

## **ESTABLISH TWO ROTATIONAL BISON PASTURES**

### **INTRODUCTION AND PURPOSE AND NEED**

Chickasaw National Recreation Area (CNRA) manages a small herd of 6-10 bison as an interpretive exhibit representing the vast herds of bison that historically roamed the Oklahoma prairies. The bison have been an important part of the cultural landscape and visitor experience since 1920, when three animals were brought to Platt National Park from the Wichita Mountains Wildlife Preserve in Lawton, Oklahoma. The bison are one of the main visitor attractions throughout the year. A "Bison Viewpoint" highway pullout provides an easily-accessible area for public viewing. The 1.9-mile Buffalo Pasture Trail along the pasture's perimeter is popular among visitors and is one of the park's most-used exercise trails.

The bison herd has been in the Buffalo Pasture since 1934. Degradation of the Buffalo Pasture due to overgrazing and encroachment of woody vegetation has severely impaired the grazing capacity for the bison herd. Encroachment of eastern red cedar trees has greatly reduced areas where visitors can view the bison from the Buffalo Pasture Trail.

The purpose of this project is to (1) improve the bison health by increasing pasture area and forage quality and (2) provide visitors with a historic viewshed reflecting the Civilian Conservation Corps development years 1933-1940, and with better viewing areas of the bison. We propose to create two new pastures, which will provide a total of three pastures for rotational grazing of the herd. The three pastures will consist of the existing 84-acre Buffalo Pasture, a 60-acre pasture (Pasture Area 1) to be established in the Prairie Uplands east of State Highway 177, and a 30-acre pasture (Pasture Area 2) to be established around the Superintendent's Residence (Figure 1), providing a total of 174 acres for the bison.

The addition of the new pastures will allow rotational grazing of the herd, which will alleviate overgrazing and pasture degradation. Rotating the bison herd at key times will allow the vegetation in each pasture to be kept in optimum condition and will provide higher-quality forage to the bison. The additional pastures will allow the Buffalo Pasture to be rehabilitated, exotic plants to be controlled, and native-prairie vegetation to be restored.

Visitors will benefit from increased viewing opportunities of a healthier bison herd and improved vistas of the Prairie Uplands. The two proposed pastures will provide excellent public viewing opportunities from Highway 177, Perimeter Road, the Veterans Trail, and the Buffalo Pasture Trail. Because the proposed pastures are in close proximity to the Buffalo Pasture, visitors should be able to find and view the bison herd in any of the three pastures.

### **PROPOSED ACTION**

Two new pastures will be established in the Prairie Uplands of the Platt National Park National Historic Landmark District (Platt Historic District) and used as rotational pastures for the bison. This project will require removing 23 acres of invasive eastern red cedar trees (*Juniperus virginiana*) from around the Superintendent's Residence (Area 2); installing about 6,600 feet of tall-game fence around Pasture Area 1 and about 5,900 feet of tall-game fence around Pasture Area 2; constructing a new overlook and parking area east of U.S. Highway 177; and installing two new water troughs and water lines (Figure 1).

### **Pasture Area 1 (Prairie Uplands)**

About 60 acres of Prairie Uplands east of the Buffalo Pasture and U.S. Highway 177 (Area 1) will be fenced and used as a bison pasture. The proposed pasture is bounded by Highway 177 to the west, Veterans Trail to the east, and Perimeter Road to the south. The north boundary, which follows the trace of the former Broadway Avenue, was selected in order to avoid a wooded riparian area and archeological features associated with the Bland Hotel and the C.J. Webster House surveyed by Douglas et al. (2016).

About 6,600 feet of fence, which will match the historic Buffalo Pasture fence in character (Figure 2), will be installed around pasture Area 1. The 7-ft tall fence will consist of 3 strands of barbed-wire fence over a 48-in high, woven galvanized wire fabric, with 3-in diameter steel posts and 6-8 inch diameter corner posts. All steel posts will have rounded metal or concrete caps. About 550 steel fence posts will be installed, and the posts will be spaced at 12-ft intervals. The posts will require 12-in diameter holes dug to a depth of 36 inches. The steel posts will be cemented in place, and earth will cover the concrete at the surface. Gates that match the character of the fence will be installed to facilitate moving the bison herd from one pasture to another.

The fence will be spaced approximately 70 feet from Highway 177 and Perimeter Road to match the spacing between the Buffalo Pasture fence and Highway 177. The fence will be spaced 30 to 60 feet from the Veterans Trail to match the spacing between the Buffalo Pasture fence and the Buffalo Pasture Trail.

A buried water line, approximately 1,000 feet long, will connect to the main water line near the Pavilion Springs Residence and terminate where a small metal trough can be placed (Figure 1). The water trough will be located next to shrub vegetation to screen it from public view. A small pond in Area 1 (Figure 1) will also provide water for the bison.

An overlook designed to accommodate up to 8 cars and meet accessibility requirements will be constructed along the western edge of the pasture Area 1 and adjacent to U.S. Highway 177 (Figure 1) to allow visitors to park and view the bison in the pasture (Figure 3). The overlook will be constructed at a high point along the highway near the former ridgeline trail and fire break. Two entrance access roads will connect a paved parking area to Highway 177.

### **Pasture Area 2 (Superintendent's Residence)**

A 30-acre area south of the Buffalo Pasture and around of the Superintendent's Residence (Area 2) will be cleared of cedar trees, fenced, and used as bison pasture (Figure 1). The Superintendent's Residence was built by the Civilian Conservation Corps (CCC) in 1932 on a knoll in the middle of open prairie (Figure 4). The area around the residence was landscaped by the CCC with trees, ornamental plants, and Bermuda grass. Once open with views to the north and east, this area is now surrounded by red cedar trees and other woody vegetation (Hohmann and Grala 2004).

About 23 acres of red cedar trees and other woody vegetation will be mechanically cut and removed from Pasture Area 2. Some woodland will be maintained as a screen for the Superintendent's Residence. The retained woodland will be thinned, with female, over-mature and masses of young cedars (less than 8") removed from the area, as recommended by Hohmann and Grala (2004).

A minimum of 2-3 years will be needed to fully restore upland prairie vegetation in formerly wooded areas. Areas that have been cleared of trees are expected to naturally return to grassland

from the seed bank retained in the soil. Park staff will monitor regeneration of native prairie vegetation. If needed, areas will be reseeded with native grasses and forbs and mulched with prairie hay. Park staff will consult with Natural Resources Conservation Services (NRCS) range specialists and the NPS Southern Plains Network to determine the best seed mixes, prairie establishment techniques, and seeding times for the area.

In a similar project, conducted between 2001 and 2003, about 60 acres of eastern red cedar trees were removed from Area 1, and native grasses and forbs rejuvenated within a couple of years. Area 1 has since been burned twice to maintain the native prairie and to prevent invasion of woody vegetation.

About 5,900 feet of fence, which will match the Buffalo Pasture fence in character, will be installed around Pasture Area 2. The fence will have the same specifications as the Pasture Area 1 fence described above. Gates matching the character of the fence will be installed in adjacent pasture fences to facilitate moving the bison from one pasture to another. The fence will be spaced about 70 feet from Highway 177 and Perimeter Road to match the spacing between the Buffalo Pasture fence and Highway 177. Pasture Area 2 will be separated from the Buffalo Pasture by the Buffalo Pasture Trail #3 (LCS# 62992). The proposed pasture fence will be spaced 30 to 60 feet from the trail to match the spacing between the Buffalo Pasture fence and the trail.

A paved overlook that can accommodate 8 cars will be constructed to allow visitors to park and view the bison in Pasture Area 2. An underground water line, about 1,000 feet long, will be installed to provide water to a small metal water trough, which will be placed among woody vegetation to screen it from public view. The fence alignment, overlook, water line, and water trough locations will be determined after the cedar trees are removed. Compliance actions for the overlook, water line, and water trough in Pasture Area 2 will be addressed at a later time.

### **Other Pasture Areas Considered**

Other potential rotational pasture areas were identified and considered early in the planning process. The following alternatives were identified but determined to not be viable:

- A 133-acre area in the Bluestem Prairie along Guy Sandy Creek was recommended to be studied in the 2008 General Management Plan to determine the possibility of introducing bison from the Platt District. This option would limit visitor access and viewing of the bison and would be limited to non-hunting seasons. Fencing would further hinder hunting in this area. This option would require bison to be transported by truck.
- A 60-acre area between Veterans Lake and Bromide Hill was considered too rocky to serve as a productive native prairie pasture and would require bison to be transported by truck.
- A 13-acre area east of the Inkana Bridge was considered too small and would require bison to be transported by truck.

### **CULTURAL LANDSCAPE**

The Cultural Landscapes Inventory of Chickasaw National Recreation Area (NPS 2002) describes the component landscape of the Buffalo Pasture and Prairie Uplands as primarily a natural landscape with few visitor facilities. The Superintendent's House is one of the few structures located in the landscape. The landscape of the Buffalo Pasture and Prairie Uplands has not changed appreciably

since the period of significance (1933-1940). Contributing elements to the landscape include the following:

- Natural System Features (hilltop terrain)
- Spatial Organization (three functional clusters/overall layout)
- Cultural Traditions (animal pasturing)
- Land Use (animal pasture)
- Topography (rolling terrain)
- Vegetation (Eastern deciduous forest, prairie, and understory)
- Circulation (perimeter road, Highway 177, Trails #2 and #3)
- Buildings and Structures (Superintendent's House and Garage)
- Small Scale Features (Trail #3 culverts and walls, Buffalo Pasture fence, dam and pond)
- Views and Vistas

Contributing elements particularly germane to this project (cultural traditions, land use, vegetation, and views and vistas), as described in the Cultural Landscapes Inventory (NPS 2002), are listed below.

**Cultural Traditions:** This area has been used for a variety of purposes since the 1900s, including use as animal pasture and golf course. The major cultural tradition associated with the Buffalo Pasture and Prairie Uplands is the pasturing and display of animals, particularly bison. Mules used for park maintenance were pastured in the area south of the Maintenance area beginning in 1917. The display of animals for the public's enjoyment has been an ongoing tradition within the park since 1917, when the park acquired three deer. Since the 1920s, the park has displayed other animals, including elk and bison. Today, bison are the only remaining animals, and the Buffalo Pasture has been in its current location since 1934.

**Land Use:** The Buffalo Pasture and the Prairie Uplands area has served primarily as a day use for visitors to view and experience the natural environment including plants and animals. Bison have grazed the western half of the area and visitors have wandered the southwestern portion on foot and by car since 1934. The east half has been left pretty much untouched as a naturalized area since the removal of the 9-hole golf course in 1937.

**Vegetation:** The Buffalo Pasture and the Prairie Uplands are predominantly native and undisturbed along the valley streams, and are rehabilitated along the Upland Prairie, which is a mixture of open mixed grasslands and a xeric oak savanna community.

The Upland Prairie that once surrounded the Superintendent's Residence (Area 2) has been replaced by a thick stand of eastern red cedar trees, which has changed the appearance of the landscape from the way it was during the period of significance to the Upland Prairie landscape today, which is much less open than it was in 1940.

**Views and Vistas:** Views and vistas within this landscape were, and in some places, continue to be striking. Particularly important in the original design were views from the park's trails and the Perimeter Road.

Viewing "windows" along the Perimeter Road offer park visitors glimpses of the rolling hills and geologic features of the Upland Prairie. However, cedar trees that have grown up along the edges of Perimeter Road and Highway 177, and along trails now block views of the landscape. Particularly

striking is the fact that open views to the west across the Buffalo Pasture are practically non-existent today because of woody vegetation that has covered large open areas.

Likewise, the area around the Superintendent's Residence (Area 2) is no longer open and does not provide viewing opportunities; as a result the area has lost its original prairie feeling.

### **Effects on Cultural Landscape**

The proposed rotational pastures would have minimal adverse effect on the cultural landscape:

- The proposed pastures would be consistent with the major cultural tradition of using the areas for pasturing and displaying animals, particularly bison.
- Land use of the Buffalo Pasture and the Prairie Uplands would continue to serve as a day use for visitors to view and experience the natural environment including plants and animals.
- Vegetation in Area 1 would continue to consist of Prairie Uplands vegetation. Vegetation in Area 2 would be restored to the Upland Prairie that once surrounded the Superintendent's Residence.
- Removing 23 acres of woody vegetation around the Superintendent's Residence would provide more views and vistas of the Upland Prairie from Perimeter Road, Highway 177, and along the Buffalo Pasture trail.
- The Buffalo Pasture will be rehabilitated.
- Bison health would be improved by increasing pasture area and forage quality.
- CNRA staff will monitor the old golf course dam in Area 1 for soil erosion and will stabilize it if necessary.

### **REFERENCES CITED**

Hohmann, Heidi and Katarzyna Grala. 2004. Cultural Landscape Report Platt Historic District, Chickasaw National Recreation Area, Oklahoma. Iowa State University, National Park Service.

National Park Service. 2002. Cultural Landscapes Inventory, Chickasaw National Recreation Area. Intermountain Region.





## Proposed Bison Pasture Project Areas

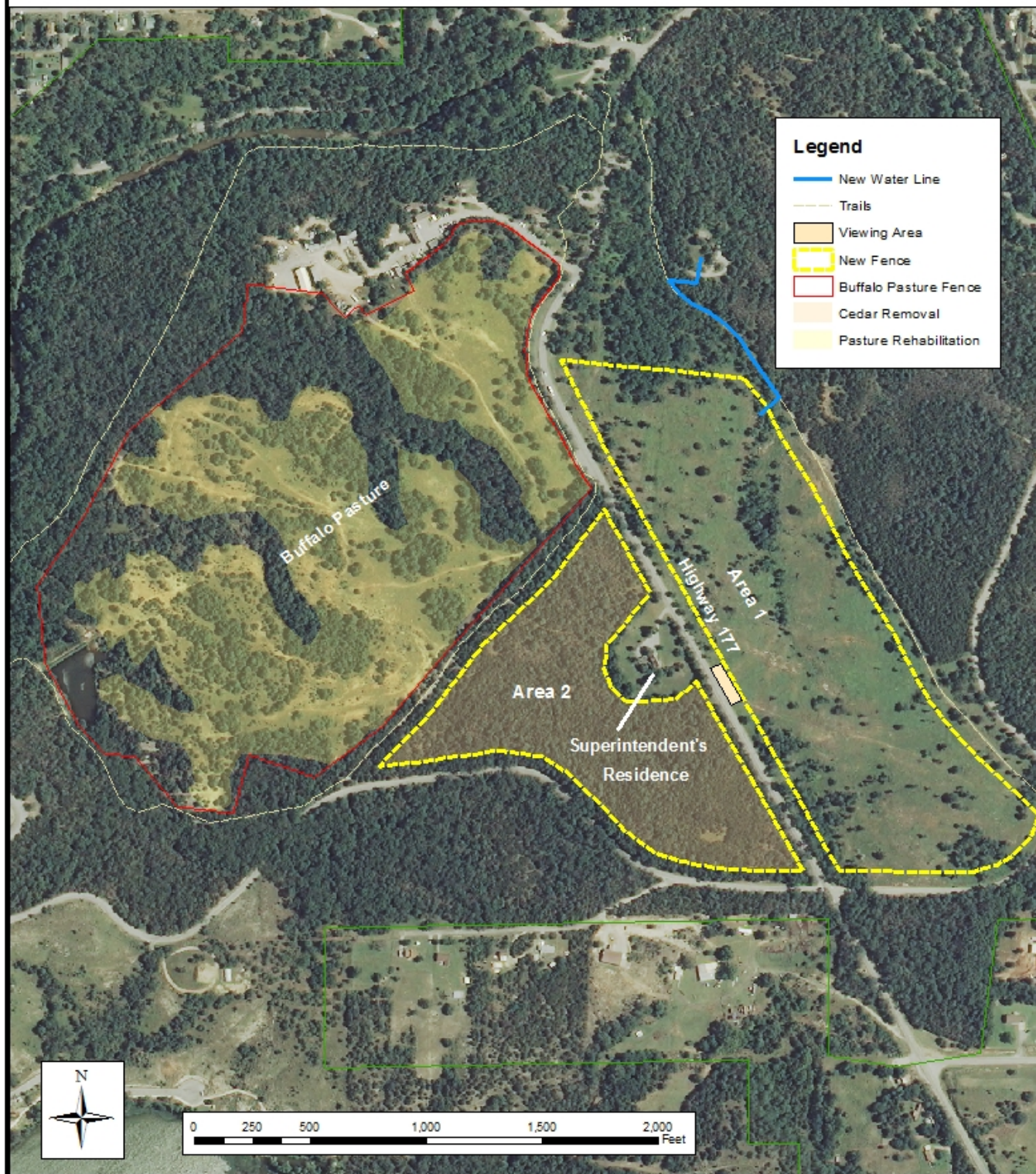


Figure 1. Location of proposed pastures.





Figure 2. Photograph of Buffalo Pasture fence and trail, 2016.



Figure 3. Photograph of view from proposed overlook east of Highway 177, 2016.



Figure 4. Superintendent's Residence and surrounding landscape, 1933.