



*HISTORIC PROPERTY PROJECT DOCUMENTATION AND
CLIMATE CHANGE TREATMENT PLAN*
TALLGRASS PRAIRIE NATIONAL PRESERVE

Final | November 2024

This page intentionally left blank.

*Historic Property Project Documentation and
Climate Change Treatment Plan*
Tallgrass Prairie National Preserve

Recommended: **KRISTEN HASE**  Digitally signed by KRISTEN HASE
Date: 2024.10.21 10:59:36 -05'00'

Superintendent, Tallgrass Prairie National Preserve

Concurred: **STEPHANIE
STEPHENS**  Digitally signed by STEPHANIE
STEPHENS
Date: 2024.11.15 15:28:05 -05'00'

Associate Regional Director, Cultural Resources, Land and Water
Conservation Fund (LWCF), and Tribal Relations Programs

Approved:   Digitally signed by HERBERT
FROST
Date: 2024.11.18 22:13:11 -06'00'

Director, Midwest Region, Interior Regions 3, 4, 5

This page intentionally left blank.

HISTORIC PROPERTY PROJECT DOCUMENTATION
AND CLIMATE CHANGE TREATMENT PLAN
TALLGRASS PRAIRIE NATIONAL PRESERVE

STRONG CITY, KS

FINAL | NOVEMBER 2024

Prepared by:

STRATA Architecture
Kansas City, MO

Quinn Evans
Ann Arbor, MI

Vireo
Kansas City, MO

Publication Credits: Information in this publication may be copied and used, with the condition that full credit is given to the authors, their companies, and the National Park Service. Appropriate citations and bibliographic credits should be made for each use.

Notice: This manuscript has been authored by Quinn Evans and Vireo through STRATA Architecture Inc. under IDIQ 140P6020D0004/140P6020F0148 with the National Park Service. The United States Government retains and the publishers, by accepting the article for publication, acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes.

United States Department of the Interior Mission Statement: As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally-owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Cover Photo: Quinn Evans, 2023

PROJECT TEAM AND CONTRIBUTORS

National Park Service, Interior Regions 3, 4 and 5

Joseph Bac, Contract Specialist

Marla McEnaney, Contracting Officer's Representative and Project Manager

National Park Service, Tallgrass Prairie National Preserve

Kristen Hase, Superintendent

STRATA Architecture Inc. (Prime)

Angie Gaebler, Principal

Quinn Evans Architects (Cultural Landscape)

Brenda Williams, FASLA, Principal-in-Charge

Stephanie Austin Redding, ASLA, Project Manager

Kate Ricketson, Historical Landscape Architect

Valerie Reiss, Historian

Vireo (Landscape Architecture and Conservation Ecology)

Laurie Brown, Conservation Ecologist and Planner

Brett Spangler, Landscape Architect

Becca Pruett, Landscape Designer

This page intentionally left blank.

TABLE OF CONTENTS

PROJECT TEAM AND CONTRIBUTORS	III
LIST OF ILLUSTRATIONS	VII
CHAPTER 1: INTRODUCTION	
Description of Study Boundaries	2
Overview of Resource Data	5
Methodology	8
Climate Change and Vegetation Issues and Considerations	10
CHAPTER 2: SUMMARY HISTORIC PROPERTY PROJECT DOCUMENTATION	
Chronology	13
Significance	18
CHAPTER 3: CONDITION ASSESSMENT AND EXISTING CONDITION DRAWINGS	
Overall Landscape Existing Condition	22
Buildings and Structures	25
Circulation	25
Vegetation	27
Natural Systems and Features	27
Views	27
Small-Scale Features	27
Spatial Organization	28
CHAPTER 4: CLIMATE CHANGE TRENDS, IMPACTS, AND VULNERABILITIES	
Trends and Impacts	49
Climate Change in Kansas	51
Future Vulnerabilities	53
Climate Change and Vegetation Issues and Considerations	53
CHAPTER 5: TREATMENT APPROACH	
Secretary of the Interior's Standards	57
Standards for Rehabilitation	59

CHAPTER 6: CLIMATE CHANGE TREATMENT RECOMMENDATIONS

Vision	61
Goals	61
General Treatment Recommendations	62
Landscape Areas Treatment Recommendations	66
Tallgrass Prairie	67
Cedar Windbreak	70
Z Bar Ranch Headquarters	74

APPENDIX:

HISTORIC PROPERTY PROJECT DOCUMENTATION

Attachment 1: Section 1, Row 24 - Project Justification	108
Attachment 2: Section 1, Row 34 - Draft Area of Potential Effects	109
Attachment 3: Section 2, Row 27 - Ultimate Treatment	110
Attachment 4: 2004 Cultural Landscape Report Excerpt	113

LIST OF ILLUSTRATIONS

DRAWINGS

Drawing EC-1. Area of Potential Effect Existing Condition Site Plan	23
Drawing TP-1. Area of Potential Effect Existing Condition Site Plan	81
Drawing TP-2. Area of Potential Effect Existing Condition Site Plan	83

FIGURES

Figure 1-1. Spring Hill/Z Bar Ranch location within Tallgrass Prairie National Preserve (QE, 2024 with base map by Bahr Vermeer Haecker Architects in association with John Milner Associates).	3
Figure 1-2. Project study area and APE outlined in orange (QE, 2024).	4
Figure 2-1. Circa-1883 lithograph of the ranch headquarters showing vegetation around the house (<i>The Kansas Picture Book</i> , 1883).	16
Figure 2-2. Detail of a 1908 postcard depicting the main ranch buildings and vegetation (TAPR Archive).	16
Figure 2-3. 1956 aerial depicting the ranch headquarters and extent of the cedar windbreak. The main road is at the right edge of the image (TAPR Archive).	17
Figure 2-4. Front entrance on the east facade of the main house, likely post-1935 (Collection of Edith Seyfert Kinucan).	17
Figure 2-5. Recommendations for tree removal outside of noted historic tree locations (Sherda Williams to Superintendent, Midwest Support Office, Trip Report, January 21-22, Tallgrass Prairie, Memorandum, February 9, 1999).	18
Figure 3-1. Overview of house and lawn, including stone fencing and terracing, looking northwest (QE, 2023).	25
Figure 3-2. Existing trees in historic locations (QE, 2024).	26
Figure 3-3. Overview of house, shade trees, and rolling topography, looking northeast (QE, 2023).	27
Figure 3-4. Overview of barn, silo, and corral looking northwest (QE, 2023).	28
Figure 3-5. Overview of ranch headquarters, looking northeast (QE, 2023).	28
Figure 4-1. Graph illustrating yearly temperature averages in Chase County, Kansas from 1900–2023.	50
Figure 4-2. Graph illustrating total yearly precipitation averages in Chase County, Kansas from 1900–2023.	50
Figure 4-3. Map illustrating projected change in summer precipitation for	

Kansas (NOAA National Centers for Environmental Information, https://statesummaries.ncics.org/chapter/ks/).	52
Figure 6-1. US EPA map of Kansas ecoregions with the location of TAPR (US Environmental Protection Agency, https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-state/).	62
Figure 6-2. USDA Forest Service tree pruning graphic (USDA Forest Service, “How to Prune Trees,” https://www.fs.usda.gov/).	65
Figure 6-3. Map showing defined landscape areas.	66
Figure 6-4. Dead tree within prairie to the west of Z Bar Ranch headquarters.	67
Figure 6-5. Brush pile within prairie to the west of Z Bar Ranch headquarters.	68
Figure 6-6. Brush pile within prairie to the west of Z Bar Ranch headquarters.	68
Figure 6-7. Eastern red cedars and shrub thicket within prairie to the west of Z Bar Ranch headquarters.	69
Figure 6-8. Shrub thicket growing in and around stone walls.	69
Figure 6-9. Dead cedar trees within the cedar windbreak.	71
Figure 6-10. Dead walnut trees within the cedar windbreak.	71
Figure 6-11. Dead cedar tree with brush pile below.	72
Figure 6-12. Cedar tree with dead branches.	73
Figure 6-13. Previously damaged cedar tree with undesirable form and appearance.	74
Figure 6-14. Open cavity in cottonwood tree.	75
Figure 6-15. Open lawn area at stone wall terraces in front of the Z Bar Ranch headquarters.	76
Figure 6-16. Hackberry tree with previous damage that has significantly altered the appearance of the tree.	77
Figure 6-17. Walnut tree with significant damage to trunk and canopy.	78
Figure 6-18. Walnut tree with dead branches in canopy requiring pruning.	78
Figure 6-19. Deciduous tree branches touching building roof.	79

CHAPTER 1: INTRODUCTION

The purpose of the Historic Property Project Documentation (HPPD) and Climate Change Treatment Plan (CCTP) is to update cultural resource documentation and supplement vegetation treatment plans with stabilization recommendations in response to climate change impacts at the Spring Hill/Z Bar Ranch site within Tallgrass Prairie National Preserve. The HPPD is a newly defined National Park Service (NPS) workbook template that collects available information from the Cultural Resource Inventory System (CRIS) and the Facility Management Software System (FMSS) to inform the scope of the project with updated cultural landscape resources information. In this project, the HPPD informs the CCTP which will highlight vulnerable resources currently or potentially threatened by climate-driven environmental changes, such as flooding, erosion, vegetation community changes, and fire.

Tallgrass Prairie National Preserve is significant for its representation of the transition from open range to the enclosed holdings of large cattle companies during the 1880s as well as for the architecture of the Spring Hill/Z Bar Ranch headquarters buildings and the Lower Fox Creek Schoolhouse. Tallgrass Prairie National Preserve was recognized as a National Historic Landmark (NHL) in 1997. The site is significant under Criterion A at the national level for its relationship to the broad patterns of agricultural history. It is locally significant under Criterion B for its association with Stephen Jones and Barney Lantry, both Chase County businessmen who played an important role in the local economy. The buildings at Spring Hill/Z Bar Ranch headquarters are nationally significant under Criterion C for architecture, and other buildings such as the Lower Fox Creek Schoolhouse may be locally significant for their architecture. It is also likely significant under Criterion D for the potential of its archeological resources to yield important information for the NHL period of significance or other historic periods.

The site has two periods of significance. The NHL period of significance is 1878 to 1904. Tallgrass Prairie National Preserve is also recommended as locally significant with a period of significance between 1856 to 1970, which captures the long timespan of changing cultural use and adaptation to the natural environment.

DESCRIPTION OF STUDY BOUNDARIES

STUDY AREA

Tallgrass Prairie National Preserve is located just north of Strong City, two miles north of the Chase County seat in Cottonwood Falls. The Preserve is 10,894 acres, the majority of which is currently owned by The Nature Conservancy, a private, nonprofit organization. The Preserve is co-managed by The Nature Conservancy and the NPS. This Historic Property Project Documentation and Climate Change Treatment Plan report addresses vegetation within the 29.9 acres that encompass the Spring Hill/Z Bar Ranch headquarters, which now houses park administration and maintenance offices (Figure 1-1).

AREA OF POTENTIAL EFFECT (APE)

To understand which historic properties may be affected by proposed treatment recommendations, a draft Area of Potential Effects (APE) for the project is illustrated on Figure 1-2. As defined by National Historic Preservation Act (NHPA) 36 CFR 800.16 (d), the APE is “...The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”¹

The draft APE was developed collaboratively with NPS regional and park staff to incorporate all areas that may be affected by the vegetation CCTP as well as any locations where these changes may impact the integrity of the cultural landscape.

The draft APE is intended to inform the HPPD and help to guide the development of the project (work/undertaking) in alignment with the Secretary of the Interior’s (SOI) *Standards for the Treatment of Historic Properties* to meet the NPS stewardship mandate. The final APE must be developed in consultation with the State Historic Preservation Officer (SHPO) and Tribal Historic Preservation Officers (THPOs) and other consulting parties and therefore may be different from the draft APE; however, integration of this step in the process supports stewardship and improved consultation.² Additional information on development of the draft APE is provided in Chapter 2.

1 NHPA 36 CFR 800.16 (d).

2 14 36 CFR 800.4 (identification of historic properties) – (a) Determine scope of identification efforts. In consultation with the SHPO/THPO, the agency official shall: (1) Determine and document the area of potential effects, as defined in 800.16(d). The APE must be reviewed by or developed with CRS.

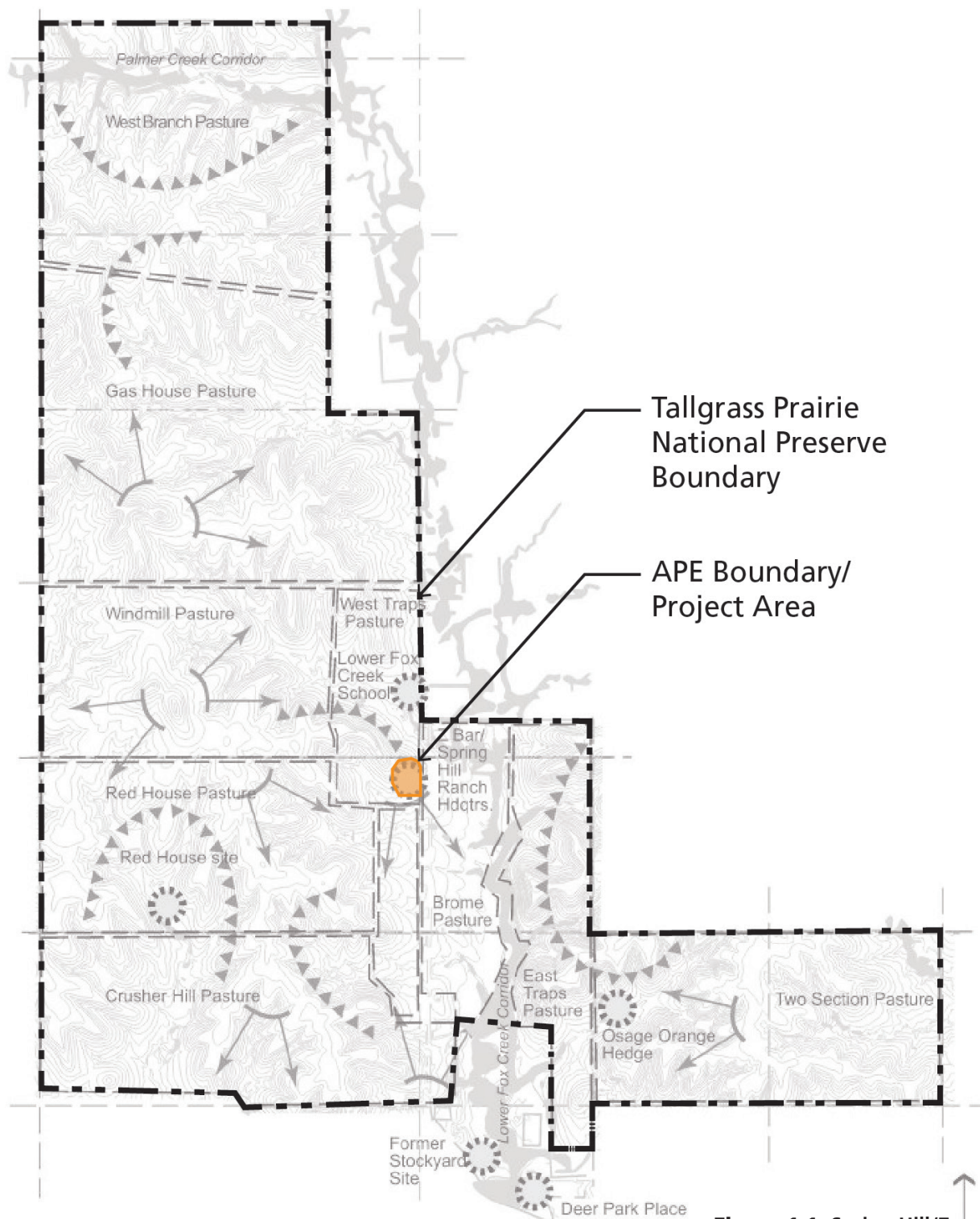
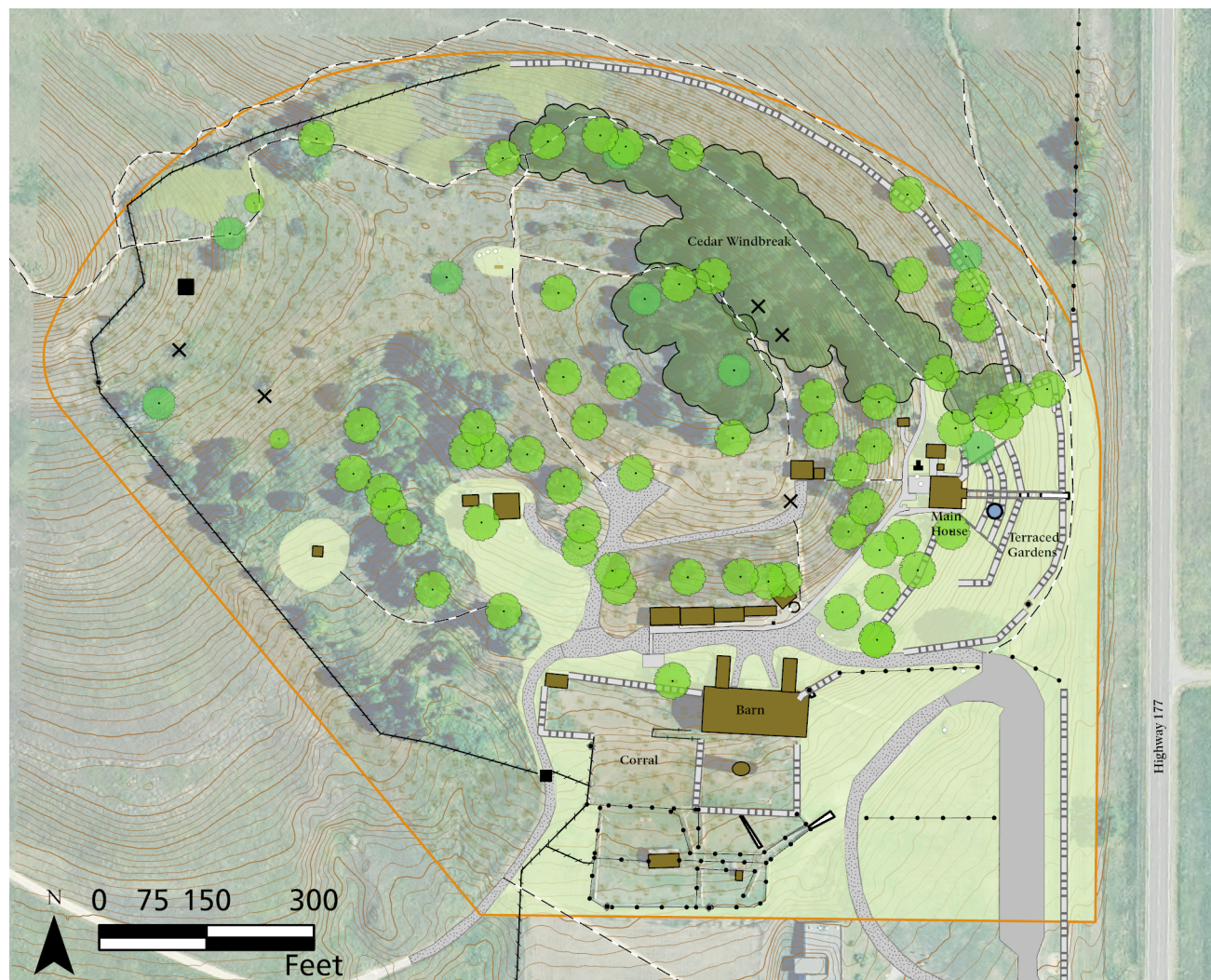


Figure 1-1. Spring Hill/Z Bar Ranch location within Tallgrass Prairie National Preserve (QE, 2024 with base map by Bahr Vermeer Haecker Architects in association with John Milner Associates).



Legend

Cedar Windbreak	Post and Board Fence	Stairs	Utility Pole
Concrete Walkway	Post and Pipe Fence	Bench	Weather Station
Lawn	Post and Wire Fence	Cattle Guard	Dead Tree
Mixed Prairie	Stone Edge	Clothesline	Deciduous Tree
Parking Area	Stone Fence or Wall	Fountain	Evergreen Tree
Road Trace	Trail	Gas Pump	Shrub
Shrubland	Wire Mesh Fence	Gate	
Wood Deck	APE Boundary	Propane Tank	
Gate	Building	Sign	

Figure 1-2. Project study area and APE outlined in orange (QE, 2024).

OVERVIEW OF RESOURCE DATA

This project builds on existing landscape documentation and treatment recommendations developed through the following documents:

National Register Nomination (1997)

The Spring Hill Ranch/Z Bar Ranch headquarters area was designated an NHL on February 18, 1997 (08000828). Evaluation status within the HPPD and CCTP report is consistent with the 1997 nomination.

Trip Report Memorandum, January 21-22, 1999, Tallgrass Prairie (1999)

This memorandum identifies historic cedars that should be retained during a tree removal campaign intended to eliminate fire hazards near historic structures at Tallgrass Prairie.

General Management Plan Environment Impact Statement (2000)

The General Management Plan (GMP) provides a blueprint to guide park management decisions. It provides six action plans, including the no-action baseline, and highlights a Preferred Alternative (Proposed Action) that is based on the goal to preserve, protect, and interpret a remnant of the tallgrass prairie ecosystem and the interaction between people and the land. The GMP was meant to guide decision making for 10 to 15 years and is now outdated.³

Cultural Landscape Report (2004)

The most recent document providing overall cultural landscape treatment guidance for the site is the park's 2004 Cultural Landscape Report (CLR).⁴ However, park staff note that CLR recommendations are dated. As part of development of the list of issues and considerations to be addressed in the CCTP, the consulting team reviewed CLR recommendations with park staff for applicability to the existing landscape.

Invasive Exotic Plant Monitoring at Tallgrass Prairie National Preserve (2010)

The 2010 Invasive Exotic Plant Monitoring document describes the proliferation of exotic plants based on fieldwork done in 2006 and 2010. It discusses implications for invasive plant management, including the spot treatment of

3 "General Management Plan/Environmental Impact Statement", National Park Service, Department of the Interior, September 2000.

4 Bahr Vermeer Haecker Architects, "Tallgrass Prairie National Preserve Cultural Landscape Report" (National Park Service, Midwest Regional Office, October 2004).

Chinese *lespedeza* and black swallowwort, and focuses on the restored prairies, pasture, riparian forests, and roadsides.⁵

Prescribed Fire Monitoring Report (2016)

The Prescribed Fire Monitoring Report from 2016 covers the prescribed burn that was conducted based off a 2015 burn plan.⁶

Fire Management Plan (2016)

The 2016 Fire Management Plan provides updated guidance for fire management necessary due to changes in national interagency fire policy. It outlines a comprehensive fire program including wildland fire response, fire prevention, and fuels management utilizing prescribed fire and mechanical treatments.⁷

SCOPE OF WORK

Project Statement

The Project Management Information System (PMIS) Project Identification Number for this project is 333132. This project supplements existing vegetation treatment plans with stabilization recommendations in response to climate change impacts. The study area for this task order includes portions of Tallgrass Prairie NP (TAPR). The end product is a treatment plan focused on climate change impacts to vegetation.

A Climate Change Treatment Plan highlights vulnerable resources currently or potentially threatened by climate driven environmental changes, such as flooding, erosion, vegetation community changes, and fire. Discussions with park and regional staff defined the issues studied at TAPR.

Issues addressed as part of this project include:

- Performing an update condition assessment with focus on vegetation surrounding the ranch headquarters
- Completing a planting plan with landscape maintenance guidelines to minimize ongoing and potential threats to the ranch headquarters including recommendations for removing cedars and replacing canopy trees and other historic period plantings
- Providing class “C” cost estimates for work orders needed to implement the planting plan

5 J. C. Bell, C. C. Young, L. W. Morrison, and C. S. Gross, “Invasive Exotic Plant Monitoring at Tallgrass Prairie National Preserve, Year 2 (2010)” (National Park Service, Fort Collins, Colorado, August 2011).

6 S. A. Leis and S. E. Hinman, 2016, Tallgrass Prairie National Preserve 2015 post-burn summary. Natural Resource Data Series NPS/HTLN/NRDS—2016/1001. National Park Service, Fort Collins, Colorado.

7 National Park Service, Tallgrass Prairie National Preserve, Fire Management Plan, 2016.

The HPPD and CCTP report is organized into five chapters as described below.

Chapter 1: Introduction

The introduction provides the administrative context for the project. It includes a concise summary of relevant management information and historical data. It describes the project study boundaries, scope of work and methodology, and summary of findings.

Chapter 2: Landscape Chronology and Significance

This chapter provides a summary of the landscape's significance, period of significance, and chronological development over time. The information is developed from the HPPD, which is in an appendix.

Chapter 3: Condition Assessment

This chapter presents an updated assessment of cultural landscape conditions based on field investigations conducted by Quinn Evans and Vireo in October and November 2023. The assessment is provided in a table format that documents CRIS and FMSS data, evaluation status, current condition, and potential affects to integrity proposed by the CCTP for each landscape feature or aspect. The chapter also includes existing condition drawings of the study area. The contents of this chapter address Section 4: Current Condition Assessment of the HPPD.

Chapter 4: Climate Trends, Vulnerabilities, and Impacts

Chapter 4 summarizes existing and anticipated threats and impacts to the cultural landscape based on climate trends for eastern Kansas and conditions present within the study area.

Chapter 5: Treatment Framework

This chapter provides a vision and goals for long-term vegetation management and explains rehabilitation as the preferred treatment approach.

Chapter 6: Climate Change Treatment Plan (CCTP)

The Climate Change Treatment Plan presents, analyzes, and correlates all pertinent information from Chapters 1–4 to guide stabilization and preservation and/or rehabilitation of the landscape, with a focus on vegetation and the issues and considerations identified in this chapter.

Appendix: Historic Property Project Documentation (HPPD)

This chapter presents relevant HPPD data organized into six sections:

- Section 1: Proposed Project Information relays the project description and scope of work.
- Section 2: Administrative Data collects data from the baseline documentation, including the construction date, historic and present use, and location data for all historic structures and cultural landscapes in the draft APE.
- Section 3: Historic Properties Information summarizes the character-defining features, significance, and integrity for historic properties in the draft APE. This section is addressed in Chapter 3: Condition Assessment, of this report.
- Section 4: Current Conditions Assessment outlines the current condition of the historic structures and cultural landscape that may be affected by the proposed project.
- Section 5: Potential Effects of Project Scope to Historic Property Integrity makes a preliminary identification of potential effects to historic structures and cultural landscapes.
- Section 6: Historic Property Project Summary Report is not included in the current project.

METHODOLOGY

PROJECT TEAM MEMBERS

Prime: STRATA Architecture Inc. (STRATA), Kansas City, Missouri

STRATA managed the contract for this project and provided editorial guidance on the document.

Historical Landscape Architect: Quinn Evans (QE), Ann Arbor, MI

Quinn Evans provided historic landscape architectural services for this study, including development of the HPPD, condition assessment of the study area with a focus on cultural landscape integrity, and coordination of climate change treatment recommendations with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

Landscape Architect: Vireo, Kansas City, Missouri

Vireo provided landscape architecture and ecological planning services for this study including development of the CCTP, existing condition assessment with a focus on the vegetative communities present, and development of the climate change treatment strategies and recommendations.

Project Kickoff

The consulting team facilitated a remote project kickoff meeting on October 6, 2023, to introduce the project team, confirm the study area boundary and APE, review the project scope of work and schedule, and establish a strategy for project startup and field investigations.

Field Investigations

Quinn Evans conducted field investigations at the Spring Hill Ranch/Z Bar site at Tallgrass Prairie National Preserve on October 31 and November 1, 2023, using autonomous GPS. Documentation of the landscape was cross-referenced with documentation from the 2004 CLR and included field notes and photographs for all visible landscape features.

Vireo team members Brett Spangler and Laurie Brown conducted field investigations at Tallgrass Prairie National Preserve October 31 and November 1, 2023. Existing conditions were documented using Amigo Collect, a cloud-based GPS platform. A total of 95 data points were collected to document the vegetative components of the landscape features. Photographs of these features along with the general character of the Preserve were also collected. Data included the following:

- Feature type—erosion, drainage, utilities, vegetation, or site furnishings such as benches and picnic tables
- Vegetation type—deciduous tree, evergreen tree, shrub, herbaceous plant
- Tree diameter
- Contributing feature
- Condition and condition factors
- Age—approximate
- Damage—human-made or natural
- Action timeline
- Additional notes

Treatment Workshop and Climate Change Treatment Plan Development

Following Draft 1 of the report, the consulting team conducted a remote treatment workshop with park and regional NPS representatives on 16 April 2024. Workshop attendees refined a series of concepts for stabilizing resources and minimizing climate-driven threats/impacts within the study area. Specific discussion topics included vegetation, fire, changing precipitation patterns, and maintenance opportunities. Proposed treatment guidelines and concepts are organized into Chapters 5 and 6 of this report in narrative and graphic format.

CLIMATE CHANGE AND VEGETATION ISSUES AND CONSIDERATIONS

Issues and considerations affecting the desired future condition and management of the cultural landscape in response to climate change impacts were documented through the project scope of work, October 2023 project kickoff meeting, and October–November 2023 field investigations. The issues and considerations build off of treatment recommendations provided by the 2004 CLR. Refer to Chapter 4 of this document.

TREATMENT SUMMARY

Recommended treatment for the Tallgrass Prairie National Preserve cultural landscape follows a rehabilitation approach consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*. This approach provides an umbrella that allows for the preservation of contributing features and aspects while allowing for new additions to the landscape to support safety and adapt to changing climate conditions, such as tree species not historically present but better suited to projected ecological conditions throughout the study area. Selection of these elements requires careful consideration to provide additions that complement the historic character and features without creating a false sense of history. The treatment includes general guidance for the entire APE, followed by specific recommendations for the tallgrass prairie, cedar windbreak, and Z Bar Ranch headquarters areas.

- The general treatment recommendations focus on enhancing genetic diversity and adapting to changing climate conditions. The guidelines emphasize the importance of avoiding monocultures by limiting the proportion of trees from the same species, genus, and family. Additionally, recommendations include planting drought-tolerant deciduous and coniferous trees, particularly those that can provide shade, infill, and maintain the historic character of the site.
- For the tallgrass prairie, the treatment recommendations address the removal of dead trees, brush piles, shrub thickets, and eastern red cedars outside the historic context of the cedar windbreak to mitigate fire risks and maintain the historic character of the landscape. Fire protection takes precedence, but snag trees (standing dead or dying trees) may remain in place on a case-by-case basis to serve as habitat provided they are not a hazard.
- For the tallgrass prairie, the treatment recommendations address the removal of dead trees, brush piles, and shrub thickets to mitigate fire risks and maintain the historic character of the landscape.
- The cedar windbreak treatment focuses on removing dead trees to reduce fire risks and enhance the historic character of the windbreak. Dead walnuts and eastern red cedars should be removed, and new coniferous trees should be planted to maintain the historic appearance.

- New deciduous shade tree plantings will be limited close to the headquarters in the maintained landscape of the lawn terraces to enhance the historic character, maintain views, and provide shade. New tree plantings should be maintained safe distances from buildings and terrace walls. Damaged or dead trees that compromise the historic character should be removed and replaced, with selective pruning of existing trees to improve health and aesthetics. As with the prairie, fire protection takes precedence, but snag trees may remain on a case-by-case basis to serve as habitat provided they are not a hazard and are located away from buildings and structures.

This page intentionally left blank.

CHAPTER 2: SUMMARY HISTORIC PROPERTY PROJECT DOCUMENTATION

The HPPD compiles the critical information for sharing and analyzing cultural resources data when needed for project planning and development. It is a collaborative tool that enables NPS staff to select and implement an appropriate level of research, documentation, and treatment for historic structures and cultural landscapes. The HPPD provides a consistent format that can be used to inform and document federal decision-making related to the treatment of historic structures and cultural landscapes.

This chapter summarizes the key parts of the HPPD, including the chronology and significance of the resource and the current National Register status. The entire HPPD document is included in the Appendix.

CHRONOLOGY

TABLE 1: CHRONOLOGY AND PHYSICAL DEVELOPMENT			
Start Year or Era	End Year or Era	Major Event	Major Event Description
1856	1856	Platted	Government land survey completed.
1856	1876	Homesteaded	Early Euro-American farmsteads.
1873	1873	Land transfer	Atchison, Topeka & Santa Fe Railroad received land now in the Preserve from the state of Kansas.
1876	1876	Land transfer	Missouri, Kansas & Texas Railroad received land now in the Preserve from the U.S. government.
1878	1888	Purchased and ranched	Stephen F. Jones bought and sold the property within the now-existing boundaries of the preserve. Stephen F. Jones ran a large-scale cattle ranching operation on the Spring Hill Farm and Stock Ranch.
1881	1881	Built	Stephen F. Jones had the Spring Hill Ranch headquarters as well as the stone fences that enclose the ranchlands constructed.
1888	1888	Purchased/sold	Stephen F. Jones sold his Chase County land holdings to Barney Lantry.
1895	1895	Planted and land transfer	The 1895 census reported that Barney Lantry planted a variety of fruit trees; presumably most were planted in orchards, and all were described as fruit bearing. The Lantry lands (including the Spring Hill Ranch and Deer Park Place) were inherited by Henry E. and Charles J. Lantry.

TABLE 1: CHRONOLOGY AND PHYSICAL DEVELOPMENT

Start Year or Era	End Year or Era	Major Event	Major Event Description
1907	1925	Purchased/sold	In 1907, Charles Lantry sold most of the family land to C. C. Patten, beginning a period when consolidated lands became divided.
1907	1969	Moved	Through the 1950s and 1960s, many of the old stone fences were dismantled; the stone from the fences were used as riprap for new dams and other construction on the ranch.
1907	1933	Altered	Prairie burning is believed to have occurred through most of the twentieth century.
1909	1909	Purchased/sold	Approximately 1080 acres of the present-day Preserve lands were sold to the Benninghoven family. This marked the return of a resident owner family to Spring Hill.
1935	1935	Land transfer/ purchased/sold	The Sheriff of Chase County filed a sheriff's deed transferring the ranch lands from the Benninghoven family owners of the ranch to the Prudential Insurance Company of America. Prior to 1935, George H. Davis had purchased 10,000 acres of the old Spring Hill Ranch and in 1935 he purchased the former Benninghoven property, reconsolidating the Lantry holdings under one owner.
1935	1970	Ranched/grazed	Cattle ranching activity on Preserve lands was managed by Fred Howard, Sr., from 1935–1970.
1940	1949	Altered	Portions of the stone fences were reworked. Terrace wall system reworked at the historic ranch headquarters.
1945	1946	Built	Quonset hut constructed.
1950	1969	Built	Flag pole installed at historic ranch headquarters. Fred Howard built approximately 12 cattle pens and watering structures in the pastures and near the barn at the Spring Hill/Z Bar Ranch headquarters.
1955	1955	Land transfer	George W. Davis died. Deeds were transferred to the Davis–Noland–Merrill Grain Company, later known as the Z Bar Cattle Company.
1956	1956	Removed	A portion of the original stone wall was removed at the Spring Hill Ranch residence when highway Route 177 was widened.
1971	1971	Established	The Spring Hill Ranch House was nominated to the National Register of Historic Places.
1983	1986	Restored	A restoration effort for the Spring Hill Ranch residence took place during the 1980s.
1980	1989	Removed	One of the silos was removed from its location behind the barn.
1980	1989	Built	By the 1980s, some of the remaining old stone fences were reinforced with barbed wire. The patio behind the Spring Hill house was built with the concrete staves from one of the silos when it was removed.
1986	1986	Purchased/sold	The Z Bar Ranch was sold to the Boatmen's First National Bank of Kansas City.

TABLE 1: CHRONOLOGY AND PHYSICAL DEVELOPMENT

Start Year or Era	End Year or Era	Major Event	Major Event Description
1994	1994	Purchased/sold	National Park Trust (NPT) purchased the 10,894-acre ranch, including the Springhill/Z Bar Ranch.
1994	1996	Built	A parking lot was added near the entrance to Spring Hill Ranch from Highway 177. Overlook developed for the interpretive self-guided tour.
1995	2004	Ranched/grazed	The NPT renegotiated cattle operations on the ranch. The NPT leases more than 98% of the Preserve to Edward Bass of Fort Worth, Texas, on a 35-year, prepaid, two-million dollar cattle grazing lease.
1996	1996	Preserved	The NPT acquired the majority of the combined former Jones and Lantry ranches to ensure that the open land would be preserved as a tallgrass prairie. Tallgrass Prairie National Preserve was established by Congress.
2001	2001	Removed	Quonset hut and pole barn removed (by NPT) from Spring Hill/Z Bar Ranch headquarters site.
2002	2002	Land transfer	Federal government received title to 29.9 acres of the Preserve, encompassing the Spring Hill/Z Bar Ranch headquarters area.
2005	2005	Purchased/sold	NPT sold approximately 10,892 acres to the Nature Conservancy (TNC).

SUMMARY OF HISTORIC VEGETATION

Based on the CLR, historic vegetation at the ranch headquarters included foundation plantings near the front porch and at regular intervals along the stone walls of the front terraces. These plantings were deciduous except for paired evergreen plantings down the stairs of the second terrace, possibly arborvitae or young cedars. There was a pair of small weeping trees north and south of the fountain, likely weeping cherry or mulberry. Two rows of regularly spaced deciduous trees were located along the tops and/or bottoms of the retaining walls on each terrace, following the arc of the walls. There were additional deciduous plantings west of the barn on the eastern slope. Lilacs and roses were planted in an unidentified location. The location of historic cedars and other historic trees was previously analyzed in a 1999 memorandum from Sherda Williams, a Historical Landscape Architect from the Cultural Resources Division, Midwest Support Office, also recommending removal outside of these historic locations.

The existing character-defining vegetation includes tallgrass prairie vegetation over the majority of the site as well as the cedar trees, shade trees, and ornamental shrubs, perennials, and bulbs at the Spring Hill/Z Bar Ranch headquarters.¹

1 Summarized from Bahr Vermeer Haecker Architects, "Tallgrass Prairie National Preserve Cultural Landscape Report" (National Park Service, Midwest Regional Office, October 2004).

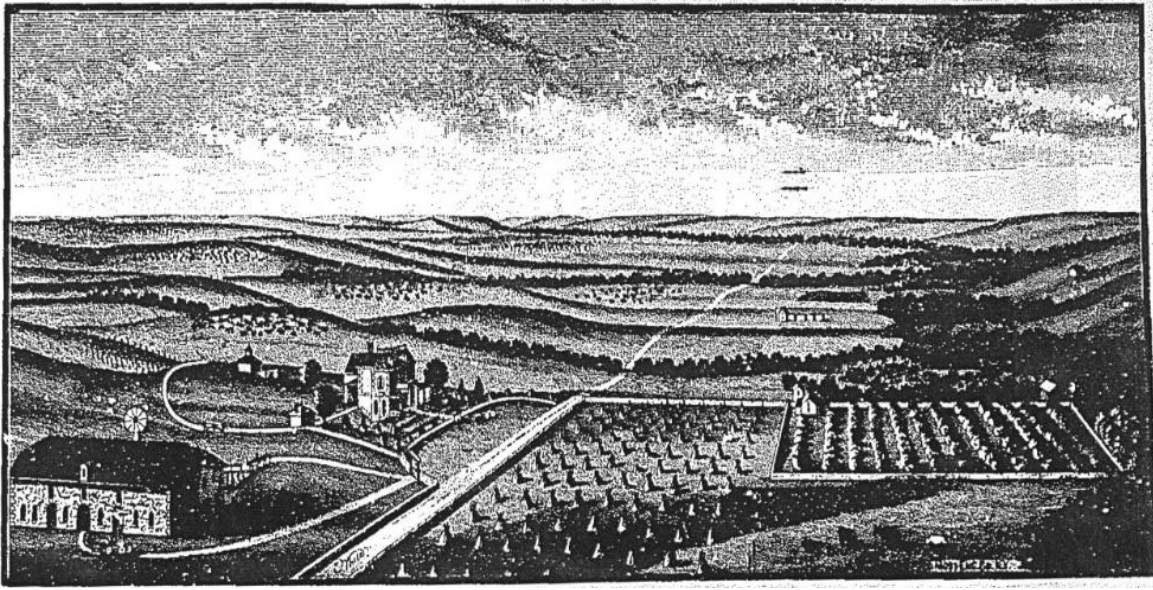


Figure 2-1. Circa-1883 lithograph of the ranch headquarters showing vegetation around the house (*The Kansas Picture Book*, 1883).



Figure 2-2. Detail of a 1908 postcard depicting the main ranch buildings and vegetation (TAPR Archive).



Figure 2-3. 1956 aerial depicting the ranch headquarters and extent of the cedar windbreak. The main road is at the right edge of the image (TAPR Archive).



Figure 2-4. Front entrance on the east facade of the main house, likely post-1935 (Collection of Edith Seyfert Kinucan).

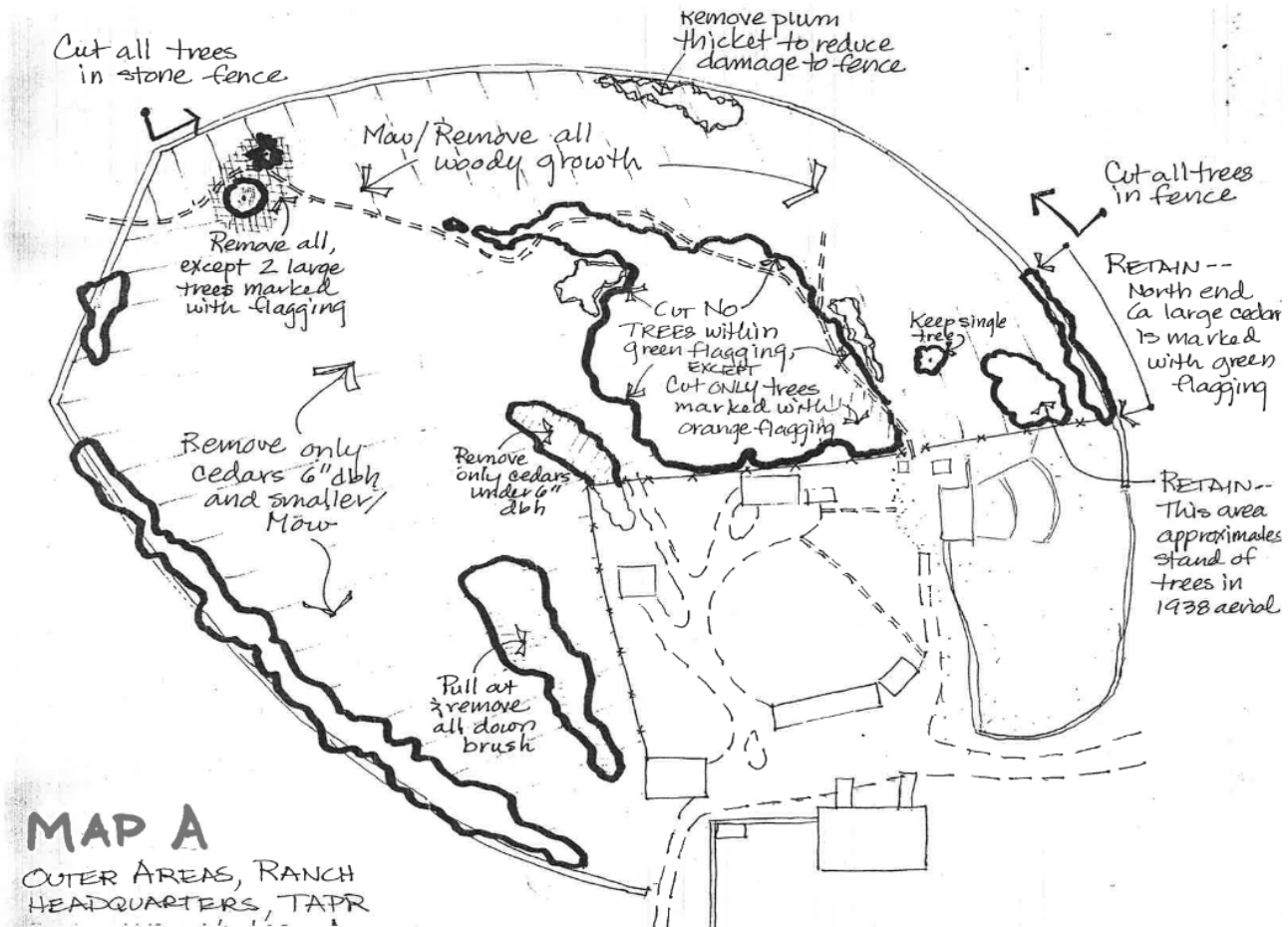


Figure 2-5. Recommendations for tree removal outside of noted historic tree locations (Sherda Williams to Superintendent, Midwest Support Office, Trip Report, January 21-22, Tallgrass Prairie, Memorandum, February 9, 1999).

SIGNIFICANCE

The CLR evaluation of the Preserve suggests that the Tallgrass Prairie National Preserve landscape is nationally significant under Criterion A for its relationship to the “broad patterns” of history in the area of agriculture. The Preserve also is locally significant under Criterion B for its association with Stephen Jones and Barney Lantry, both regionally important businessmen who helped transform Chase County’s economy. The architecture of the Spring Hill/Z Bar Ranch headquarters is nationally significant under Criterion C. Lower Fox Creek schoolhouse, Deer Park Place, and other concentrations of cultural resources within the Preserve contain examples of distinctive architectural characteristics and landscape features that may be locally significant under Criterion C. It is also likely that the Preserve possesses significance under Criterion D for the ability of its archeological resources to yield important information for the NHL period of significance and other historic periods as well as prehistory.

NATIONAL REGISTER STATUS AND PERIODS OF SIGNIFICANCE

The Spring Hill/Z Bar Ranch headquarters was recognized as a National Historic Landmark (NHL) on February 18, 1997, for its representation of the transition from open rangeland to the enclosed holdings of large cattle companies during the 1880s and for the architecture of the Spring Hill/Z Bar Ranch headquarters buildings and the Lower Fox Creek schoolhouse. The NHL nomination notes that the Spring Hill/Z Bar Ranch possesses significance in the areas of architecture and agriculture during the period 1878–1904, which encompasses the years Stephen Jones and Barney Lantry were adjacent property owners or in residence on their Chase County lands.²

Taking into consideration local significance as well, the CLR recommends the period of significance for the Preserve as ca. 1856 to 1970. This extended period reflects the understanding that the Preserve’s cultural landscape is a result of a long continuum of cultural use and adaptation to the natural environment. The 1856 beginning date coincides with early Euro-American frontier settlement in the region and the first recorded examples of cultural adaptations to existing natural conditions; this date, however, could be extended to earlier documented prehistoric human uses with sufficient contextual study. The local period of significance begins in 1856, spans the NHL period of significance (1878–1904), and extends to 1970. This twentieth-century period encompasses Benninghoven ownership; fragmentation of the ranch; the Dustbowl and Great Depression-era reconsolidation as a cattle ranch; and mid-twentieth-century corporate ranching. The end date of the recommended period of significance, 1970, coincides with the decline of the importance of railroad transportation to cattle ranching in Kansas, significant changes in the regional agricultural economy, and the death of Fred Howard, Sr., who was the on-site manager of the property since 1935. The destruction of the corral area and removal of the railroad spur line shortly thereafter severed a century-old relationship between cattle ranching and the Atchison, Topeka & Santa Fe (AT&SF) rail line out of Strong City.³

2 Wolfenbarger, Deon K. and Dale Nimz, Spring Hill Ranch, National Register of Historic Places Nomination Form, March 5, 1996.

3 Summarized from Bahr Vermeer Haecker Architects, “Tallgrass Prairie National Preserve Cultural Landscape Report” (National Park Service, Midwest Regional Office, October 2004).

This page intentionally left blank.

CHAPTER 3: CONDITION ASSESSMENT AND EXISTING CONDITION DRAWINGS

This chapter presents an updated assessment of cultural landscape conditions based on field investigations conducted by Quinn Evans and Vireo in October and November 2023. The existing condition of the study area, including the APE and all features documented during field investigations, is illustrated on drawing EC-1.

The existing conditions of landscape features at the Spring Hill/Z Bar Ranch are assessed according to landscape characteristics. Landscape characteristics are the tangible and intangible features and elements of a landscape that, individually and collectively, give a landscape character and aid in understanding its cultural value.¹ The landscape characteristics relevant to the study area include:

Buildings and Structures are three-dimensional built features such as houses, outbuildings, walls, fences, and edging. In the landscape, these features create mass and scale and contribute to character with their style and appearance.

Circulation consists of the features and materials that constitute systems of movement including vehicular routes such as roads and parking areas and pedestrian routes such as walks and trails.

Vegetation is indigenous or introduced trees, shrubs, vines, ground covers, herbaceous plants, and lawn.

Natural Systems and Features are those natural aspects that have influenced the development and physical form of the study area, particularly its hydrology.

Views are groupings of features that create or allow a range of vision, which can be natural or designed and controlled.

Small-Scale Features are landscape elements that provide specific functions at the site. These include fences, signs, water pumps, lighting fixtures, flagpoles, and benches, among others.

Spatial Organization is the arrangement of elements creating the ground, vertical, and overhead planes that define and create spaces such as terracing, utilities, and fencing.

1 Page, Gilbert, and Dolan, *A Guide to Cultural Landscape Reports*, 139.

The assessment is provided in a table format that documents CRIS and FMSS data, evaluation status, current condition, and potential affects to integrity proposed by the CCTP for each landscape feature or aspect. The data in this table ties directly to Section 3 and Section 5 of the HPPD summarized in Chapter 2 and found in the appendix of this report.

The existing condition of the landscape is evaluated using the following criteria:

Good: There are no major problems and the features do not require intervention. Only minor or routine maintenance is needed.

Fair: Some deterioration, decline, or damage is noticeable; the feature may require immediate intervention. If intervention is deferred, the feature likely will require attention within five years.

Poor: Deterioration, decline, or damage is serious; the feature is seriously deteriorated or damaged or presents a hazardous condition. The feature requires extensive and immediate attention.

Condition assessments provided in this report are specific to the role of the feature or aspect in the cultural landscape and do not provide assessment of building condition, structural stability, or program utility.

OVERALL LANDSCAPE EXISTING CONDITION

The APE within Tallgrass Prairie National Preserve includes a variety of features, many of which are historic, in good to fair condition, and contribute to the integrity of the cultural landscape. Overall landscape existing condition is illustrated in Drawing EC-1 and Figure 3-1 through Figure 3-5.

The overall landscape within the APE reflects the site's history as a residence and working ranch. The setting around the main house and outbuildings, including shade trees, ornamental vegetation, stone walls, and stone fences convey the character of the impressive ranch headquarters. Stone retaining walls form a series of terraced gardens that create a dramatic view of the main house, though many mature trees are missing from this landscape. Stone fences have been rehabilitated in many locations, which aids in the interpretation of the historic landscape. In the larger landscape, the cedar windbreak serves its intended purpose and conveys historic character, and the transition from manicured, residential landscape to working ranch and prairie is legible. In general, while vegetation types are retained, many mature trees are dead or declining due to land use, changing climate conditions, and fire and storm damage.

Climate Change Treatment Plan

Tallgrass Prairie National Preserve
Chase County, KS

Area of Potential Effect
Existing Condition Site Plan



National Park Service
Midwest Region

Sources

- 1. Survey data collected by Quinn Evans and Vireo. Individual trees shown represent those inventoried/assessed.
- 2. Contours generated using NPS elevation data.
- 3. Aerial imagery courtesy of DASC, 2023.

Drawn By

Quinn Evans, ArcGIS Pro 3.1, 2024

Legend

- | | |
|----------------------|-----------------|
| Cedar Windbreak | APE Boundary |
| Concrete Walkway | Building |
| Lawn | Stairs |
| Mixed Prairie | Bench |
| Parking Area | Cattle Guard |
| Road Trace | Clothesline |
| Shrubland | Fountain |
| Wood Deck | Gas Pump |
| Gate | Gate |
| Post and Board Fence | Propane Tank |
| Post and Pipe Fence | Sign |
| Post and Wire Fence | Utility Pole |
| Stone Edge | Weather Station |
| Stone Fence or Wall | Dead Tree |
| Trail | Deciduous Tree |
| Wire Mesh Fence | Evergreen Tree |
| Major Contour | Shrub |
| Minor Contour | |

Notes

- 1. Projection: NAD 1983 UTM Zone 14
- 2. Contour Interval= 1 ft
- 3. Draft Version 1



This page intentionally left blank.

Landscape features that reinforce the overall character of the landscape within the APE retain integrity of location, design, setting, feeling, and association. Features are described at an overall scale organized by landscape characteristic below and individually in the following table.

BUILDINGS AND STRUCTURES

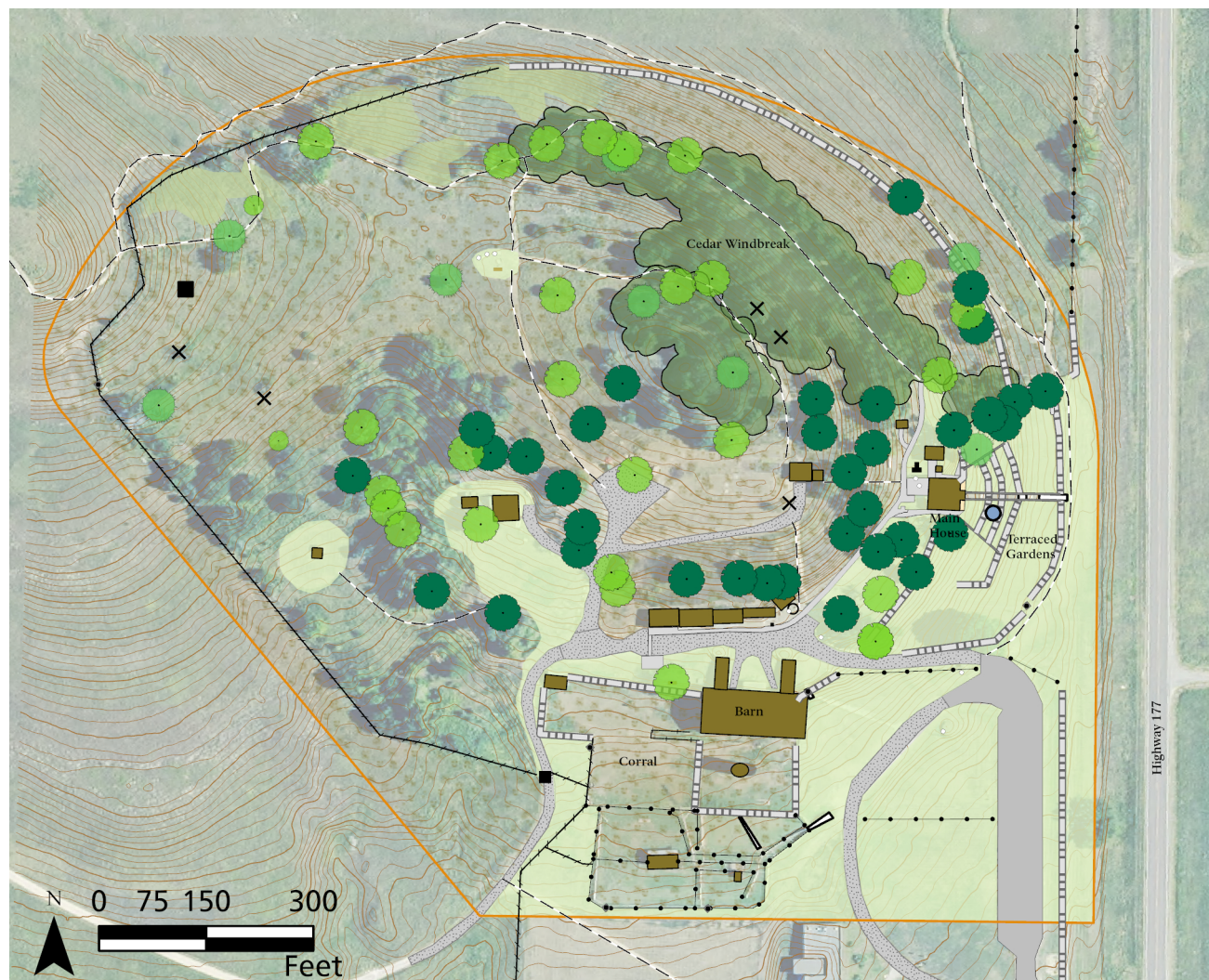
In general, historic buildings and structures are in fair to good condition. The barn and main house, along with a variety of outbuildings, convey the relationship of the residence to the working ranch during the period of significance.

CIRCULATION

Circulation within the APE boundary is composed of pedestrian paths and vehicular routes. Vehicular circulation is primarily ranch roads that have been altered over time to accommodate visitor use. Most roads have a gravel surface, with the exception of the parking area for the visitor center and accessible parking space and walkway located west of the barn. Pedestrian paths include more formal routes paved with gravel or concrete, which provide access to the main house and associated structures, and mown or earthen trails that navigate the larger cultural landscape around the former ranch headquarters. In general, circulation routes are in good condition and convey the character of the historic landscape.



Figure 3-1. Overview of house and lawn, including stone fencing and terracing, looking northwest (QE, 2023).



Legend

Cedar Windbreak	Post and Board Fence	Clothesline	Deciduous Tree
Concrete Walkway	Post and Pipe Fence	Fountain	Evergreen Tree
Lawn	Post and Wire Fence	Gas Pump	Shrub
Mixed Prairie	Stone Edge	Gate	Tree in historic location
Parking Area	Stone Fence or Wall	Propane Tank	APE Boundary
Road Trace	Trail	Sign	Building
Shrubland	Wire Mesh Fence	Utility Pole	Stairs
Wood Deck	Bench	Weather Station	
Gate	Cattle Guard	Dead Tree	

Figure 3-2. Existing trees in historic locations (QE, 2024).



Figure 3-3. Overview of house, shade trees, and rolling topography, looking northeast (QE, 2023).

VEGETATION

Vegetation in the study area varies from poor to good condition. Existing trees in historic locations convey the character of the historic landscape along with tallgrass prairie vegetation, the cedar windbreak, trees along fencelines, and ornamental shrubs, perennials, and bulbs around the main house. Trees in historic locations are illustrated in Figure 3-2.

NATURAL SYSTEMS AND FEATURES

In general, natural systems and features are in good condition. The topography around the main house is extant and contributes to the historic character of the landscape. Hydrologic changes following the period of significance are suspected due to a decline in certain vegetation species, such as walnut trees. Erosion due to increased stormwater flows threatens certain features such as the Upper and Lower Service Drives.

VIEWS

Important views in the study area are in good condition. Views from buildings and circulation routes to the surrounding tallgrass prairie landscape, as well as views to and from the main house, convey the historic character of the landscape.

SMALL-SCALE FEATURES

Small-scale features in the study area vary from poor to good condition. Historic features relate to ranching activities and design of the historic property and convey the character of the historic landscape.

SPATIAL ORGANIZATION

In general, spatial organization within the study area is consistent with historic conditions. The cluster of buildings and structures supporting the main house and barn reflect the site's use as a historic ranch and residence, and stone fences, walls, and terraces delineate working and ornamental landscape areas.



Figure 3-4. Overview of barn, silo, and corral looking northwest (QE, 2023).



Figure 3-5. Overview of ranch headquarters, looking northeast (QE, 2023).

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Buildings and Structures									
Main house	105991	100446	69887	Contributing	Good	The three-story, white limestone Second Empire house was constructed in 1881 as the first building in the ranch complex for the Jones family. David Rettiger of the stone quarry Emslie, Rettiger, & Company was the builder. The house has a mansard roof with gabled dormer windows. The facade is symmetrical with a crenelated cornice, stone quoining, and stone keystones and lintels. A full-width columned porch extends across the facade. Interior changes occurred during and after the period of significance but the overall integrity is good. There have been minimal exterior changes. It is now operated as a house museum with public interior access.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Curing room/spring house	105988	100467	71690	Contributing	Good	The white limestone curing room/spring house was one of several outbuildings constructed shortly after the house, ca. 1882, by the same builder. It is attached to the main house by a limestone tunnel. The building has a pyramidal hip roof with cupola and circular wall openings for ventilation. Today it is open for visual access and interpretation. The building has had minimal changes outside the period of significance, but mechanical systems on a concrete pad at the northern elevation have somewhat impacted the integrity.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Outhouse	105992	100454	71691	Contributing	Good	The outhouse was built in 1882 of the same white limestone as the house and other outbuildings. It has a pyramidal hip roof with cupola. Window and door openings are arched with keystones. The interior has three latrine seats and is open for visual access and interpretation.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Icehouse	105987	100455	71692	Contributing	Fair	The icehouse also dates to ca. 1882 and is of white limestone construction with a hip roof. Door and window openings were altered during the period of significance. It has wood barn doors on the southern facade and a wood double-hung six-over-six window. The other elevations have semicircular window openings. It is currently closed to the public and used as a maintenance shed.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Icehouse cistern	105990	100456	43449	Contributing	Fair	The cistern is built into the east side of the icehouse and was likely built at approximately the same time, ca. 1882. It is covered with sod. The visible architectural element is limited to a limestone parapet.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Scratch house	105997	289003	71686	Contributing	Fair	This ca. 1882 single-story outbuilding abuts shed #1 and the poultry house. It has limestone walls on three sides with wood framing and wood facade. The roof is gently sloping. The facade has two bays. Originally a sheltered area for chickens, it is now used to store maintenance equipment.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Poultry house	105993	100453	71685	Contributing	Good	The ca. 1887 poultry house is constructed of limestone. It has a sod-covered roof. Details include stone quoining and a slightly protruding limestone cornice-like ceiling supporting the sod roof. Windows are four-over-four or four-over-six wood units. The primary facade is four bays. The original floor has been replaced with concrete and skylights in the original roof have been infilled.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Carriage house	105054	100458	71687	Contributing	Good	The carriage house is one-and-a-half stories and has a front gable roof. It is constructed of white limestone and was built ca. 1910. The facade has two bay openings and wood cladding. There is a multi-light window in the gable end. The building is connected to the poultry house by a stone wall and is set into a sloping grade.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Barn	105053	100447	71684	Contributing	Good	Initially constructed ca. 1882, the barn underwent numerous alterations and updates throughout the period of significance. The barn is a three-story bank-style structure constructed of white limestone with a gambrel roof and gables. It is built into the sloping landscape with three floors; the first two exit to ground level and the third incorporates two stone and earth ramps that connect to ground level. Details include stone quoining and keystone arch door openings. The barn has both white and gray mortars, related to repointing efforts at different time periods. The interior of the barn has been rehabilitated for interpretive use.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Tunnel	106001	289036	46063	Contributing	Good	The limestone tunnel connects the spring house to the main house and was likely constructed at the same time as both buildings, ca. 1882. A door on the eastern side provides access to and from the yard.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Shed #2		289012	86933	Contributing	Good	Shed #2 is of limestone and timber construction and shares a party wall with shed #1. The exterior has metal cladding. Also likely used in poultry operations when constructed ca. 1882, it has changed significantly over time and has most recently been converted into bathroom facilities.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Shed #1				Contributing	Fair	Shed #1 shares a party wall with both the scratch house and shed #2. Based on the shared wall, it was likely also built ca. 1882. It was likely used as part of the poultry operation and is now used as maintenance storage. It has timber posts and siding and a metal corrugated roof. The building has been altered significantly over time to accommodate different uses.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Chute shed	105318	289010	82332	Contributing	Fair	The metal-clad chute shed has a front gable roof. The build date is not recorded but the building likely dates to ca. 1950. The metal cladding and wood members show signs of rust and weather damage.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Ranch hand house	105994	289013	71693	Contributing	Fair to Poor	The ranch hand house was moved from another ranch in the area at an unknown time. The building itself dates to ca. 1950. It is a one-and-a-half story house with a side gable roof. The building is clad in wood board-and-batten siding. There is a one-story ell addition on the north elevation. The interior is not accessible, but it is used for storage and has not been maintained as a habitable space. The building envelope and foundation show signs of deterioration. Overall the building is in fair to poor condition.		No anticipated direct impact. Fire risk reduction will support protection of contributing buildings and structures within the study area.	Treatment of buildings and structures not included within this project scope.
Walls, Fences, and Edging									
Retaining walls forming garden terracing	105995	100444	46061	Contributing	Good	The garden terraces were an original designed element of the Jones's Spring Hill Ranch landscape. Represented in an 1887 lithograph, the retaining walls are depicted as mixed rectangular stone walls arranged in concentric arcs creating a series of four terraces. While some walls have been rehabilitated over time and some new sections have been mortared together rather than dry laid, the character of the stone retaining walls is intact and condition is good. The retaining walls' height appears lower than indicated in the 1887 lithograph and it is possible that soil has built up in place over time.		No anticipated direct impact. New tree plantings noted in the vegetation section should be installed a minimum of 15' away from the terrace walls to limit any disturbance from tree root intrusions.	Treatment of walls, fences, and edging not included within this project scope.
Ranch—dry-laid stone fences		289037	46062	Contributing	Varies	Stone fences were utilized to define property and pasture boundaries on the Spring Hill Ranch land starting in the late 1870s. The fences were constructed with locally quarried limestone, dry laid in a horizontal pattern, often with vertically-arranged stones as capstones. Many lengths of stone fence have been rehabilitated by local stonemasons trained on site. Those that have been rehabilitated are in good condition while those that have not are in fair to poor condition.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope.
Stone retaining walls—north corral fence		289005		Contributing	Good	The stone fence on the northern side of the corral was the first section of stone fence to undergo rehabilitation. Local stone masons were trained during this project and have returned to continue the work for subsequent sections. The wall includes traditional horizontally laid courses. The fence is in good condition.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope. The black walnut tree adjacent to the stone fence, which provides shade for visitors, should be replaced when it dies. See Chapter 6 for guidance and a list of appropriate replacement species.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Limestone blocks forming edging and steps in terraced gardens	97040	289002	41776			Limestone block edging was included as a part of the initial design of the terraced gardens. While appearing to sit higher out of the surrounding landscape in the 1887 lithograph, the edging is in good condition and connects the outer edges of the walkway around the house to the outer edges of the retaining walls for the three upper terraces. The edging meets the third terrace retaining wall at the northern and southern extents of the decorative iron fencing, where the wall style changes slightly.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope.
Stone fences	97056	289037	46062		Varies	Stone fences were utilized to define property and pasture boundaries on the Spring Hill Ranch land starting in the late 1870s. The fences were constructed with locally quarried limestone, dry laid in a horizontal pattern, often with vertically arranged stones as capstones. Many lengths of stone fence have been rehabilitated by local stonemasons trained on site. Those that have been rehabilitated are in good condition and those that have not are in fair to poor condition.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope.
Decorative iron fencing	97036			Contributing	Good	Decorative iron fencing is located along the top of the third terrace retaining wall. The fencing is approximately 30 inches tall and includes two gates that span the central path where limestone stairs descend from the third terrace to the fourth terrace closest to Highway 177. The existing fencing is in good condition and has likely been replaced since originally constructed. However, the design of the fencing closely resembles that represented in an 1887 lithograph of the property and contributes to historic character.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope.
Post and wire fences	97049			Contributing	Fair	Post and wire fences were available beginning in the 1870s and photographs indicate they were present on the ranch since at least 1938. A cheaper alternative to the preceding century's stone fences, extant post and wire fences follow historic stone fencelines where their condition is poor. Posts vary between metal and wood with a grid of barbed wire.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope.
Osage orange fenceposts	97047			Contributing	Poor	The narrow post to the left of the image represents a typical extant Osage orange fencepost. Characterized by a slightly irregular form, Osage orange wood is dense, resistant to rot, and locally available, making it an attractive material for fenceposts. Extant fenceposts are in poor condition due to natural aging of the material.		No anticipated direct impact.	Treatment of walls, fences, and edging not included within this project scope.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Circulation									
Stone steps and front walkway on terrace		289002	41776	Contributing	Good	The steps leading to the front door of the main house are constructed of limestone blocks flanked by two fluted stone columns. Three blocks that formed portions of the lower steps have been replaced in kind. The wooden decking that comprises the top two stairs and metal handrails were added following the period of significance and do not contribute to historic character.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.
Main entrance walk leading to front of main house				Contributing		The axial entrance walk leading through the terraced gardens to the front door of the main house was an integral feature of the initial house and landscape design. It is unclear what the initial paving material was for the path, but it has been covered with turfgrass since at least the mid-1930s. Limestone block edging is in place but is partially covered with grass, making the walkway less legible.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.
Main house perimeter stone walks and steps	106014			Contributing	Good	The walkway and steps that trace the perimeter of the main house were a part of the initial design and construction of the property. They are extant and allow for circumnavigation of the house, conveying the initial design intent. Repairs have occurred at various points, utilizing concrete and limestone, so overall condition is good.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.
Highway 177 current alignment				Non-contributing					
Highway 177 historic alignment	106008			Contributing	Fair	The historic alignment of Highway 177 is legible via the extant grading from the original road trace (shown right, flat plane in front of stone fence). The landform is not interpreted and is difficult to discern.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.
Main Entrance Drive	106012				Good	This section of roadway connects the site entrance on Route 177 with the main parking area and visitor center. It has a primarily concrete surface that forms two one-way loops for both authorized and recreational passenger vehicles. The western half of the northern loop has crushed limestone paving.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.
Access Drive to Lower Service Drive	106003					The Access Drive connects the Main Entrance Drive and main parking area to accessible parking spaces located northwest of the barn and connects to the Lower Service Drive. It has a crushed limestone surface, which is damaged by erosion on the steep slope that leads to the barn and accessible parking area.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Upper Service Drive	91820				Fair/Good	The Upper Service Drive splits from the lower service drive past the restrooms, heading north when the Tour Road splits to the south. It has a crushed limestone surface that is damaged by erosion where slopes are steepest. Park vehicles stray from the road surface and park under shade trees, causing damage to vegetation and spreading the crushed stone road surface beyond the roadbed.		No anticipated direct impact.	Treatment of circulation features not included within this project scope.
Southwind Nature Trail		106019	ADD	Non-contributing		The Southwind Nature Trail is maintained both as a trail for visitor experience and as a firebreak. The trail consists of a 6'–8' mown grass surface along the east and north sides of the APE.			
Vegetation									
Tallgrass prairie vegetation over majority of the site	97064				Fair	The tallgrass prairie vegetation within the APE was dormant during the time of field investigation. It appears to consist primarily of native warm season grasses (Indian grass, big bluestem, switchgrass, little bluestem, and sideoats grama), forbs, and some cool season grasses (fescue and smooth brome). The seedheads of several forb species were observed, including goldenrod, rough blazing star, milkweed, and asters. Several shrubs were observed within the tallgrass prairie, including the following: • Dogwood thicket along the walking trail to the west of the cedar plantation. • Scattered smooth sumac groupings along the stone fence line. • A large smooth sumac thicket to the west of the main house and outbuildings. Dead trees and scattered debris piles of dead tree limbs were observed throughout the prairie vegetation and enhance the risk of fire.		Treatment will improve integrity of contributing vegetation type.	Remove dead trees within prairie vegetation as necessary. Snag trees (standing dead or dying trees) may remain in place to serve as habitat on a case-by-case basis, provided they are not a hazard to existing buildings or people. Remove all existing brush piles and debris within prairie vegetation as soon as possible. Brush piles should be hauled away and disposed of in accordance with local and state regulations. Burning of the brush piles on site is not recommended. However, burning could occur under an approved burn plan or in conjunction with prescribed burns of the prairie. Burning should be supervised by trained fire staff. Remove any future vegetative debris within three to six months of being created. Remove shrub thickets. For thickets within prairie vegetation, prescribed fire in conjunction with herbicide applications should be used as a management tool.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Cedar plantation, Spring Hill/Z Bar Ranch headquarters	97060				Cedar tree conditions range from poor to good. Walnut tree conditions are consistently poor.	The cedar plantation is situated to the north of the main house and outbuildings. It curves around on north- and east-facing slopes with a gravel walking path cutting through the trees. The plantation is populated with eastern red cedars, which serve as the dominant overstory species. The cedar trees vary in age, size, and condition. The density of the cedars varies throughout the plantation, with areas of open space to walk between the trees while other areas have trees growing together in close proximity, almost on top of one another. The cedars’ consistent canopy coverage provides a unique, woodland-like landscape experience. Dead trees, broken and fallen limbs, and scattered limb debris were observed consistently throughout the plantation and contribute to the fire risk. Some cedar trees were observed with low branches, which could serve as ladder fuels for fire. Walnuts appear to be the most common deciduous shade tree appearing within the plantation. Many of the walnuts appear to be dead or in poor condition. The understory vegetation consists of an herbaceous layer comprised primarily of native warm season grasses with scattered forbs.		Treatment will improve the condition of the contributing vegetation feature. New conifer species outlined in the Alternate Coniferous Trees for Cedar Windbreak list in General Recommendation #4 are compatible with the historic character of the cedar windbreak while also possessing drought tolerance and capacity to adapt to climate change.	Remove all dead walnuts and eastern red cedars within the historic context of the windbreak. Remove all live eastern red cedars, regardless of condition, outside of the historic context of the windbreak. Remove all existing brush piles and debris within the windbreak as soon as possible. Brush piles should be hauled away and disposed of in accordance with local and state regulations. Burning of the brush piles on site is not recommended. Remove any future vegetative debris within three to six months of being created. Perform selective pruning to remove dead or dying branches to improve safety, enhance appearance, and improve the trees’ overall health. Remove those cedars with extensive damage affecting their viability and replace within the historic context of the windbreak. Perform selective pruning to remove lower branches of the existing cedar trees to at least twice the height of surrounding grass vegetation to help reduce ladder fuels.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Shade trees around house and outbuildings, Spring Hill/Z Bar Ranch headquarters	97063				Walnut tree conditions range from poor to fair. Other shade tree conditions range from poor to good.	A mix of deciduous shade trees is found to the north, south, and west of the main house, with walnuts appearing to be the most abundant species. Picnic tables and benches have been located around the house and outbuildings to take advantage of shade from the trees. Most of the walnuts appear to be in fair to poor condition, with apparent dieback and damage to trunks and limbs. Several walnuts were observed to be dead. The decline of the walnuts is attributed to Thousand Cankers Disease affecting black walnuts, which was confirmed in the county according to the November 2022 Fact Sheet provided by the Kansas Forest Service. One large cottonwood tree is present at the southernmost picnic area and has a large cavity present where it has lost a major limb. Additional deciduous shade trees include hackberries, elms, mulberries, and Kentucky coffeetrees. The conditions of these trees vary from poor to good. A few cedar trees and a pine tree are also present. Cottonwoods and elm trees consistently appear along the drainageway to the west of the main house and outbuildings. These trees appear to be in fair to poor condition. A few trees are located in close proximity to buildings and walls.		Treatment will improve the condition of the contributing vegetation feature. New deciduous species outlined in the deciduous tree lists for Z Bar Ranch headquarters in General Recommendation #4 are compatible with the historic character of the plantings while also possessing drought tolerance and capacity to adapt to climate change.	Remove and replace trees with extensive damage and/or dead limbs that reduce historic character and viability of the trees. Perform selective pruning to minimize tree branches touching or overhanging buildings. Ensure pruning results in a balanced canopy. If required pruning would severely alter the long-term health and/or appearance of the tree, then the tree should be considered for removal and replacement.
Trees along fencelines	97065				Poor to fair	Both deciduous and evergreen trees are found along the stone fence, which curves around the northern side of the main house, outbuildings, and cedar plantation. Along the section of stone fence located near the house, a mixed deciduous tree grove (walnuts, elms, and redbuds) with volunteer cedar trees was found within the fence line. The condition of these trees appears to range from poor to fair, with the walnut tree conditions consistently being poor. The remaining trees appear to be in fair condition. These tree conditions appear to range from poor to fair, with the walnut tree conditions consistently being poor. These trees appear to be in fair condition. Just beyond the tree grove, a few solitary cedar trees are growing immediately adjacent to the stone fence. The final third length of the stone fence, which appears to be loose stacked stone, has a vegetative thicket of deciduous trees and shrubs encroaching on the fence and, in some cases, growing within gaps in the stone.		Treatment will improve the condition of contributing vegetation.	Remove existing cedar trees regardless of condition. Cedars should be mechanically removed by cutting below the bottom most branch. Replace walnuts and other deciduous trees in grove north of house with trees from the list in Chapter 6. Remove shrub thickets within and adjacent to stone walls by a combination of mechanical and herbicide treatments.
Scattered trees at water sources	97062			Non-contributing		Not applicable within the APE.			

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Ornamental shrubs, perennials, and bulbs at Spring Hill/Z Bar Ranch headquarters	97061			Undetermined to due dormancy of plantings during time of field visit.		Many of the ornamental plantings were dormant during the time of field investigation, but they do not appear to be a significant vegetative feature. Yucca clumps were observed along the stairs and retaining walls forming the garden terrace. Iris clumps were observed along the southern side of the main house.		Treatment will improve the condition of contributing vegetation.	Reestablishment of shade trees along the terraces will improve historic context of ornamental plantings at the ranch headquarters.
Views and Vistas									
Views to and from the main house				Contributing	Good	The view to the main house includes the house located prominently on a knoll overlooking a series of walled earthen terraces, surrounded by a cluster of outbuildings, mature shade and ornamental vegetation, and the cedar windbreak. These same features are viewed from the main house, with the larger tallgrass prairie in the background. See Drawing EC-1.		Treatment will improve the integrity of contributing views by rehabilitating the condition of shade trees framing views to and from the main house.	Install regularly spaced deciduous shade trees along lower terrace walls to represent the historic character of the terraces.
Views from ranch buildings to surrounding tallgrass prairie				Contributing	Good	The views from the ranch buildings to the surrounding prairie includes landform, big blue sky, grasses, creeks, and springs, punctuated by limestone outcrops. This has changed little since the NHL period of significance, though ongoing cattle grazing and burning practices over the last century may have given the vegetation a more uniform appearance than might have existed during early settlement.		Treatment will improve the integrity of views to the surrounding tallgrass prairie.	Remove dead trees to the north and west within prairie vegetation. Remove existing cedars which are outside the historic limits of the cedar windbreak. Remove shrub thickets.
Small-Scale Features									
Stone fountain on terrace		289001	41775	Contributing	Fair/Poor	The stone fountain on the main house terrace was a part of the initial design for the property and is shown in the 1887 lithograph. It is unclear if the feature functions, but it appears to be in fair to poor condition with cracked mortar and loose stonework.		No anticipated direct impact.	Treatment of small-scale features not included within this project scope.
Loading chute					Fair	The loading chute was used as a part of twentieth-century ranching activities. It is no longer in use but contributes to visitor understanding of the landscape as a working ranch.		No anticipated direct impact.	Treatment of small-scale features not included within this project scope.

This page intentionally left blank.

TABLE 2: CURRENT CONDITION ASSESSMENT OF LANDSCAPE FEATURES									
Feature Name (Historic Property in APE)	CLI Feature ID	CRIS-HS Record Information	FMSS Record Number (Location /Asset records)	Evaluation Status	Current Condition	Condition Narrative (Impacts identified)	Existing Condition Graphic Reference	Proposed Treatment Effect to Integrity (for contributing features only)	Scope of Project
Concrete troughs						In corral area—not evaluated		No anticipated direct impact.	Treatment of small-scale features not included within this project scope.
Metal watering bins/catchment basins						In corral area—not evaluated		No anticipated direct impact.	Treatment of small-scale features not included within this project scope.
Snubbing posts				Contributing	Good	Two limestone snubbing posts are located on the north and south sides of the limestone steps leading from the lower terrace toward the main house. They include metal detailing at the top and are integrated with the stone steps.		No anticipated direct impact.	Treatment of small-scale features not included within this project scope.
Standing water pumps				Contributing	Good	In corral area—not evaluated		No anticipated direct impact.	Treatment of small-scale features not included within this project scope.
Spatial Organization									
Corral	105986	1004542	46065	Contributing	Good	The corral, located north of the visitor center and south of the barn, is comprised of a wooden post and metal rail fence enclosure. The area includes the scale house and chute shed structures and is typically occupied by a single horse. It is in good condition.		No anticipated direct impact.	Treatment of corral not included within this project scope.
Terraced gardens				Contributing	Good	The terraced gardens east of the main house are an important feature that defines the spatial arrangement of the study area. The terraces form a grand entry to the house, formalizing the naturally sloped topography and amplifying the scale of the house in relation to the road from which it was designed to be viewed and surrounding landscape. The remaining trees in the terraces further push the sense of verticality in the landscape and the formality of the landscape surrounding the house. See Drawing EC-1.		Treatment will improve legibility of historic spatial organization.	Reestablishment of shade trees in historic locations will support understanding of contributing spatial organization.

This page intentionally left blank.

CHAPTER 4: CLIMATE CHANGE TRENDS, IMPACTS, AND VULNERABILITIES

Documenting and evaluating climate change trends, impacts, and vulnerabilities is critical to the development of a climate change treatment plan for the Tallgrass Prairie National Preserve. The goal of the treatment plan is to highlight vulnerable resources currently or potentially threatened by climate-driven environmental changes, such as flooding, erosion, vegetative community changes, and fire.

At the national level, a growing collection of scientific research focused on climate change in US national parks has been published in peer-reviewed journals and through the Intergovernmental Panel on Climate Change (IPCC). Published field research from national parks has contributed to the detection of twentieth-century physical and ecological changes and to the attribution of the cause of those changes to human-induced climate change. According to the IPCC, if we do not reduce greenhouse gas emissions from power plants, cars, and deforestation, continued climate change may fundamentally alter many of the globally unique ecosystems, endangered plant and animal species, and physical and cultural resources that national parks protect.¹

Gonzalez notes that in order to answer the basic question of whether a species, resource, or ecosystem is changing, there must be statistically significant changes over time. By analyzing the relative weights of different causal factors, we can guide resource management toward the predominant factor that is causing change.

TRENDS AND IMPACTS

Information on climate trends for Chase County, Kansas, was sourced from the National Oceanic and Atmospheric Administration (NOAA) Monthly US Climate Divisional Database, which provides data for temperature, precipitation, drought indices, and heating and cooling days.² Data from 1895 to the present is available for states and counties across the nation.

-
- 1 Patrick Gonzalez, "Climate change trends, impacts, and vulnerabilities in US national parks," in *Science, Conservation, and National Parks*, ed. S. R. Bessinger, D. D. Ackerly, H. Doremus, and G. E. Machlis (Chicago: University of Chicago Press, 2016).
 - 2 USA Facts. 2023. Climate in Chase County, Kansas. Available at: <https://usafacts.org/issues/climate/state/kansas/county/chase-county/>. Accessed January 3, 2024.

The average yearly temperature trend for Chase County has increased 1°F from May 1900 to April 2023, with a yearly average of 54.8°F. During this time frame, the warmest yearly average was from June 2011 to May 2012 at 59.4°F, and the coolest yearly average was from February 1917 to January 1918 at 51.1°F. The graph in Figure 4-1 shows the variation in yearly temperatures for this time period.

The yearly precipitation total from May 1900 to April 2023 increased 1.3 inches, with a yearly total of 33.3 inches. The wettest yearly total was September 2018 to August 2019 at 55.3 inches, and the driest yearly total was December 1935 to November 1936 at 16.6 inches. The graph in Figure 4-2 below shows the variation in total yearly precipitation for this time period.

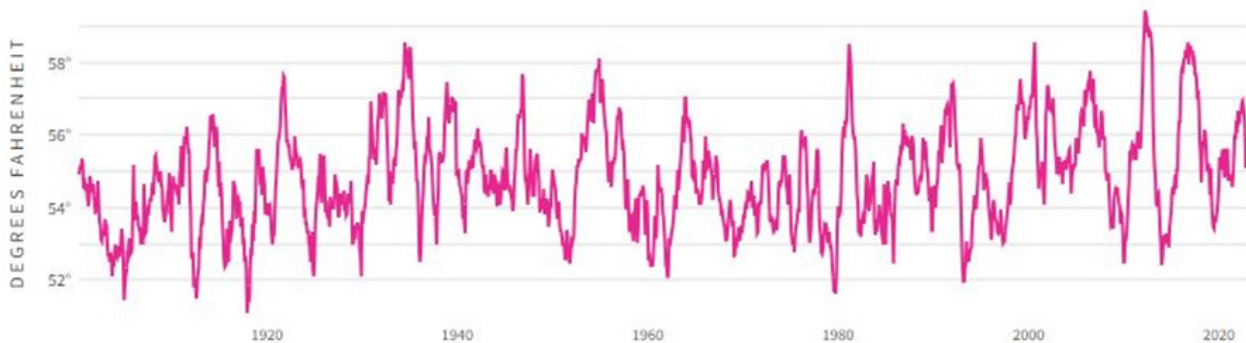


Figure 4-1. Graph illustrating yearly temperature averages in Chase County, Kansas from 1900–2023.

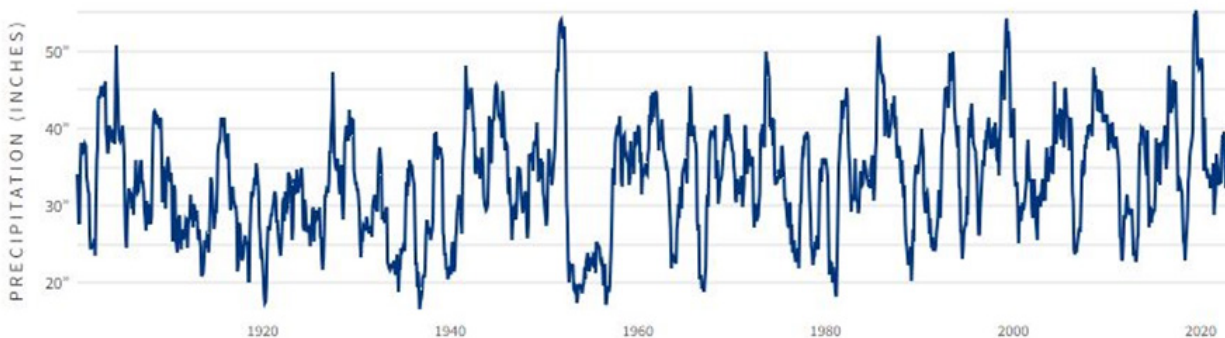


Figure 4-2. Graph illustrating total yearly precipitation averages in Chase County, Kansas from 1900–2023.

CLIMATE CHANGE IN KANSAS

The NOAA Centers for Environmental Information provides climate summaries at the state level. The 2022 climate summary for Kansas (NOAA 2022) notes the following conditions that will impact the state in the future:

- Temperatures have risen about 1.5°F since the beginning of the twentieth century, with greater warming in the winter and spring than in summer and fall. The number of very cold nights has been below average since 1990. Under a higher emissions pathway, unprecedented warming is projected during this century.
- Kansas is in a region of transition between humid conditions to the east and semiarid conditions to the west, and as a result, precipitation in the state varies greatly from year to year. Projected increases in winter precipitation and decreases in summer precipitation may have both negative and positive impacts.
- Severe thunderstorms are common in Kansas due to the state's geography, which allows cold, dry air from the north to combine with warm, moist air from the Gulf of Mexico. While the frequency of extreme precipitation events has been highly variable, it shows a general upward trend.
- Droughts and heat waves pose a particular risk to Kansas's agricultural economy. Projected increases in temperatures may increase the intensity of future droughts. The frequency and severity of wildfires is also projected to increase.

The map in Figure 4-3 shows projected changes in total summer (June–August) precipitation (%) for the middle of the twenty-first century compared to the late twentieth century under a higher emissions pathway, which would occur if concerted efforts are not made to cut green house gas emissions. Whited-out areas indicate that the climate models are uncertain about the direction of change. Hatching represents areas where the majority of climate models indicate a statistically significant change. In Kansas, summer precipitation is projected to decrease in the range of 5% to 10% by 2050, although the changes are statistically significant only in the central part of the state. Sources: CISESS and NEMAC. Data: CMIP5.

Projected Change in Summer Precipitation

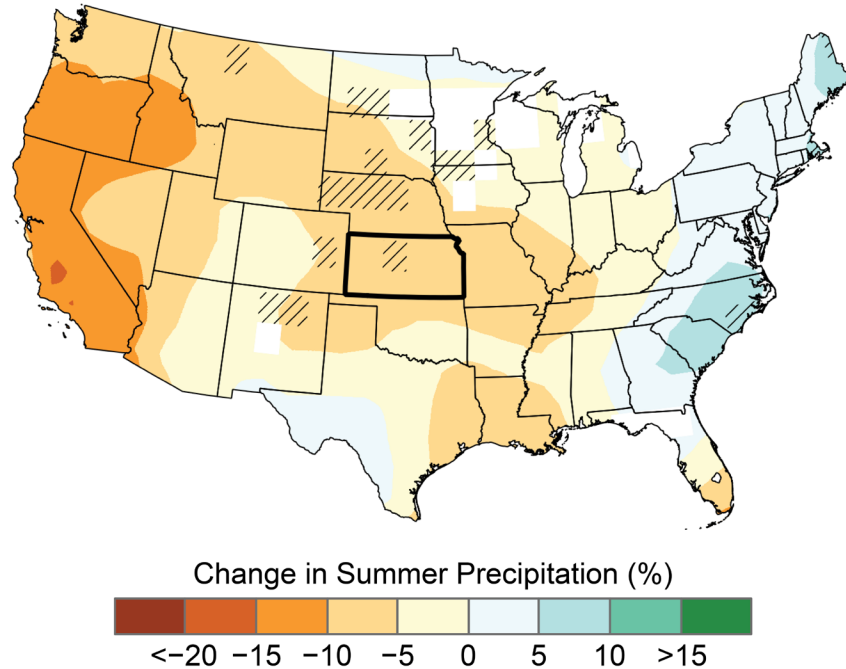


Figure 4-3. Map illustrating projected change in summer precipitation for Kansas (NOAA National Centers for Environmental Information, <https://statesummaries.ncics.org/chapter/ks/>).

Climate changes can have both physical and ecological impacts. Gonzalez notes that there has been a statistically significant increase in global temperatures and other climate changes since 1850, with the cause attributed to an increase in atmospheric concentrations of carbon dioxide (CO₂) and other greenhouse gases.³ Additionally, seasonal shifts are occurring, including an advance of spring warmth and stream flow by one week. Vegetative communities within the Preserve are and will continue to be influenced by these changes. Most notably, vegetative species will need to be more heat and drought tolerant. Thus, species like black walnut and cottonwood, which are generally associated with stream corridors and moist soils, likely will not survive in the future and if replaced will need more appropriate species selection.

³ Gonzalez, "Climate change trends, impacts, and vulnerabilities in US national parks."

FUTURE VULNERABILITIES

Vulnerability, as defined by the IPCC, is the propensity or predisposition to be adversely affected by change and consists of three components that are most relevant to the national parks: exposure, sensitivity, and the adaptive capacity.⁴ Exposure is the degree to which resources are affected or uncovered due to climate change, such as glacial melting exposing cultural resources. Sensitivity and adaptive capacity relate to the how much a system is affected (positively or negatively) by climate change and the ability of that system to change or adapt to those conditions.

Climate projections for the future focused on US national parks indicate that potential twenty-first-century heating would be two to six times the magnitude of historical twentieth-century warming, along with increases in precipitation and a frequency increase of three to ten times historic frequency for wildfires. While warmer and wetter conditions render many ecosystems vulnerable to the increased spread of invasive species, under higher greenhouse gas emissions hotter temperatures and drier conditions could increase the frequency of wildfires.⁵

CLIMATE CHANGE AND VEGETATION ISSUES AND CONSIDERATIONS

Issues and considerations affecting the desired future condition and management of the cultural landscape in response to climate change impacts were documented through the project scope of work, October 2023 project kickoff meeting, and October–November 2023 field investigations. The issues and considerations build on treatment recommendations provided by the 2004 CLR.

VEGETATION

- Guidance is desired for management of the many cedar trees that are over mature, encroaching on historic structures, and fire prone.
 - Maintaining a windbreak in a fire-threatened environment (defensible space) is a concern.
- NPS is concerned about what factors are contributing to the decline of the walnut trees on site.
- Recommendations are needed for declining and missing tree specimens as to whether replacement in kind is a suitable approach.
 - With climate change, pursuing a historic vegetation condition may not make sense.

4 Gonzalez, “Climate change trends, impacts, and vulnerabilities in US national parks.”

5 Gonzalez, “Climate change trends, impacts, and vulnerabilities in US national parks.”

- High wind speeds can make trees in fair to poor condition hazardous to buildings and other structures due to falling limbs or whole trees damaging structures and potentially injuring people.
- The large elm tree that died in front of the visitor center is an example of a historic specimen tree for which NPS is unsure if replacement in kind is appropriate.
- Another example is the missing pine trees on the southern side of the main house. The lack of soil and rapid runoff of water is not conducive to tree growth.
- Recommendations are needed for the management of invasive vegetation, including: Chinese bush clover (*Sericea lespedeza*), oriental bittersweet (*Celastrus orbiculatus*), Callery pear (*Pyrus calleryana*), tree-of-heaven (*Ailanthus altissima*), yellow sweet clover (*Melilotus officinalis*), smooth brome (*Bromus inermis*), fescue (*Festuca sp.*), etc.
 - NPS's priority is removing invasives, even if they are contributing.
 - NPS has tried multiple strategies for removing smooth brome, including fire. Winter glyphosphate (herbicide) treatment has been the most successful and is currently used. Most removal has been outside of the APE area, but NPS would consider maintaining a perimeter to keep it from spreading from the APE boundary.
 - Chinese bush clover is a parkwide issue.
- Dogwood, wild plum, and fragrant sumac are shrubs spreading through prairie areas. They are not compatible with the historic character and make it harder to read the landscape. Recommendations are desired as to their ongoing management.
- Ornamental plantings are still present to some extent around the main house, including lilac, daylilies, iris, and roses. Many plants were salvaged and replanted approximately in place as part of the house project.
 - A juniper tree and shrubs were removed and not replaced.
- Interpretation of the natural systems that support vegetation within the APE may be important.
 - The dominant vegetation type in this area is shortgrass prairie because there is not enough topsoil (approximately 6" in study area) to support tallgrass prairie species.
 - Shallow soil and bedrock close to the surface contribute to concerns about replacing historic trees.
- While NPS is not interested in restoring vegetation to 1880s species, guidance is desired as to whether historic character can be reflected using species that are better adapted to today's (and future) climate.

SOILS/HYDROLOGY

- A number of springs are present within the APE, and groundwater is currently available.
 - Because the soils are so shallow, runoff functions similarly to an urban environment.
- French drains are needed around western and northern sides of the main house to redirect water that flows downhill toward this structure.
- Recommendations are desired for erosion-prone areas such as gravel drives on steep slopes.

STONE FENCES

- NPS has facilitated training of drystone masons through stone fence rehabilitation projects. Local masons are capable of performing this kind of work as funding is available.
- Guidelines are needed for a cohesive style for stone fence rehabilitation. Different eras of stone fence repair across the property have different appearances due to variety of masons involved.
 - For example, the fence near the barn was rehabilitated in the 2010s and has a different capstone style from many other areas.
- Ultimately, rehabilitating all stone fences around the headquarters and residence is a goal when funding is available.

MAINTENANCE/MANAGEMENT

- Additional research for local and regional topics with regard to the existing NHL nomination is needed.
 - The existing NHL period of significance is fairly broad and may include all the way up to 1996. NPS has drafted a local and regional statement but none of the primary past landowners have been interested in moving forward with refining those statements.
- The NPS maintenance goal is to maintain the historic experience/integrity. Guidelines are desired to explore how this should be adapted given the constraints of aging vegetation and climate change.
- The park is co-managed by NPS and The Nature Conservancy (TNC). Burning patterns reflect a mosaic, longer-term pattern that relates to rotational grazing patterns, dictated primarily by TNC.
 - The United States Fish and Wildlife Service (USFW) has fire staff who handle the burning at the park.
- Recommendations are desired for driving protocols along the Tour Road.
 - Vans and staff vehicles are authorized to use the Tour Road. They frequently park under trees for shade, which is contributing to poor tree health and erosion.
- Recommendations are desired regarding collaboration with the utility company. They have to maintain power lines running to the property but can be aggressive with tree pruning.
 - Possible solutions include moving the meter and/or relocating utility lines underground.
 - While lack of topsoil to bury utilities in may be a challenge, the fire risk of exposed wires may make it worth investigating.
- Preventing fire has many levels of impact. Recommendations need to be generated in partnership with facilities managers so they are integrated into regular maintenance activities.
- The Southwind Nature Trail has a mown surface that doubles as a fire break and a fire road around a portion of the APE area. Where it is present, it has been an effective fire prevention strategy that functions at multiple levels.

VIEWS AND VISTAS

- Recommendations are desired for viewshed management.
 - Views have changed since the historic period—there are more trees in the landscape and two new cell towers are visible from the site.
- Recommendations are needed for modern features that disrupt legibility of the historic landscape.
 - For example, burying the propane tank (if possible with soil depths) would improve legibility of historic relationship between icehouse and curing house. Relocation and camouflage painting could also be considered.

BUILDINGS AND STRUCTURES

- Maintenance plans are desired for the ranch hand house and adjacent shed.
 - The ranch hand house was moved onto the site and does not have historic integrity. It is used for storage and is in very poor condition. The adjacent shed is used to store herbicides.

VISITOR EXPERIENCE

- Recommendations are desired regarding visitor comfort and shaded areas for rest.
 - There are some picnic tables under trees, and the desire is to maintain at least some shaded areas.
 - Maintaining historic trees so they can continue to be used for shade is desired.
- The park may desire to interpret vegetation changes in the future to educate visitors about the time and inputs needed to establish mature vegetation in this landscape. The landscape will not be perfectly preserved or restored, and future interpretation will tier from overall park guidance provided in the General Management Plan (GMP) or Long Range Interpretive Plan (LRIP).

CHAPTER 5: TREATMENT APPROACH

This chapter provides an organizational framework for the recommended treatment of the study area. Guidelines and recommendations for protecting the historic character of the cultural landscape are generated utilizing the framework established by the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*.

SECRETARY OF THE INTERIOR’S STANDARDS

The US Secretary of the Interior (SOI) provides professional standards and guidelines for the treatment of cultural landscapes listed in or eligible for that National Register of Historic Places. Four approaches to the treatment of cultural landscapes are defined, including preservation, restoration, rehabilitation, and reconstruction. Each approach is defined below and its potential appropriateness for application to the study area is explained.

REHABILITATION (SELECTED APPROACH)

Rehabilitation allows repairs, alterations, and additions necessary to enable a compatible use for a property as long as the portions or features that convey the historical, cultural, or architectural values are preserved.

Rehabilitation is the most appropriate treatment approach for the Tallgrass Prairie National Preserve cultural landscape and is the selected approach for guidelines and treatment recommendations presented in later chapters. This approach provides an umbrella that allows for the preservation of contributing features while allowing for new additions to the landscape to support safety and adapt to changing climate conditions. Under this approach, features that are not compatible with the historic character of the property may be removed.

New elements that are compatible with historic conditions may be added to address current needs, such as tree species not historically present but better suited to projected ecological conditions throughout the study area. Selection of these elements requires careful consideration to provide additions that complement the historic character and features without creating a false sense of history. To support subsequent design projects within the APE boundary, this document provides guidelines identifying the character, form, and qualities

appropriate for new vegetation features and identifies specific treatment recommendations for compatible alterations to meet future needs.

PRESERVATION

Preservation is the act of sustaining the existing form, integrity, and materials of a historic property. This approach is most appropriate for properties that have a high level of integrity and often includes presence of features or conditions from multiple time periods. Although preservation is an appropriate approach for treatment of the study area landscape, preservation limits the ability to make changes to accommodate new uses and adapt to climate change vulnerabilities (for example, utilizing tree species not historically present on site).

RESTORATION

Restoration is the process of depicting the form, features, and character of a property as it appeared at a particular period in time. Elements that relate to earlier or later periods are removed in order to clearly represent one time period. A high level of documentation is necessary to ensure that the site accurately represents the historic period. Because the study area possess a long period of significance with limited documentation, restoration is not the most appropriate treatment approach for the cultural landscape. Restoration to one period may necessitate removal of contributing features from the other.

RECONSTRUCTION

Reconstruction is the act of using new construction to depict a non-surviving site, landscape, building, structure, or object as it appeared at a specific period of time in its historic location. This approach is used only in cases where the highest level of significance applies and detailed documentation exists regarding the historic conditions of the property. Reconstruction is not the most appropriate treatment approach for the study area. Given the study area's long period of significance and evolution over time, it is not desirable to reconstruct the landscape to highlight one particular moment in time.

STANDARDS FOR REHABILITATION

The Secretary of the Interior's Standards for rehabilitation of cultural landscapes are as follows:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.¹

1 National Park Service, *Guidelines for Rehabilitating Cultural Landscapes: Standards for Rehabilitation*, accessed February 2020, <https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/rehab/index.htm>.

This page intentionally left blank.

CHAPTER 6: CLIMATE CHANGE TREATMENT RECOMMENDATIONS

The following vision statement provided the rationale for the project team on how to evaluate existing conditions, identify vegetative deficiencies and/or deterioration, and provide treatment recommendations that follow CLR rehabilitation guidelines while also considering climate change vulnerabilities.

VISION

Manage vegetation and related elements in a manner that promotes the historic context of the site, focusing on a landscape that evokes the feeling of a rural agricultural community.

GOALS

GOAL #1

Provide general guidance for the management of vegetation, which is illustrative of the historic agricultural character of the site and sustainable under changing climate conditions.

GOAL #2

Provide specific treatment recommendations for landscape areas within the site.

GOAL #3

Explore vegetative alternatives that minimize potential fire issues while maintaining the visual character of the site.

GENERAL TREATMENT RECOMMENDATIONS

NEW TREE PLANTINGS

Recommendation #1

Enhance genetic diversity with the following guidelines for all new deciduous tree plantings in order minimize large-scale losses:

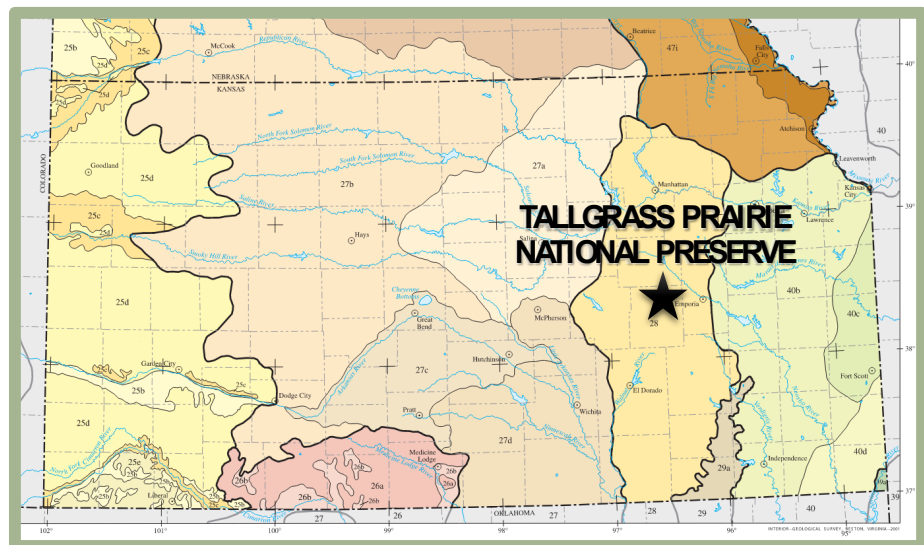
- No more than 5% of trees from the same cultivar/ecotype
- No more than 10% of trees from the same species
- No more than 20% of trees from the same genus
- No more than 30% of trees from the same family

These guidelines may be less relevant to small groups of tree plantings. For example, if planting three new trees, each tree does not need to be different from the other if uniformity or other aesthetic needs are desirable. In this scenario, it is preferable for the three new trees to simply be different from what already exists on site.

Recommendation #2

Monitor provenance of all new tree plantings and give priority to trees from well-adapted seed sources and/or those grown within the region of the Tallgrass Prairie National Preserve (Figure 6-1) or within a 250-mile radius south. For example, northern genotypes and sources of oak trees may not be suitable for the changing environmental conditions at TAPR.

Figure 6-1. US EPA map of Kansas ecoregions with the location of TAPR (US Environmental Protection Agency, <https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-state/>).



Recommendation #3

For new tree plantings, give priority to trees native to North America and install those with the following traits:¹

- Trees that are adaptable over a broad habitat spectrum
- Trees suited to meet the most severe site limitations
- Trees suited to a variable climate with weather extremes
- Trees not closely related to pest-prone species

New tree plantings should not include those trees considered invasive species in the immediate area or region.

Recommendation #4

For new tree plantings, give priority to the trees in the categories listed below. The deciduous trees have been selected with the following characteristics:

- Drought tolerance²
- Moderate to high adaptability²
- Fair to very good rating in overall ability to cope with climate change²

The coniferous trees have also been selected for drought tolerance and adaptability, along with the ability to provide infill and preserve the historic character of the windbreak.³

These lists should be considered preliminary and will require updates as more climate data becomes available and site conditions change.

Small to medium deciduous trees (20'-40' height) for Z Bar Ranch headquarters

- Eastern redbud (*Cercis canadensis*)
- Persimmon (*Diospyros virginiana*)
- Osage orange (Thornless & fruitless cultivars) (*Maclura pomifera*)
- Eastern hophornbeam (*Ostrya virginiana*)
- Chinkapin oak (*Quercus muehlenbergii*)

1 Native Trees in a Changing Climate. 2024 Plan It Native Conference. Presentation by Guy Sternberg, Starhill Forest Arboretum.

2 Drought Tolerant Trees for South-Central Kansas (K-State Research and Extension); Water-Wise Trees & Ornamentals for South Central Kansas (K-State Research and Extension – Sedgwick County); Drought-Tolerant Plant Selections for Oklahoma (Oklahoma State Extension); USDA Forest Service Climate Change Tree Atlas, <https://www.fs.usda.gov/nrs/atlas/tree/resources/spp-list.php>.

3 Conifer Trees for Kansas (K-State Research and Extension)

Large deciduous trees (over 40' height) for Z Bar Ranch headquarters

- Autumn splendor, Caddo, and John Pair sugar maple (*Acer saccharum*)
- Northern catalpa (*Catalpa speciosa*)
- Common hackberry (*Celtis occidentalis*)
- Thornless honeylocust (*Gleditsia triacanthos var. inermis*)
- Kentucky coffeetree (Seedless cultivars) (*Gymnocladus dioica*)
- Bur oak (*Quercus macrocarpa*)
- Shumard oak (*Quercus shumardii*)
- Post oak (*Quercus stellata*)
- Nuttall oak (*Quercus texana*)
- American elm (Dutch Elm Disease resistant cultivars) (*Ulmus americana*)

The sugar maples listed are naturally occurring cultivars from southwest Oklahoma, which have been noted for their tolerance to the extreme heat and drought conditions common in Western Oklahoma.

Alternate Coniferous trees for the Cedar Windbreak

- Shortleaf pine (*Pinus echinata*)
- Pinyon pine (*Pinus edulis*)
- Limber pine (*Pinus flexilis*)
- Southwestern white pine (*Pinus strobiformis*)

Recommendation #5

Install 2" caliper trees as new trees or replacements, as this size of tree typically establishes more quickly and is less likely to exhibit stress related to transplant shock. Larger caliper trees (up to 4") should only be considered for high-priority locations and/or where more immediate impact is desired.

EXISTING TREE PLANTINGS

Recommendation #6

Provide selective pruning of deciduous and evergreen trees (overseen by a certified arborist, if possible) to promote the safety, health, and aesthetics of the trees as shown in Figure 6-2.

Recommendations #7

Limit parking of staff vehicles underneath or around the canopies of existing trees.

Recommendations #8

When an existing tree is removed, park staff should obtain a wood sample and submit for dendrochronological analysis. The University of Arizona Laboratory of Tree-Ring Research (LTRR) notes the objectives of the analysis includes:

- To put the present in proper historical context
- To better understand current environmental processes and conditions
- To improved understanding of possible future environmental issues

This information analysis would be beneficial to interpret short-term disturbances and long term trends, both of which would inform future management of on-site vegetation.

Refer to the University of Arizona's LTRR website (<https://ltrr.arizona.edu>) for additional information regarding the study of tree rings and sample submission guidelines.

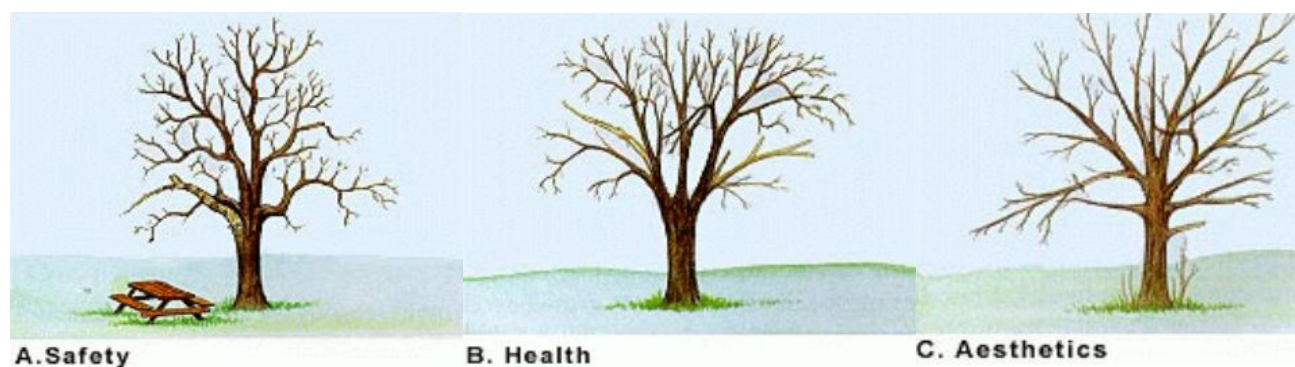


Figure 6-2. USDA Forest Service tree pruning graphic (USDA Forest Service, "How to Prune Trees," <https://www.fs.usda.gov/>).

LANDSCAPE AREAS TREATMENT RECOMMENDATIONS

Three distinct vegetation areas (Figure 6-3) were identified within the APE that are consistent with those defined in the 2004 CLR:

- Tallgrass prairie
- Cedar windbreak
- Shade trees around Z Bar Ranch headquarters

To support understanding of treatment recommendations, the condition of each surveyed tree within the APE is illustrated on drawing TP-1. Drawing TP-2 identifies the location of proposed new shade trees. Drawings are provided at the end of this chapter.

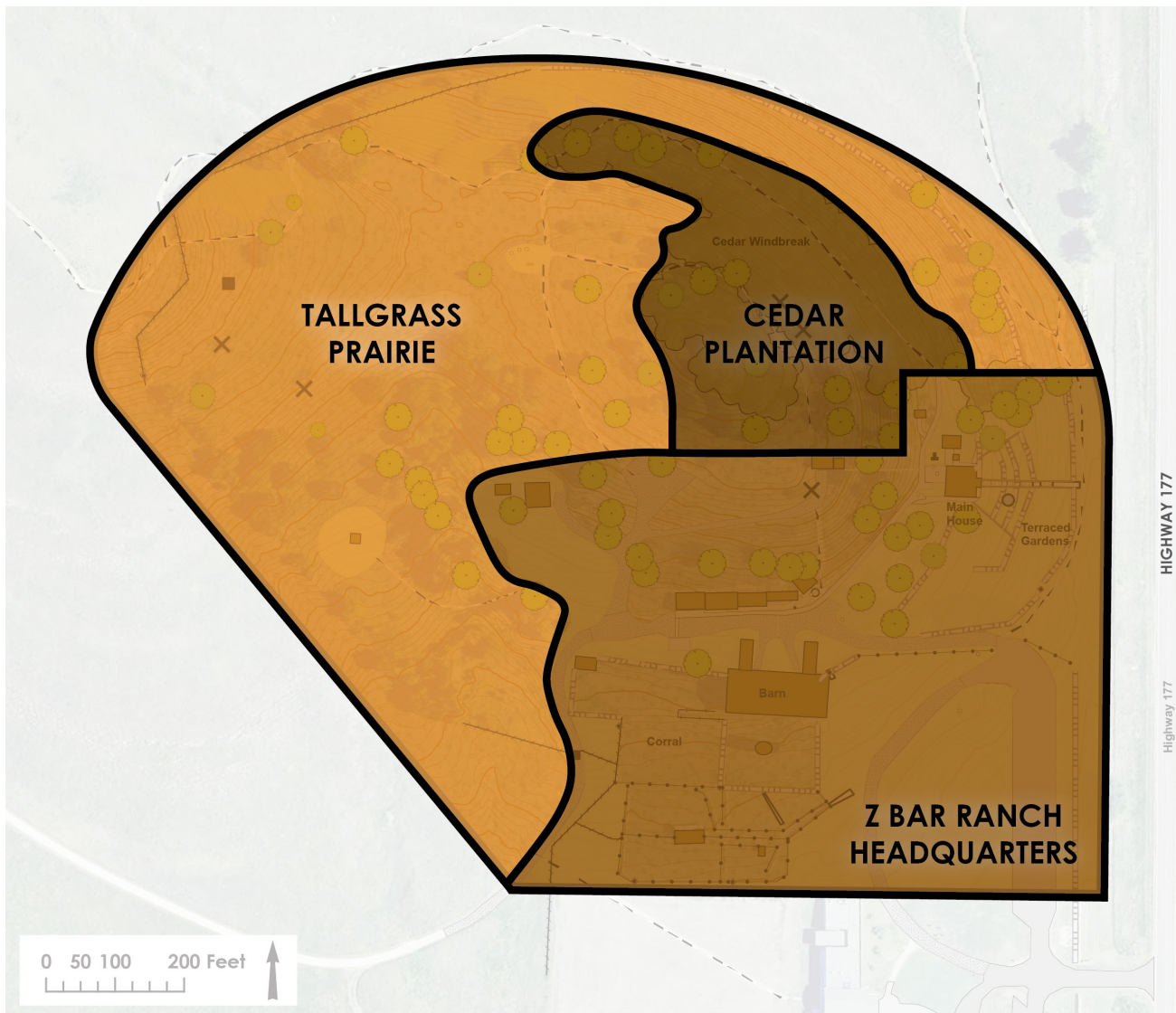


Figure 6-3. Map showing defined landscape areas.

TALLGRASS PRAIRIE**Issue:**

Dead trees within prairie vegetation (Figure 6-4) may present future health and safety concerns.

Treatment:

Remove dead trees within prairie vegetation as necessary. Snag trees (standing dead or dying trees) may remain in place to serve as habitat on a case-by-case basis, provided they are not a hazard to existing buildings or people.



Figure 6-4. Dead tree within prairie to the west of Z Bar Ranch headquarters.

Issue:

Existing brush piles within prairie vegetation (Figure 6-5 and Figure 6-6) enhance the risk of fire in proximity to the Z Bar Ranch headquarters.

Treatment:

Remove all existing brush piles within prairie vegetation as soon as possible. Brush piles should be hauled away and disposed of in accordance with local and state regulations. Burning of the brush piles on site is not recommended. However, burning of brush piles could occur under an approved burn plan or in conjunction with prescribed burning of the prairie. Burning should be supervised by trained fire staff. All future brush piles should be removed within three to six months of being created.

Figure 6-5. Brush pile within prairie to the west of Z Bar Ranch headquarters.



Figure 6-6. Brush pile within prairie to the west of Z Bar Ranch headquarters.



Issue:

Existing trees (eastern red cedars) and shrub thickets (sumac and dogwood) within prairie vegetation (Figure 6-7 and Figure 6-8) and along fencelines enhance potential risk of fire near the Z Bar Ranch headquarters. The trees and shrub thickets also disturb the historic character and integrity of the existing stone wall.

Treatment:

Remove existing cedar trees regardless of condition. Cedars should be mechanically removed by cutting below the bottom most branch. Shrub thickets should be removed. For thickets within prairie vegetation, herbicide applications in conjunction with prescribed fire should be used as management tools. For thickets within and adjacent to stone walls, shrubs should be mechanically cut to the ground and the appropriate herbicide applied to the stumps.



Figure 6-7. Eastern red cedars and shrub thicket within prairie to the west of Z Bar Ranch headquarters.



Figure 6-8. Shrub thicket growing in and around stone walls.

CEDAR WINDBREAK

Issue:

Existing dead walnuts and dead eastern red cedars within the historic limits of the windbreak (Figure 6-9 and Figure 6-10) enhance the risk of fire.

Existing live eastern red cedars outside of the historic limits of the windbreak enhance the risk of fire. This species is also aggressive and invasive in grassland habitats.

Refer to Drawing TP-2 at the end of this section for the approximate historic limits of the windbreak, as interpreted from Map A included in the February 1999 trip report memorandum from Sherda Williams (NPS historical landscape architect). This memorandum identifies probable historic trees at the Z Bar Ranch headquarters and surrounding areas. *(The historic limits shown on TP-2 should be considered preliminary and require review by the project team and NPS staff to confirm they are in accordance with the memorandum.)*

Treatment:

Remove all dead walnuts and eastern red cedars within the windbreak. These trees should not be replaced.

Remove all live eastern red cedars, regardless of condition, outside of the historic context of the windbreak. These trees should not be replaced.

A firebreak (mowed edge) should be established along the perimeter of the historic windbreak after tree removal operations.

The live cedar trees that comprise the historic windbreak should be replaced if they experience decline or death in the future. However, only replanting in kind with cedar trees is not desirable from a management standpoint due to concerns about flammability and their aggressive spreading nature. Test introductions of new conifer species are recommended in order to evaluate vegetative alternatives to the cedar trees. These trees could preserve the historic conifer appearance, maintain the overall function of the windbreak, and enhance plant diversity to provide an improved response to changing environmental conditions.

Potential test species should be selected from the Alternate Coniferous Trees for Cedar Windbreak list in General Recommendation #4.



Figure 6-9. Dead cedar trees within the cedar windbreak.



Figure 6-10. Dead walnut trees within the cedar windbreak.

Issue:

Existing brush piles and debris on ground (Figure 6-11) enhance the risk of fire in proximity to the Z Bar Ranch headquarters.

Treatment:

Remove all existing brush piles and debris within the windbreak as soon as possible. Brush piles should be hauled away and disposed of in accordance with local and state regulations. Burning of the brush piles on site is not recommended. However, burning could occur under an approved burn plan or in conjunction with prescribed burning of the prairie. Burning should be supervised by trained fire staff. Remove any future vegetative debris within three to six months of its creation.



Figure 6-11. Dead cedar tree with brush pile below.

Issue:

Several eastern red cedars within the historic limits of the windbreak are in poor condition with dead or damaged branches (Figure 6-12), posing long-term safety concerns and fire risk. The unsatisfactory form of such trees also creates undesirable aesthetics (Figure 6-13). Other cedar trees have low branches, which could serve as ladder fuels for fire.

Treatment:

Perform selective pruning to remove dead or dying branches to improve safety, enhance appearance, and improve the trees' overall health. Remove those cedar trees with extensive damage affecting their viability. Any trees removed should not be replaced, as the thinning out of the existing cedar tree population will be beneficial to minimize fire risk.

Perform selective pruning to remove lower branches of the existing cedar trees to at least twice the height of surrounding grass vegetation.



Figure 6-12. Cedar tree with dead branches.



Figure 6-13. Previously damaged cedar tree with undesirable form and appearance.

Z BAR RANCH HEADQUARTERS**Issue:**

Existing cottonwood tree in the picnic area has a large, open cavity where it has previously lost a limb (Figure 6-14). It is anticipated that this tree specimen will deteriorate over time and become a hazard in an area of visitor activity.

Treatment:

Plan for future phased replacement and removal of the cottonwood tree. The new tree should be selected from the deciduous tree lists in General Recommendation #4. The new tree planting should be placed in proximity to the existing cottonwood. This allows opportunity for the new tree to achieve appropriate size, shape, and structure to replace the character of the cottonwood while also providing shade for visitors.



Figure 6-14. Open cavity in cottonwood tree.

Issue:

Lack of deciduous trees to provide shade in key areas of visitor activity around the Z Bar Ranch headquarters (Fig. 6-15).

Treatment:

Install new deciduous trees in key areas for visitors such as the picnic table and seating area near the lower service drive, in the open lawn to the south of the main house, and near the trail kiosk for the Southwind Nature Trail.

Select trees from the deciduous tree lists provided in General Recommendation #4. Trees should be sited to maximize shade opportunities while preserving views to and from the main house. Newly planted trees should be spaced 40 to 50 feet apart and set back at least 15 feet from the existing terrace walls to provide a buffer from tree root intrusion. Drawing TP-2 at the end of this chapter provides suggested tree locations.



Figure 6-15. Open lawn area at stone wall terraces in front of the Z Bar Ranch headquarters.

Issue:

Existing shade trees with dead limbs, branch dieback, and/or undesirable appearance.

Treatment:

Remove and replace existing trees with extensive damage and/or dead limbs that reduce historic character and viability of the trees (Figure 6-16 and Figure 6-177). Existing trees other than walnuts should be replaced in-kind. Replacement trees for walnuts should be selected from the deciduous tree lists provided in General Recommendation #4. All new trees are to be installed at least 15 feet away from building structures. Snag trees (standing dead or dying trees) may remain in place to serve as habitat on a case-by-case basis, provided they are not a hazard to existing buildings or people.

Perform selective pruning to remove dead or dying branches to improve safety, enhance appearance, and improve the overall health of the trees (Figure 6-188).



Figure 6-16. Hackberry tree with previous damage that has significantly altered the appearance of the tree.



Figure 6-17. Walnut tree with significant damage to trunk and canopy.



Figure 6-18. Walnut tree with dead branches in canopy requiring pruning.

Issue:

Tree branches in proximity to buildings (Figure 6-1919) could cause damage to the roofing, siding, windows, etc., during extreme weather events.

Treatment:

Perform selective pruning to minimize tree branches touching or overhanging buildings. Ensure pruning results in a balanced canopy. If required pruning would severely alter the long-term health and/or appearance of the tree, then the tree should be considered for removal and replacement. Existing trees other than walnuts should be replaced in-kind. Replacement trees for walnuts should be selected from the deciduous tree lists provided in General Recommendation #4. All new trees are to be installed at least 15 feet away from building structures.



Figure 6-19. Deciduous tree branches touching building roof.

This page intentionally left blank.

Climate Change Treatment Plan

Tallgrass Prairie National Preserve
Chase County, KS

Area of Potential Effect
Existing Condition Site Plan

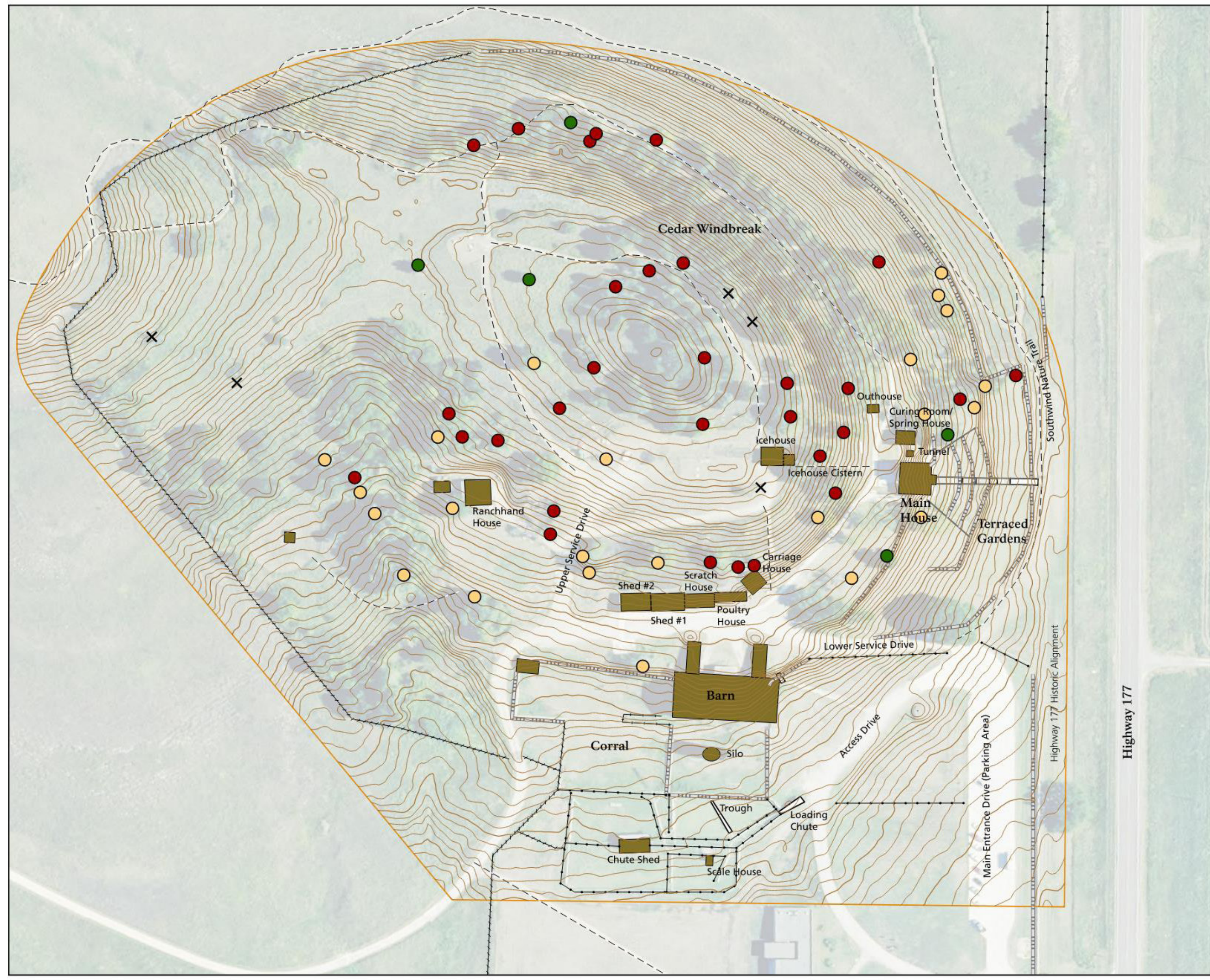
- Sources
- 1. Survey data collected by Quinn Evans and Vireo. Individual trees shown represent those inventoried/assessed.
 - 2. Contours generated using NPS elevation data.
 - 3. Aerial imagery courtesy of DASC, 2023.

Drawn By
Quinn Evans, ArcGIS Pro 3.1, 2024

Legend

×	Dead Tree	—	Gate
●	Tree-Poor	—	Post and Board Fence
●	Tree-Fair	—	Post and Pipe Fence
●	Tree-Good	—	Post and Wire Fence
—	Major Contour	—	Stone Edge
—	Minor Contour	—	Stone Fence
		—	Stone Wall
		- - -	Trail
		—	Wire Mesh Fence
			APE Boundary
			Building
			Stairs

- Notes
- 1. Projection: NAD 1983 UTM Zone 14
 - 2. Contour Interval= 1 ft
 - 3. Draft Version 1



This page intentionally left blank.

Climate Change Treatment Plan

Tallgrass Prairie National Preserve
Chase County, KS

Area of Potential Effect
Shade Tree Additions



National Park Service
Midwest Region

Sources

- 1. Survey data collected by Quinn Evans and Vireo. Individual trees shown represent those inventoried/assessed.
- 2. Contours generated using NPS elevation data.
- 3. Aerial imagery courtesy of DASC, 2023.

Drawn By

Quinn Evans, ArcGIS Pro 3.1, 2024

Legend

- | | | | |
|--|-----------------|--|----------------------|
| | New Shade Tree | | Major Contour |
| | Dead Tree | | Minor Contour |
| | Deciduous Tree | | Gate |
| | Evergreen Tree | | Post and Board Fence |
| | Shrub | | Post and Pipe Fence |
| | Fountain | | Post and Wire Fence |
| | Gas Pump | | Stone Edge |
| | Gate | | Stone Fence |
| | Propane Tank | | Stone Wall |
| | Sign | | Trail |
| | Utility Pole | | Wire Mesh Fence |
| | Bench | | APE Boundary |
| | Weather Station | | Building |
| | | | Stairs |

Notes

- 1. Projection: NAD 1983 UTM Zone 14
- 2. Contour Interval= 1 ft
- 3. Given the quantity of trees on site, not all individual trees within massings were inventoried.



This page intentionally left blank.

APPENDIX: HISTORIC PROPERTY PROJECT DOCUMENTATION

The HPPD is the critical information for sharing and analyzing cultural resources data when needed for project planning and development. It is a collaborative tool that enables NPS staff to select and implement an appropriate level of research, documentation, and treatment for historic structures and cultural landscapes. The HPPD provides a consistent format that can be used to inform and document federal decision-making related to the treatment of historic structures and cultural landscapes.

This appendix presents relevant HPPD data for the Tallgrass Prairie National Preserve CCTP organized into six sections:

- Section 1: Proposed Project Information relays the project description and scope of work.
- Section 2: Administrative Data collects data from the baseline documentation, including the construction date, historic and present use, and location data for all historic structures and cultural landscapes in the draft APE.
- Section 3: Historic Properties Information summarizes the character-defining features, significance, and integrity for historic properties in the APE.
- Section 4: Current Conditions Assessment outlines the current conditions of the historic structures and cultural landscape that may be affected by the proposed project. This section ties directly to the condition assessment table presented in Chapter 3.
- Section 5: Potential Effects of Project Scope to Historic Property Integrity makes a preliminary identification of potential effects to historic structures and cultural landscapes. This section will be developed following determination of recommended treatment for the CCTP.
- Section 6: Historic Property Project Summary Report summarizes the information about work completed during the construction phase. As the CCTP does not incorporate a construction component, this section is not included in the HPPD for the Tallgrass Prairie National Preserve CCTP.

Attachments referred to in the text are included at the end of this appendix.

SECTION 1: PROPOSED PROJECT INFORMATION

Instructions:

Use Section 1 to identify key staff for the HPPD development, describe the proposed project, and define the draft Area of Potential Effects (APE).

Additional guidance is included in notes that are identified by a red tag in the upper right corner of cells. To see the contents, hover over the tag.

See the HPPD Handbook, Section 1, for goals and process guidance.

Project Lead (PL)	Marla McEnaney
Cultural Resource Specialist (CRS)	Marla McEnaney
Facilities Manager (FM)	John Willoughby
Consulting Parties	N/A
Stakeholders and other Participants	N/A
Planning, Environment and Public Comment Number (PEPC)	PEPC # 126392
Project Management Information System Project Identification Number (PMIS)	333132
Project Title	Climate Change Treatment Plan for Vegetation
Subject Matter Experts Needed	NPS: Historical Landscape Architect, Natural Resource SME Consultant: Conservation Ecologist, Landscape Architect, Preservation Landscape Architect, Arborist

Project Description and/or Project Scope of Work

Enter text here from PMIS or most developed scoping document. NPS staff should do the first pass of the project description. Include enough information to understand how the project will affect the historic property or properties. If the detail is not available the first time through, use information that is available and move forward—you may need to loop back as the need for more information is identified. List all project components that may affect historic properties. Include references to drawings, specifications, and as much detail as possible about the proposed work to be done.

The HPPD team may revisit the project description and APE as the team's understanding of the historic property or properties, character-defining features associated with historic structures and/or contributing characteristics associated with cultural landscapes, and the project's potential effects are refined.

The project description may be revised to minimize or avoid adverse effects to the historic property.

Note: If all necessary project details cannot be provided internally, professional design work may need to be contracted. If a contract is needed, attach the HPPD in whatever state of completion it is in to the scope and indicate that the contents are to be incorporated. Develop the proposed project to meet the SOI's Standards and avoid adverse effects or justify why this is not the preferred approach.

This project supplements existing vegetation treatment plans with stabilization recommendations in response to climate change impacts. The study area for this task order includes portions of Tallgrass Prairie NP (TAPR). The end product is a vegetation treatment plan focused on climate change impacts.

A Climate Change Treatment Plan highlights vulnerable resources currently or potentially threatened by climate driven environmental changes, such as flooding, erosion, vegetation community changes, and fire. Issues to be studied at TAPR will be defined through discussions with park and regional staff.

Issues addressed as part of this project include:

- Performing an updated condition assessment with focus on vegetation surrounding the ranch HQ
- Completing a planting plan with landscape maintenance guidelines to minimize ongoing and potential threats to the ranch HQ including recommendations for removing cedars and replacing canopy trees and other historic period plantings
- Providing class "C" cost estimates for work orders needed to implement the planting plan

Project Justification

Enter text here from PMIS or most developed scoping document.

See Attachment 1: Section 1, Row 24 - Project Justification at the end of this chapter.

Measurable Results

Enter text here from PMIS or most developed scoping document.

Historic landscapes: Awarded AE Predesign Services contracts study vegetation community changes fueled by changing precipitation patterns. Deliverables will include completed HPPD workbooks, condition assessment report, treatment plan recommendations, and Class C construction cost estimate.

Archeological Services: MWAC led GIS and research design. Staff will revise existing data, gather additional mapping information and available resource documentation. Data mining will inform AE scopes of service for contracting.

Consequence of Failure to Act

Enter text here from PMIS or most developed scoping document.

Weather is becoming more severe and frequent in the Midwest: bomb cyclones drop unprecedented amounts of rain causing historic flooding and derechos produce 100+ mph winds. The full park may be impacted by these events and/or their solutions including vegetation, buildings, and landscape features.

DRAFT Area of Potential Effects

To understand which historic properties may be affected by the proposed project, develop a DRAFT Area of Potential Effects (APE). The Area of Potential Effects (APE) as defined by NHPA 36 CFR 800.16 (d) means: "...The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."¹

This DRAFT APE is intended to inform the HPPD and help to guide the development of the project (work/undertaking) in alignment with the SOI's Standards for the Treatment of Historic Properties to meet the NPS stewardship mandate. The FINAL APE must be developed in consultation with the SHPO/THPOs and other consulting parties and therefore may be different from the DRAFT APE; however, integration of this step in the process supports stewardship and improved consultation."²

Insert brief text describing the APE below. Upload graphic with caption-annotated plan diagram with boundary and all potentially affected historic properties identified.

The draft Area of Potential Effects (APE) consists of a boundary around the ranch headquarters area, generally where the exterior fence encircles the buildings and grounds. See Attachment 2: Section 1, Row 34 - Draft APE at the end of this chapter.

Guidance Questions for Best Practices

Instructions: Answer the following questions with the most current information on hand.

1. Is your project estimated to be \$2M or more?	No
If "Yes," provide date you received IRB investment concept approval:	
If "No," do you have a project formulated or funded? (select one answer from dropdown)	No
If "Formulated? Yes" provide formulated fiscal year:	N/A
If "Funded? Yes," provide date:	4/27/2023
If "No," provide "Project Park Approved" date:	
2. Was the Area of Potential Effects (APE) developed collaboratively	Yes
If "Yes," provide date:	10/6/2023
If "No," provide today's date:	
3. Is the Project Description Draft or Final?	Draft
Draft Document Date:	11/8/2024
Final Document Date:	N/A
4. Does the Park have any of the following reports or plans on file that need to be considered for integration in the project scope? (check all that apply)	Select Yes or No for each report or plan type below.
Accessibility Plan	Yes, Sept 2022
Climate Change Vulnerability Assessment	No
Security Assessment	No
Other	No
If "Other," please list here:	

Next Steps: Work with CRS/FM and use this space to identify next steps and additional information needed or to track information for future reference.

SECTION 2: ADMINISTRATIVE DATA

Instructions:

Use this section to aggregate administrative data from baseline documentation for all historic structures and cultural landscapes in the draft APE.

Complete Section 2 separately for each historic structure and cultural landscape that may be affected by the project. Duplicate this sheet, one for each property. If more than one historic property is involved, rename each sheet using an approach that works for your team. For example, each sheet could be named using this approach: "2-Property CRIS ID or FMSS #."

Run customized CRIS HPPD CL and HS reports for each cultural landscape and historic structure to obtain information needed to address the gray CRIS fields. Content in the CRIS HPPD reports is organized by HPPD section to support cross-referencing of required information. Depending on your HPPD team preference, the CRIS HPPD reports can be organized and attached by section or in another way that works best for you. If the information is missing from CRIS, consult with CRS team member to gather information from other documentation on file or scope for missing information to fill in the gray fields. Note that CRIS HS (historic structure) and CRIS CL (cultural landscape) are two different databases created in different ways and containing different information. Use CRIS HS HPPD report for historic structures and CRIS CL HPPD report for cultural landscapes.

Pull FMSS location and asset information for each historic property that may be affected by the project from FMSS.

The information necessary to complete this section should be available in existing data sources and should be pulled directly from the sources indicated to ensure alignment and accuracy. If the information is not on file or adequately up to date, it needs to be completed or scoped prior to proceeding with design and the formal NHPA Section 106 process.

Additional guidance is included in notes that are identified by a red tag in the upper right corner of cells. To see the contents, hover over the tag.

See the HPPD Handbook, Section 2, for goals and process guidance.

Park Name	<i>Tallgrass Prairie National Preserve</i>
Park Alpha Code	<i>TAPR</i>
FMSS Location	Refer to Current Conditions Assessment of Landscape Features Table in Chapter 3.
Asset Type (e.g., 4100, 3100, etc.)	Refer to Current Conditions Assessment of Landscape Features Table in Chapter 3.
Federal Real Property (FRP) Historical Status(es) <i>Select FRP status from FRP reporting work with FM.</i>	N/A

Proposed Use <i>Enter text from the approved investment concept workbook (for projects >2M) or PMIS (for projects <2M).</i>	No change to the current use is anticipated. The project is intended to provide a preservation and/or rehabilitation treatment to historic vegetation to improve condition, enhance integrity, and increase the resiliency of the historic landscape and associated natural systems in response to changing climate patterns.
---	--

CRIS Administrative Data	
Historic Property [CRIS] Resource Name:	Spring Hill/Z Bar Ranch Headquarters
Historic Property [CRIS Resource ID] Number:	501138
Structure ID:	Refer to Current Conditions Assessment of Landscape Features Table in Chapter 3.
Resource Type	Refer to Current Conditions Assessment of Landscape Features Table in Chapter 3.
County/State	Chase County, Kansas
Land Tract Number(s)	01-100, 01-101, 01-103, 01-109 to 01-116
Boundary Lat/Long/GeoDatum/ Position Source + Accuracy	A tract of 29.9 acres located in the Southeast quarter of Section 31, Township 18 South, Range 8 East of the 6th P.M. and the Northeast quarter of Section 6, Township 19 South, Range 8 East of the 6th P.M., all in Chase County, Kansas; being more particularly described as follows: Beginning at the NE corner of the NE1/4 of said section 6; Thence on an assumed bearing of South on the East line of said NE1/4 for a distance of 1295.13 feet; Thence N.89°56'50"W. for a distance of 648.82 feet; Thence N.02°05'20"E. for a distance of 639.18 feet; Thence N.71°55'23"W. for a distance of 166.67 feet; Thence N.34°27'25"W. for a distance of 618.80 feet; Thence N.13°58'42"E. for a distance of 244.48 feet; Thence N.57°27'54"E. for a distance of 341.89 feet; Thence N.83°39'00"E. for a distance of 200.15 feet; Thence S.78°07'16"E. for a distance of 194.65 feet; Thence S.52°31'11"E. for a distance of 241.89 feet;
National Register Status(es) (from CRIS)	Listed, Entered inadequately documented
National Historic Landmark (NHL) Status	Yes
Management Category	Must be Preserved and Maintained
Ultimate Treatment:	
Historic features and land uses—including vegetation patterns and features affected by vegetation—should be retained wherever possible to ensure protection of our cultural heritage. Within the Z Bar/Spring Hill Ranch headquarters, windbreak plantings and ornamental trees and shrubs have become overmature or are in poor condition, and are beginning to lose their integrity. As these individual specimens deteriorate and become hazards, those specimens that are clearly associated with the National Historic Landmark (NHL) period should be replaced in kind. Other plants that are not associated with the NHL period should not be replaced. In the meantime, every effort should be made to protect extant vegetation from fire, mechanical injury, and loss due to untreated disease or insect infestation. The objective within this area is to preserve the NHL period character and appearance of vegetation as much as possible, and replace it in-kind if lost.	
Construction Date (see Section 3 for chronology):	
See Attachment 4: 2004 Cultural Landscapes Inventory Excerpt at the end of this chapter.	
Historic Use:	
Agricultural Field, Agricultural Outbuilding and Storage, Transportation (Road), Functional Landscape, Water Works, Wetland	
Current Use:	
Abandoned/Unmaintained, Agricultural Field, Functional Landscape, Interpretive Trail and Facility, Maintenance Facility, Transportation (Road and Pedestrian), Water Works, Wetland	

Instructions: If the property is a cultural landscape, include the following in addition to above:	
Area (Acres)	29.9 acres
Boundary Description	A tract of 29.9 acres located in the Southeast quarter of Section 31, Township 18 South, Range 8 East of the 6th P.M. and the Northeast quarter of Section 6, Township 19 South, Range 8 East of the 6th P.M., all in Chase County, Kansas; being more particularly described as follows: Beginning at the NE corner of the NE1/4 of said section 6; Thence on an assumed bearing of South on the East line of said NE1/4 for a distance of 1295.13 feet; Thence N.89°56'50"W. for a distance of 648.82 feet; Thence N.02°05'20"E. for a distance of 639.18 feet; Thence N.71°55'23"W. for a distance of 166.67 feet; Thence N.34°27'25"W. for a distance of 618.80 feet; Thence N.13°58'42"E. for a distance of 244.48 feet; Thence N.57°27'54"E. for a distance of 341.89 feet; Thence N.83°39'00"E. for a distance of 200.15 feet; Thence S.78°07'16"E. for a distance of 194.65 feet; Thence S.52°31'11"E. for a distance of 241.89 feet;
Site Plan	
Confirm CRIS report has site plan with caption/description or provide a link to another site plan source.	
Refer to the site plans developed for this project.	
Guidance Questions for Best Practices	
Instructions: Answer the following questions with the most current information on hand.	
1. Is your project phased?	No
2. Per the definition in HPPD Handbook Appendix B: Terminology, does an Approved Treatment Plan exist with enough detail to inform development of the project scope?	Yes
If "Yes," provide date of document.	<u>10/1/2004</u>
If "Yes," use the Approved Treatment Plan to guide development of the project scope of work.	
If "No," provide date of "no" answer.	
If "No," what is the source of treatment guidance for the scope of work?	
3. Does the FRP reporting number align with CRIS National Register Status?	N/A
If "No," work with Facility Manager to update the FRP reporting so that it is the same as National Register Status in CRIS.	

4. Will the project result in complete implementation of an Approved Treatment Plan and Ultimate Treatment and Use? If project will be phased or ultimate treatment and use will be achieved over time, capture that information below.	Yes
Immediate work tasks (0–1 year):	
Short-term work tasks (1–3 years):	
Mid-term work tasks (3–5 years):	
Long-term work tasks (5–10 years):	
5. Does complete, accurate, and current CRIS data exist for each of the historic properties that the project may affect?	Current Condition Assessment of Landscape Features table in Chapter 3 identifies all CRIS data associated with the APE.
If "No," work with CRS to determine if adequate documentation exists or develop a scope of work to gather necessary information.	
Next Steps: Work with CRS/FM and use this space to identify next steps and additional information needed or to track information for future reference.	
Current Condition Assessment of Landscape Features table in Chapter 3 identifies all features for which CRIS data is not available.	

End of Section 2: Administrative Data



SECTION 3: HISTORIC PROPERTIES INFORMATION

Instructions:

Use this section to identify the following for all historic structures and cultural landscapes that the project may affect:

- Relevant baseline information about historic property significance and integrity;
- Character-defining features for historic structures and contributing characteristics for cultural landscapes;
- Other documentation on file that can inform project design, an assessment of effect, and project execution.

Complete Section 3 separately for each historic property that may be affected by the project. Duplicate this sheet, one for each property. If more than one historic property is involved, rename each sheet using an approach that works for your team. For example, each sheet could be named using this approach: "3-Property CRIS ID or FMSS #."

All of the information necessary to complete this section should be available in CRIS. Run customized CRIS HPPD CL and HS reports for each cultural landscape and historic structure that may be affected by the project to obtain information for this section. Content in the CRIS HPPD reports is organized by HPPD section to support cross-referencing of required information. Depending on your HPPD team preference, the CRIS HPPD reports can be organized and attached by section or in another way that works best for you. If the information is missing from CRIS, consult with CRS team member to gather information from other documentation on file or scope for missing information to fill in the gray fields. Note that CRIS HS (historic structure) and CRIS CL (cultural landscape) are two different databases created in different ways and containing different information. Use CRIS HS HPPD report for historic structures and CRIS CL HPPD report for cultural landscapes.

Additional guidance is included in notes that are identified by a red tag in the upper right corner of cells. To see the contents, hover over the tag.

See the HPPD Handbook, Section 3, for goals and process guidance.

CRIS Primary Historic Properties Information

Historic Property CRIS Resource Name:	Spring Hill/Z Bar Ranch Headquarters
Historic Property CRIS Resource ID Number:	501138
Statement of Significance/Historic Property Significance Description	
If known, include National Register criteria and level of significance. Some historic properties may have multiple statements of significance. Please include all that apply.	

The CLR evaluation of the Preserve suggests that the Tallgrass Prairie National Preserve landscape is nationally significant under Criterion A for its relationship to the 'broad patterns' of history, in the area of agriculture. The Preserve also is locally significant under Criterion B for its association with Stephen Jones and Barney Lantry, both regionally important businessmen who helped transform Chase County's economy. The architecture of the Spring Hill/Z Bar Ranch headquarters is nationally significant under Criterion C. Lower Fox Creek schoolhouse, Deer Park Place and other concentrations of cultural resources within the Preserve contain examples of distinctive architectural characteristics and landscape features which may be locally significant under Criterion C. It is also likely that the Preserve possesses significance under Criterion D for the ability of its archeological resources to yield important information for the NHL period of significance and other historic periods as well as prehistory. The Spring Hill/Z Bar Ranch headquarters was recognized as a NHL for its representation of the transition from open rangeland to the enclosed holdings of large cattle companies during the 1880s and for the architecture of the Spring Hill/Z Bar Ranch headquarters buildings and the Lower Fox Creek schoolhouse. The NHL nomination notes that the Spring Hill/Z Bar Ranch possesses significance in the areas of architecture and agriculture during the period 1878-1904 (NHL Nomination, 1997), which encompasses the years when Stephen Jones and Barney Lantry were adjacent property owners, or in residence on their Chase County lands.

Taking into consideration local significance as well, the CLR recommends the period of significance for the Preserve ca. 1856 to 1970. This extended period reflects the understanding that the Preserve's cultural landscape is a result of a long continuum of cultural use and adaptation to the natural environment. The 1856 beginning date coincides with early Euro-American frontier settlement in the region, and the first recorded examples of cultural adaptations to existing natural conditions; this date, however, could be extended to earlier documented prehistoric human uses with sufficient contextual study. The local period of significance extends thusly after 1856 to 1878, spans the NHL period of significance (1878-1904), and extends forward from 1904-1970. This 20th century period encompasses Benninghoven ownership; fragmentation of the ranch; the Dustbowl and Great Depression-era reconsolidation as a cattle ranch; and mid-20th century corporate ranching. The end date of the recommended period of significance—1970—coincides with the decline of the importance of railroad transportation to cattle ranching in Kansas, significant changes in the regional agricultural economy, and the death of Fred Howard, Sr., who was the onsite manager of the property since 1935. The destruction of the corral area and removal of the railroad spur line shortly thereafter severed a century-old relationship between cattle ranching and the Atchison, Topeka & Santa Fe (AT&SF) rail line out of Strong City (CLR, 2004, 4-3—4-4).

National Register Periods of Significance (With Historic Context Themes)				
	Start Year/Era and End Year/Era	Historic Context Theme	Subtheme (Optional)	Facet (Optional)
1	1856-1970	Creating Social Institutions and Movements	Ways of Life	Ranching Communities
2	1856-1970	Developing the American Economy	Agriculture	Animal Husbandry
3	1856-1970	Developing the American Economy	Agriculture	Subsistence Agriculture
4	1856-1970	Developing the American Economy	The Cattle Frontier	Ranches
5	1856-1970	Developing the American Economy	The Farmer's Frontier	Settling and Farming the Great Plains, 1862-1900
6	1856-1970	Expressing Cultural Values	Architecture	Second Empire (1850-1890)
7	1856-1970	People Places	Post-Archaic and Prehistoric Developments	Hunters and Gatherers
8	1856-1970	People Places	Westward Expansion of the Colonies and the United States, 1763-1898	The Cattle Frontier
9	1856-1970	People Places	Westward Expansion of the Colonies and the United States, 1763-1898	The Farmer's Frontier
10	1856-1970	Transforming the Environment	Indigenous Peoples Use Of and Response To the Environment	Indigenous Peoples Use Of and Response To the Environment
11	1856-1970	Transforming the Environment	The Industrial Revolution	Degradation of Natural Environment
12	1856-1970	Transforming the Environment	The Industrial Revolution	Industrial Innovations
13	1878-1904	Developing the American Economy	The Cattle Frontier	Ranches
14	1878-1904	Expressing Cultural Values	Architecture	Second Empire (1850-1890)
15	1878-1904	People Places	Westward Expansion of the Colonies and the United States, 1763-1898	The Cattle Frontier
16	1878-1904	Transforming the Environment	The Industrial Revolution	Industrial Innovations
Chronology and Physical Description				
Chronology of previous changes to the features, spaces, or materials specifically being affected by the proposed project (work/undertaking)				
	Start Year or Era	End Year or Era	Major Event	Major Event Description
1	1856	1856	Platted	Government land survey completed.
2	1856	1876	Homesteaded	Early Euro-American farmsteads
3	1873	1873	Land transfer	Atchison, Topeka & Santa Fe Railroad received land now in the Preserve from the state of Kansas.
4	1876	1876	Land transfer	Missouri, Kansas & Texas Railroad received land now in the Preserve from the U.S. government.

5	1878	1888	Purchased and Ranched	Stephen F. Jones bought and sold the property within the now existing boundaries of the preserve. Stephen F. Jones ran a large scale cattle ranching operation on the Spring Hill Farm and Stock Ranch.
6	1881	1881	Built	Stephen F. Jones had the Spring Hill Ranch headquarters constructed, as well as the stone fences that enclose the ranchlands constructed.
7	1888	1888	Purchased/Sold	Stephen F. Jones sold his Chase County land holdings to Barney Lantry.
8	1895	1895	Planted and Land Transfer	The 1895 census reported that Barney Lantry planted a variety of fruit trees, presumably most were planted in orchards, and all were described as fruit bearing. The Lantry lands (including the Spring Hill Ranch and Deer Park Place) were inherited by Henry E. and Charles J. Lantry.
9	1907	1925	Purchased/Sold	In 1907, Charles Lantry sold most of the family land to C.C. Patten beginning a period when consolidated lands became divided.
10	1907	1969	Moved	Through the 1950s and 1960s, many of the old stone fences were dismantled; the stone from the fences were used as riprap for new dams and other construction on the ranch.
11	1907	1933	Altered	Prairie burning is believed to have occurred through most of the twentieth century.
12	1909	1909	Purchased/Sold	Approximately 1080 acres of the now Preserve lands were sold to the Benninghoven family. This marked the return of a resident owner family to Spring Hill.
13	1935	1935	Land Transfer/Purchased/ Sold	The Sheriff of Chase County filed a sheriff's deed transferring the ranch lands from the Benninghoven family owners of the ranch to the Prudential Insurance Company of America. Prior to 1935, George H. Davis had purchased 10,000 acres of the old Spring Hill Ranch and in 1935, he purchased the former Benninghoven property consolidating the Lantry holdings under one owner.
14	1935	1970	Ranched/Grazed	Cattle ranching activity on the Preserve lands was managed by Fred Howard, Sr. from 1935–1970.
15	1940	1949	Altered	Portions of the stone fences were reworked. Terrace wall system reworked at the historic ranch headquarters.
16	1945	1946	Built	Quonset hut constructed.
17	1950	1969	Built	Flag pole installed at historic ranch headquarters. Fred Howard built approximately 12 cattle pens and watering structures in the pastures and near the barn at the Spring Hill/Z Bar Ranch headquarters.

18	1955	1955	Land Transfer	George W. Davis died. Deeds were transferred to the Davis–Noland–Merrill Grain Company later known as the Z Bar Cattle Company.
19	1956	1956	Removed	A portion of the original stone wall was removed at the Spring Hill Ranch residence when highway Route 177 was widened.
20	1971	1971	Established	The Spring Hill Ranch House was nominated to the National Register of Historic Places.
21	1983	1986	Restored	There was a restoration effort for the Spring Hill Ranch residence during the 1980s.
22	1980	1989	Removed	One of the silos was removed from its location behind the barn.
23	1980	1989	Built	By the 1980s, some of the remaining old stone fences were reinforced with barbed wire. The patio behind the Spring Hill house was built with the concrete staves from one of the silos when it was removed.
24	1986	1986	Purchased/Sold	The Z Bar Ranch was sold to the Boatmen's First National Bank of Kansas City.
25	1994	1994	Purchased/Sold	National Park Trust (NPT) purchased the Z Bar Ranch.
26	1994	1996	Built	A parking lot was added near the entrance to Spring Hill Ranch from Highway 177. Overlook developed for the interpretive Self-guided tour.
27	1995	2004	Ranched/Grazed	The NPT renegotiated cattle operations on the ranch. The NPT leases more than 98% of the Preserve to Edward Bass of Fort Worth, Texas, on a 35-year, prepaid, two-million dollar cattle grazing lease.
27	1996	1996	Preserved	The NPT acquired the majority of the combined former ranches of Jones and Lantry to ensure that the open land that they retained would be preserved as a tallgrass prairie. Tallgrass Prairie National Preserve was established by Congress.
29	2001	2001	Removed	Quonset hut and pole barn removed (by NPT) from Spring Hill/Z Bar Ranch headquarters site.
30	2002	2002	Land Transfer	Federal government received title to 29.9 acres of the Preserve encompassing the Spring Hill/Z Bar Ranch headquarters area.

Physical History

The following section provides information on the physical development and evolution of the historic property, organized by time period. Enter hyperlink to existing documentation or enter text that does not exceed 5 pages. Insert graphics and captions. Label graphics as Figure 1, 2, 3, etc., and reference them in text. Add as many as needed to reflect relevant historic conditions.

See Attachment 4: 2004 Cultural Landscapes Inventory Excerpt at the end of this chapter.

Cultural Landscape Analysis and Evaluation Summary

The Analysis and Evaluation Summary was excerpted from Chapter 4 of the Tallgrass Prairie National Preserve Cultural Landscape Report (100% draft). For a more detailed discussion of the Analysis and Evaluation Summary please refer to Chapter 4 of the TAPR CLR.

The Preserve retains much of its historic integrity because of the survival of the expansive prairie landscape, and the evidence of site-specific cultural responses to the natural environment. Both the NHL and local periods of significance are well represented throughout the Preserve and specifically at the Spring Hill/Z Bar Ranch headquarters. The Preserve continues to reflect many aspects of its agricultural history, particularly the character-defining layout and arrangement of buildings and structures, continuity of agricultural land use, circulation networks, and field and boundary demarcations that give the Preserve its distinct identity.

Spring Hill Ranch headquarters in particular retains all seven aspects of historic integrity which includes location, design, setting, materials, workmanship, feeling, and association. See attachment, Section 3, row 70 - cultural landscape analysis and evaluation summary.

Landscape Characteristics and Features

Though management practices aimed at sustaining traditional cattle ranching activities have no doubt altered the character and composition of the prairie ecosystem since the mid-19th century, the basic pattern of open tallgrass prairie and wooded riparian corridors survives from historic and prehistoric periods. The GMP suggests interpreting a portion of the site as a prairie as it existed before ranching, and another portion to reflect its cultural role as a cattle ranching operation. These goals would entail rehabilitation of pre-settlement vegetation patterns over a portion of the Preserve, and preservation of existing patterns over the remainder. Maintenance of traditional cattle ranching practices should occur primarily within those areas that are intended for interpretation of the ranching heritage of the Preserve, particularly within the Flint Hills Ranching Legacy Area identified in the GMP, and as much of the Prairie Landscape Area and Day Use Area as possible where cattle ranching will not conflict with other uses. Retaining this land use enhances the integrity of the historic Preserve landscape. In areas where cattle ranching will continue, the grasslands should be perpetuated using traditional burning practices. The challenges inherent in this approach include protection of cultural resources relating to ranching within areas slated for prairie diversity enhancement, and of natural resource values within areas where traditional ranching is to be interpreted. Scientific study and the collection of empirical data will be a necessary component of the methodology for enhancing prairie community diversity. Vegetation management has the potential to affect water resources, water quality, and cultural resources. Furthermore, historic features and land uses—including vegetation patterns and features affected by vegetation—should be retained wherever possible to ensure protection of our cultural heritage. Within the Z Bar/Spring Hill Ranch headquarters, windbreak plantings and ornamental trees and shrubs have become overmature or are in poor condition, and are beginning to lose their integrity.

As these individual specimens deteriorate and become hazards, those specimens that are clearly associated with the National Historic Landmark (NHL) period should be replaced in kind. Other plants that are not associated with the NHL period should not be replaced. In the meantime, every effort should be made to protect extant vegetation from fire, mechanical injury, and loss due to untreated disease or insect infestation. The objective within this area is to preserve the NHL period character and appearance of vegetation as much as possible, and replace it in-kind if lost.

Table 3 1: Character-Defining Features (Contributing)

Use this table to identify character-defining features if the historic property is a historic structure or contributing features if the historic property is a cultural landscape. Create a separate table for each historic property in the APE. If the historic property is a cultural landscape, pull the FMSS Crosswalk Report for the CRIS-CL record to complete the table. The CRIS HS database does not include CDFs. If the historic property is a historic structure, pull CDF information from other documentation on file or scope for necessary information. Use HPPD Section 5 to determine information needed to inform an assessment of effect.

	Historic Property in APE Character-defining feature for historic structures or contributing landscape characteristic or feature for cultural landscapes that may be affected by the project	Associated CRIS Resource Name	Associated CRIS Resource ID	FMSS Record Type	FMSS Record Number
1	Refer to Current Condition Assessment of Landscape Features Table in Chapter 3.				
2					
3					
4					
5					
6					
7					
8					
9					

Guidance Questions for Best Practices

Instructions: Answer the following questions with the most current information on hand.

1. Has each historic property that may be affected by the project been evaluated for listing in the National Register of Historic Places?	Yes
If "No," provide today's date:	
If "No," verify with CRS that DOEs for each property exist. Do not proceed with design or treatment until eligibility status is clear. Note: If any of the historic properties have not been evaluated, a Determination of Eligibility (DOE) is necessary before moving forward with design/treatment.	
If "Yes," provide date of "yes" response:	3/5/1996
If "Yes," confirm the Statement(s) of Significance is/are not out of date and that no major changes have occurred. If the Statement(s) of Significance is/are current, continue to the next question.	

Next Steps: Work with CRS/FM and use this space to identify next steps and additional information needed or to track information for future reference.

Recommend incorporating contributing features not previously documented into CRIS: Shed #1, main entrance walk leading to front of main house, views, snubbing posts, standing water pumps, terraced gardens.

End of Section 3: Primary Historic Properties Information

SECTION 4: CURRENT CONDITIONS ASSESSMENT

Instructions:

Use this section to document the current condition of each historic structure and cultural landscape that may be affected by the proposed project.

Complete Section 4 separately for each historic property that may be affected by the project. Duplicate this sheet, one for each property. If more than one historic property is involved, rename each sheet using an approach that works for your team. For example, each sheet could be named using this approach: "4-Property CRIS ID or FMSS #."

If the project scope is targeting treatment at an area that is much smaller than the overall historic property, documentation is only necessary for the parts of the property that may be affected by the project.

All of the information necessary to complete this section should be available in CRIS. Run customized CRIS HPPD reports for each cultural landscape and historic structure that may be affected by the project to obtain information for this section. Content in the CRIS HPPD reports is organized by HPPD section to support cross-referencing of required information. Depending on your HPPD team preference, the CRIS HPPD reports can be organized and attached by section or in another way that works best for you. Note that CRIS HS (historic structure) and CRIS CL (cultural landscape) are two different databases created in different ways and containing different information. Use CRIS HS HPPD report for historic structures and CRIS CL HPPD report for cultural landscapes.

Condition assessments for HPPD must use CRIS definitions and not FMSS or other definitions.

If the information is not on file or adequately up to date, it needs to be completed prior to proceeding with design and the formal NHPA Section 106 process. Consult with CRS team member to gather information from other documentation on file or scope for missing information.

Additional guidance is included in notes that are identified by a red tag in the upper right corner of cells. To see the contents, hover over the tag.

See the HPPD Handbook, Section 4, for goals and process guidance.

CRIS Current Conditions Assessment

Historic Property CRIS Name:	Spring Hill/Z Bar Ranch Headquarters
Historic Property CRIS Number:	501138
Current Condition	
Current Condition	Fair
Condition Date	6/3/2021
Condition Narrative	
Note changes in condition or aspects of condition that are important. Note improvements needed to achieve good condition, if relevant. For historic structures, use the condition assessment form linked to Appendix A of the HPPD Handbook.	

Refer to Chapter 3: Condition Assessment. The chapter includes an overall assessment of condition for the APE and a current condition assessment of landscape features table identifying the condition of each feature within the APE.

Condition Photographs

Include 5–6 photos of the current condition of the historic property. These may come from a variety of sources (CRIS, NP Gallery, park files, or other) and must include one of the context, one each for the main parts of the overall property, and a couple illustrating detailed conditions. Photos should be a minimum of 4"x 6" in size.

- For a cultural landscape, this may include annotated images of the context, overall project area, and specific parts of the landscape that the project may affect.
- For a historic structure, this may include annotated images of the context of the structure (structure in its setting), one image of each structure elevation, and images of specific details that the project may affect.



Figure 1. Overview of house and lawn, including stone fencing and terracing, looking northwest. October 31, 2023.



Figure 2. Overview of house, shade trees, and rolling topography, looking northeast. October 31, 2023.



Figure 3. Overview of barn, silo, and corral looking northwest. October 31, 2023.



Figure 4. Overview of the ranch headquarters, looking northeast. October 31, 2023.

Refer to Current Conditions Assessment of Landscape Features Table for additional existing condition images.

Impacts			
Note existing impacts from CRIS pick list, other documents, or field verification.			
	Type	Impact Type— Other	Narrative
1	Deferred maintenance		The stone fences and retaining walls are contributing features that need to be stabilized in order to prevent further degradation (CLR, 2004, 7—5-7)
2	Fire		The burning of prairie grasses is both a cultural tradition and a natural phenomenon. Protect the cultural resources at the historic ranch headquarters from fire damage (CLR, 2004, 7—42-43). The contributing Eastern Red Cedars are particularly combustible.
3			
4			

5			
6			

Guidance Questions for Best Practices

Instructions: Answer the following questions with the most current information on hand.

1. Have you aggregated and formatted your photos as described in this section?	Yes. Photos are incorporated into the CCTP document, and include overall photos and individual documentation of each landscape feature.
--	---

If "Yes," provide date of "yes" response:

11/11/2024

If "No," provide today's date:

If "No," format photos prior to moving on to the next step.

3. Are there management plans on file that contradict the stewardship directive for any of the historic properties that may be affected by the project?	No
---	----

No

If "Yes," identify the relevant plans on file and list the discrepancies below:

N/A

Next Steps: Work with CRS/FM and use this space to identify next steps and additional information needed or to track information for future reference.

N/A

End of Section 4: Current Conditions Assessment

SECTION 5: POTENTIAL EFFECTS OF PROJECT SCOPE TO HISTORIC PROPERTY INTEGRITY

Instructions: Complete Section 5 for the project.

Use this section to make a preliminary identification of the project's potential to effect the historic structures and cultural landscapes present within the draft Area of Potential Effect (APE). **Final Assessment of Effects to all historic properties within the APE must be done in consultation with the consulting parties and therefore may be different from Section 5 assessment.** Historic properties are defined as listed or eligible for listing in the National Register of Historic Places. The HPPD is only focused on the known historic structures and cultural landscapes present within the project APE (there may be other historic properties that must be considered). Note that official assessment of effects per 36 CFR 800.5 includes reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative (see 36 CFR 800.5 <https://www.ecfr.gov/current/title-36/chapter-VIII/part-800/subpart-B/section-800.5>). The final project APE may include properties or impacts that are not yet known.

The APE should include the extents of a vertical area (below grade) for archeological resources as well as any historic views to/from the historic property. Official APEs need to be determined by the NPS agency official in consultation with consulting parties. Official submission processes required by SHPOs for initiation of Section 106 varies.

For best results completing Section 5, ensure that the project CRS has reviewed sections 1 through 4 and confirmed that they contain enough information to proceed with Section 5 and consulting parties have been contacted for early input and notification of the planned project.

Use information from sections 1 through 4 to fill Table 5-1 for all historic properties and associated character-defining features for structures as well as contributing features for cultural landscapes that are within the proposed Area of Potential Effects (APE). NOTE: Use Table 5-1 to identify if design revisions are needed to avoid or minimize adverse effects where technologically and economically feasible, and record decision making associated with the project development. Review Table 5-1 and edit as applicable with each phase or milestone in project development and design until an official assessment of effect can be made by qualified personnel in consultation with consulting parties and documented in the Planning, Environment, Public Comment (PEPC) system.

Column A. Identify the historic property using CRIS name. If CRIS name does not exist, use FMSS name and number. The historic property name will be repeated in Column A for each character-defining feature for historic structures and each contributing characteristic or feature for cultural landscapes.

Column B. Character-defining features for historic structures and contributing landscape characteristics or features for cultural landscapes that may be affected by the project. Minimally explain how the scope will or will not change character-defining features for a historic structure or contributing landscape characteristics or features for a cultural landscape. Refer to HPPD sections 1–4 and other supporting information needed (e.g., maps, survey, drawings, specifications, photographs, scope of work for project, site plan, work order).

Column E. Reference and cite the design documents that illustrate or specify the proposed changes (e.g., maps, survey, drawing number, specifications, photographs, SOW, site plan, work order). Upload or hyperlink as applicable to the Design Documents Appendix.

See the HPPD Handbook, Section 5, for goals and process guidance.

Table 5-1: Project Effects

	Potentially Affected Properties			Project Information
	A	B	C	D
	Properties in APE CRIS Name (if CRIS name does not exist, use FMSS name and number)	Character-defining feature for historic structures or contributing landscape characteristic/feature for cultural landscapes that may be affected by the project. From Section 3: Historic Property Information, Table 3-1.	Potential Effect to Integrity Identify as many of the seven aspects of the historic properties integrity that the project could affect.	Scope of Project Explain how the proposed project will or will not change the character-defining features for structures or contributing landscape characteristics or features for cultural landscapes.
1	Refer to Current Condition Assessment of Landscape Features Table in Chapter 3.	Feature	☒ Design ☒ Setting ☒ Location ☐ Materials ☒ Association ☒ Feeling ☐ Workmanship	
2	Name	Feature	☐ Design ☐ Setting ☐ Location ☐ Materials ☐ Association ☐ Feeling ☐ Workmanship	

National Historic Preservation Act (NHPA) Documentation

Consulting Parties Communication Documentation

Note dates, names, brief summary of communication with consulting parties (SHPO, THPOs, and other consulting parties) and link to meeting notes and other related documents.

Note that if a National Historic Landmark (NHL) may be affected by the project, the NPS NHL program must be notified.

To paste into this cell, double-click.

CRS determines when to contact consulting parties to notify them about the planned project and request early input. The official assessment of effect must be developed in consultation with the consulting parties and therefore may be different from HPPD Section 5 assessment.

Stakeholders and other Participants in the Section 106 Process per 36 CFR 800.2

Note dates, names, brief summary of communications and link to meeting notes and other related documents.

To paste into this cell, double-click.

CRS works with consulting parties to determine stakeholders and other participants and if/how to include them in the HPPD process. Work on the HPPD occurs prior to initiation of official Section 106 process. The HPPD informs Section 106 but does not replace procedural requirements.

Guidance Questions for Best Practices

Instructions: Answer the following questions with the most current information on hand.

1. Were professionals meeting the applicable SOI Professional Qualifications Standards involved in completing Section 5?

Yes

If "No," work with CRS to complete Section 5.

2. At this time, is the scope of work consistent with an Approved Treatment Plan (for example: HSR, CLR, or other, as noted in Section 2 Guidance Questions for Best Practices and defined in the HPPD Handbook Appendix B: Terminology) or does it meet the SOI Standards for the recommended treatment as documented by the Management Category in Section 2 of this HPPD?

Yes, the is consistent with treatment recommendations in the 2004 CLR.

2a. If "Yes," provide date of "yes" response and proceed to question 3.

11/11/2024

2b. If "No," can the project scope/design details be revised, taking into account technical and economical feasibility, to avoid adverse effects to historic properties within the APE?

If response to 2b is "Yes," revise scope/design to avoid or minimize details that do not meet the SOI's Standards, taking into account technical and economical feasibility to avoid adverse effects to historic properties within the APE, and update HPPD sections 1 and 5.

If response to 2b is "No," include a statement of justification that explains why the chosen treatment was selected and document minimization of adverse effects on the integrity of the historic property and proceed to question 3. Refer to 36 CFR 800.11 for documentation standards for statements of justification of adverse effect.

3. Has the CRS determined that information necessary to begin formal Section 106 review process is contained in HPPD sections 1 through 5?

No

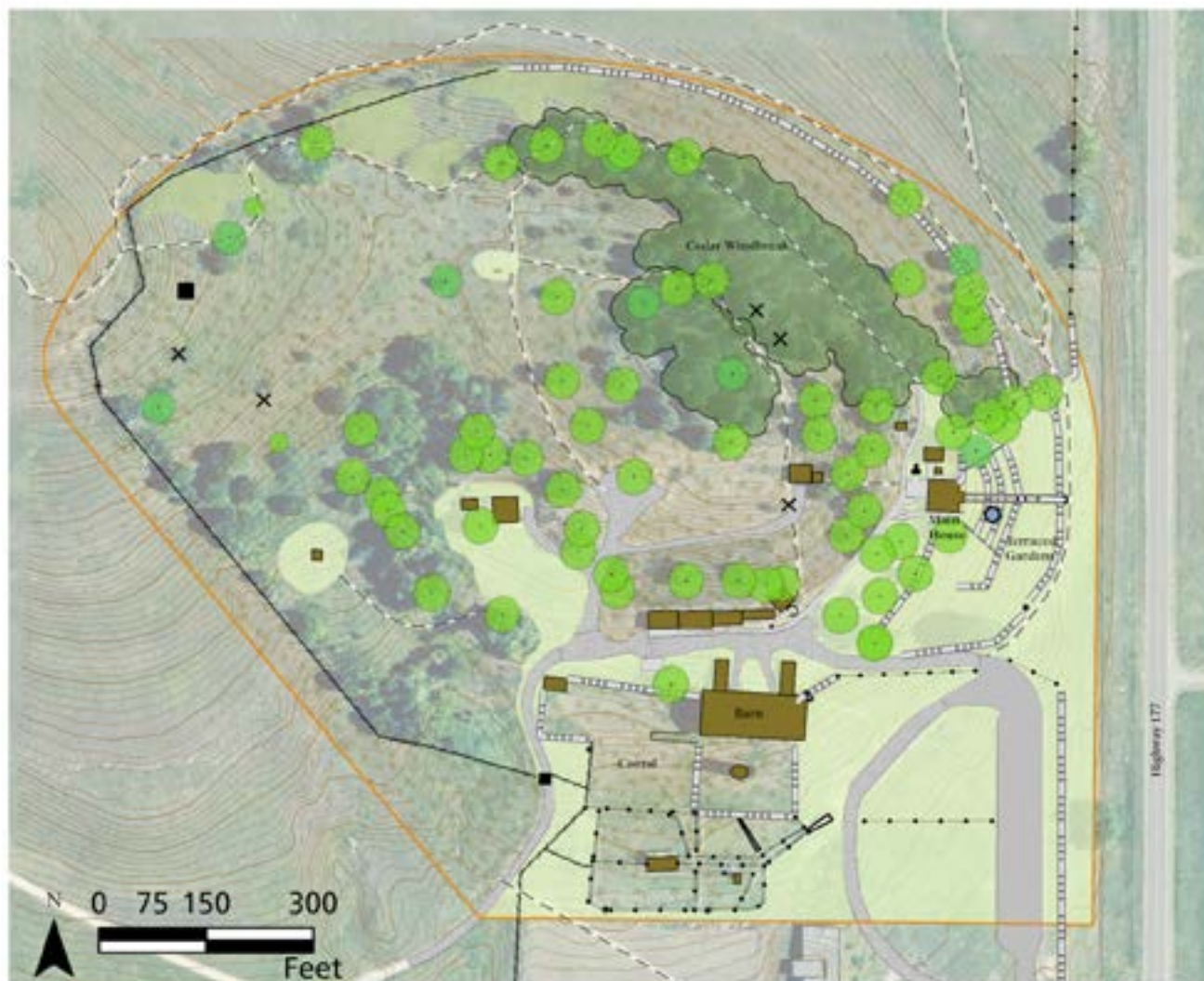
If "Yes," formally initiate the Section 106 process and proceed through project development and execution continuum.

If "No," and considering the responses above, use the space below to identify additional information needed or next steps to formally initiate Section 106 review process.

ATTACHMENT 1: SECTION 1, ROW 24 - PROJECT JUSTIFICATION

Justifications	URGENCY OF NEED: Weather is becoming more severe and frequent in the Midwest: bomb cyclones drop unprecedented amounts of rain causing historic flooding and derechos produce 100+ mph winds. These conditions have led to flooded river systems-in 2017, QZAR received enough rain in a 2-day period to break 100-year-old flood records. Nearly all historic structures were impacted by floodwater and debris covered cultural landscapes and archeological sites. Lake Superior parks have experienced profound shoreline changes as a result of increased wave action from storm events. APIS and PIRO both had significant damage to historic boathouses during a 2017 storm. RESOURCE SIGNIFICANCE: Structures and landscapes at risk are National Register listed or eligible, and many are fundamental resources. Archeological sites are prioritized by eligibility and their significance to precontact and recent history. Project builds upon FUND THEME A by utilizing CRIS/FMSS data and addresses FUND THEME B by: -Building on foundational data to identify best practices for climate change adaptation. AE teams will deploy the Historic Property Project Documentation (HPPD) template to document minimum necessary information in advance of making management, investment, and treatment decisions. These workbooks will collect property data to inform climate adaptive treatment. Archeological work will rely on GIS modeling of high-risk areas, using FEMA data, soils, slope, and geology, to identify resources at risk and highlight new areas for inventory before they are lost to erosion. -Determining material sensitivity/resilience to climate stressors. MNR CR IDIQ teams of architects, landscape architects, and engineers are national leaders in the field of historic preservation bringing a depth of knowledge about suitable materials and methods to respond to flooding, erosion, and vegetation management. A team of qualified professionals will assess archeological resources condition and threats, documentation, and evaluation to determine which significant resources are most at risk. -Developing climate adaptation treatment plans. Historic structure and cultural landscape recommendations will involve effective and compatible solutions to address periodic flooding, shoreline erosion, and compatible vegetative cover. Archeological data will be used to assist parks in determining which significant resources are most at risk and identify future adaptation treatments in consultation with civil engineers. The project will address FUND THEME C by: -Implementing select adaptation projects. Conceptual design recommendations for threatened historic structures and landscapes will include Class "C" construction cost estimates for FMSS Work Orders and PMIS facility project statements. New baseline data collected as a part of archeological site condition assessments will augment the MNVAC-managed condition data and monitoring program for MNR archeological sites. The project addresses the Core Project Rating Criteria by: -Advancing CR climate change efforts in both northern and midcontinent parks that reflect the wide-ranging effects of these shared exposure threats and resource sensitivities. -Addressing a wide range of resource types representing the fishing industry, guides to navigation, recreational cabins, grist and lumber mills, and subsistence farming. Archeological resources include both recent history and precontact sites. -Incorporating collaboration with partners and tribes on multi-park projects. Communities, stakeholders, State Historic Preservation Offices, and Tribes will participate in project planning, inventory, evaluation, determinations of significance, and reporting. Important archeological resources may be identified through tribal consultation. -Emphasizing practical treatment solutions for threatened historic structures ranging from moving buildings away from eroded riverbanks and shorelines, elevating structures, underpinning docks/cracking to allow for water fluctuations, armoring to deflect storm surges, or even possible removal if it is determined that the scale of effort for protection outweighs inherent resource values. Exposed archeological sites may be capped or excavated if imperiled by erosion. Landscape solutions could include tree pruning to reduce potential of windfalls, bioengineering to minimize erosion and stabilize shorelines, and compatible shoreline/dock treatments to withstand elevated lake levels. -Generating case studies for news articles and media releases. Design solutions for shoreline erosion and flooding will be relevant to communities seeking solutions to similar challenges. News stories related to archeological sites will emphasize the importance of preserving these resources to descendant communities and NPS visitors. Articles will be shared through email news blasts, published as bulletins/newsletters/brochures, posted on program websites or printed for display in park visitor centers.
------------------------------	---

ATTACHMENT 2: SECTION 1, ROW 34 - DRAFT AREA OF POTENTIAL EFFECTS



Legend

Cedar Windbreak	Post and Board Fence	Stairs	Utility Pole
Concrete Walkway	Post and Pipe Fence	Bench	Weather Station
Lawn	Post and Wire Fence	Cattle Guard	Dead Tree
Mixed Prairie	Stone Edge	Clothesline	Deciduous Tree
Parking Area	Stone Fence or Wall	Fountain	Evergreen Tree
Road Trace	Trail	Gas Pump	Shrub
Shrubland	Wire Mesh Fence	Gate	
Wood Deck	APE Boundary	Propane Tank	
Gate	Building	Sign	

ATTACHMENT 3: SECTION 2, ROW 27 - ULTIMATE TREATMENT

Treatment Recommendations • 6-9

The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes.

Natural Systems and Features

- Develop a vegetation management plan prior to undertaking any changes to Preserve vegetation or its treatment. Consider carefully, as part of a vegetation management plan, the issues associated with prescribed burning, biodiversity, historically appropriate crop and orchard species, the cultural requirements of the ornamental vegetation at the Z Bar/Spring Hill Ranch headquarters area, gallery forest ecology, Preserve preservation maintenance, crop and orchard management capabilities, and bison, cattle, and historic cattle breed grazing requirements. Conduct additional planning as part of related studies such as a bison management plan.
- Identify, control, and remove exotic invasive plants.
- Establish a periodic monitoring program to record populations of invasive alien plants within the Preserve, and utilize the data collected to inform ongoing maintenance procedures.
- Remove invasive alien species identified during monitoring activities using ecologically-sound removal techniques.
- Monitor water resources for invasive exotic plant species. Remove invasive alien species identified during monitoring activities using ecologically sound removal techniques.
- Retain and enhance riparian forest areas. Consider using prescribed burning to enhance the graminoid understory and help maintain the health of these communities.
- Retain and maintain all existing wetlands. Preserve wetland ecology for its role in flood control, sediment and erosion control, water supply, nutrient retention and removal, and pollution control.
- Preserve or establish vegetative buffers of a minimum 100-foot width along all edges of stream corridors and wetlands, and on erosive soils with slopes greater than 15 percent that abut wetlands, watercourses, and water bodies. Wooded buffer zones along the Preserve's streams can be classified as riparian woodlands, which require special consideration of their hydrology, plant communities, soils, and topography.
- Prevent livestock damage to banks and waterways by fencing stream margins and stock ponds that are in use and piping the water to adjacent troughs.

Prescribed Burning

- Create firebreaks to contain fire within the boundaries of planned mosaic plots by burning blacklines and setting backfires.
- Meet with neighbors and local law enforcement, and fire department officials to explain the proposed new burn regime.

October 2004

6-10 • Tallgrass Prairie National Preserve Cultural Landscape Report

- Consider proposing changes to the grazing lease to accommodate changes in the burn schedule, ensuring that livestock can be fed without disrupting vegetation cycles, and the burn schedule can accommodate livestock grazing needs.
- Coordinate burning activities with grazing regimes on Preserve land, as the two are environmentally and culturally interdependent.
- Consider mowing as an option for vegetation management in areas where life safety concerns are an issue, such as the shoulders of public roads, since smoke from burning can cause traffic accidents.
- Protect contributing historic plantings from fire damage.
- Conform to the procedures, safety recommendations, and state regulations in KSU Agricultural Extension publication L-664, “Prescribed Burning: Planning and Conducting.”
- Monitor carefully wind direction and weather conditions and their potential effects on the success of the burn.
- Consult local law enforcement regarding local ordinances. For example, when planning a burn within 1,000 feet of a public roadway, it is required by law that smoke not impede visibility on the road.
- Keep neighbors, fire department, and law enforcement officials apprised of specific burn plans and schedules.
- Ensure that fire does not travel beyond Preserve boundaries. Take particular precautions when burning occurs at a time that may be undesirable to and unexpected by neighboring ranches.
- Monitor woody species every three years to ensure that burning is preventing their colonization of the Preserve prairie.

Pasture and Agricultural Fields Management

(see Zone 2—Cattle Ranching Interpretation Pastures—for additional treatment recommendations)

- Maintain cattle ranching and grazing activities over the majority of traditional pastureland as much as possible. Continue leasing pastureland to private ranching operations to generate much-needed income where Preserve land is not being utilized for other important interpretive or ecological restoration activities. Take into consideration, however, that cattle ranching is also an important interpretive activity. Ensure that private ranching activities conform to the guidelines developed to protect the Preserve’s historic cultural and natural resources. Work with lease holders to re-establish traditional stocking practices and abandon double-stocking practices that appear to be contributing to detrimental changes in prairie character and composition.
- Maintain and enhance the health and diversity of the prairie landscape.

- Encourage best management practices, integrated pest management, soil and erosion control measures, and the planting of stream-side buffer strips in all lease agreements as well as when establishing agricultural exhibits, to minimize water pollution and degradation of natural systems.
- Avoid agricultural operations on slopes greater than 15 percent in areas of erosive soils adjacent to drainage corridors.
- Retain the open character of prairie tallgrass vegetation.
- Identify, monitor, control, and remove invasive exotic plants.

Visitor Access

- Avoid valuing recreational uses at the Preserve over natural and cultural resource protection.
- Consider confining recreational activities in those areas of the Preserve that are best suited for this use, such as those that are:
 - directly adjacent to existing public roads (affords minimal introduction of roads/parking areas)
 - out of major scenic viewsheds
 - not heavily utilized for livestock or bison grazing
 - not bottomland, floodplain or other fragile natural areas; do not include sensitive cultural resources, such as ruins or archeological sites; are not dangerous to visitor safety; and are not steeply sloped or do not contain rocky, erodible soils
 - existing roads and ponds that might be used for recreational infrastructure (minimal construction of new features to support uses)
- Avoid land use activities, either permanent or temporary, that threaten or impair known or potential archeological resources.
- Monitor and regulate use of the landscape to minimize immediate and long-term damage to cultural resources.
- Consider equally both natural and cultural features of the project area in treatment and land use decisions.
- Protect areas of cultural concentrations against both unwanted burning and trampling by livestock, including cattle and bison. Protection methods should be as minimal and unobtrusive as possible.
- Avoid permitting recreational uses that may endanger visitors, cultural resources, or the delicate prairie ecosystem; require intensive facility development; or conflict with resource protection goals. Examples of incompatible activities include organized field sports, off-trail horseback riding or mountain biking, ATV use, and sport hunting.

October 2004

ATTACHMENT 4: 2004 CULTURAL LANDSCAPE REPORT EXCERPT

Spring Hill/Z Bar Ranch Headquarters
Tallgrass Prairie National Preserve

Chronology and Physical History

Chronology:

Year	Event	Major Event Narrative
BCE * - 1856	Inhabited	Flint Hills have supported continuous, if intermittent, human occupations.
BCE 6000 - 1825	Cultivated	Horticultural activity.
BCE 6000 - 1856	Exploited	Human exploitation of diverse floral and faunal resources.
CE 1856	Platted	Government land survey completed.
CE 1856 - 1876	Homesteaded	Early Euro-American farmsteads, but few records exist with the Chase County Land Records.
CE 1856 - 1876	Abandoned	Most farmsteads on lands now in the Preserve were unsuccessful and thus were abandoned.
CE 1873	Land Transfer	Atchison, Topeka & Santa Fe Railroad received land now in the Preserve from the state of Kansas.
CE 1876	Land Transfer	Missouri, Kansas & Texas Railroad received land now in the Preserve from the U.S. government.
CE 1878 - 1888	Purchased/Sold	Stephen F. Jones bought and sold the property within the now existing boundaries of the preserve.
CE 1878 - 1888	Ranched/Grazed	Stephen F. Jones ran a large scale cattle ranching operation on the Spring Hill Farm and Stock Ranch.
CE 1878 - 1888	Built	Stephen F. Jones had the Spring Hill Ranch headquarters constructed as well as the stone fences that enclose the ranchlands constructed. Historic ranch headquarters built in 1881.
CE 1878 - 1888	Built	Decorative stone walls were developed for the terraced front lawn of the Spring Hill Ranch residence.
CE 1878 - 1888	Built	Jones built the barn at the Spring Hill Ranch headquarters to the southwest of the house. It was one of the largest barns built in nineteenth-century Kansas.
CE 1882	Built	Jones had a very large windmill installed on the north side of the barn roof.
CE 1882 - 1889	Removed	The windmill on the barn roof was removed during the 1880s.
CE 1888	Purchased/Sold	Stephen F. Jones sold his Chase County land holdings to Barney Lantry.
CE 1895	Planted	The 1895 census reported that Barney Lantry planted a variety of fruit trees, presumably most were planted in orchards, and all were described as fruit bearing.
CE 1895	Land Transfer	The Lantry lands (including the Spring Hill Ranch and Deer Park Place) were inherited by Henry E. and Charles J. Lantry.
CE 1907 - 1921	Purchased/Sold	In 1907 Charles Lantry sold most of the family land to C.C. Patten beginning a period when consolidated lands became divided.
CE 1907 - 1969	Moved	Through the 1950s and 1960s, many of the old stone fences were dismantled; the stone from the fences were used as riprap for new dams and other construction on the ranch.

Spring Hill/Z Bar Ranch Headquarters
Tallgrass Prairie National Preserve

Year	Event	Major Event Narrative
CE 1907 - 1993	Altered	Prairie burning is believed to have occurred through most of the twentieth century.
CE 1909	Purchased/Sold	Approximately 1080 acres of the now Preserve lands were sold to the Benninghoven family. This marked the return of a resident owner family to Spring Hill.
CE 1935	Land Transfer	The Sheriff of Chase County filed a sheriff's deed transferring the ranch lands from the Benninghoven family owners of the ranch to the Prudential Insurance Company of America.
CE 1935	Purchased/Sold	Prior to 1935 George H. Davis had purchased 10,000 acres of the old Spring Hill Ranch and in 1935 he purchased the former Benninghoven property reconsolidating the Lantry holdings under one owner.
CE 1935 - 1970	Ranched/Grazed	Cattle ranching activity on the Preserve lands was managed by Fred Howard, Sr. from 1935–1970.
CE 1940	Altered	Portions of the stone fences were reworked.
CE 1940 - 1949	Altered	Terrace wall system reworked at the historic ranch headquarters.
CE 1945 - 1946	Built	Quonset hut constructed at the Spring Hill/Z Bar Ranch headquarters.
CE 1950 - 1969	Built	Flag pole installed at historic ranch headquarters.
CE 1950 - 1969	Built	Fred Howard built approximately twelve cattle pens and watering structures in the pastures and near the barn at the Spring Hill/Z Bar Ranch headquarters.
CE 1955	Land Transfer	George W. Davis died. Deeds were transferred to the Davis–Noland–Merrill Grain Company later known as the Z Bar Cattle Company.
CE 1956	Removed	A portion of the original stone wall was removed at the Spring Hill Ranch residence when highway Route 177 was widened.
CE 1971	Established	The Spring Hill Ranch House was nominated to the National Register of Historic Places.
CE 1983 - 1986	Restored	There was a restoration effort for the Spring Hill Ranch residence during the 1980s.
CE 1980 - 1989	Removed	One of the silos was removed from its location behind the barn.
CE 1980 - 1989	Built	By the 1980s, some of the remaining old stone fences were reinforced with barbed wire.
CE 1980 - 1989	Built	The patio behind the Spring Hill house was built with the concrete staves from one of the silos when it was removed.
CE 1986	Purchased/Sold	The Z Bar Ranch was sold to the Boatmen's First National Bank of Kansas City.
CE 1994	Purchased/Sold	National Park Trust purchased the Z Bar Ranch.
CE 1996	Preserved	The National Park Trust acquired the majority of the combined former ranches of Jones and Lantry to ensure that the open land that they retained would be preserved as a tallgrass prairie. TAPR was established by Congress.

Spring Hill/Z Bar Ranch Headquarters
Tallgrass Prairie National Preserve

Year	Event	Major Event Narrative
CE 1994 - 1996	Built	A parking lot was added near the entrance to Spring Hill Ranch from Highway 177.
CE 1994 - 1996	Built	Overlook developed for the interpretive Self-guided tour.
CE 1995 - 2004	Ranched/Grazed	The National Park Trust (NPT) renegotiated cattle operations on the ranch. The NPT leases more than 98% of the Preserve to Edward Bass of Fort Worth, Texas, on a 35-year, prepaid, two-million dollar cattle grazing lease.
CE 2001	Removed	Quonset hut and pole barn removed (by NPT) from Spring Hill/Z Bar Ranch headquarters site.
CE 2002	Land Transfer	Federal government received title to 29.9 acres of the Preserve encompassing the Spring Hill/Z Bar Ranch headquarters area.



Tallgrass Prairie National Preserve
2480B KS Highway 177
Strong City, KS 66869