



**SITE-SPECIFIC MANAGEMENT SHEET  
TIER-3 RESOURCE MANAGEMENT PROPERTY**

**Property Name:** Battle Bluff Prairie

**Property Designation or Type:** State Natural Area

**SNA Designation Number:** 177

**Property Location:** Vernon County

**Real Estate:**

Project boundary acreage: 338

Fee acres owned: 338

Dedicated acres: 94 (File #D017 (1987); File #D104 (1992))

DNR Easement acres: 7.3

Federal aid interest: DNR file #NA 845 Grantor: Michael A. Loesl. This parcel was used as state match (e.g. land bank) for the biennial USFWS State Wildlife Grant (SWG) #T-3-L-2.

Land use agreements: None

**Maps:**

- A. Project Boundary
  - B. Existing Cover Types
  - C. Existing Roads and Infrastructure
  - D. Management Focal Areas
- 

**Property Manager:** **Armund Bartz, Driftless Area Ecologist**  
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Prepared By (District Ecologist):

Name: Armund Bartz

Title: Conservation Biologist

Date: 4/28/2016

Reviewed/Approved By: (Bureau)

Name: Erin Crain-Sullivan

Title: Fish, Wildlife, and Parks Deputy Division Administrator Date: 4/28/2016

Approved by Natural Resources Board: Date: May 25, 2016

## A. Regional and Property Assessment

- 1. General Property Description (topography, soils, vegetation, water resources):** Battle Bluff Prairie, the site of one of the Black Hawk War battles, contains southern dry forest and a south-facing dry prairie on a steep slope. The diverse prairie flora is interspersed with limestone boulders, sandstone outcrops, and a few stunted trees. More than 80 species of native prairie plants have been identified. Grasses include big and little blue-stem, side-oats grama, hairy grama, Canada wild-rye, and needle grass. Forbs include lyre-leaved rock-cress, butterfly milkweed, Illinois tick-trefoil, northern bedstraw, yellow-star grass, wild bergamot, rough blazing-star, prairie phlox, and bird's-foot violet. On the top and at the bottom the prairie gives way to forest dominated by oaks, birch, and basswood. The bluff rises some 480 feet to the top where one has a clear view for many miles to the south across the Mississippi River. The rapid warming of the steep, south-facing slope forms convective thermals that are used by migrating raptors. A small pond as well as some riparian corridor wetland also occurs on the property.
- 2. Ecological Landscape:** [Western Coulee and Ridges EL](#) is characterized by its highly eroded, unglaciated topography with steep sided valleys and ridges, high gradient headwaters streams, and large rivers with extensive, complex floodplains and terraces. It offers the best opportunities in the state to maintain many of southern Wisconsin's natural communities. Many rare species have been documented here due to the diversity, scale, types, condition and context of the natural communities present.
- 3. Ownership and Adjacent Land Uses:** Includes the Upper Mississippi River National Fish and Wildlife Refuge, state highway, stream, woodland, old field, agriculture, residential, and a secondary road.
- 4. Property Management Issues, Trends and Needs:**

Invasives: crown vetch, buckthorn, garlic mustard. Currently, crown vetch poses the greatest threat to Battle Bluff prairie and buckthorn the greatest threat to Battle Hollow prairie. Garlic mustard is the greatest threat to the woodlands.

Invasives control history: red cedar, buckthorn and other shrubs were cut off the 2 large prairies beginning in about in about 1992 and sporadically since that time with a more intensive effort beginning in 2012. Crown vetch control above state highway 35 on Battle Bluff occurred from 2011-2013 and again in 2015 and garlic mustard control has been nearly annual

since 1999 at Battle Hollow. All this effort was incomplete and needs follow-up.

Forestry/Silviculture: A timber harvest took place in February of 2014.

An intensive prescribed fire regime will be needed to help reach ecological goals of the property for both the woodland and the dry prairie.

Prescribed burn history: Battle bluff prairie was burned in 1975, April of 1986, May of 1992, March of 1999, March 3 of 2005 (winter burn), and January 19 of 2011. Battle Hollow prairie and associated savanna was burned in 1997, 2010, 2012, 2013, and 2015 (2010-2015-only eastern portion of prairie burned in these years).

5. **Facility/Amenity development:**
  - a. **Existing:** 1 native surface parking area, 0.1 miles of native surface maintenance/service road
  - b. **Future:** no additional
  
6. **Endangered, Threatened, Special Concern Species or Habitats, and wildlife Species of Greatest Conservation Need:** One state endangered, 2 state threatened, and 10 state species of special concern are known from the general area. For detailed EO data, see Appendix A.
  
7. **Conservation Opportunity Area:** Rush Creek (11.12)
  
8. **Easements:**
  - a. Multiple landowners, 7.0 acre public access easement. Easement originally purchased from Harlan Flick. File #NA 691
  - b. Anita Stouvenel, 0.3 acres – public access easement
  
9. **Land use Agreements:** None
  
10. **Significant Cultural and Archaeological Features:** State Natural Areas (SNAs) may contain historic Native American or Euro-American sites. Activities with potential to disturb archaeological sites will only be undertaken after consultation with the DNR Archaeologist. Any sites with cultural or historical value will be managed in accordance with guidance and statutory requirements (see ss. 44.40 and DNR Manual Code 1810.10). More details can be found in Appendix B.
  
11. **Refuges and other Closed Areas:** None

12. **Primary Public Use:** Recreational uses such as hiking, fishing, cross country skiing, hunting, trapping, scientific research, wild edibles collection, , and wildlife viewing are allowed. Reference the State Natural Areas [Visitation Guidelines](#) and the [property's specific webpage](#) for more information.
13. **Biotic Inventory needs:** Currently, no plant or vertebrate inventory needs have been identified beyond normal monitoring through established SNA Site Inspection protocol. There is, however, a lack of knowledge regarding prairie dependent invertebrate diversity and potential impacts to these species through management techniques such as prescribed fire, mowing, and grazing. Research is needed to help determine both the diversity of invertebrates at these remnant sites and especially the impacts of management techniques. The Department acknowledges this and is moving forward with research to address this to help improve management outcomes for these species.

## B. **Property Purpose and Goals/ Management Objectives and Prescriptions**

### 1. **Property Purpose and Goals**

- a. **Purpose:** The purpose of the SNA Program is to protect outstanding examples of Wisconsin's native landscape of natural communities, significant geological formations and archeological sites. Natural areas are valuable for research and educational use, the preservation of genetic and biological diversity, and for providing ecological benchmarks for determining the impact of use on managed lands. They also provide habitat for numerous rare plants and animals.
- b. **Goal:** Manage the site as a reserve for dry prairie and oak savanna (oak opening and open oak woodland), and as an ecological reference area.

### 2. **Management Objectives by Natural Community Type:**

- a. Restore approximately 160 acres of open oak woodland, 15 acres of oak opening, and 40 acres of dry prairie remnant. Allow the development of old forest conditions on approximately 115 acres.
- b. Maintain a continuum of fire-dependent native communities from dry prairie and oak opening to oak woodland.
- c. Create overstory conditions that allow enough light to penetrate the canopy and reach the forest floor to stimulate light dependent

understory oak savanna species that are currently suppressed from inadequate light.

- d. Manage savannas in areas adjacent to existing prairie remnants, on south, southwest, or southeast-facing slopes that are not identified on the accompanying Native Community Management Focus Area maps.
- e. Expand the size of remnant dry prairie openings to maintain conditions favorable to native prairie vegetation.
- f. Develop and maintain natural transitions between different plant communities and reduce hard edges between different cover types.
- g. Increase the diversity and abundance of remnant dry prairie and oak savanna vegetation and associated animal species with emphasis on rare species.
- h. Maintain or increase existing populations of Species of Greatest Conservation Need.
- i. Restore and maintain oak savanna to provide long-term hard mast food source and habitat for wildlife and game species such as wild turkeys.
- j. Expand the size of remnant dry prairie openings to provide thermal cover and an important late winter food source for white-tailed deer, wild turkeys, and other wildlife.
- k. Prevent introduction of new invasive species, and ensure long-term limitation of the spread, reproduction and impact of existing invasive species.
- l. Restore and maintain open areas around appropriate rock structures as an important habitat component for herptiles.
- m. Allow old forest characteristics, including biologically mature trees, large diameter trees, structural diversity, standing and down course woody debris, and an uneven canopy to develop on the steep north facing slopes that are currently converting to southern mesic forest.

**3. Management Prescriptions by Natural Community Type:**

- a. The ecological characteristics of the oak savanna will be primarily shaped by a frequent, low intensity fire management regime. Prescribed fire will be used to restore and maintain a continuum of fire-dependent upland communities from dry prairie and oak opening to oak woodland.
- b. In the oak savanna the native dominant tree species (primarily oaks) are managed passively. However, some thinning of the canopy via timber harvest, as well as understory manipulation and shrub control via cutting, brushing, and herbicide application may be needed to mimic natural disturbance patterns.

- c. Timber harvests will focus on removal of central and northern hardwood species and walnut (primarily non-oak and hickory species), some thinning of suppressed oak where dense patches occur (leaving largest diameter/crowned individuals), or where small-crowned individuals are shading open-grown, larger-crowned trees.
- d. Retain snags as important habitat features, unless they conflict with other objectives (such as hazard trees near roads, or prescribed fire hazards).
- e. In the dry prairies, the native species are managed primarily through tree/shrub control using cutting and brushing combined with herbicide application, and limited prescribed fire combined to mimic natural disturbance patterns. Occasional fire-tolerant oaks, hickories, and native shrubs such as hazelnut may be retained at low densities.
- f. Allow natural processes and passive canopy management to determine the structure of the steep north-facing slopes (southern mesic forest). Retain snags and coarse woody debris to promote old growth characteristics.
- g. Contain or eradicate invasive species through the use of department approved manual, chemical, biological, and mechanical practices, as well as prescribed fire.
- h. Leave large patches of unburned refugia for prairie remnant dependent invertebrates within prescribed burn units.
- i. Follow Incidental Take Protocols for listed species <http://dnr.wi.gov/topic/erreview/itgrasslands.html>
- j. Consider impacts to both reptiles and prairie invertebrates regarding both timing and ignition techniques of prescribed burns.
- k. For additional guidance, see the Xeric Prairie, and Oak Savanna, State Natural Areas Management Guides (WDNR, 2010).

**4. Special Management Issues and/or constraints:**

- a. There are extensive legal limitations to the application of prescribed fire on the large prairie remnants due to the extreme rarity of several invertebrates. For more details, follow the Incidental Take Protocols for Grassland and Savanna Species: <http://dnr.wi.gov/topic/erreview/itgrasslands.html>
- b. Salvage of trees after a major wind event can occur if the volume of woody material inhibits fire prescriptions.
- c. Access is allowed to suppress wildfires.
- d. Maintenance of existing facilities.
- e. Augmentation of the ground layer after careful review and

documentation would only add species that historically would have been found on the site, using seeds or plugs from local genetic material. Follow the steps below based on seed availability:

- (1)** Collect seed on-site, distribute to depauperate areas.
  - (2)** Collect seed from remnant sites within 50 miles east/west and 25 miles north/ south.
  - (3)** Purchase seed from local nurseries who can identify source location that meets the about criteria. Consult with NHC Botanist to ensure appropriateness of any nursery introductions.
- f.** A Wisconsin DOT scenic easement is in place along Highway 35; the area may be managed sporadically by state.
- g.** Roadside easement areas may be managed sporadically by state, county, and township.
- h.** Utility corridor management occurs sporadically within the utility corridor easement.

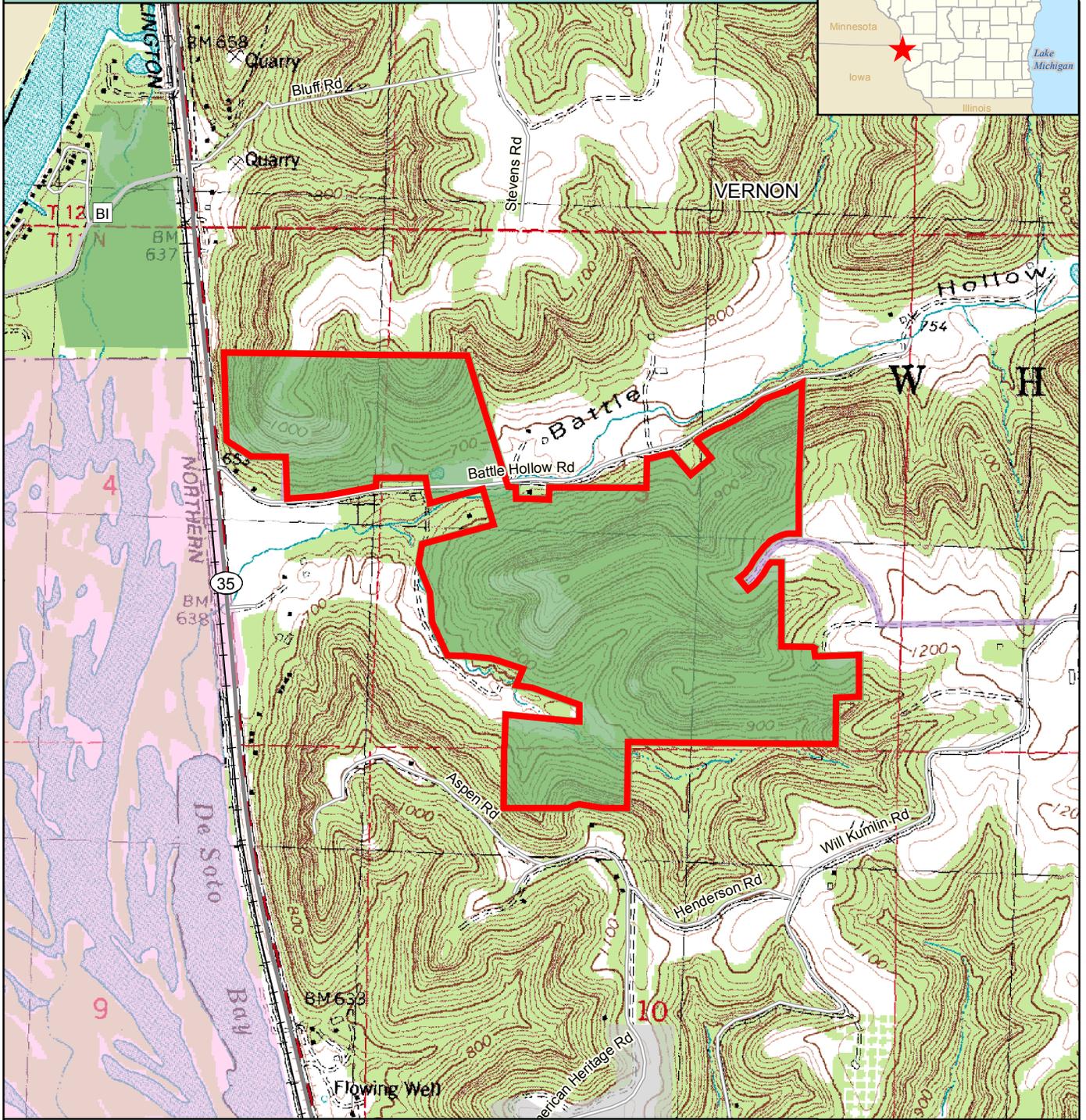
**Table 1: Current Facilities or Infrastructure**

<b>Type of Facility</b>	<b>Total (number/length)</b>	<b>Management Activities</b>	<b>Management Issues and Constraints</b>
Roads – public	None		
Roads – maintenance/service	0.1 mi. (native surface)	Occasional clearing of downed trees on the road	
Roads – access easement	3,000 feet	Periodic maintenance with gravel, rock, and/or grading	
Parking lots	1 (native surface)	Occasional mowing as needed	
Boat landings	None		
Designated trails	None		
Dikes, ditches	None		
Dams	None		
Other			

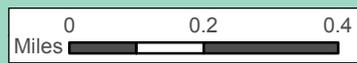
**C. Additional Comments:**

# Battle Bluff Prairie State Natural Area

## PROJECT BOUNDARY



-  Project Boundary
-  DNR Owned
-  DNR Easement
-  US Fish & Wildlife



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 Bureau of Natural Heritage Conservation  
 Jun 08, 2016

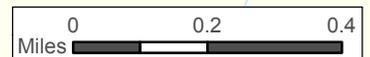
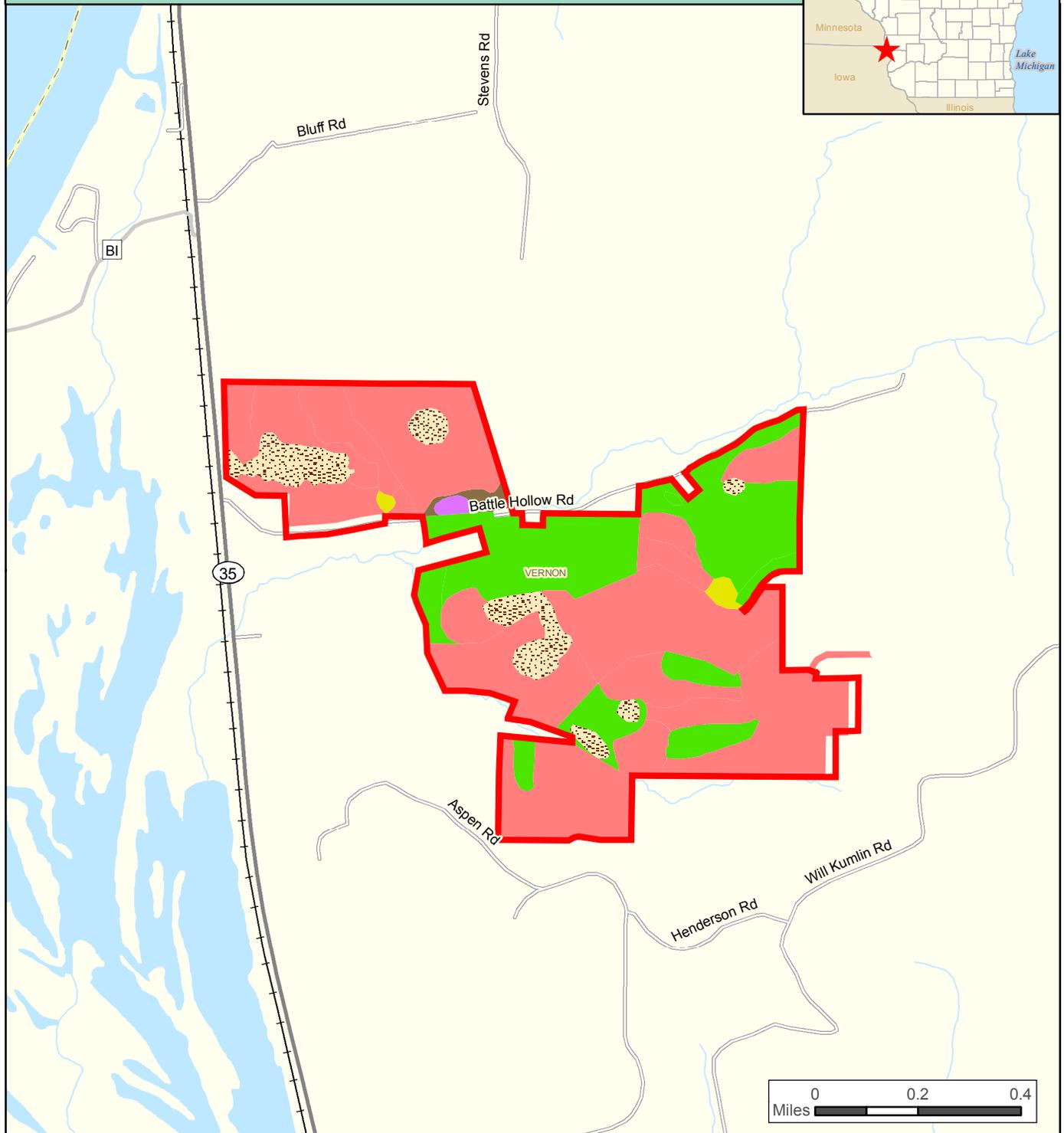


SNA Tier 3 dmh  
**MAP A**

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# Battle Bluff Prairie State Natural Area

## EXISTING LAND COVER



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May 26, 2016

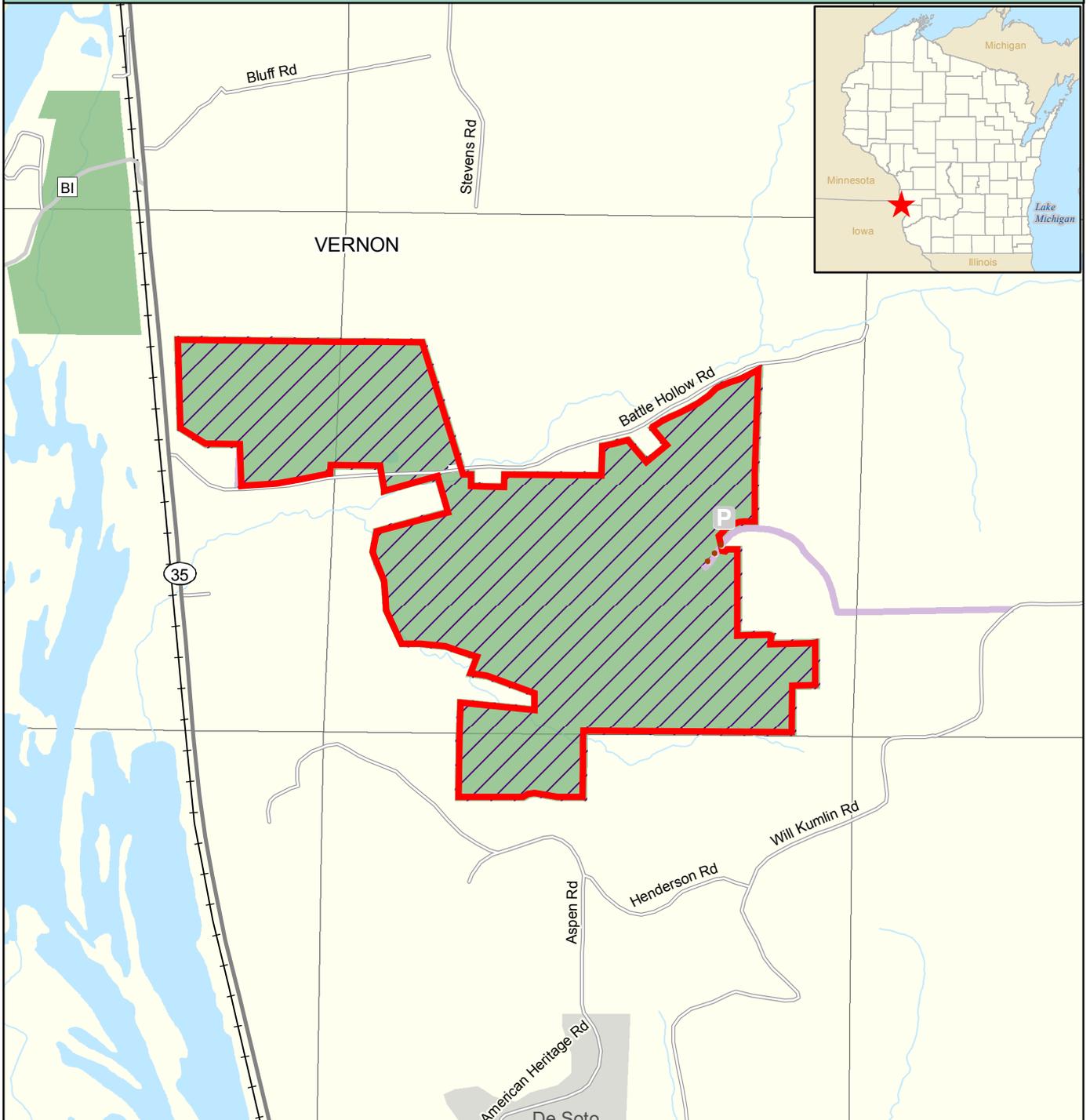
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### MAP B

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# Battle Bluff Prairie State Natural Area

## EXISTING ROADS AND INFRASTRUCTURE



-  Project Boundary
-  State Natural Area
-  DNR Owned
-  DNR Easement
-  Primitive Road - closed to public use

 Parking Lot



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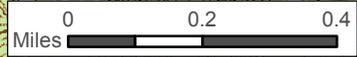
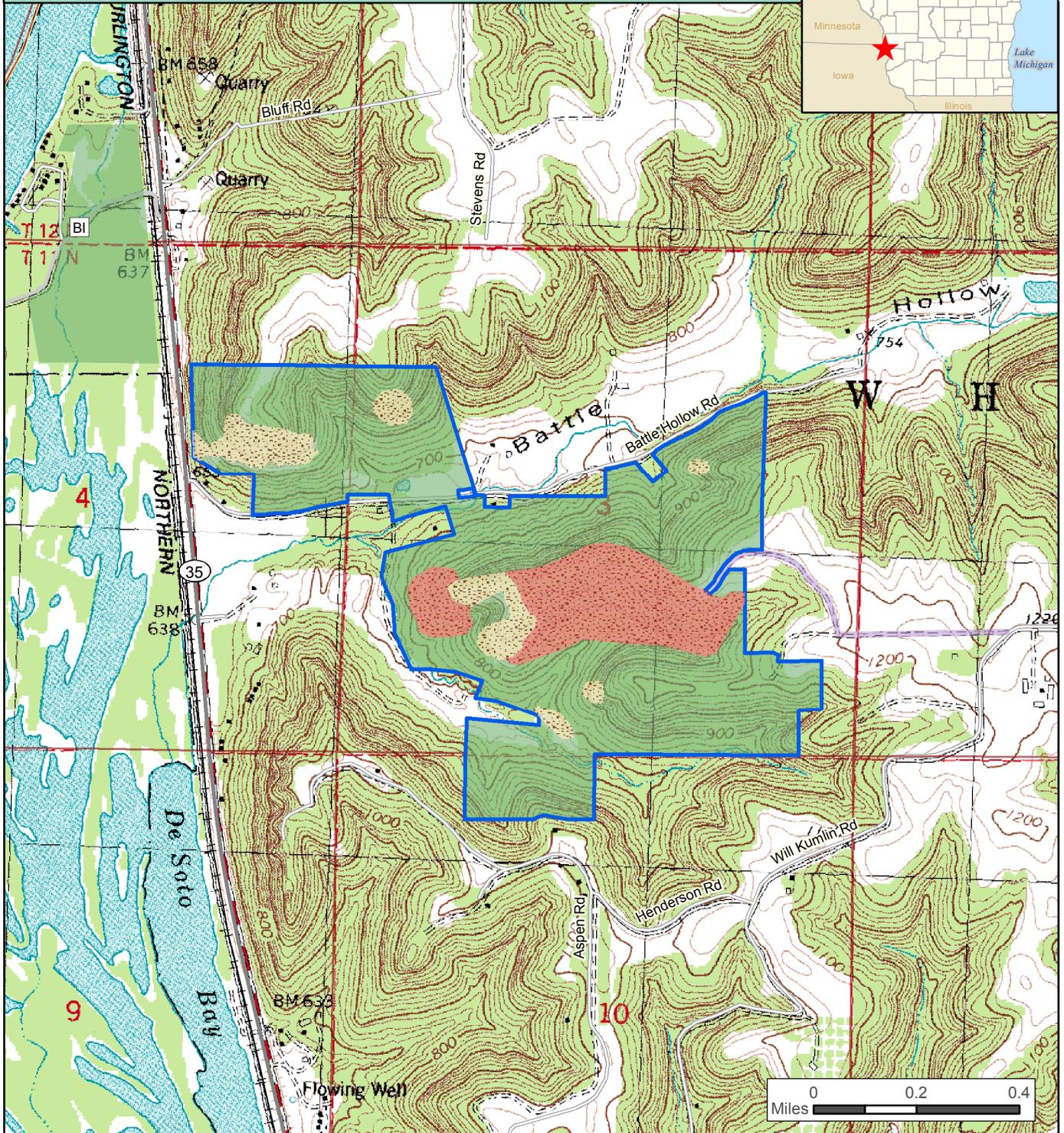
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### MAP C

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# Battle Bluff Prairie State Natural Area

## MANAGEMENT FOCAL AREAS



-  Prairie remnant
-  Oak Woodland/Oak Opening
-  State Natural Area
-  DNR Owned
-  DNR Easement

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 Jul 19, 2016



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### MAP D

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