Greater Bonne Femme Watershed Initiative

WILDLIFE HABITAT RESTORATION PLAN

Executive Summary
December 2025

Habitat Restoration Principles & Goals

The purpose of a watershed-wide Wildlife Restoration Plan is to support the Greater Bonne Femme Watershed Initiative (GBFWI or the Initiative) by providing a framework to guide landowners in the watershed to improve wildlife habitat on their property. Therefore, this plan is intended to be a resource for landowners as well as decision-makers and practitioners. This document supports that effort by summarizing key concepts, spatial priorities, and technical resources in habitat restoration for Initiative partners, including the Missouri Department of Conservation and wildlife groups. Recommendations are guided by the following principles.

1 MINIMIZE HABITAT FRAGMENTATION

- Create continuity of habitat in privately-owned landscapes to benefit small mammals, reptiles, birds, and insects.
- Prioritize buffer areas adjacent to protected areas and connecting corridors for restoration projects.

2 ENHANCE HABITAT

- Restore forest, prairie, and wetland habitats that have been degraded or lost due to land use changes.
- Implement management practices that mimic natural disturbances, such as prescribed burns that promote native species and maintain ecosystem health.
- Removal or control of non-native and invasive species which threaten the integrity and function of natural systems and wildlife populations.

3 REMOVE BARRIERS & RECONNECT FUNCTIONAL HABITAT AREAS

- Enhance living infrastructure connectivity through areas developed for compatible species such as pollinators.
  - Increase diversity of flowering native shrubs and forbs that support pollinators and maintain undisturbed nesting sites, such as brush and leaf piles.
  - Protect pollinator habitat from insecticide and most herbicide applications. Consider policy changes to eliminate or restrict the use of non-specific herbicides such as glyphosate in open spaces except as used for restoration.
  - Use native plantings in stormwater management areas to create a connected network of living infrastructure.
- Address aquatic connectivity through culvert retrofits, dam or tile drain removal, or bridge repair for wildlife passage.
- Suggest or mandate green infrastructure practices in new developments that can benefit wildlife, such as maintaining wildlife corridors through developments, wildlife-friendly stormwater management, and site plans that prioritize contiguity and tree preservation.

Terrestrial Wildlife Habitat

Habitat management and restoration require understanding that ecosystems are not closed systems and that flows of energy, materials, and people are constantly being exchanged on the landscape between areas of differing land cover and land use. Generally, the larger the area of contiguous habitat, the more species that habitat can support. Establishing contiguous habitat areas that are as large as possible best meets the needs of the broadest range of species. The GBFW can be divided into three large terrestrial zones.

HEADWATER PRAIRIE AND MEADOW

Historically, most of the agricultural land on the eastern side of the watershed (roughly to the east of Highway 63) was tallgrass prairie, an ecological system that has been converted over 96% of its former extent. Because of the clayey soil, native grasses and forbs were intermixed with wet-tolerant sedges.

RESTORATION STRATEGIES

Converting turfgrass or pasture to diverse native warm-season grassland communities is the most important restoration strategy in the eastern headwaters of the GBFW. Prairie strips on low-yield agricultural land and along riparian corridors are a special subset of this strategy.

ROLLING HILLS AND KARST TRANSITIONAL

Historically, this region was oak savanna and woodlands in the uplands, with denser oak and mixed-hardwood forests on valley slopes and bottoms. Some poorly drained, ephemeral wetlands and prairie may have occupied the flatter uplands. Karst areas have soluble limestone or dolomite geology, and karst recharge areas can support unique plant assemblages.

RESTORATION STRATEGIES

The transitional zone has exceptional habitats that are largely protected public lands, and the most quickly evolving habitat threat is development and land use change. Homeowner education campaigns and small-scale habitat improvements such as maintaining or planting riparian buffers and using native landscaping are currently the highest priority in this region.

BOTTOMLAND WOODLANDS AND FLOODPLAIN

Riverfront bottomland forests or riparian forests can be found in floodplains along major river systems and streams. In the GBFW, the flat riverside terrain tends to be punctuated by steeply sloping hills with few rock outcrops.

RESTORATION STRATEGIES

In the lower flatlands at the bottom of the watershed near the Missouri River, bottomland timber plantings can minimize scour, sheet, rill, and other soil erosion, provide wildlife habitat, promote carbon sequestration, and enhance wetland functions and values.

Aquatic Habitats

Aquatic habitats in the GBFW include streams, ephemeral and floodplain wetlands, and formerly included many depressional or prairie wetlands. The primary causes of aquatic habitat degradation are draining and stream channel degradation. Water that falls on impervious surfaces or is channeled by ditches hits receiving streams, moving quickly and in concerted pulses that scour the streams down and disconnect the stream channel from its natural floodplain. Instream or aquatic restoration to address chronic conditions tends to be a more costly and time-consuming process than private landowners are able to undertake. Nevertheless, restorating aquatic conditions and habitat should be an important consideration for road maintenance, bridge repair/replacement, post-flood repair, and capital projects, as well as in negotiating development agreements and approvals with larger landholders.

STREAMS AND RIPARIAN BUFFERS

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STREAMS AND RIPARIAN BUFFERS

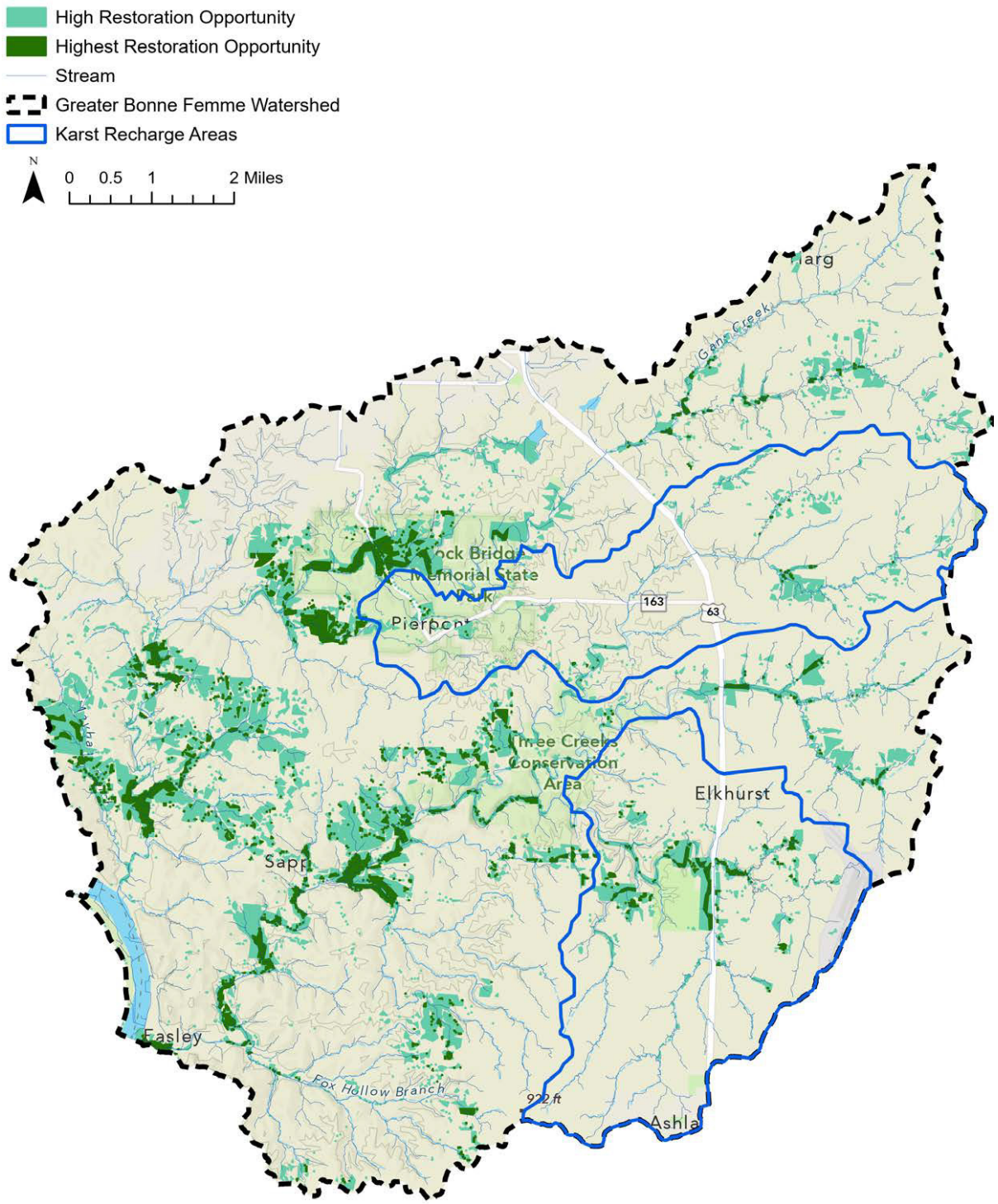
There are relatively few natural wetlands in the GBFW, though there are some remnant prairie wetlands and vernal pools in addition to the manmade wetlands. Flooding is an inherent part of riparian systems, but added peaks of stormwater flow from development and intensifying storm events have resulted in an unusual frequency and intensity of flood events in recent years. One result of increased peak flows is that many tributary channels are too deep relative to the top of their banks to overtop and reach the floodplain in many areas, so less water is absorbed and stored along the river, resulting in larger events downstream.

RESTORATION STRATEGIES

Prairie wetlands and existing stormwater ponds or detention areas can be enhanced for wildlife value. Natural wetlands are often hydrologically altered, so offering more hydrologic support can often improve them. Increasing water depth in some areas, adding wetland shelves and native riparian vegetation and wetland plants like sedges, rushes, forbs, shrubs, etc. enhance wildlife habitat. Improving creek and floodplain connections can increase groundwater elevation and assist in rewetting former riparian wetlands.

SPATIAL ANALYSIS OF RESTORATION PRIORITY

As detailed in the full plan, the spatial analysis sought opportunity areas for three major restoration project types: Prairie restoration, Wetland/floodplain restoration, and Stream buffer restoration (of shrubs or trees), and then synthesized the highest priorities in each into a summary map.



RESTORATION OPPORTUNITIES

Partnerships & Landowner Incentives

Jurisdictions, from the county to the state level, can provide incentives such as offering technical assistance for grant applications, establishing programs that encourage conservation on private lands, providing awareness of existing programs for landowners, and establishing incentive programs such as cost-shares or conservation banking.

Cost-share opportunities

Cost-share opportunities are a way to incentivize landowners to incorporate restoration strategies into their land management. Landowners can benefit from government programs to pay for or lessen the cost of implementing certain approved practices. In addition, they help landowners overcome financial hurdles during the initial years of investment.
Large land managers can also benefit from cost-share opportunities designed to increase sustainable land use, including opening land to public recreation, habitat and vegetation enhancements, and preventing soil and water quality degradation caused by intensive agricultural use.
The plan summarizes cost-share programs that may benefit private landowners, nonprofits, tribes, and certain governmental agencies who wish to fund conservation, restoration, and habitat enhancement projects on their land.

ACKNOWLEDGMENTS

The Watershed Management Plan's technical advisory teams, comprised of local, state and federal government and agency partners, as well as local landowners and non-governmental organizations, were instrumental in determining the path forward for drafting and implementation of the habitat plan. The Implementation Committee consists of private-lands professionals and partners who have and will continue to provide support in planning.
Boone County, Missouri, occupies the ancestral, traditional, and contemporary lands of indigenous people. Specifically, it occupies land ceded by treaty in 1808 by the Osage and in 1824 by the Ioways, Sacs, and Foxes. We acknowledge these indigenous peoples as the original stewards of the watershed and affirm their history and traditions, honor their experiences, and recognize their continued relationship with the land and water.