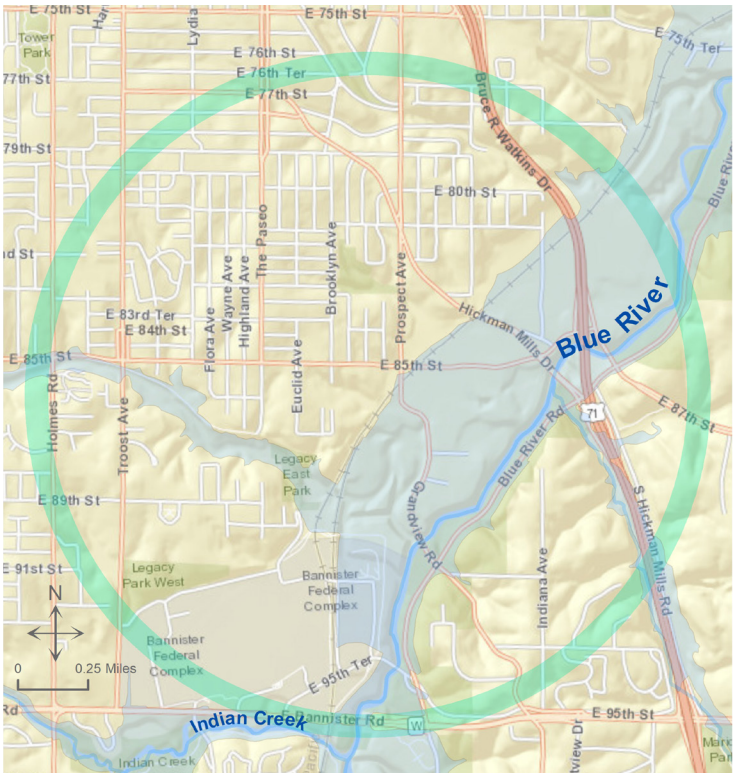


GRADE—WHAT DOES THIS GRADE MEAN? Overall, the Middle Blue River scored a "C" letter grade. The score reflects that of the three subsections, this portion of the watershed has the most protected open space and healthiest areas of urban tree canopy, largely due to the presence of park land. Both of these indicators in the Development Category received an "A." Indicators that received a "D" offer insight about where to focus improvements, including: the stream visual assessment, lack of riparian cover (particularly on Brush Creek), and lack of public awareness. Areas for improvement include: public behaviors that improve the watershed, impervious surfaces, trails, parks, and managed native habitat. Local government collaboration score was "F" and must be changed for the health of the Blue River to improve.

Middle Blue River

MARLBOROUGH

DESCRIPTION As the Blue River flows through more urbanized areas, it becomes more polluted and degraded. This Action Area is bordered by Troost Avenue on the west and Highway 71 on the east in south-central Kansas City, Mo. This area was once booming with new housing developments, schools, and a streetcar line to downtown. It has suffered significant decline, spurred by segregation laws that divided the area, disadvantaging the predominantly African-American neighborhoods east of Troost Avenue.



This Action Area includes the closed Federal Bannister Complex, former site of nuclear warhead production and a severely contaminated site on the banks of the Blue River. The Action Area also includes the Dodson Industrial Area. The US Army Corps of Engineers completed a flood reduction project on the Blue River, which includes levees that now protect these industrial areas from flooding.

Total Acres in Action Area: 2,810

What does a healthy Action Area look like? With proper land management, this Action Area will boast healthy and well-managed public open spaces for community members to enjoy the multiple benefits from green infrastructure and nature. The Parks with Purpose project will attract urban wildlife and residents, provide stormwater management, and create a sense of pride for the community.

Keystone Habitat: Reconstructed wetland and prairie

Green infrastructure is an effective tool to manage rainwater in urbanized areas. Key improvements in this Area include a wetland to treat stormwater collected along Troost Avenue; community-inspired landscape features; recreational opportunities related to nature and play identified through a series of community engagement activities; and storm sewer system improvements and downstream flood reduction to protect properties during a 100-year storm event.



FOCAL SPECIES: Monarchs *(Danaus plexippus)* need urban oases for food and habitat. Habitat loss in their overwintering territory in Mexico and herbicide use throughout North America that has been eliminating milkweeds, their required food plant, are two causes of their decline.

Size: Wingspan: 3½–4 inches; larvae can grow up to 2 inches long.



The city of Kansas City, Mo. built 150 green infrastructure installments in this Action Area to reduce the volume and frequency of overflows from the City's combined sewer system and to be in compliance with a 2010 Federal Consent Decree with the United States Environmental Protection Agency.

Middle Blue River

MARLBOROUGH

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 10 acres

Description of Action Area Conditions

This Action Area lacks protected open space, trails, and parks to provide adequate access to the Blue River. It scored a "C" overall for recreation in the 2019 Blue River Report Card. One of the biggest threats to the Blue River is pollution from stormwater runoff and a system of combined sewers that overflow during rain events. However, in recent years, more investments are being made to improve infrastructure and open space for residents.

Action Area Management Goals

In 2013, the Marlborough Community Coalition completed the Catalyst Plan, which identifies and prioritizes improvements for the five neighborhoods in this area. It spurred community revitalization through additional public green space, redevelopment of a vacant school, and coalition capacity-building efforts. Long-term benefits include safer places for children to play, cleaner air and water, better resilience to floods, improved public health, and creation of green jobs. A 2017 green infrastructure project protects the Blue River by reducing the amount of stormwater entering the combined sewer system, which lessens sewer overflows and basement backups in the area and reduces downstream flooding. Native landscaping was added to create habitat for pollinators and provide educational opportunities for the community.

Summary of Threats:

- Illegal dumping
- Combined sewer overflows adding untreated sewage to the Blue River
- Environmental justice challenges including crime, poverty and poor health

Summary of Conservation Priorities:

- Increase public awareness and understanding of importance of green infrastructure
- Maintain native plantings at Parks with Purpose
- Assess vacant lots for potential green infrastructure projects
- Support Kansas City Parks and Recreation with managing natural resources
- Provide outdoor programming on sites to increase safety



Green infrastructure provides multiple benefits to the environment and community.

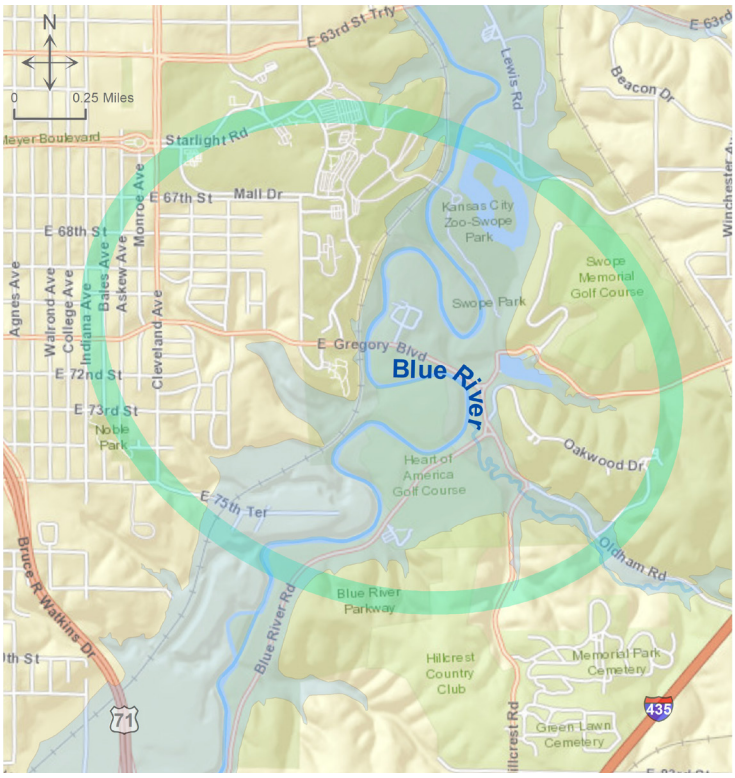


In the last decade, the City of Kansas City, Mo. has invested close to $70 million in storm water, street, and sidewalk infrastructure in Marlborough, including raingardens, bioswales, and large-scale storm water detention facilities that will address major flooding and water quality issues within the community.

CHAMPIONS AND PROJECTS While many organizations and individuals are working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this Plan, including: Marlborough Community Coalition, Heartland Conservation Alliance, Kansas City Parks and Recreation, KC Water, Blue River Quarterly.

Middle Blue River

SWOPE PARK



DESCRIPTION Much of the Blue River runs through Swope Park and is most notable in the KC Zoo as it flows under the bridge to the Africa exhibit. Lakeside Nature Center, Missouri's largest native species rehabilitation center, is also located in Swope Park and is the center of this Action Area. The Center provides educational and recreational opportunities, such as three public nature trails along limestone bluffs that offer users a nature experience and a walk along the awesome Bethany Falls Limestone boulders. Nestled in the valley behind the Center, the trail meanders along limestone bluffs, beside the scenic Fox Hollow Creek, through old riparian forest, all the while exploring the colorful personality of a deep, primitive, wetland valley. Shirling Sanctuary, a nationally recognized bird sanctuary established by the Audubon Society in the 1920s, can also be found in this Action Area, but it has been nearly lost to invasive species.

Total Acres in Action Area: 1,738

What does a healthy Action Area look like? With proper land management, this Action Area will boast healthy trails, a diversity of trees and woodland plants providing abundant habitat for wildlife, and educational and recreational opportunities for the community. Invasive species should be minimized.

Keystone Habitat: Bottomland hardwood forest

Today, less than 20 percent of the original four million acres of bottomland hardwood forest remains in Missouri. These trees diminish the threat and effects of erosion and siltation. Pesticides and fertilizers attached to soil particles aren't carried into the waterway. Tree canopies of riparian forests also cool the water in streams and can affect the composition of the fish species in the stream. Channelizing or widening streams moves the canopy farther apart, decreasing the amount of shaded water and increasing water temperature. Woody cover along streams provides important habitat for insects, crustaceans, and other animals that are food for fish. (Source: mdc.mo.gov)



FOCAL SPECIES: Prothonotary Warbler *(Protonotaria citrea)*
This migratory bird relies on riparian forests for survival. They breed in flooded river bottom hardwoods or wetlands and nest near borders of lakes, rivers, and ponds. Their decline is due to the clearing of forests and the fact that any habitat in cities is often demolished.

Size: 5.1 in long and weighs 0.44 oz



These woods are home to Kingfisher, herons, toads, frogs, turtles, and snakes, as well as various other birds, mammals, reptiles, and invertebrates.

Middle Blue River

SWOPE PARK

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 25 acres

Description of Action Area Conditions

A significant amount of this Action Area remains undeveloped because it was designated as parkland, but it suffers the highest density of invasive bush honeysuckle than any other area. Park areas are plagued with illegal dumping and vandalism. The banks of the Blue River are severely eroded from flooding and lack of vegetative cover. For more than 15 years, Kansas City Parks and Kansas City WildLands have used prescribed burns, removal of invasive plants, and cultivation of native plants to manage Rocky Point Glades, a trail running through the park. In addition to managing a wildlife rehabilitation facility, Lakeside Nature Center offers the public opportunities to explore nature with trails and education.

Action Area Management Goals

The overall goal of this Action Area is to support the public land managers in maintaining the natural areas, providing outreach and education to the public, and increasing access to the Blue River.

Summary of Threats

- Invasive species, primarily bush honeysuckle
- Stream bank erosion
- Abuse of trails
- Illegal dumping

Summary of Conservation Priorities:

- Establish and maintain conservation practices that contribute significantly to minimizing stormwater runoff, improving water quality, improving air quality, reducing heat islands, etc.
- Support increased opportunities for recreation
- Manage invasive species and increase diversity of age classes of trees and native species
- Remove honeysuckle in green areas away from drainages
- Develop outreach activities for the surrounding neighborhoods
- Expand riparian corridor by planting native bottomland species
- Establish native prairie and/or savannah plants where appropriate
- Retrofit existing stormwater management infrastructure



Swope Park is the second largest urban park in the United States, and at 1,805 acres, it is Kansas City's largest park. Swope Park is home to many of Kansas City's attractions and annually hosts more than 2 million visitors.



Public outreach and education is a key strategy for increasing awareness and support for protecting natural areas.

CHAMPIONS AND PROJECTS

While many organizations and individuals are working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this plan, including: Kansas City Parks and Recreation, Kansas City WildLands, Burroughs Audubon Society, Friends of Lakeside Nature Center.



LOWER BLUE RIVER

Brush Creek to Missouri River

SUMMARY The smallest and most impacted of the three sub-watersheds, the Lower Blue River encompasses 20,000 acres of land in Missouri. There are just three cities in the lower watershed, which lies between Brush Creek near 47th Street and the Missouri River just east of downtown Kansas City.

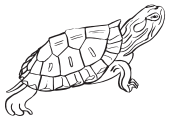
ACTION AREAS AT A GLANCE



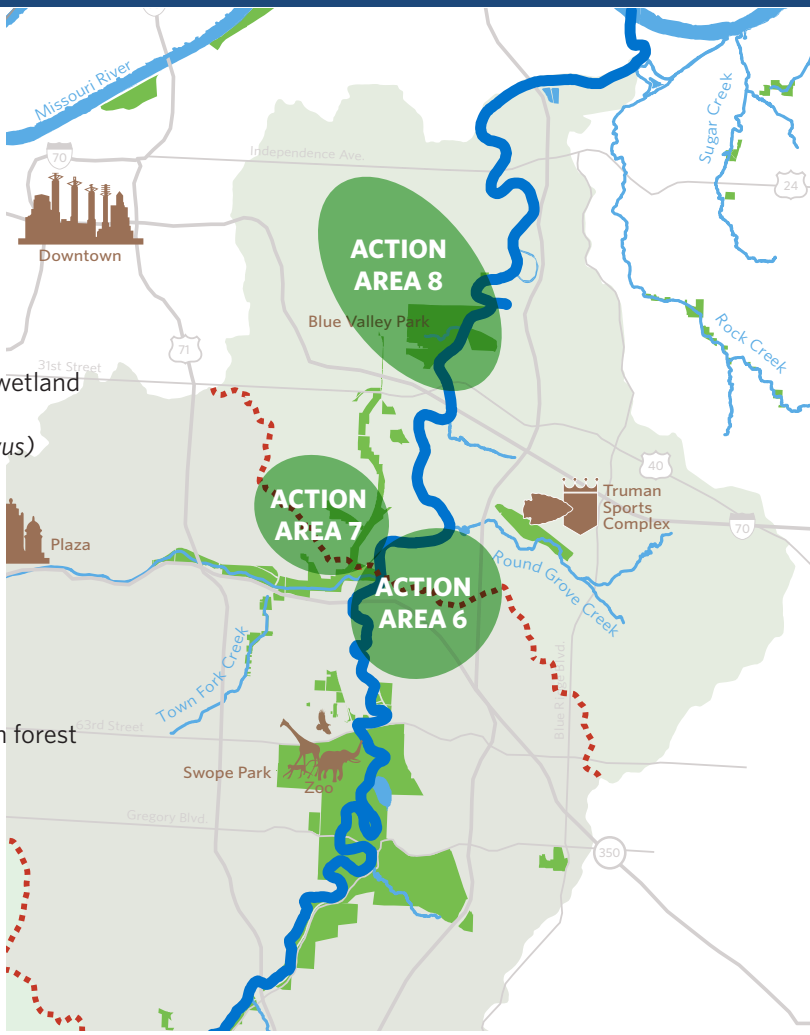
6—Municipal Farm
Keystone Habitat: Bottomland woodland and wetland
Total acres in Action Area: 1,381
Focal species: Tri-color bats *(Perimyotis subflavus)*

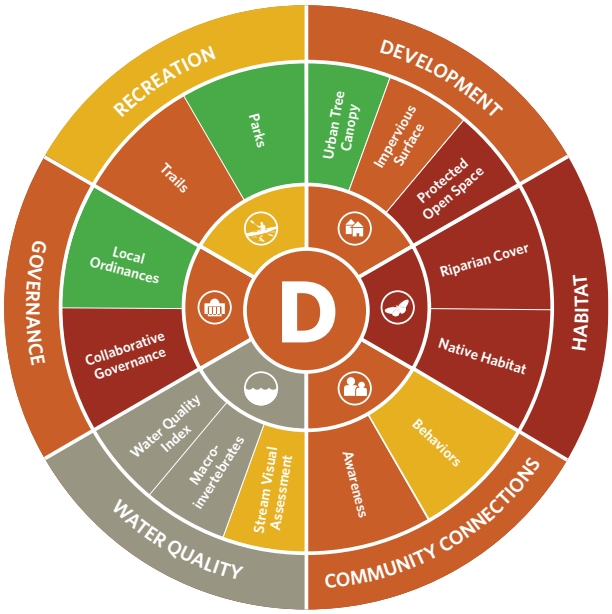


7—Heart of the City
Keystone Habitat: Urban forest
Total acres in Action Area: 1,731
Focal species: Ruby throated hummingbird *(Archilochus colubris)*



8—Blue Valley
Keystone Habitat: Oxbow wetland and riparian forest
Total acres in Action Area: 2,464
Focal species: Red-eared slider *(Trachemys scripta elegans)*



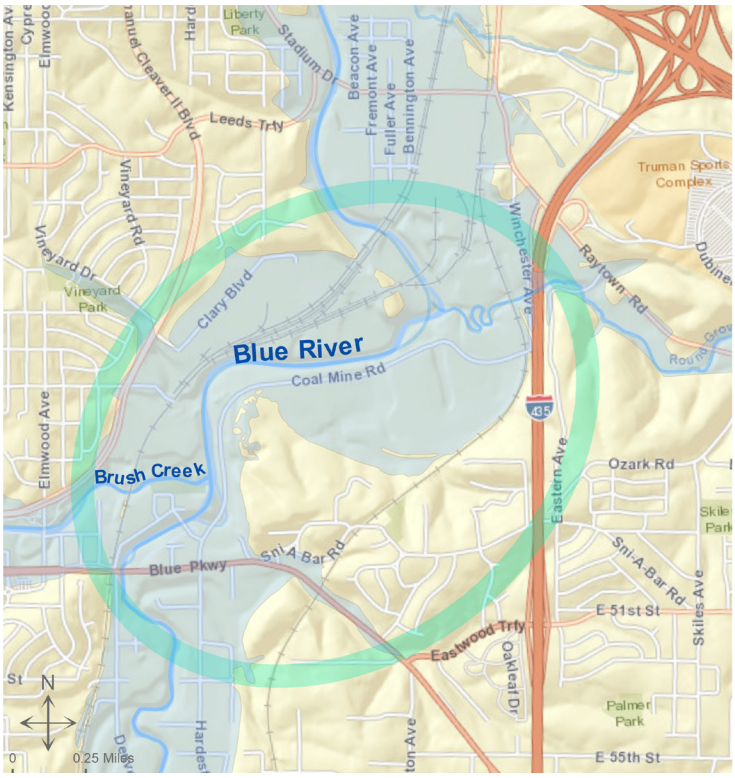


GRADE—WHAT DOES THIS GRADE MEAN? The Lower Blue River Watershed scored the lowest of the three watersheds, with a "D" letter grade. Three of the four indicators that received an "F" letter grade (native habitat, riparian cover, and protected open space) show the impacts of man-made flood mitigation efforts as well as past intense industrial development. Local survey results of behaviors and awareness indicate insufficient understanding of the issues facing the watershed, resulting in a "D" letter grade for Community Connections. However, there were three indicators with higher scores: urban tree canopy, protective local ordinances, and parks all received "B" letter grades.

Middle Blue River

MUNICIPAL FARM

DESCRIPTION As the Blue River makes the last leg of its journey on its way to the Missouri River, it passes through a once industrialized area, now abandoned and polluted. Here, the river has been channelized, and concrete has replaced natural stream banks. Bridges crisscross the river and junk yards, recycling centers, and tow lots sit on the banks of the river here. This area includes residential areas as well. Fifty percent of the Municipal Farm is targeted for habitat restoration (about 2/3 in forest) in a city-adopted plan for integrated ecosystem restoration, agriculture, and recreation.



Located on the bank of the Blue River east of the Brush Creek confluence, the 444-acre Municipal Farm has been in City ownership since 1911 and benefits from its close proximity to important regional amenities and natural resources (the Truman Sports Complex, regional greenway trails, and the Rock Island Corridor). Over the last century, the farm has been home to the city's tuberculosis hospital, women's reformatory, municipal correctional institution, and an inmate-run farm. After the jail was demolished in 2009, a Municipal Farm Sustainable Reuse Plan was created and adopted in 2012 (Resolution No. 120959).

Total Acres in Action Area: 1,393

What does a healthy Action Area look like? With proper land management, this Action Area will boast productive agroforestry operations, small farms, community gardens, trails and outdoor recreation, a learning lab, and a restored wetland that reestablishes groundwater health.

Keystone Habitat: Shallow marsh and shrub-scrub wetland

Marshes are wetlands dominated by grasses and sedges. They typically contain standing water, or saturated soils, for prolonged periods of the growing season. This marsh, along the flood-plains of the Blue River, helps moderate the effects of flood events by reducing height and volume of flood water. Wetlands are important to maintaining water quality because they remove sediment, excess nutrients, and other pollutants from the water that flows through them.



A keystone project of the Blue River Urban Waters Federal Partnership, the Municipal Farm is located adjacent to the Brush Creek and Blue River confluence, within half a mile of the newest planned Katy Trail segment.



FOCAL SPECIES: Tri-color bats *(Perimyotis subflavus)*
This threatened species relies on the abandoned limestone mines around the Blue River for a safe place to hibernate during the winter. This small bat feeds on tiny insects, particularly flies, moths, wasps, leafhoppers, and beetles, many of which are aquatic forms. As predators, bats help to hold insect populations in balance.

Size: Total length: 3–3½ inches; tail length: 1½–1¾ inches; weight: 1/10–2/7 ounces (2–8 g).

Middle Blue River

MUNICIPAL FARM

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 35 acres

Description of Action Area Conditions

In this Action Area, the Blue River has been altered by the US Army Corps of Engineers to control flooding. The Municipal Farm, owned by the City of Kansas City, Mo., is surrounded by industry and residential neighborhoods struggling with crime, poverty, and environmental challenges. The Municipal Farm is home to urban agriculture, groundwater restoration, and contaminated landfills. The Municipal Farm has been overgrown with invasive species, resulting in a monoculture of understory species displacing native wildlife.

Action Area Management Goals

The goal is to create a healthy cross-section of aquatic and terrestrial habitat types in close proximity, supporting a diverse wildlife community across seasons and life stages. The size and diversity of this urban habitat patch is significant and provides buffers and refuge for species that otherwise may not frequent or thrive in urban areas. The goal is to establish a diversity of native aquatic, wetland, bottomland, and upland terrestrial vegetation that outcompetes the invasive species with minimal routine maintenance, creating a relatively self-sustaining community.

Summary of Threats

- Invasive species
- Construction, demolition, and municipal solid waste disposal, as well as illegal dumping
- Contaminated soils and groundwater from historic mining, quarrying, and cement production
- Contamination from adjacent law enforcement, military, and municipal infrastructure uses

Summary of Conservation Priorities:

- Implement the Municipal Farm Sustainable Reuse plan for habitat restoration
- Protect groundwater restoration area at Municipal Farm with perpetual conservation easement
- Manage invasive species
- Reduce illegal dumping (through improved monitoring and enforcement in partnership with KC)
- Protect habitat for overwintering bats



Controlled by a 40-year flood control project, this section of the Blue River suffers from lack of vegetation and from pollution caused by illegal dumping. Engaging the public in annual cleanups increases awareness and appreciation of the Blue River.



Current conditions make the site vulnerable to continued decline and loss of ecological function. This is critical habitat for aquatic insects.

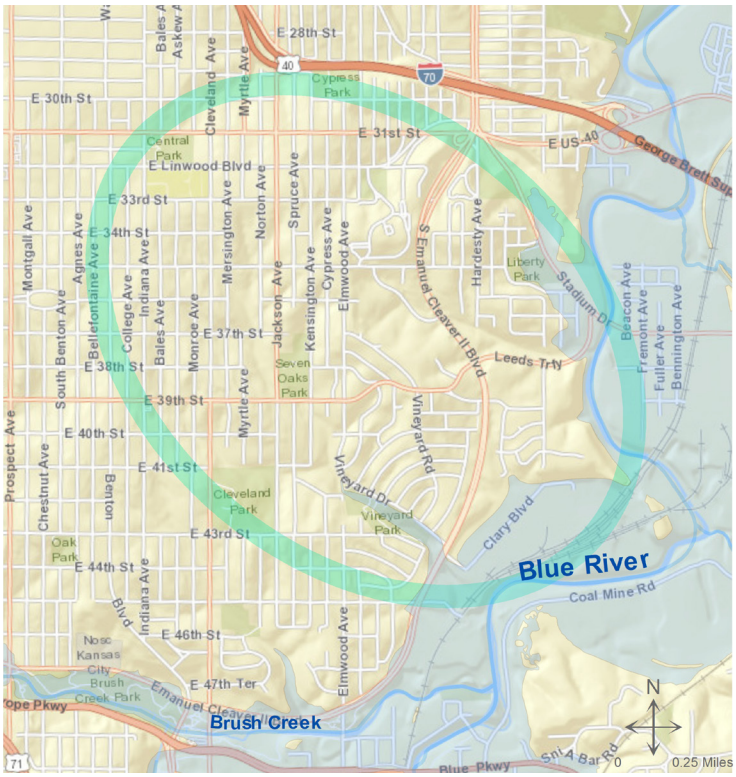
CHAMPIONS AND PROJECTS

While many organizations and individuals are working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this Plan, including: Boys Grow, Heartland Conservation Alliance, City of Kansas City, Mo., Blue River Urban Waters Federal Partnership.

Lower Blue River

HEART OF THE CITY

DESCRIPTION The Heart of the City Corridor is a 300-acre tract with 40 acres of forest along a stream segment on never developed land, and 65 acres of contiguous vacant land largely owned by the Kansas City Land Bank. This area drains into Brush Creek and was identified as significant to the nearby Palestine neighborhood during an EPA Urban Waters Small Grant vacant lots analysis conducted by HCA. The vacant parcels connect the urban forest to another Action Area, the 444-acre Municipal Farm.



Total Acres in Action Area: 1,731

What does a healthy Action Area look like? By effectively engaging community residents, vacant lots will be purchased and adopted by residents, nonprofits, neighborhoods, and businesses and converted to productive and healthy green spaces. With adequate resources and support, this Action Area will be filled with healthy urban forests, community gardens, green infrastructure projects, and open space providing sanctuary and access to nature and habitat for wildlife.

Keystone Habitat: Restored urban forest

Over 130 million acres of America's forests are located right in our cities and towns. Urban forests, through planned connections of green spaces, form the green infrastructure on which communities depend. Green infrastructure works at multiple scales: from the neighborhood to the metro area to the regional landscape. They are dynamic ecosystems that provide critical benefits to people and wildlife. Urban forests help to filter air and water, control storm water, conserve energy, and provide animal habitat and shade. They add beauty, form, and structure to urban design. By reducing noise and providing places to recreate, urban forests strengthen social cohesion, spur community revitalization, and add economic value to our communities. (Source: fs.usda.gov)



Community growth and sustainability relies upon being able to turn blight into beauty. The first step is stepping outside, gathering your community, and getting your hands dirty.



FOCAL SPECIES: Ruby-throated hummingbird *(archilochus colubris)*. Hummingbirds nest in forests and forest edges, near streams, and in other wooded places like the forest corridor in the Heart of the City. Hummingbirds are important pollinators for many species of plants that require a long-billed pollinator.

Size: Total length: 3–3½ inches; tail length: 1½–1¾ inches; weight: 1/10–2/7 ounces (2–8 g).

Lower Blue River

HEART OF THE CITY

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 65 acres

Description of Action Area Conditions

The Heart of the City Corridor is located in the heart of Kansas City, Mo. and the Lower River Watershed. This is a largely urbanized section of the watershed with mainly residential land use. The Heart of the City Corridor has a large amount of vacant lots located inside its boundaries, leading to waste dumping, blight, and limited reuse impacting local health and resources. These vacant lots have the potential to make a powerful impact on the local community.

Action Area Management Goals

"Green space is a foundational element of healthy cities and communities. When we restore vacant spaces with green elements, we absorb more stormwater, prevent flooding, and keep our rivers clean" (UNI Vacant to Vibrant, 2015). In as little as 10 years, these vacant lots could be revitalized, connecting local green spaces with the larger Blue River corridor of trails and recreation spots. Restoring vacant lots improves the health of the urban tree canopy, critical for community resilience to effects from climate change.

Summary of Threats

- Illegal waste dumping
- Air pollution
- Flooding
- Lack of healthy food options, distance to food
- Lack of healthy recreation options



Summary of Goals

- Maintain and improve health and sustainability of forests in the watershed
- Establish and maintain conservation practices that contribute significantly to minimizing stormwater runoff, improving water quality, improving air quality, reducing heat islands, etc.
- Maintain and establish quality wildlife habitat
- Maintain and improve the health and sustainability of native grasses, forbs, and trees in the watershed
- Establish opportunities for recreation



Heart of the City was identified as an Action Area due to the density and quantity of vacant and blighted properties that offer opportunities for community revitalization and increased watershed health.



By returning natural vegetation, improving stormwater treatment, and providing land for urban agriculture, these lots could improve the surrounding air and water quality, as well as the health of the human and wildlife community.

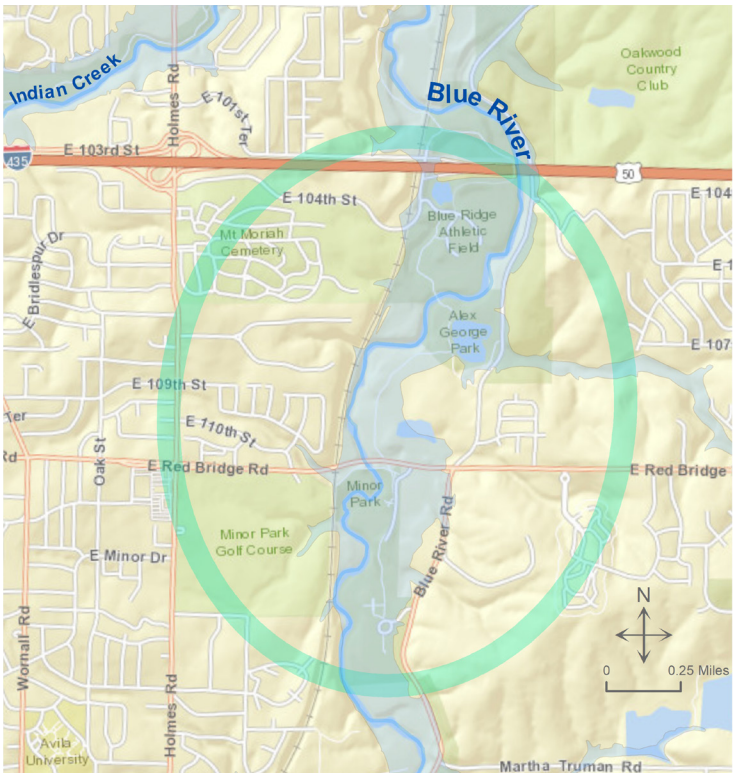
CHAMPIONS AND PROJECTS

While there are many organizations and individuals working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this plan, including: KC Land Bank, Heartland Conservation Alliance, Midwest GeoInfo, Missouri Dept. of Conservation, Chestnut Resource Center, Health Forward Foundation.

Lower Blue River

BLUE VALLEY

DESCRIPTION George Kessler's 1922 paper, "Special Report for the Blue Valley Parkway," explored development of rivers in other cities and suggested that the areas near the Blue River had great natural beauty. Kessler wrote that the River could be "one of the most useful and beautiful waterways in the country." Unfortunately, the portion of the Blue River near Blue Valley Park has been egregiously altered to fix flooding problems. It looks nothing like a natural river and doesn't follow the original channel. The Blue Valley Neighborhood is a working-class neighborhood that 2010 census data notes is 78 percent minority. Around two-thirds of people earn less than $25,000 annually. The community is flanked on the east side by Interstate 435 and a heavy industrial corridor, now abandoned. The community has experienced severe flooding from the Blue River over the years and is located in a combined sewer overflow area.



Total Acres in Action Area: 2,464

What does a healthy Action Area look like?
In the lowland areas, we will see large native climax canopy trees that naturally grow along rivers, such as sycamore, cotton wood, silver maple, and swamp white oak. Under the trees are lower growing native herbaceous plants and shrubs. Mixed in are a few understory trees like pawpaw and service berry. Walking through this landscape should feel somewhat open and airy. In the upland areas, Blue Valley Park could support some native grass prairie reconstruction in select areas. The parking lots and roads should have rain gardens and bioswales to treat rain water runoff.

Keystone Habitat: Oxbow lake

An oxbow wetland is a meander of a stream, river or creek that has become separated from the flow of water. Oxbow wetlands store excess water that might otherwise lead to flooding, filter water to improve water quality, and provide habitat to a variety of wildlife. Over time, some oxbows fill in with sediment due to erosion of soil in surrounding areas. Restoring and maintaining oxbow wetlands provides a natural solution to water resource management challenges. (Source: nature.org)



An oxbow lake — a disconnected length of the original river channel — in Blue Valley Park provides important habitat for many wetland plants and animals.



FOCAL SPECIES: Red-Eared Slider *(Trachemys scripta elegans)*. These turtles live in a variety of aquatic habitats, including oxbow lakes like the one in Blue Valley Park. They need ample aquatic vegetation for both food and security, and suitable basking sites. A mud bottom is preferred. In their native land, these turtles fill a role of herbivore and mid-level carnivore.

Size: Length: 5–8 inches.

Lower Blue River

BLUE VALLEY

CONSERVATION STRATEGIES

Acres identified for restoration and protection: 65 acres

Description of Action Area Conditions

Central to this Action Area, Blue Valley Park has a long history with its community. Established in 1945, these 238.5 acres sit alongside the Blue River. It has a small lake, historic Santa Fe trails, rolling woods, and traditional amenities like Frisbee golf and ball fields added over the years through community efforts. The park has become overgrown with invasive bush honeysuckle, creating a hotspot for illegal activities. The surrounding neighborhood has a high number of vacant properties and is plagued with illegal dumping. Two elementary schools and two high schools are working with partners to improve management of their campuses, which include more than 30 acres of urban forest.

Action Area Management Goals

Building on strong community connections in the Action Area, local planning efforts identified conservation goals for the Blue River, which include improving the urban forest, preventing erosion, increasing biodiversity, and repairing and replanting wetlands, mixed forests, and grasslands. Resources will focus on increasing community access to natural resources in Blue Valley Park with events, outreach, training, volunteer workdays, and trails.

Summary of Threats

- Invasive bush honeysuckle
- Limited riparian vegetation (mowed turf to edge) of river
- Streambank erosion
- Illegal dumping



Summary of Goals

- Remove invasive species
- Expand riparian vegetation
- Plant trees
- Install rain gardens, bioswales, and prairie plantings
- Increase access to river with trails



Park restoration will improve sight lines and increase safety. In addition, park restoration will increase habitat, increase riparian health, and reduce flooding and runoff.



The Blue Valley Neighborhood Association is actively working with Kansas City Parks and Recreation to improve the park with clean ups and recreational amenities.

CHAMPIONS AND PROJECTS

While there are many organizations and individuals working to protect undeveloped natural areas in this Action Area, this Plan highlights a few Alliance members that are leading successful projects to meet the goals of this plan, including: Blue Valley Neighborhood Association, Heartland Conservation Alliance, Kansas City Parks and Recreation, Missouri Dept. of Conservation, Blue River Urban Waters Federal Partnership.