

Pawnee Prairie Natural Area

Fifteen-Year Area Management Plan FY 2018-2032





Wildlife Division Chief

21 MARCH 2018
Date

Pawnee Prairie Natural Area Management Plan Approval Page

PLANNING TEAM

Josh Roller, Conservation Agent

Jerry Wiechman, Fisheries Management Biologist

Jesse Kamps, Wildlife Management Biologist

Jason Severe, Resource Forester

Steve Buback, Natural History Biologist

Kendall Coleman, Private Land Conservationist

NORTHWEST REGION

RCT Chair

Henry W. Winters
Signature

2-9-18
Date

WILDLIFE DIVISION

Wildlife Management Chief

Michael A. Schaefer
Signature

3/8/18
Date

OVERVIEW

- **Official Area Name:** Pawnee Prairie Natural Area, # 9631
- **Year of Initial Acquisition:** 1996
- **Acreage:** 476 acres
- **County:** Harrison
- **Division with Administrative Responsibility:** Wildlife
- **Division with Maintenance Responsibility:** Wildlife
- **Statements of Purpose:**

A. Strategic Direction

The primary purpose for acquiring the Pawnee Prairie Natural Area (NA) was to protect and restore remnant loess/glacial till prairie, and associated fauna that once dominated the landscape in northwest Missouri. Since the initial land acquisition in 1996, Pawnee Prairie NA has undergone extensive prairie restoration efforts to improve habitat for plants and animals representative of the Central Dissected Till Plains Physiographic Area. As the natural area approaches its 20th year in existence, management emphasis is on developing and maintaining habitat that supports grassland-dependent wildlife species. Priority species include greater prairie-chicken, Henslow's and grasshopper sparrows, upland sandpiper, bobolink, dickcissel, eastern meadowlark, regal fritillary butterfly, prairie mound ant, and northern prairie skink. Other species of management consideration include the northern bobwhite quail.

B. Desired Future Condition

The desired future condition of Pawnee Prairie NA is a diverse native prairie plant and animal community serving as a core property in a vast, open, and highly functional grassland landscape, including associated woodlands and prairie streams.

C. Federal Aid Statement

N/A

GENERAL INFORMATION AND CONDITIONS

I. Special Considerations

A. Priority Areas: Grand River Grasslands Priority Geography, Grand River Grasslands – Grassland/Prairie/Savanna Conservation Opportunity Area, Big Muddy Creek Fisheries Priority Watershed, Prairie Chicken Focus Area

B. Natural Areas: The entire 476 acres is currently classified as a natural area. Pawnee Prairie NA contains the second largest area of remnant upland prairie left in northern Missouri outside of the nearby Dunn Ranch Preserve owned by The Nature Conservancy. Pawnee Prairie NA supports a variety of characteristic

prairie plant and animal species, including many prairie species of conservation concern. The prairie also contains intact prairie swale natural communities along its drainage ways.

II. Important Natural Features and Resources

- A. Species of Conservation Concern:** Species of conservation concern are known from this area. Area managers should consult the Natural Heritage Database annually and review all management activities with the natural history biologist.
- B. Caves:** None
- C. Springs:** None
- D. Other:** Pawnee Prairie NA is in the Central Dissected Till Plains, Grand River Hills subsection, Upper Grand River Prairie/Woodland Hills Landtype Association. Historically, this landtype association was upland tallgrass prairie on divides that graded into oak savannas and woodlands in more dissected land (Nigh & Schroeder, 2002).

III. Existing Infrastructure

- One parking lot
- Ponds (2 acres total, no fishing available at this time due to renovation)

IV. Area Restrictions and Limitations

- A. Deed Restrictions or Ownership Considerations:** None
- B. Federal Interests:** Federal funds may be used in the management of this land. Fish and wildlife agencies may not allow recreational activities and related facilities that would interfere with the purpose for which the State is managing the land. Other uses may be acceptable and must be assessed in each specific situation.
- C. Easements:** None
- D. Cultural Resources:** No known cultural resources.
- E. Endangered Species:** Endangered species are known from this area. Area managers should consult the Natural Heritage Database annually and review all management activities with the natural history biologist.
- F. Boundary Issues:** None

MANAGEMENT CONSIDERATIONS

V. Terrestrial Resource Management Considerations

Much of the native grassland cover was severely degraded prior to acquisition by the Missouri Department of Conservation (the Department). Introduced cool-season

grasses and legumes were the primary cover types. In addition, introduced invasive species, such as sericea lespedeza, have become established on the natural area. As a result of management activities, native prairie vegetation once again dominates the area; continued management efforts will be required to maintain native vegetation.

Challenges and Opportunities:

- 1) The Pawnee Prairie NA is within the boundaries of the Grand River Grassland Priority Geography (Figure 3). This provides additional opportunities to manage for diverse native grassland plant and animal communities.
- 2) Continued monitoring and management is required to control undesirable vegetation.
- 3) Many grassland-dependent wildlife species require large expanses of quality grassland cover to sustain populations. Habitat fragmentation and the scale of grassland cover is a limiting factor in the Grand River Grassland Priority Geography.
- 4) Grassland vegetation management is primarily accomplished by fire, grazing, mechanical tree removal, and herbicide applications. These techniques are very effective, especially when applied in combination. Care must be taken to ensure the long-term sustainability of the native plant community.
- 5) The Department owned Pawnee Prairie NA is immediately adjacent to The Nature Conservancy owned Pawnee Prairie. Management activities of these two properties should be coordinated to provide better landscape scale benefits to native prairie plant and animal species.

Management Objective 1: Manage grassland for native plants and animals representative of the Central Tallgrass Prairie Ecoregion, particularly the greater-prairie chicken.

Strategy 1: Increase the cover and diversity of native vegetation and decrease the cover of undesirable herbaceous vegetation with fire, grazing, and herbicide.

(Wildlife)

Strategy 2: Decrease undesirable woody cover using techniques, including, but not limited to, prescribed fire, herbicide, and mechanical treatments. (Wildlife)

Strategy 3: Manage structural diversity of herbaceous vegetation using techniques, including, but not limited to, prescribed fire, grazing, herbicide, mowing, and/or haying. (Wildlife)

Management Objective 2: Manage Pawnee Prairie CA to provide both structural diversity and native species richness for the benefit of tallgrass prairie plants and animals and the enjoyment of area users.

Strategy 1: Utilize fire, grazing, herbicide application, mechanical tree removal, mowing, and/or haying to improve and maintain quality habitat for native tallgrass prairie plants and animals. (Wildlife)

VI. Aquatic Resource Management Considerations

Management of aquatic resources on Pawnee Prairie NA is focused on the East Fork Big Muddy Creek headwater tributaries that run through the area.

Challenges and Opportunities:

- 1) The recent introduction of an experimental species of conservation concern population in the Big Muddy Creek watershed and three ponds on the natural area provide additional prairie headwater stream management opportunities.
- 2) Two headwater tributaries of the East Fork Big Muddy Creek meet on the natural area and run through the southeast corner of the property. Efforts to promote a healthy riparian corridor (e.g., stable stream channels, fish habitat, and good water quality) will require protection from livestock damage and maintenance of grade controls.

Management Objective 1: Create and maintain healthy prairie headwater stream habitat for species of conservation concern and associated fish assemblages.

Strategy 1: Follow *Watershed and Stream Management Guidelines for Lands and Waters Managed by Missouri Department of Conservation* (2009) and the Department Resource Policy Manual, to ensure that all management activities adhere to best management practices. (Fisheries, Wildlife)

Strategy 2: Maintain adequate stream buffers with appropriate fencing for patch-burn grazing activities. (Wildlife)

Strategy 3: As needed, complete maintenance on rock crossings to promote grade control in the stream channels. (Design and Development)

Management Objective 2: Protect and enhance stream corridors to improve water quality, promote stable stream banks, provide flood abatement, and increase habitat diversity.

Strategy 1: Maintain and/or establish vegetated buffers, on both sides of intermittent streams pursuant to *Watershed and Stream Management Guidelines for Lands and Waters Managed by Missouri Department of Conservation* (2009). (Wildlife, Fisheries)

Strategy 2: Routinely evaluate buffer widths and conditions, and provide recommendations to the area manager as concerns arise. (Fisheries, Wildlife)

Management Objective 3: Manage and maintain larger ponds (Ponds 1-3, Figure 1) for native fishes with an emphasis on the protection and production of any species of conservation concern.

Strategy 1: Predatory fishes, such as largemouth bass, crappie, and channel catfish, have been removed and are no longer being stocked to re-establish sport fisheries. (Fisheries)

Strategy 2: Regular monitoring of species of conservation concern is conducted to evaluate survival and production. (Fisheries)

Strategy 3: Through regular mowing, chemical/mechanical treatment, or burning, pond dams are kept devoid of trees and shrubs to maintain dam integrity and to minimize leaking and associated negative impacts to fish habitat. (Fisheries, Wildlife)

Strategy 4: Control muskrat and beaver in fish ponds, where burrowing creates significant threat to the integrity of the dam or safety hazards for mowers on the dam. (Fisheries, Wildlife)

Strategy 5: Manage aquatic vegetation mechanically and/or chemically to minimize the potential for low oxygen conditions and allow for efficient monitoring of fish populations. (Fisheries)

VII. Public Use Management Considerations

Challenges and Opportunities:

- 1) Provide public use opportunities for bird watchers, prairie enthusiasts, and upland bird and deer hunters.

Management Objective 1: Manage the Pawnee Prairie NA to provide quality public use opportunities such as bird watching, wildlife viewing, and hunting.

Strategy 1: Annually review Atlas database and area regulations. (Wildlife, Protection)

Strategy 2: Maintain interior access trails to accommodate foot traffic by area users. (Wildlife)

VIII. Administrative Considerations

Pawnee Prairie NA is within the Grand River Grasslands Priority Geography (Figure 3), which may result in additional administrative duties pertaining to project development, land acquisition, reporting, etc.

Challenges and Opportunities:

- 1) The Pawnee Prairie NA is bordered by approximately 0.6 miles of county roads. Additional administrative duties may result from working with state and local Harrison County governments in maintaining these road right of ways.
- 2) There are approximately 3 miles of shared boundaries between the Department and neighboring landowners.

Management Objective 1: Clearly identify area boundary lines.

Strategy 1: Work with neighboring landowners, as need arises, to ensure the maintenance of adequate boundary fencing, as needed. (Wildlife)

Management Objective 2: Facilitate a good working relationship between the Department and other conservation partners within the Grand River Grasslands Priority Geography.

Strategy 1: Continue to work with The Nature Conservancy regarding seed harvests, landscape level vegetation management, and species monitoring. (Wildlife)

Strategy 2: Continue to work collaboratively with the Iowa Department of Natural Resources, the Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, research universities, non-governmental organizations, and interested landowners to improve the health of grasslands and grassland wildlife within the target geography. (Wildlife, Private Lands, Fisheries, Forestry)

Management Objective 3: Improve the landscape functionality of the Pawnee Prairie NA by increasing the size of the area or the number of publically managed satellite properties in close proximity.

Strategy 1: Pursue land acquisition opportunities from willing sellers. (Wildlife)

Management Objective 4: Facilitate a good working relationship with neighboring landowners.

Strategy 1: Work with neighbors to minimize any boundary, trespass, or illegal activities from occurring. (Wildlife, Protection)

Strategy 2: Promote habitat management on neighboring landowners' properties. (Wildlife, Private Lands)

Management Objective 5: Maintain area infrastructure at current levels.

Strategy 1: Maintain area infrastructure in accordance with Department guidelines. (Wildlife, Design and Development)

Lands Proposed for Acquisition:

When available, land adjacent to Pawnee Prairie NA and/or within the Grand River Grassland Priority Geography (Figure 3) may be considered for acquisition from willing sellers. Tracts that improve landscape functionality for grassland species, improve habitat connectivity, have existing prairie vegetation or have the potential for restoration, provide public use opportunities, contain unique natural communities and/or species of conservation concern, or meet other Department priorities, as identified in the annual Department land acquisition priorities, may be considered.

MANAGEMENT TIMETABLE

All strategies for this management plan are considered ongoing.

APPENDICES

Area Background:

The Department initially purchased property for the Pawnee Prairie Natural Area (NA) in 1996. Pawnee Prairie NA was named for a Native American tribe that occupied the area. It is also the name of a nearby town. The area represents a relict island of the once vast, rolling prairie of northwest Missouri. Plants and animals unique to a tallgrass prairie ecosystem survive on portions of the area that have never been plowed.

Pawnee Prairie NA is part of the larger Grand River Grasslands Priority Geography. The wide variety of grassland wildlife, especially birds, found here as well as tracts of unplowed prairie, indicate this is the best area in northern Missouri to restore a functioning tallgrass prairie ecosystem on a landscape scale.

The Department, The Nature Conservancy, the Iowa Department of Natural Resources, the Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, and interested private landowners are working cooperatively to restore native grasslands in this landscape. Management activities on the area include prescribed burning, grazing, native prairie restoration, and mechanical tree removal.

Current Land and Water Types:

Land/Water Type	Acres	Miles	% of Area
Native Grassland (restoration)	400		84
Native Prairie (remnant)	74		16
Ponds	2		<1
Total	476		100
Stream Frontage		1.34	

Public Input Summary:

The draft Pawnee Prairie Natural Area Management Plan was available for a public comment period Sept. 1-30, 2017. The Department received no comments during this time period.

References:

- Missouri Department of Conservation. (2009). *Watershed and stream management guidelines for lands and waters managed by Missouri Department of Conservation*. Jefferson City, MO: Missouri Department of Conservation.
- Nigh, T. A., & Schroeder, W.A. (2002). *Atlas of Missouri ecoregions*. Jefferson City, MO: Missouri Department of Conservation.

Maps:

Figure 1: Area Map

Figure 2: Land Cover Map

Figure 3: Grand River Grasslands Priority Geography

Figure 1: Area Map

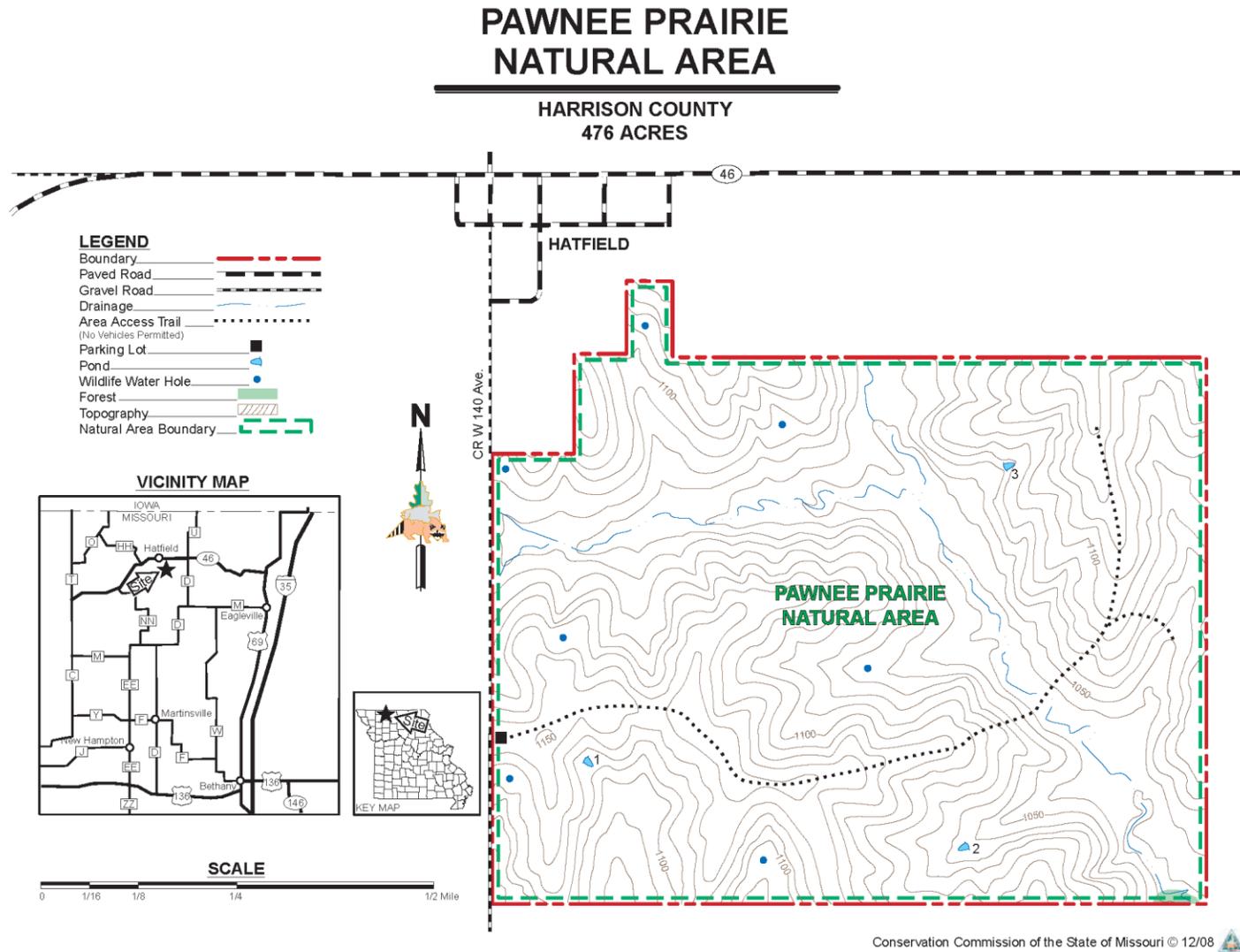


Figure 2: Land Cover Map

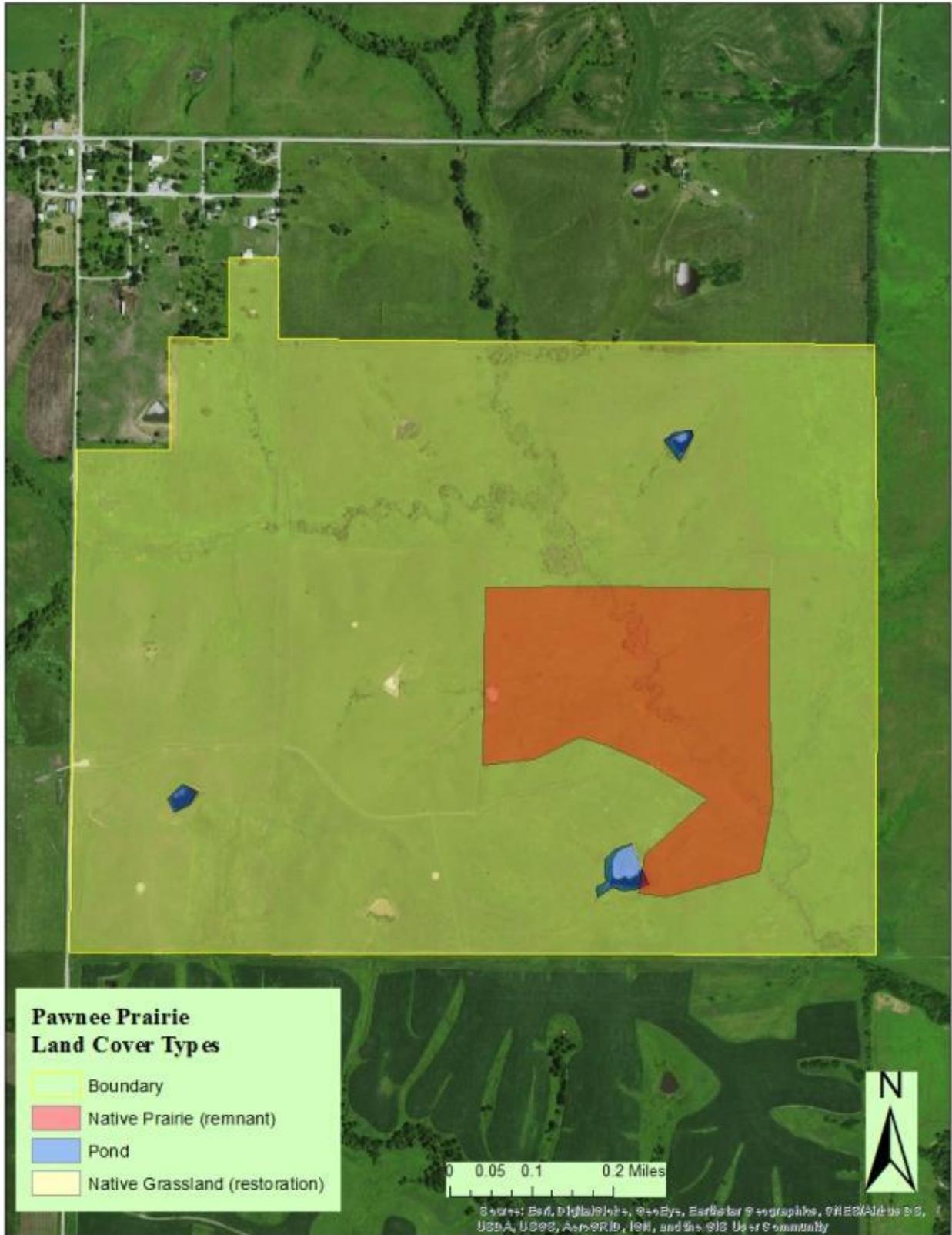


Figure 3: Grand River Grasslands Priority Geography

