Sauk Prairie
State Recreation Area

Master Plan &
Final Environmental Impact Statement

version approved by Natural Resources Board December 2016

Wisconsin Department of Natural Resources
Bureau of Parks & Recreation


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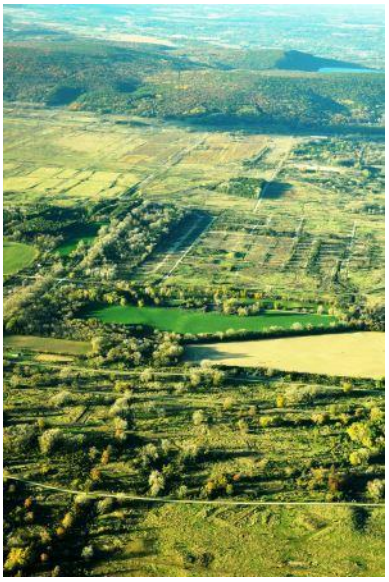


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All Department of Natural Resources properties are required to be covered by a Master Plan describing the scope, purpose and management of the project. This Master Plan complies with NR 44, Wis. Adm. Code - Master Planning for Department Properties.

To the Reader

In 1997, the U.S. Department of Defense decommissioned the Badger Army Ammunition Plant (BAAP). Following negotiations with the General Services Administration[1], the Ho-Chunk Nation (HCN), Dairy Forage Research Center (DFRC), Sauk County and others, the Department of Natural Resources (department) agreed to accept former BAAP lands that were not transferred to HCN or DFRC. In 2002, the Natural Resources Board approved creation of the Sauk Prairie State Recreation Area on lands that the department ultimately received. In 2004, the department formally applied to the National Park Service's Federal Lands to Parks program and began receiving title to parcels in 2011. The department has received 3,051 acres to date; the deeds for the last three parcels are expected to be transferred to the department soon.

Department properties are required to have plans describing their use and management, typically over a 15 year period. In developing these master plans, the department follows Administrative Code NR 44. The planning process gathers information about regional ecological and recreational needs and opportunities, public ideas and perspectives, property characteristics and features, alternative management strategies, and potential positive and negative impacts. The public has multiple opportunities to provide input during the planning process.

Chapter NR 150, Wis. Admin. Code, defines property master plans as integrated analysis actions that do not require additional environmental analysis. Because of the timing and uniqueness of this project, however, the department determined to follow the environmental impact statement (EIS) process for this project.

The department prepared a draft version of the master plan and a draft environmental impact statement based on the previously developed Badger Reuse Plan, the Regional and Property Analysis, the many previous inventories and documents related to the BAAP, and public input. The department also periodically met with representatives from the HCN, DFRC, Sauk County, Wisconsin Army National Guard (WIARNG), and other interested groups during the development of the draft plan.

The department released the initial draft master plan and draft environmental impact statement for public review on August 11, 2015 for a 45-day comment period. A public open house and hearing was held September 10, 2015 in Sauk City. The department received extensive comments during the public review period. The initial draft master plan document and EIS were modified based on those comments.

This revised master plan document and final EIS contains descriptions of the proposed use and management of the property, potential impacts, alternatives evaluated, the public's inputs and perspectives on the draft document and the department's responses. As such, it is both a proposed property master plan and a final Environmental Impact Statement (EIS) that is in compliance with ch. NR 150, Wisconsin Administrative Code, and s. 1.11 Wisconsin Statutes. The purpose of an EIS is to inform decision-makers and the public of the anticipated effects on the quality of the human environment of a proposed action or project and alternatives to the proposed action or project. The EIS is an informational tool—it is not a decision document.

The department may not begin implementing the master plan for the Sauk Prairie State Recreation Area until it is approved by the Natural Resources Board.

Note: The WIARNG currently conducts limited helicopter training exercises at the SPSRA. The department fully supports this use; however, it appears that conditions related to the transfer of the property to the department restrict the WIARNG's ability to continue conducting training exercises here. As such, unless the situation changes, the WIARNG will be required to phase out training at SPSRA. Further information on this issue is found on page 35.

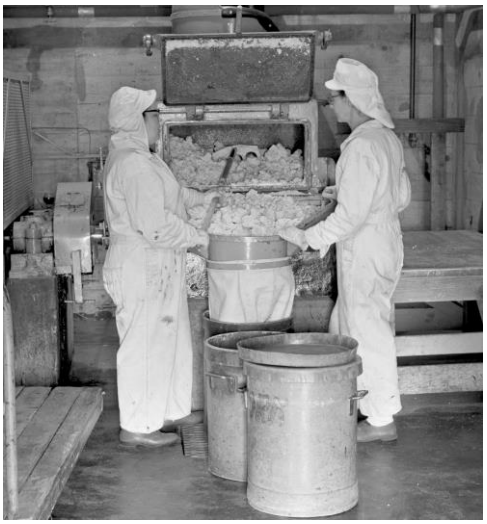
[1] The General Services Administration (GSA), among other responsibilities, is a branch of the federal government that facilitates the transfer of surplus property.

EXECUTIVE SUMMARY

This corner of the once expansive Sauk Prairie has a uniquely complicated and consequential human and natural history. The 7,300-acre Badger Army Ammunition Plant, known by many as simply "Badger," has touched people's lives in profound and uncommon ways and, as a result, justifiably engenders many passionate feelings. The land here means different things to people depending on how they connect to the property, its past and future.

At its inception, the Badger Ordnance Works, as the facility was initially named, was the largest manufacturer of propellant in the world. The construction and operation of the plant had significant impacts on neighboring communities. With over 10,000 workers involved in the initial construction in 1942 and over 6,000 people working in continuous shifts at the plant during WWII, the region quickly recovered from the Great Depression. Today, several local businesses remain that got their starts in the early days of constructing and operating Badger. Although the plant fueled economic growth, disposal of waste products and contaminants followed the protocols of the day, which are now recognized as improper and inadequate. The result was contaminated soil and groundwater. Few places in the state have had such a substantive impact on the daily lives of nearby residents who rightly have strong beliefs about future use of the property.

Workers removing nitro-cotton from a kneading machine.



Badger History Group archives

Prior to the construction of the plant, the site was home to some 80 farm families that raised a variety of crops and animals on the exceptionally fertile soils. On short notice, families – some who had farmed their land for generations – were evicted. Like the Native Americans before them, these families did not want to leave their homes. Those hoping to remain in farming were forced to quickly find other properties to purchase, followed by the grueling task of moving their animals, hay and stored grains, equipment, and personal possessions – all in the middle of winter. Some farm families, upset at the perceived cut-rate offers for their land, found themselves in the difficult position of petitioning the federal government for a fairer price at a time when the national mood encouraged self-sacrifice in the face of world war. These former residents and their descendants understandably have deep-rooted feelings about this land and its future.

Beginning long before settlement by Euro-Americans, the Ho-Chunk people inhabited the area, growing numerous crops and living off of bison, elk, deer and other game. The Ho-Chunk Nation's connections to this area are both deep and unique and, as neighboring landowners, the Nation appropriately has a keen interest in the department's plans for management and use of Sauk Prairie State Recreation Area.

In the face of the massive land use changes resulting from the construction, operation, and maintenance of the propellant plant, an unintended but positive ecological outcome emerged. With fire an annual threat even when the plant was idled, many parts of the facility were grazed and mowed to reduce fuel loads. Although they lacked the diversity of native prairies, these grasslands provided the right structure and conditions for many birds. As changing agricultural practices and conversions of farmland decimated populations of grassland birds

Landowners of the former Badger Army Ammunition Plant

Wisconsin Department of Natural Resources	3,385 acres
Dairy Forage Research Center	2,105 acres
Ho-Chunk Nation	1,553 acres
Bluffview Sanitary District	164 acres
Wisconsin Department of Transportation	60 acres
Town of Sumpter	4 acres

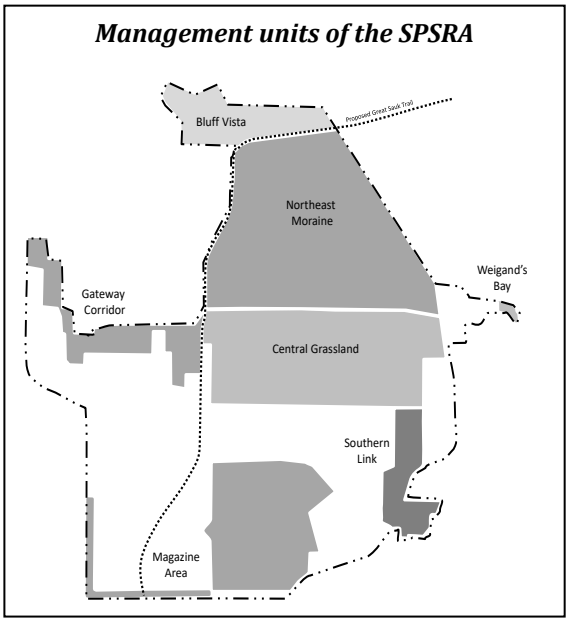
throughout the Midwest, meadowlarks, bobolinks, bobwhite quail, dickcissels and others thrived at Badger. Like other military installations around the country, the Badger complex became a refuge for numerous rare species.

For many current Wisconsin residents, Badger has been and remains the mysterious place on the "other side of the fence." For decades, thousands of cars a day drove past the enormous industrial complex that represented the single largest and most visible expression of Wisconsin's contribution to World War II and the Korea and Vietnam conflicts. Today, nearly all of the 1,400 buildings that comprised the plant have been taken down, utilities lines, steam pipes, and railroads have been removed, countless tons of materials have been recycled, and contaminated sites have been remediated. Vast and imposing in its day, the infrastructure of Badger has been nearly eliminated from the landscape.

Although most of the physical vestiges of the site's past – representing the lives of native peoples, the farms and community of the Euro-American settlers, and the manufacturing facility that supplied our national defense – are now largely gone, the human connections to this place remain.

The master plan

This master plan lays out the Wisconsin Department of Natural Resources' (department) proposal for the management and use of Sauk Prairie State Recreation Area (SPSRA). SPSRA comprises about half of the former Badger Army Ammunition Plant (BAAP) and came to state ownership through the Federal Lands to Parks program following the formal decommissioning of the property. The department's ownership is not a contiguous block, but an irregular arrangement primarily in two holdings. The department will continue working with the other landowners of the former BAAP on a variety of common issues related to land management and public recreation.



Much is proposed in this master plan. To more easily present and implement the proposed recreation uses and habitat management actions, the property is divided into seven management units based upon commonalities of their vegetation, past and future uses, and other factors. Each unit has a set of objectives and an associated group of strategies to achieve them.

What is proposed for recreation?

A blend of recreation activities that take advantage of the property's attributes and features are proposed, including a variety of trails for hiking, biking, horseback riding, snowmobiling and snow shoeing. The department's goal is to provide high quality half-day or day-long experiences for a range of abilities. Being immediately adjacent to Devil's Lake State Park, SPSRA is well positioned to provide many activities that complement the camping, swimming, fishing, hiking, picnicking and other opportunities provided there.

Hunting and bird watching, as well as fishing along Lake Wisconsin at the old pump house, are expected to be very popular at SPSRA. In addition, a 72-acre Class 2 dog training ground is proposed in the far southern portion of the property. Several day use areas – with shelters, picnic tables, grills, vault toilets, and educational kiosks – are also proposed. Building on the popularity of the rocket launch site at Bong State Recreation Area in Kenosha County, the department is proposing a small, 2-acre site at SPSRA for clubs to launch rockets up to 10 days a year.

A key component of the recreational activities will be to incorporate the property's human and natural history into visitor experiences through a variety of approaches. Fortunately, a local history group has assembled an impressive array of artifacts, pictures, and stories from the BAAP era. Few places in Wisconsin or the Midwest are as rich with

cultural, historical, geologic, and ecological stories and the department seeks to capitalize on this unique opportunity.

During the planning process the department received many responses to the potential inclusion of ATVs (and motorized recreation in general) and a shooting range at SPSRA; a large majority of the reaction was in opposition to both. After considerable deliberations, the department proposes to re-purpose up to half of the biking and equestrian trails and roads at SPSRA for use by dual-sport motorcycles on up to six days each year. The trails would be closed to other users during these days. No ATV trails or riding opportunities are proposed at SPSRA.

Although no shooting range is proposed in this master plan, the department recognizes the need to provide additional public shooting ranges in southern Wisconsin. The department will continue evaluating options to meet this need at one of its properties in the area, including the Lower Wisconsin Riverway, SPSRA, or other lands in Sauk County. The public will have multiple opportunities to provide input in the process of siting a new shooting range.

What is proposed for habitat management?

From a habitat perspective, Sauk Prairie State Recreation Area can play a pivotal role in the regional conservation of grasslands and savannas and their constituent species. Of particular note here are two unique opportunities: (a) managing lands as part of an ecological continuum of habitats from the southern dry-mesic forest (in Devil's Lake State Park) to oak woodland to oak opening to grassland, and (b) managing large blocks of grassland and oak opening habitats. Although there are other large blocks of grassland habitat in southern and central Wisconsin, this is likely the largest and most viable opportunity to restore and manage a large-scale forest to grassland transition.

The plan proposes that much of SPSRA on the glacial moraine (generally east of the proposed Great Sauk Trail) be restored to oak opening, which was the dominant habitat present before settlement. In addition, a large part of the Central Grassland and part of the Magazine Area will be managed as open grassland. The Hillside Prairie, a high quality remnant that has long been the focus of local conservation efforts, is a priority to maintain and the master plan calls for the remnant to be expanded and connected with the larger grassland to the east.

Invasive species, particularly shrubs, have taken over large portions of SPSRA and are the most pressing management challenge. The plan calls for a variety of techniques to address these plants, including grazing.

Featured recreation opportunities (proposed)

- Visitor center with display space, outdoor amphitheater, interpretive trail & picnic area.
- Hiking trails (20 miles)
- Biking trails:
  - Recreational, family-friendly (15 miles)
  - Mountain bike (10 miles)
  - Great Sauk Trail (5 access points to SPSRA)
- Equestrian trails (12 miles)
- All hunting seasons from mid-October through the first three spring turkey periods. Pheasant stocking.
- Trapping from Nov. 15 to Feb. 15.
- Day use area at the former reservoir site with an overlook deck, shelter and amphitheater.
- Horse trailer parking, corral, and loading area with picnic shelter and vault toilet.
- Day use area at Weigand's Bay with accessible fishing platform or pier, carry-in boat access and picnic shelter.
- Special event staging area with picnic shelter, vault toilet, grills, and a large grassy field.
- Rocketry site with launches up to 10 days/year.
- Lake Wisconsin overlook with shelter, picnic tables, grills and trailhead.
- Re-purposing trails and roads for use by dual-sport motorcycles (up to 6 days/year).
- Horse-drawn vehicles on equestrian trails.
- Snowmobile trail on the east side of the SPSRA.
- A 72-acre Class 2 dog training area.
- Off-leash dog use in part of the Magazine Area.

Habitat management (proposed)

Grasslands	1,519 acres
Oak Openings	1,647 acres
Oak Woodland	181 acres
Other	38 acres

Are portions of the property still contaminated? What hazards remain?

The site's use as an industrial facility that manufactured propellants resulted in contamination of some areas with chemicals and byproducts used in propellant manufacture, as well as asbestos, lead paint, PCBs and oil. Contaminants were found in buildings and storage areas and spread through the sewer system and ditches. Groundwater beneath the site is contaminated in four discrete plumes.

The U.S. Army and its contractors undertook extensive remediation efforts to address these contamination issues. As a result, all lands within SPSRA now meet the environmental thresholds for use as a recreation area. The Army continues to assess and test the groundwater and visitors will see monitoring wells (red pipes) throughout the property. The responsibility for maintaining the monitoring wells, landfills and capped areas remains permanently with the Army. The Army is also responsible for addressing any contamination resulting from its use of the BAAP property that may be found later.

What are the anticipated impacts of implementing the master plan?

The most substantial impact of implementing the proposed master plan will be the restoration of large blocks of grassland and savanna habitats that, in turn, are expected to lead to sizeable increases in populations of associated birds, mammals, insects and other species. Combined with the management of the adjacent 1,500-acre grassland tract on the Ho-Chunk lands, in the years to come this area is likely to support some of the most important populations of rare grassland birds in Wisconsin. The management of the ecological continuum of habitats from deep forest to savanna to grassland is also likely to be of regional importance.

The master plan proposes a wide variety of recreational uses at SPSRA as well as trail networks, day use areas, a visitor center, and other facilities to provide high quality experiences for visitors. The recreational uses of the property, including hunting, snowmobiling, mountain biking, rocketry, bird watching, dual-sport motorcycle riding, and others, are expected to have impacts to plants and animals, other visitors, and neighboring landowners. However, these impacts are expected to be limited in their intensity, duration, and geographic extent. In light of the substantial and long-term increases in populations of native species at SPSRA (including many rare species) that are anticipated from habitat restoration and management, the recreational uses of the property are expected to have relatively minor adverse impacts on the property's biological diversity.

The costs to restore native habitats, remove existing buildings and structures, develop new trails, build a visitor center and other facilities are expected to approach $9 million dollars. Although these costs will be spread out over time and may be shared by several partner groups, it will be many years before the proposed vision described in this master plan is achieved. As opportunities for visitors to enjoy the property increase over time, visitation levels are expected to climb and with it an associated economic benefit to local communities and the state. The department expects many of the visitors to the adjacent Devil's Lake State Park will also visit SPSRA to bike, bird watch, learn about the site's past, and engage in other activities.

What happens next?

Although SPSRA opened to the public in April 2015, the property will be in a transition phase for many years to come. Other than trails on some of the former roads, currently there are no amenities for visitors. The department proposes to place initial focus on continuing to clean up rubble and debris, securing the few remaining buildings, filling the worst of the potholes, placing boundary signs, and other tasks to ensure that visitors have a safe experience.

The department is aware of strong interest in redeveloping two locations currently closed to the public: the reservoir site and the old pump house at Weigand's Bay. The enormous reservoirs are a safety hazard and need to be razed and filled in. The pump house, which has been an eyesore for neighbors, is also a safety concern in its current condition. In addition, other relics of the complex's past need to be removed, including many miles of deteriorating roads, numerous pipes and metal rods, and various utility structures and building foundations.

The agency will work with the Ho-Chunk Nation, Dairy Forage Research Center, Sauk County, local governments, and conservation, recreation, and education groups with an interest in helping SPSRA reach its potential. Of particular promise is interest expressed by the Wisconsin Army National Guard (WIARNG) to address some of the clean-up and development work at SPSRA as part of their training exercises. The department is in ongoing discussions with the WIARNG on this front.

As with the recreation facilities, there is far more habitat restoration and management work to be done than the department has the capacity to address over the next 15 years. Large areas of the property are dominated by invasive shrubs while other areas have been stripped of their topsoil. Some portions have been leveled, while others have been ditched. Non-native weeds are the primary vegetation in many places.

Initial management efforts will address the invasion of shrubs in areas that still provide some level of surrogate grassland and oak opening habitats and where prescribed fire remains an effective management technique. In some portions of the property, it is likely that other management approaches, such as aggressive brush cutting and grazing, will be needed before prescribed fire will succeed as a management technique. Another initial target will be to remove some of the pine plantations that fragment grasslands.

Many people who visit the property will want to better understand its history. Starting with the Ho-Chunk, followed by the early Euro-American settlers and farmers, and then the construction, operation, and eventual deconstruction and restoration of the BAAP, the property is one of Wisconsin's most consequential places and its profound past is of interest to many – both to tell and to hear. The department will rely on many others to help develop both the content and methods for telling the stories of this unique place.

Before the buildings were removed, the view looking north over a portion of the Gateway Corridor. Ho-Chunk Nation land is in the central part of the image and USH 12 can be seen in the upper left climbing over the Baraboo Hills.

John Olson, 2004

The upcoming implementation phase for SPSRA in many ways has its roots back in 2000 when the Sauk County Board of Supervisors established a locally-driven process to help shape the future of the former Badger Army Ammunition Plant. The Badger Reuse Committee, a 21-member group of representatives from neighboring communities, local, state, and federal governments, and the Ho-Chunk Nation, together forged a common vision, expounded through a set of values and criteria, "that can be meaningfully considered and realistically implemented by the appropriate local, state, and federal agencies." The proposed use and management of SPSRA described in the following pages is intended to help achieve important portions of the vision for the former BAAP crafted fifteen years ago.

Figure 1: Conceptual plan of the future Sauk Prairie State Recreation Area.

CHAPTER I: INTRODUCTION AND OVERVIEW

As the country's entry into World War II grew imminent, the federal government established a series of production facilities across the country to support the war effort. The Sauk Prairie site was selected as a propellant manufacturing plant for many reasons, including: the land was fairly flat with good drainage, it was close to the Wisconsin River that could supply the enormous amounts of water needed, it was close to cities and villages that could provide an adequate labor force but far enough away for safety purposes, and it was supported by several local officials. The Badger Ordnance Works, as the plant was originally named, was one of 23 facilities in the country that produced explosives or propellants for WWII. At the time of its construction, Badger was the largest propellant manufacturing plant in the world; ultimately it produced over a billion pounds of smokeless gunpowder and rocket propellant for WWII and the Korean and Vietnam wars. The U.S. Department of Defense decommissioned the Badger Army Ammunition Plant in 1997.

The former BAAP property includes lands that were heavily disturbed and degraded during construction and operation, as well as other lands held in reserve, some of which remained in agricultural use over the entire life of the plant. Most of the farmland was transferred to the USDA Dairy Forage Research Center. Approximately 1,550 acres in the northwest section of the BAAP property are now owned by the Ho-Chunk Nation.

The department has received 3,051 acres of the BAAP property from the federal government (of the 3,385 acres it is expected to ultimately receive) for the establishment of the Sauk Prairie State Recreation Area.[2] The department acquired the parcels that comprise SPSRA through the Federal Lands to Parks program in a series of transactions starting in 2011. The department's portion of the former BAAP is a mix of lands – many parcels were developed intensively, others sparsely. A portion in the northeast section of the SPSRA property remained relatively undeveloped and was the focus of conservation efforts dating back decades; a small amount was continuously cropped. The property lies at the southern border of Devil's Lake State Park, which with over two million visitors a year is Wisconsin's most popular state park. SPSRA is about halfway between Baraboo and Sauk City/Prairie du Sac.

Note:

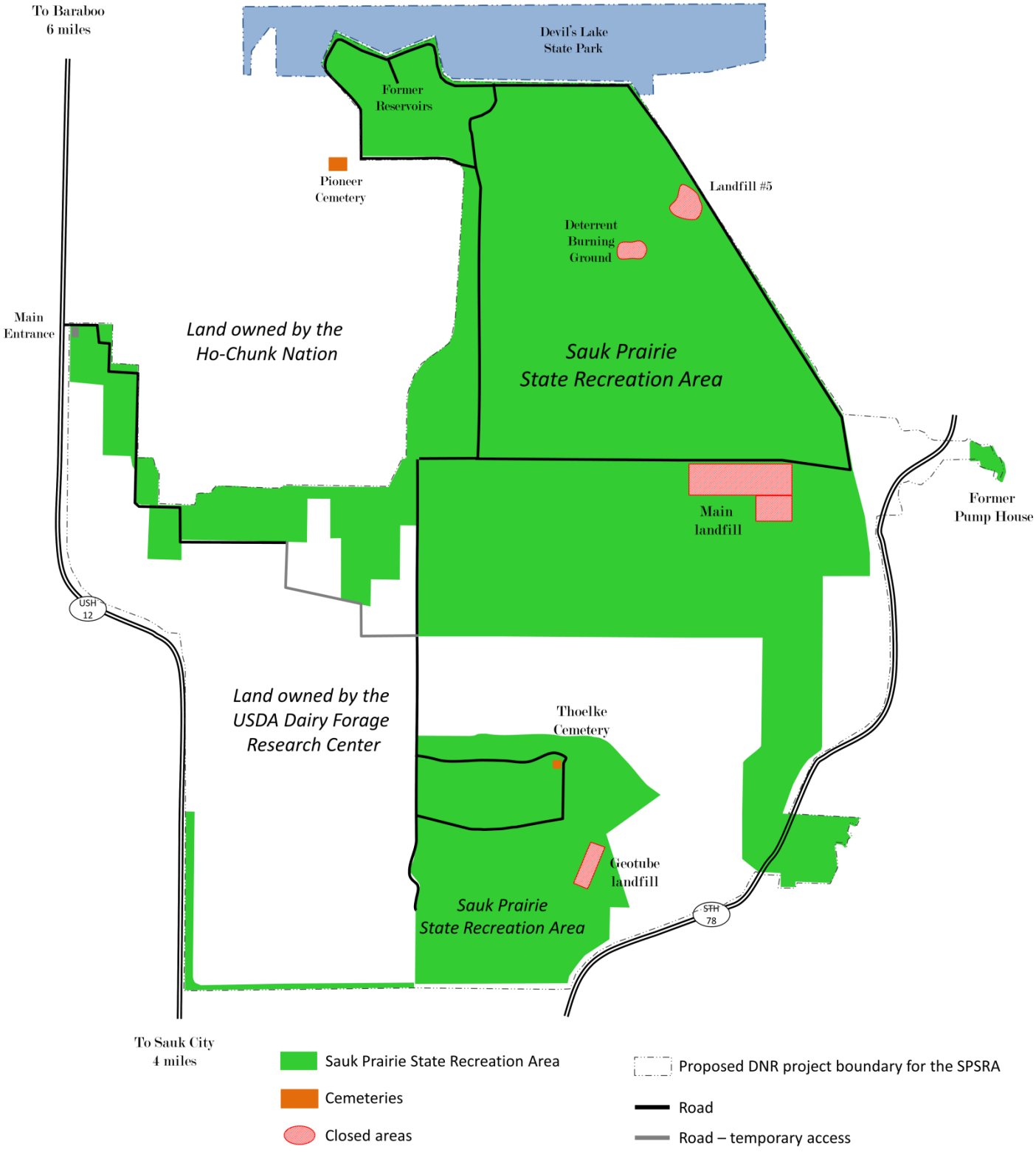
The U.S. Army mapped the different areas of the BAAP property using a system of labels and names (e.g., "V3" and "East Rocket Press Houses"). These parcel boundaries were used in the allocation of the BAAP to the future owners. The parcel labels are sometimes used in this document to identify specific areas within the management units and sub-units.

Map B depicts the U.S. Army parcel map. A system of locator points for visitors and emergency personnel was recently developed by the department and is shown on Map C.

The Johnstown Terminal Moraine, a low ridge that runs in a roughly north-south orientation down the middle of the BAAP property, marks the western edge of the great Laurentide Ice Sheet. Lands to the east of the terminal moraine are rolling with undulating topography, wet depressions, and a few ponds. Oak openings, with their scattered, open-grown oaks over grasses and forbs, historically dominated much of this portion of the property. To the west of the terminal moraine, the outwash from the melting glacier formed a gently sloping plain of gravel, sand and silt over 100 feet thick. This was part of the great Sauk Prairie, a 14,000-acre tallgrass prairie that stretched from the ancient Baraboo Range to the sand barrens of the Lower Wisconsin River valley. At the northern edge of the BAAP property was oak woodland, a fire-maintained habitat with more densely grown trees on the rocky soils of the south face of the Baraboo Hills.

[2] Final approvals to transfer three parcels, M1 (the Settling Ponds area, 161 acres), R3 (a maintenance and salvage area, 36 acres) and V1 (the main landfill, 137 acres), are still being processed.

Figure 2: Department of Natural Resources' ownership at Sauk Prairie State Recreation Area.



A. "User's Guide" to this master plan

This master plan is arranged slightly differently than most, in large part to accommodate the wide range of people interested in the future plans for SPSRA. The document begins with this introductory chapter, which describes the purpose of master plans, an overview of the planning process, the guiding principles in developing the plan, how the other landowners within the former BAAP are planning to manage their lands, and how the department acquired the property.

The bulk of the document is found in Chapter II, which lays out the proposed management, development and use of SPSRA. In the first part of the chapter, the property vision and goals are described, along with some background information on legal authorities and classifications. Then, the proposed plan is presented in three ways:

The first section presents the proposed uses of the property **by activity**. This section begins on page 19 and is intended to make it easier for readers that are interested in particular recreational activities and property uses to see the overall scope of what is proposed at SPSRA.

The second section presents the proposed land management prescriptions **by general habitat type**. This section begins on page 37. The same set of management prescriptions will be used to manage particular habitat types, regardless of where they occur on the property. For example, the suite of actions the department will use to manage oak openings will be the same across the property. Thus, rather than repeat the descriptions of all the management actions that may be used for oak openings in each part of the property where they occur, they are presented just once here.

The third section presents the proposed recreation and habitat management plan **by portions of the property**. This part begins on page 55. To more easily and effectively present the proposed uses and habitat management strategies, the property is divided into seven units, based upon commonalities of their vegetation, past and future uses, and other factors. Each unit (see Figure 9 on page 18) has a set of objectives and an associated group of strategies to achieve them. For habitat management purposes, the units are subdivided into a total of 24 sub-units. **Although the proposed management is presented here by units, SPSRA will be managed as a whole, single entity. In addition, the department will continue to work with all the landowners to coordinate and collaborate on management issues across the entire former BAAP property.**

The remainder of Chapter II addresses the proposed management of cultural and historical resources, infrastructure and facilities, general policies and real estate practices. Also included is a brief listing of potential research opportunities as well as descriptions of some of the initial management priorities the department hopes to address in the coming years.

Chapter III provides a brief overview of supporting information. Considerably more background information is available in the large number of assessment, inventory, and planning documents that have preceded this master plan. A reference list at the end of the document (Appendix 2) notes many of these background sources. Chapter IV presents an analysis of potential positive and negative environmental impacts from the proposed plan. Chapter V describes the major alternatives that were considered, but not included. Finally, Chapter VI summarizes the public involvement process leading to this draft plan.

B. Purpose of master plans and the planning process

Property master planning is a process that is used to determine how a property will be managed and developed. The development of master plans is governed by NR 44, Wis. Adm. Code. Master plans serve the following purposes:

- To manage the resources on department properties according to their land use capabilities, consistent with the long-term protection and use of these resources, as required by NR 1.60(4), Wis. Adm. Code.
- To provide a sound basis for decision-making by department staff, administrators, and the Natural Resources Board consistent with the Wisconsin Environmental Policy Act (WEPA).
- To integrate all appropriate department programs and interests into the management and use decisions for the property.
- To provide clear and specific direction on the management, development and use of the property for property managers, administrators, and the interested public.
- To set a long-range vision and goals for the management and use of department managed properties and associated public waters consistent with property capabilities and regional and statewide needs.
- To establish management objectives, priorities and prescriptions necessary to meet individual property goals.
- To give interested persons and other governmental units opportunities to provide input in how properties will be managed and used.
- To provide consistent, long-term management of properties regardless of personnel changes.
- To relate program input (e.g., money, staff, land acquisition, and facility development) to program output (e.g., resources protected or restored, recreational opportunities provided).
- To provide preliminary estimates and justification for the budget process to help ensure that funding is provided for developments specified in the master plan.

The following general principles were applied in developing this proposed master plan:

- Seek an appropriate blend of recreational experiences and habitat conservation in meeting the property's vision and goals.
- Understand public ideas and perspectives on future uses.
- Be cognizant of the land's resource capability, the role of the property in its local and regional context, regional recreation supply shortages, applicable federal and state laws, Administrative and Manual Codes, DNR design standards, and the professional expertise of department managers.
- Strive to provide high quality experiences for the primary recreational uses.
- Seek to maximize large block management and minimize habitat fragmentation.
- Seek to protect and provide interpretation of the site's important cultural and historical resources.

All planning processes start out with data gathering and analysis and a plan to enable property users and other interested people to be involved. An integrated team approach involves all appropriate department programs. The collective knowledge and information provided by these department resource professionals, information about the property and the region, and input from property users and others interested in the property are all essential for developing a quality plan. The last step in developing the plan is review and approval by the Natural Resources Board. Opportunities for public involvement are provided throughout the planning process.

On occasion, the department proposes to conduct management actions or change public uses of a property that are not addressed in the property master plan. Depending on the extent of the change, either a variance or amendment to the master plan (NR 44.04, Wis. Adm. Code) must be approved before the new management or public uses can be authorized. Both the variance and amendment processes provide for public input and comment.

C. Purpose of State Recreation Areas

State recreation areas are managed and administered by the State Parks program in accordance with Wis. Stat. s. 23.09. The primary purposes of recreation areas can be to provide multiple high quality outdoor recreation opportunities, provide regional or urban recreation opportunities, or for preservation of important resources. Unlike other property designations, formal "zones" can be incorporated within the property and the recreation uses and number of people using the zones may be limited. This provision is intended to be applied where the department believes it is necessary or appropriate to restrict access in order to improve visitors' experiences or minimize impacts to sensitive resources. No designated "use zones" are proposed in this master plan.

D. Property overview, history, significance, and restrictions on future use

As has been stated earlier, Sauk Prairie State Recreation Area is one of the state's most distinctive and exceptional holdings. The property is part of the former Badger Army Ammunition Plant and was transferred to the state from the federal government through the Federal Lands to Parks program. Its past use and historical importance are unlike any other property in the portfolio of public lands in Wisconsin.

SPSRA is meaningful on many fronts. It offers the best opportunity in southern Wisconsin, if not the Midwest, to manage the continuum from a large forest block (in Devil's Lake State Park) to oak woodlands to oak openings to large open grasslands. This natural gradient was once far more common on the landscape, but has been eliminated on a large scale. The property's other important ecological niche is the opportunity to manage large blocks of grassland and oak opening habitats and to coordinate with the HCN and DFRC on the management of their lands.

From a recreation perspective, the property is large enough to provide several different types of activities and is particularly well suited to provide trail-based opportunities that, at least initially, take advantage of the many miles of former roads. Although the roads are of varying quality and surfaces and tend to be straight, these characteristics are part of the site's history and help tell the story of the property. Maybe most uniquely, the property also provides an opportunity to blend interpretation and education about the extraordinary human and natural history of the site with habitat restoration and recreational use.

Contamination and restrictions on future use

The site's use as an industrial facility that manufactured propellants resulted in some areas being contaminated. Contaminants included chemicals and byproducts used in propellant manufacture, asbestos, lead paint, PCBs and oil. The contamination was found in buildings and storage areas and spread through the sewer system and drainage ditches. Groundwater under the site is contaminated in four discrete plumes.

The U.S. Army and its contractors undertook an extensive remediation effort to address these contamination issues. As a result of this work, all of the lands within the SPSRA meet the environmental thresholds for use as a recreation area. However, two types of areas have permanent restrictions on future use:

(1) landfills and other sites capped with clay to prevent infiltration of precipitation, and

(2) areas where contaminants were treated and cleaned but the potential exists that additional contaminants may occur four or more feet underground.

As with most landfills and capped sites throughout the state, the ones here have restrictions on digging or disturbing the soil (e.g., raking, tilling, excavating, and plowing) to ensure their integrity.

The areas that were cleaned to a depth of four feet may be used for surface-based activities, such as recreation, farming, and parking, but may not be used for residential, utility, or subsurface recreation purposes.

The department is required to receive approval from the U.S. Army before using groundwater from under the property.

E. Overview of the planning process and public participation

Although SPSRA property is unique in many ways, the process used to develop this master plan generally followed the department's typical sequence of planning phases. The first phase focused on writing the Regional and Property Analysis (RPA), a synthesis of the attributes and features of SPSRA and its broader context. Public input on the RPA was gathered in the summer of 2012. The RPA and public comments were then used to develop a draft vision, recreational and ecological goals, and three conceptual alternatives for SPSRA. The department went beyond its usual protocol and presented these to the public for their review and comment. Public comments on the draft vision, recreational and ecological goals, and three conceptual alternatives were gathered in the summer of 2013 and summarized in a document released in November 2013.

Those documents, along with previous documents related to the use and management of the BAAP (e.g., the Badger Reuse Plan), discussions with other landowners of the former BAAP, Sauk County officials, and others, and all the public input were then used to develop the initial draft master plan and environmental impact statement. That document was released in August 2015 for a 45-day public comment period. The department hosted an open house and public hearing to present information and gather input on September 10, 2015. A summary of all the comments received during the comment period, as well as copies of all the comments received, was released in October 2015. Those comments, along with input and recommendations from the National Park Service received in May 2016, were used to develop this final draft document. Additional information on public involvement is presented in Chapter VI.

F. Opportunities in the SPSRA planning process

In developing the master plan for SPSRA, department staff took advantage of the following unique opportunities:

- Extensive background material.
  The Badger Reuse Plan[3], the department's Federal Lands to Parks program application to the National Park Service (NPS), community discussions and dialog, inventories, and other planning documents are a strong foundation from which to build the draft master plan. The BAAP property has a long history of assessment and community evaluation that informs the current planning process (see Appendix 2: Reference List).
- Continuum of habitats.
  SPSRA offers a unique opportunity to manage a continuum of habitats, from forest to savanna to grassland, on a large scale.
- Adjacency to Devil's Lake State Park.
  SPSRA's connection with DLSP, the most visited as well as the largest state park in Wisconsin, provides the opportunity to maximize recreation and habitat outcomes.
- Unique history of SPSRA.
  The many facets of the property's past can be incorporated into visitor experiences through a variety of education and interpretation tools. The property has many stories to tell and provides a unique opportunity to connect visitors to many geologic, environmental, social, and historical issues of our state's past and present.
- Conservation farming.

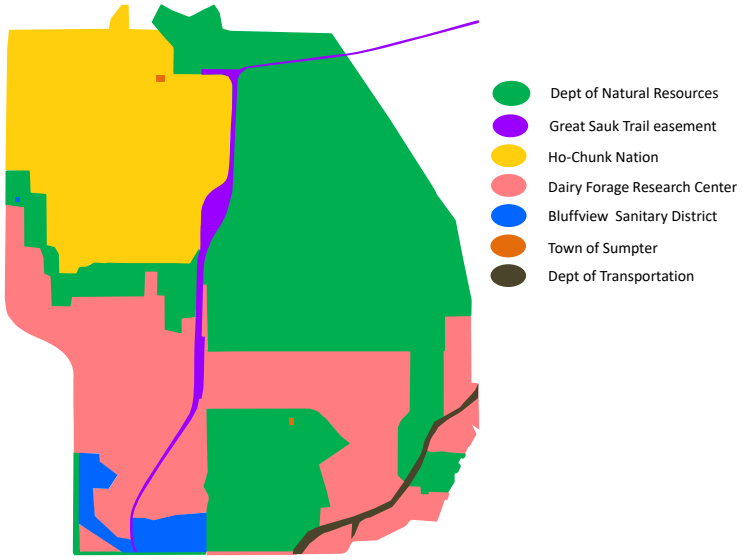
[3] The *Final Report on the Work of the Badger Reuse Committee, including Values, Criteria and Concept Map Plan for the Reuse of the Badger Army Ammunition Plant Property* (commonly referred to as the "Badger Reuse Plan") is available on the Sauk County Department of Planning and Zoning website.

SPSRA provides an opportunity to integrate conservation farming practices, particularly grazing and late hay cutting, as tools to restore and manage grassland and savanna habitats.

G. Management of other lands within the former Badger Army Ammunition Plant

The U.S. Army has transferred, or is in the process of transferring, the former BAAP property to the following owners: DOT (60 acres), Bluffview Sanitary District (164 acres), DFRC (2,105), HCN (1,553 acres), Town of Sumpter (4 acres) and the DNR (3,385 acres). These landowners' plans for their respective properties are briefly summarized here.

Figure 3: Ownership of the former Badger Army Ammunition Plant.



1. HO-CHUNK NATION

In December 2014, after over a decade of effort, Wisconsin Senator Tammy Baldwin announced the transfer of 1,553 acres from the federal government to the Ho-Chunk Nation through a provision in the National Defense Authorization Act.

In October 2014, the Ho-Chunk Nation revised a management plan for their portion of the BAAP. The plan notes the BAAP land has very important historic and cultural significance to the Ho-Chunk people as it lies within the Ho-Chunk's aboriginal territory and includes a number of historic and pre-historic sites of significance to Native people. As stated in their management plan, the HCN lands at BAAP are proposed to be managed for the following goals:

- Protect the aesthetic, cultural, scenic and wild qualities as well as the native wildlife and plant communities. Special emphasis will be placed on designated federal and state-listed species, species of special concern, and other unique biotic features.
- Protect, conserve, and maintain all significant cultural sites.
- Provide for and manage the use and enjoyment by visitors and maintain a diversity of low-impact recreational opportunities for people of all abilities.
- Utilize sound natural resource and agriculture management practices to improve water quality, maintain soil productivity, and protect wildlife habitat.
- Develop a bison program to support HCN nutritional programs and provide educational opportunities.
- Strive to operate a self-supporting project through grants, donations, bequests, and fee-based recreation that is consistent with the overriding commitment to preserve Badger's natural, historical and cultural features.
- Establish and maintain a visitor's center that includes information and exhibits on Badger's geologic and natural uniqueness, bison management, cultural significance and history of the ammunition plant. The center would also provide information and exhibits on the history of Native Americans and Euro-American habitation of the Sauk Prairie as well as an educational classroom.

2. DAIRY FORAGE RESEARCH CENTER

DFRC has as its mission, "…to develop and apply science that enhances the use of forages by dairy cattle." Research activities undertaken at DFRC focus on: improving dairy forage and manure management to reduce environmental risk; understanding how dairy cows digest and utilize forages; improving forages so they are better used by dairy cattle; improving methods of harvesting and storing forages; and studying the impact of dairy systems on the environment to help dairy farmers know the best ways to protect the environment and efficiently recycle the nutrients in manure.

In 1980, the DFRC obtained a special permit through the U.S. Army to farm about 1,500 acres of cropland and pastureland that were part of the BAAP. In 2004, the USDA received custody of 1,943 acres of the BAAP to be used by DFRC. The active portion of the DFRC complex is now comprised of 2,006 acres, which are planted in a rotation of crops including corn for grain and silage, alfalfa, soybeans, winter wheat, and red clover. Approximately 40 acres are used for small research plots and 235 acres are used for pasture. The remaining acres consist of buildings, roads, and woodlots. The current herd size consists of about 350 cows, and 350 calves and heifers.

To better enable the DFRC to conduct research designed to find solutions to problems associated with the economic and environmental sustainability of dairy farms, the DFRC is currently developing options for enhancing the research capacity of its farm. After reviewing several options, the Center is planning to build a new research complex near the former Conservation Club site that can house approximately 450 cows. An environmental assessment was completed for the proposed project in 2011 and concluded that a new complex would have fewer individual and reduced cumulative adverse environmental impacts than using the existing facility. Future construction of the proposed facility is dependent on the availability of funding.

3. BLUFFVIEW SANITARY DISTRICT

Approximately 163 acres along the southwestern portion of the BAAP are planned to be transferred to the Bluffview Sanitary District for their wastewater treatment facilities. In addition, a one-acre parcel near USH 12 houses a drinking water well operated by the District.

4. DEPARTMENT OF TRANSPORTATION

The 60 acres of land transferred to DOT were used in the realignment and reconstruction of STH 78 along the southeastern portion of the BAAP.

5. TOWN OF SUMPTER

The Town of Sumpter plans to receive ownership of the parcels encompassing the two cemeteries (Pioneer - 2.7 acres, Thoelke – 1.0 acre). The Town intends to maintain these sites for public visitation.

6. GREAT SAUK TRAIL EASEMENT

The Wisconsin Department of Transportation (DOT) purchased a permanent easement from the U.S. Army on the railroad corridor from the south end of the BAAP property to near Goette Road. The DOT and the Wisconsin River Rail Transit Commission subsequently entered into an interim trail use agreement with the department allowing for use of the corridor as part of the department's rail-trail network. This segment would potentially be part of the proposed Great Sauk Trail (GST), which is planned to run from Sauk City to Devil's Lake State Park. Ultimately the proposed GST may extend from Middleton to Reedsburg, where it could connect to the 400 State Trail. Sauk County has taken the lead in developing a recreational use, management, and operation plan for the proposed trail.

H. The department's acquisition of Sauk Prairie State Recreation Area

The department applied to receive lands that comprise SPSRA through the National Park Service's Federal Land to Parks (FLP) program. A required element of the FLP application, referred to as the Program of Utilization (POU), is used to describe the initial goals and objectives for the property and lay out a general framework for how the new owner anticipates managing the property.

At the time it submitted the application in 2004, it was not clear which lands the department, Ho-Chunk Nation, Dairy Forage Research Center, and potentially others would ultimately be granted. The department stated in its application that the future uses of the property would be determined during the planning process leading to the development of a master plan. The application stated a general intention to restore and manage grassland and oak savanna habitats and to provide low impact recreational uses, and noted some examples of activities that it expected might come out of the planning process. Those examples included hiking, picnicking, primitive camping, Lake Wisconsin access, and education and interpretation opportunities. **The department deferred decisions related to determining which recreation activities would be permitted on the property, where they would be located, what times of the year they would be allowed, and other parameters associated with their use to the development of the master plan.**

Not surprisingly, over the ensuing decade since the department submitted the FLP application and the POU a number of issues have changed. For example, in 2004 it appeared that the department would be responsible for hundreds of buildings that were slated to remain on the property after transfer. Because the U.S. Army removed nearly all the buildings, this scenario did not occur. As another example, the application stated the department would prepare a master plan for the entire 7,354-acre BAAP property and that issues common to all three primary landowners (HCN, DFRC, and DNR) would be handled in a manner that did not adversely impact the others. Although all partners agree on the need to coordinate planning and ensure that their respective uses have minimal impact on each other, it is now clear that each landowner needs to prepare a management plan for their property that meets their respective legal requirements and administrative needs. The department has no authority in its management plans to describe how lands it doesn't own should be managed and used.

As it proposed in its application to NPS, the department went through its standard master planning process as described in detail in NR 44, Wis. Adm. Code. The process resulted in this master plan, which provides considerable detail on the recreation opportunities that will be provided at SPSRA and the management actions and strategies the department will utilize to achieve desired habitat outcomes. The department believes that the collection of recreation opportunities proposed for SPSRA, and the parameters by which they can occur, is in accordance with the objective of using the property for low impact recreation. Habitat restoration and management will focus on grasslands and oak savannas. Thus, the core property goals of the original POU remain unchanged and the proposed master plan is consistent with the department's application to receive the property through the Federal Lands to Parks program.

The National Park Service has indicated that it may be appropriate to update the original POU with this master plan. If the NPS would like to take this action, the department will assist in this process as needed.

Figure 4: View looking north with the Magazine Area (bottom), Central Grassland, Northeast Moraine, and Bluff Vista (center) and Devil's Lake in distance (top). The property boundary is marked in a dashed line.

Michael Mossman, 2015

CHAPTER II: PROPOSED MANAGEMENT, DEVELOPMENT, and USE

A. Introduction

1. PROPERTY DESIGNATION AND AUTHORITY

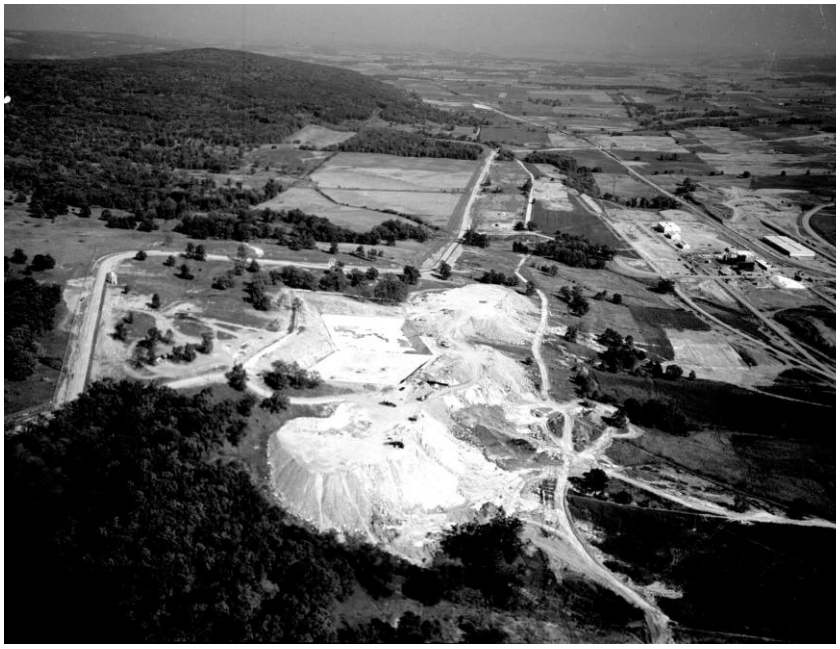
The scope of use and management of a state property is governed by its official designation. The Sauk Prairie State Recreation Area is designated as a state recreation area. The authority to acquire and manage land within SPSRA is described in Wis. Stat. ss. 23.09, 23.11, 23.14, and 27.01. This property is administered by the Bureau of Parks and Recreation. The NRB approved the establishment of Sauk Prairie State Recreation Area, the acreage goal, and the project boundary[4] in December 2002.

The department proposes to adjust the SPSRA project boundary to remove the Ho-Chunk Nation's lands from the existing boundary. When the initial project boundary was established in 2002, it was unclear which lands would be transferred to the Ho-Chunk Nation and which might come to the department. This issue has now been resolved and in recognition that the Ho-Chunk Nation is a sovereign nation the department is proposing to remove their 1,553 acres from the SPSRA project boundary.

The department also proposes to adjust the boundary along part of the eastern and southeastern portion of the property where it borders the recently realigned STH 78. Adjusting the project boundary here will enable the department to attempt to acquire access rights into SPSRA from STH 78 at an existing entry road (Gate 7), simplify the existing boundary, and remove land from the boundary that the department has no interest in acquiring. The net change of this modification is the reduction of approximately 171 acres from the project boundary.

In 2003, the department purchased a 3.5 acre parcel on Weigand's Bay under the authority of the Statewide Fisheries Habitat program. The parcel is located between where the former pump

Figure 5: The reservoir construction site with the concrete sides poured, looking east. The Baraboo Hills slope up to the left. The massive spoil piles are downslope of the reservoirs. The buildings in the upper right are part of the TNT Acid area.



Badger History Group archives

[4] In its record keeping, the department refers to its properties as "projects." Project boundaries, which are approved by the Natural Resources Board and the Governor, simply establish the area within which the department is authorized to acquire land. Within a project boundary, the department is authorized to acquire up to a certain amount of land (the "acreage goal"), which in this case is 3,800 acres.

house was located and a Town of Merrimac park. As part of this master plan, this 3.5 acre parcel will be re-designated to be part of Sauk Prairie State Recreation Area. A summary of the SPSRA project acreages is presented in Table 1.

Table 1: SPSRA ownership, project boundary, and acquisition goal.

Sauk Prairie State Recreation Area	Acres
Existing Fee*	3,388
Existing Easement	0
Existing Project Boundary	7,314
Proposed Project Boundary	5,590
Changes in Project Boundary	**(1,724)**
Existing Acquisition Goal	3,800
Proposed Acquisition Goal	3,800
Changes in Acquisition Goal	**0**
Percent Complete	89.2%

*Includes 334 acres remaining to be transferred from the National Park Service.

2. PROPERTY VISION AND GOALS

a. Vision

Sauk Prairie State Recreation Area, in cooperation with other lands of the former Badger Army Ammunition Plant and in coordination with other protected lands of the Baraboo Hills, provides exceptional recreation experiences that are well-suited to, and take advantage of, the site's unique resources, location, and history. The Department of Natural Resources and partners capitalize on opportunities to protect, restore, showcase, and study important natural ecosystems, cultural resources, and historic features to the benefit of visitors, local communities, and the state. A continuum of habitats – from forests to savannas to prairies – is restored and managed across the property and support a diverse assemblage of native species, particularly those that require large blocks of habitat, as well as a variety of recreational activities.

In sum, the SPSRA property provides a balanced set of recreational, ecological, cultural, social, and economic benefits within the capabilities of its resources that are: compatible with and complementary to the overall resource and recreation management in the Baraboo Hills and on neighboring properties in the BAAP, connected to surrounding communities, and reflective of the unique character and history of the property.

b. Goals

Recreation

Provide settings and facilities for a diversity of outdoor recreation opportunities, focusing on activities for which SPSRA's features, resources, location, and size enable particularly high-quality visitor experiences. Focus on recreational activities in high demand regionally and for which SPSRA provides a potentially unique opportunity for visitors. Select, site, and manage recreational uses so as to minimize impacts and conflicts with other visitors, the neighboring community, and the environment. Incorporate the property's unique human and natural history into visitor experiences. To the degree practical, provide recreational access and opportunities to visitors with a range of abilities. Ensure the safety of all visitors.

Ecological management

Restore and enhance the ecological transition from the forests of the Baraboo Hills to oak woodlands to oak openings to open prairies. Provide important grassland and oak opening habitats to support rare and declining plants and animals, particularly bird populations. Promote quality habitat for desirable game and non-game species. Evaluate, research, and demonstrate habitat management techniques (such as conservation farming practices), with a focus on strategies that reduce invasive species and their impacts.

Cultural resource preservation

Identify, preserve, and showcase sites that contribute to the property's storyline from geological history, Native American life, Euro-American settlement, the design, operation and decommissioning of the Badger Army Ammunitions Plant, and its transition to a site for outdoor recreation opportunities, native habitats, cultural interpretation, and research.

Education and interpretation

Provide interpretive and educational opportunities focusing upon natural and human history, habitat restoration and conservation efforts, and the impacts of human use of the Badger Army Ammunition Plant. Utilize a range of interpretive techniques including kiosks, signage, and web-based systems that allow visitors to use smartphones, tablets and other mobile devices to view pictures and videos, read accounts and descriptions, and hear sounds related to the property. In cooperation and collaboration with a range of partners including local citizens, business and community interests, elected officials, and history, conservation, and education groups, build and operate a visitor center which hosts interpretive displays that tell the many stories of the property.

3. COLLABORATIONS WITH OTHER LANDOWNERS OF THE FORMER BAAP

One of the central themes highlighted in the process of determining new uses for the BAAP property, indeed the first value developed by the Badger Reuse Committee, was for future landowners to collaborate and coordinate on management goals and actions. Although each landowner is subject to unique rules, regulations, and responsibilities, the department intends to continue its close working relationship with the Ho-Chunk Nation, Dairy Forage Research Center, Department of Transportation, Town of Sumpter, and Bluffview Sanitary District in its management of SPSRA.

As with all its properties, the department seeks to be a good neighbor. At SPSRA, the department will work with other BAAP landowners to ensure that our habitat management actions, ranging from logging to prescribed fires, are appropriately planned and conducted. Indeed the department hopes that some habitat management actions can be coordinated with other BAAP landowners to increase effectiveness and efficiency. For example, the department will be bidding out various logging operations to restore woodlands and savannas. There are likely to be opportunities to combine harvest contracts with DFRC to maximize profits for loggers, DFRC, and the department. In a similar vein, the department intends to continue coordinating prescribed fires with DFRC and HCN in an effort to maximize ecological benefits and minimize any incidental adverse impacts.

Another example could be to coordinate grazing regimes across ownership boundaries. That is, it may be beneficial to move herds from SPSRA to HCN or DFRC lands on a rotating schedule to maximize ecological and economic benefits.

In addition to coordinating habitat management actions, the department intends to continue working with other BAAP landowners related to public recreational uses. Given the different primary purposes, directives, and legal standings of BAAP landowners, the department appears to be the primary provider of public recreational use benefits at the former BAAP. However, there may be opportunities to collaborate with other BAAP landowners on providing high-quality recreation and interpretive experiences. For example, DFRC is allowing the public to use its road that connects the west side of the Central Grassland to the west side of the Magazine Area and has agreed to allow a biking and hiking trail that connects the east side of these two blocks.

These decisions by DFRC will improve visitor experiences at SPSRA. There may be additional opportunities to collaborate with DFRC and HCN on other public recreational use and interpretive experiences.

The department also seeks to work with BAAP landowners to ensure that the public use of SPSRA does not unduly impact their property goals or detract from their operations. The department will discuss with the other BAAP landowners any proposed special events that may potentially impact their lands and operations.

Another opportunity to collaborate with BAAP landowners and other partners is in the design, construction, and operation of a visitor center. Depending on the interest levels of different groups, a joint visitor center that showcases the full range of geologic, ecological, historical, and cultural stories of the property's past and present, as well as explains ongoing and future management goals, is likely to be of most interest to the public.

The department will host an annual meeting with interested BAAP landowners. The purpose of the meeting will be to discuss: (1) the previous year's habitat management, facility development, and public use of SPSRA, and (2) the next year's planned management and use. The goals of the meeting will be to identify opportunities for collaboration and coordination as well as resolve any potential conflicts. The public will be invited to the meeting and offered an opportunity to provide comments.

4. CLASSIFICATIONS

a. Land Management classifications

As stated previously, a property's "designation" sets the overall scope for its use and management. In addition, department lands are assigned a management "classification" that further clarifies the primary uses and objectives. There are seven land management classifications that are applied to department lands.[5]

Table 2: Amount of land proposed in each land management classification, by management unit.

Management Unit	Habitat Management Area	Native Community Management Area	Special Management Area	Recreation Management Area Type 3	Recreation Management Area Type 4	Total
Gateway Corridor			20	228	6	254
Bluff Vista	95			149	6	250
Northeast Moraine			55	1,139	13	1,207
Central Grassland	827		50		2	879
Southern Link	128			50	2	180
Magazine Area	93	17	7	487	3	607
Weigand's Bay					8	8
Total	***1,143***	***17***	***102***	***2,083***	***40***	***3,385***

Of course, the vast majority of department properties meet multiple conservation *and* recreation objectives. For example, an area classified as a Habitat Management Area can offer a range of recreation opportunities ranging from hunting to biking. Similarly, lands classified as Recreation Management Areas will often be managed to provide multiple habitat benefits in addition to providing camping, horseback riding, and other developed recreation settings. In sum, land management classifications represent a primary use, but a wide range of conservation and recreation outcomes are possible.

[5] See NR44.06, Wis. Adm. Code for descriptions of the land management classifications.

Each part of a department property is assigned only one land management classification. For example, lands cannot be classified both a Forest Production Area and a Recreation Management Area. However, a property may have one or more management units, potentially comprised of sub-units, each with a land management classification. All of the management units at a property may have the same land management classification or there may be different classifications for different parts of the property. Although not common, lands within a management unit could have two or more land management classifications.

All lands covered under this master plan are proposed to fall into one of the following land management classifications (Table 2):

Habitat Management Areas are managed to provide or enhance habitat, whether upland, wetland or aquatic, to support specific species of plants and animals and/or native communities. A master plan may authorize any management activity or technique that is consistent with the management objective specified in the master plan for the area, and is compatible with the site's ecological capability. Examples of potential management activities include timber harvest, mowing, burning, herbicide application, planting, flooding, agricultural cropping, grazing and browsing, installation of fish habitat improvement devices, road construction and erosion control.

Native Community Management Areas are managed to represent, restore and perpetuate native plant and animal communities, whether upland, wetland or aquatic, and other aspects of native biological diversity.

Special Management Areas are managed to provide and maintain areas and facilities for special uses not included under other land management classifications. These can include administrative sites and areas closed to public access.

Recreation Management Areas are managed to provide and maintain land and water areas and facilities for outdoor public recreation or education.

Recreational Use Setting Sub-classifications: There are four sub-classes within Recreation Management Areas that further describe the general recreational setting or "feel" of the area – that is, the level of remoteness, intensity of interactions with other visitors, ease of access, and level of development of recreation facilities. Type 1 Settings are the least developed and provide a remote setting where visitors can experience solitude and independence. Only a limited amount of department land is classified as Type 1, with most being large wilderness areas in the north. At the other end of the spectrum are Type 4 Settings, which may provide for intensive recreational opportunities and be the most developed (e.g., facilities that provide a high level of comfort for visitors, convenience, and environmental protection). Lands within SPSRA are proposed to be primarily Type 3 sub-classifications.

b. Road classifications

The department constructs and maintains roads to different standards based on their intended use, anticipated level of use, and land management classification. Roads classifications are described in NR 44.07, Wis. Adm. Code. Roads within SPSRA will be maintained as lightly to moderately developed, which are defined as follows:

Lightly developed road.

A lightly developed road shall be a temporary road, a permanent seasonal road or a permanent all-season road which is primarily a single lane with a maximum sustained cleared width normally not exceeding 16 feet,

is lightly to well-graded with minimal cut and fill, is surfaced with primitive, native or aggregate materials except in limited special use situations where asphalt may be used, and has a maximum speed design of 15 mph. Due to the variability of roadbed conditions at different times and places, some lightly developed roads might not be passable by ordinary highway vehicles.

Moderately developed road.

A moderately developed road shall be a permanent seasonal road or a permanent all-season road which typically is 2-lane, but may be one-lane, have a maximum sustained cleared width normally not exceeding 45 feet for 2-lane and 30 feet for one-lane, a well-graded roadbed and may have moderate cuts and fills and shallow ditching, has a surface of aggregate, asphalt or native material, and a maximum design speed of 25 mph.

c. Trail classifications

The department constructs and maintains trails to different standards based on their intended use, anticipated level of use, and land management classification. Trails within SPSRA will be a range from primitive to fully-developed. Trails are described in NR 44.07, Wis. Adm. Code as follows:

Primitive trail.

A primitive trail shall be a minimally developed single-file trail with a maximum sustained cleared width normally not exceeding 8 feet and a minimal tread width for the intended use, have a rough, ungraded bed where large rocks, stumps and downed logs may be present. It primarily follows the natural topography, has no or few shallow cuts and fills, and is surfaced with primitive or native materials, except for limited distances where environmental conditions require the use of other materials. Modifications to the natural trail surface are limited to that which is minimally necessary to provide essential environmental protection.

Lightly developed trail.

A lightly developed trail shall be a trail with a maximum sustained cleared width normally not exceeding 16 feet, a moderately wide tread width for the designated uses, a rough-graded base to remove stumps and large rocks, and a surface of primitive or native materials, except where other materials are required due to environmental conditions or where the trail also serves as a lightly developed road where other types of surfacing materials are used.

Moderately developed trail.

A moderately developed trail shall be a trail with a maximum sustained cleared width normally not exceeding 8 feet, a minimal tread width for the intended use, a relatively smooth graded base with a compacted surface composed of stable materials such as aggregate. Where practicable and feasible, a moderately developed trail shall, at a minimum, meet the standards for recreational trails accessible to persons with a disability.

Fully developed trail.

A fully developed trail shall be a trail with a smoothly graded base and a stable, hard surface composed of materials such as asphalt, aggregate or frozen earth. The trail's cleared width, tread width and cuts and fills are not limited, but shall be appropriate for the trail's intended use. To the degree practicable and feasible, fully developed pedestrian trails shall be fully accessible by persons with physical disabilities.

B. Proposed uses and management of the property

From a recreation perspective, with its large size and close proximity to population centers, Sauk Prairie State Recreation Area can meet many local and regional recreation demands. Although the property is a former industrial site, has experienced dramatic disturbances, and has an extensive invasive species problem, SPSRA is a substantial block of open space that can support a range of recreation activities. Regionally, there is a high demand for many types of recreation that the property could potentially support, including trails (hiking, biking and horseback riding), water access and carry-in boat launches, walk-in camping, dog parks, picnic areas and nature centers.[6] In addition, the department consistently receives requests for opportunities to pursue other activities, such as shooting ranges and off-road driving of motorized vehicles (ATVs and motor bikes), in southern Wisconsin.

Although SPSRA could provide many of these recreation opportunities, the department's desire is to provide high quality experiences and to focus on those activities for which the site is particularly well suited, not to include all possible recreational opportunities. As a consequence, the department recognizes that the proposed management plan will help meet some important recreational demands but won't address all unmet needs.

As with all properties, the department seeks to integrate recreation facilities and uses in ways that balance with the protection and management of other resources. SPSRA is unique in the meaningful human history of the site and its habitat restoration potential; the proposed plan seeks to incorporate and be sensitive to these resources and opportunities.

From a habitat perspective, Sauk Prairie State Recreation Area can play a pivotal role in the regional conservation of grasslands and savannas and their constituent species. Of particular note here are two unique opportunities: (a) managing lands as part of an ecological continuum of habitats from the southern dry-mesic forest (in Devil's Lake State Park) to oak woodland to oak opening to grassland, and (b) managing large blocks of grassland and oak opening habitats. Although there are other large blocks of grassland habitat in southern and central Wisconsin, this is likely the largest and most viable opportunity to restore and manage a large-scale forest to grassland transition.

Habitat management issues abound at SPSRA. Since the construction of the ammunition-producing facilities at BAAP, fire was an annual threat

The need and opportunity for partnerships.

Many trails, picnic areas, interpretive sites, and other facilities to help create high quality visitor experiences are proposed here. Given current budget constraints, the department will need to continue to develop partnerships with conservation and recreation organizations, local businesses and clubs, government agencies, and other groups to help construct and operate the numerous proposed recreation facilities. And the interpretive opportunities will require a close working relationship with the Badger History Group, the Ho-Chunk Nation, the local farm community, and others.

Similarly, given the size of the property and the scope of the task of restoring and managing habitats, it will be to the department's benefit to develop diverse partnerships to achieve the needed habitat management at the SPSRA. Addressing the infestation of invasive shrubs and weedy trees will likely be a decades-long process.

As such, the SPSRA (and the larger BAAP property) offers a unique opportunity to work with partners in the farming and restoration communities to incorporate and research different approaches to managing invasive shrubs and trees that plague much of southern Wisconsin (and the Midwest). Portions of the property may be well-suited to integrate and study the ability of different grazing systems (in concert with mowing and prescribed fire and potentially other techniques) to effectively reduce shrubs, weedy trees, and various invasive plants.

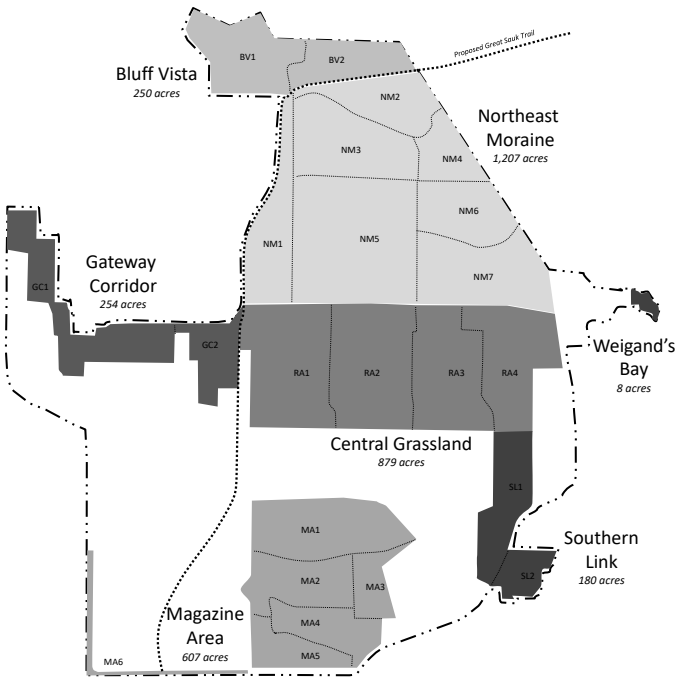
The SPSRA holds great potential to be a unique and popular destination that merges recreation, conservation, and education about the profound history of the site. The department looks forward to working with a wide variety of partners to move the envisioned recreation area to reality.

[6] See page 5-22 of *The 2005-2010 Wisconsin Statewide Comprehensive Outdoor Recreation Plan*.

on the property, even during the periods when the plant was idle and after the facility was formally decommissioned. To reduce the amount of fuel (flammable vegetation), large portions of the property where buildings were present were either mowed or grazed using cattle from local farms. These actions helped maintain the short-stature vegetation around the buildings, dramatically reduced the presence of shrubs, and supported a wide diversity of grassland bird species. At the U.S. Army's request, in the 1990s department staff periodically conducted prescribed burns in the northeastern portion of the property where there weren't any buildings. Most prescribed fires at BAAP were discontinued following the terrorist attacks in 2001 as a security precaution.

When the U.S. Army shifted from a "maintenance mode" to the decommissioning phase in 1997, it began the long process of removing buildings and other structures, remediating contaminated sites, re-grading areas, and countless other tasks. During this phase, most mowing was discontinued and cattle were removed for safety reasons. An unintended consequence was that shrubs and weedy trees quickly invaded many grassland areas and have become the major habitat management concern facing the department.

Figure 6: Management units and sub-units of the Sauk Prairie State Recreation Area.



The department has had preliminary discussions with scientists and land managers at the DFRC, University of Wisconsin system, DATCP, and other organizations, as well as goat and cattle graziers about using grazing as a technique to restore and manage habitats at SPSRA. The department proposes to continue these discussions and develop an overall plan to incorporate and assess different grazing systems at SPSRA as habitat management tools, while providing public recreation opportunities. This "grazing plan" could also include lands at the BAAP owned by DFRC, HCN, and BVSD, if acceptable to those landowners. An important component of this "conservation farming laboratory" approach will be to apply what is learned to other public and private lands in the state.

Given its size and unique history, SPSRA will require sizeable effort by the department and its partners to reach its recreation and conservation potential. It will also require flexibility in implementation - taking advantage of opportunities as they emerge, responding to future issues and challenges, and applying what is learned in an iterative process. As such, by design this master plan lays out a proposed framework for future management and use of the property, but places essential discretion in the hands of the Parks & Recreation program and the property manager to determine the details of where, when, and how different aspects of the plan will be implemented.

As stated in the "Users' Guide" section, the remaining part of this chapter forms the bulk of the document. The first part describes the recreational opportunities and facilities, the second part presents the habitat management prescriptions, and the final part lays out the proposed plan by the different management units and sub-units. For the development of both the recreation and habitat components of the master plan, the department relied on the expertise of staff and the knowledge gained from managing and restoring properties throughout the state for over a century.

1. PROPOSED USES AND FACILITIES, BY ACTIVITY

This section describes the proposed recreation opportunities for the property (see Maps E, F and G, as well as Figure 1). The intent of this compilation is to make it easier for readers to consider the department's proposal for recreation activities of interest at SPSRA as a whole. For many of the activities listed here, additional information can be found in the section that describes the proposed management by unit (starting on page 55).

It will likely take many decades to fully develop the recreation facilities and opportunities described here. Initially, this plan calls for using some of the former roads as trails for biking, horseback riding, cross country skiing (un-groomed), snowshoeing, and hiking. Over time, new trails will be constructed and many of the former roads will be removed. In some cases, the road beds may be used in trail construction, but the trail thread will be narrowed to provide more pleasant experiences.

The plan calls for re-purposing some of the biking and horseback riding trails (when they are simply the former roads and when they are the newly constructed trails) for riding dual-sport motorcycles up to six days a year (see page 21 for details). During these times, the trails will be closed by signage to all other uses.

a. General use and fees

The five statutorily defined nature-based outdoor recreation activities – hunting, trapping, fishing, hiking, and cross country skiing – will all be authorized at SPSRA, with some restrictions that are described in the following pages.

The property will be open from 6:00 a.m. until 11:00 p.m. Hunters may access the property one hour before legal hunting hours begin. A state park admission fee will be required for entry.[7] As per NR 45.12(3), pedestrians and snowmobile riders will not need a state trail pass to use designated hiking and snowmobile trails. All other users (age 16 or older) of designated trails on the property will need a state trails pass. Bikers, horseback riders and other vehicles[8] do not need a state trail pass when only riding on or using roads open to highway licensed vehicles.

The property manager may, by posted notice, close the property or portions of the property to address construction, deconstruction, or remediation activities, to accommodate farming or grazing operations, or for other reasons as needed.

[7] The department will pursue a change to NR 45.12 adding the SPSRA to the list of properties for which a state park admission fee is required.

[8] State statute 340.01(74) states that "vehicle" means every device in, upon, or by which any person or property is or may be transported or drawn upon a highway, except railroad trains. A snowmobile, an all–terrain vehicle, and an electric personal assistive mobility device shall not be considered a vehicle except for purposes made specifically applicable by statute.

b. Motorized access[9]

The SPSRA property has more than 70 miles of gravel and asphalt roads that are remnants from the site's use to produce munitions components. Most of the roads are now in fair to poor condition. Some portions of the property, like the Central Grassland, are crisscrossed with roads or road remnants, while other areas, like the Northeast Moraine, have large blocks without roads.

The department seeks to provide access to the important interpretive and recreation-related sites (e.g., day use areas) on the property by highway-licensed motor vehicles (e.g., cars, pick-up trucks, SUVs, and motorcycles), as well as remove many roads and restore them with native vegetation as part of larger habitat restoration efforts. The department has limited funds to restore and maintain roads on the property and seeks to balance the desire for an appropriate level of motor vehicle access to the property with fiscal restraints and the desire to restore habitats.

Objectives:

- Provide a modest amount of roads for the public to access the property using highway-licensed motor vehicles, focusing on enabling access to sites likely to be most popular and that provide the most meaningful interpretive opportunities.
- Select roads that the department has the resources to maintain over time and will not impact natural resources based on the anticipated level of use.
- Provide access for types of motorized recreational vehicles in places and time periods that create high-quality experiences, that are consistent with the property vision and goals, will have net economic benefits, and do not substantially impact other visitors to the property.
- Provide access for people using power driven mobility devices (PDMDs), such that their experiences are, to the degree feasible, similar to those who do not use PDMDs.
- Provide access for the U.S. Army and their contractors to the landfills, capped areas, groundwater monitoring wells, and other sites as needed.[10] Provide access to the Bluffview Sanitary District to their well house in the west end of the Gateway Corridor and to the Town of Sumpter for maintaining the Thoelke Cemetery.
- Provide access for Dairy Forage Research Center staff to efficiently move farm equipment to different parts of their operation in ways that don't unduly conflict with public recreational uses or create safety issues. Specifically, provide a route across the Magazine Area for DFRC use.
- Provide service roads (closed to regular public vehicle use) that ensure staff can effectively and efficiently manage SPSRA.

[9] Wis. Stats. s. 23.116 was enacted in 2013 requiring the department to map all roads located on their lands and to work with the public, other units of government and interested parties to identify which roads should be open to motorized vehicles. The RPA for this master planning process was released to the public prior to the enactment of the law. As such, the department used the public comment period for the draft master plan as the forum by which it gathered public input on motorized access. This draft master plan proposes a motorized access component consistent with the law.

[10] The department is required to provide motorized access to the U.S Army and their contractors to address various issues related to their use of the site including sampling and maintaining monitoring wells. Sampling typically takes place from March through November and, depending on the well, is done quarterly, semiannually, annually or biennially. A map of recently active wells (Map M) is found at the end of this document. It is likely that some of these wells will be formally closed in the future.

Proposed management:

CARS AND OTHER MOTOR VEHICLES LICENSED FOR HIGHWAY USE

Initially, there will be one public entrance to the property, which will be located at the main gate on USH 12. Approximately 15 miles of roads are proposed to be permanently maintained to provide public vehicle access to all property management units (with the exception of the Weigand's Bay unit, which is accessible by a public road). Currently these roads have different surfaces and are in varying condition; the long term goal is for most of these roads to be moderately-developed and paved. A small amount of new road may be constructed to address access needs. All roads open to the public in SPSRA will have a posted speed limit of 25 mph.

If the department is able to acquire access rights on STH 78, a second entrance to the property may be developed. This entrance would terminate in a parking area with a trailhead connecting to the network of hiking and biking trails on the property. This entrance will not allow visitors to drive from STH 78 to USH 12; that is, the STH 78 entrance will not create a short-cut between these two highways.

The surface type and management of border roads will be determined through discussions with the HCN, BVSD and DFRC.[11] In addition, the department will continue to work with the HCN and DFRC to identify a permanent entrance road corridor from USH 12 to provide access to the site of the future visitor center and into the main part of the property. Similarly, the department will also work with the DFRC to identify best long-term options to provide public vehicle and trail access across their property into the Magazine Area.

The road up to the overlook at the former reservoir site will be closed until the reservoirs are safe for public visitation. Once open, the road will be restricted to one-way traffic in an effort to minimize traffic problems due to its narrowness.

When the visitor center is built, the road from USH 12 to that facility will be plowed. Other roads in SPSRA will not be plowed in winter. Until parking lots are constructed, unimproved parking areas will be marked. Parking along the shoulders of some roads may be restricted.

The department will maintain approximately seven miles of former roads for staff and DFRC and BVSD management access. These roads will be closed to the public (except by permit) and will be classified as lightly or moderately developed roads. About 5 miles of these roads are jointly owned with DFRC and BVSD.

DUAL-SPORT MOTORCYCLES[12]

There is growing demand to provide opportunities for dual-sport motorcycle riding in Wisconsin. Dual-sport motorcycles are designed to be legally driven on public roads as well as ridden on off-road trails. Several club-sponsored events, which follow designated routes combining on-road and off-road sections, are currently held in Wisconsin. Clubs work with landowners to identify farm lanes, forest roads, trails, harvested

[11] Many of the borders between the SPSRA and lands owned by the HCN, BVSD and DFRC are along roads. The deeds that transferred these lands to the department state that both parties retain non-exclusive use of these shared roads. That is, both the department (and thus the public where roads are open) and the HCN, BVSD or DFRC may use the entire road, not just their "half" to the centerline.

[12] Dual-sport motorcycles are vehicles equipped with lights, mirrors, horn and muffler and other features that allow them to be licensed and registered for legal use on roads and highways of the state. They have design features (e.g., tires, clearance and suspension) that also enable them to be ridden on trails.

crop fields and other places where a temporary (one-day) trail for the event can be established. Where needed or appropriate, the route goes onto public roads. The routes for these events often encompass about 100 miles.

In other states, routes are sometimes established on public lands. Minnesota has incorporated opportunities for dual-sport motorcycles on some of their public properties by periodically re-purposing non-motorized trails and roads for their use. This proposal is in part modeled after their approach.

This master plan proposes to open up to 50% of the biking trails and horseback riding trails at SPSRA for use in dual-sport motorcycle riding events that are authorized by the department through the issuance of a Special Events Recreational Use Application and License (Form 2200-127). Roads may also be included in the designated route for the event. No off-trail riding will be permitted. Events may be held up to six days per year (but no more than two consecutive days) and in the time period from January 1 to mid-October. The six days for dual-sport motorcycle use would be determined by the property manager and timed to ensure the trails and roads are dry enough to support motorcycle use, to avoid other scheduled events or periods when the department expects high levels of visitation, or to avoid impacts to sensitive resources. Events may only be held when trail conditions can support motorcycle use and as such are subject to last minute cancellation if conditions warrant. In order to minimize impacts during the spring nesting period, only two days of riding may occur from April 15 to July 31.

The trails and roads open to motorcycles during these special events will be determined by the property manager in consultation with motorcycle riding clubs and will be based on surface, slope, width, and other factors. Trails and roads selected will include those best suited to providing high quality riding experiences with the least impact to the long-term functionality of the trails and roads. No more than 50% of the equestrian or biking trails will be re-purposed for dual-sport motorcycle use for an event. Roads and trails selected for repurposing in the Magazine Area will be coordinated with the DFRC to ensure that their operations are not impacted by the events. Motorcycle use will not be allowed on the Great Sauk Trail when it is operational.

All motorcycles and riders at SPSRA during these special events shall meet the requirements established in NR 45.05(5), Wis. Adm. Code, including having a valid state trail pass or equivalent.[13] All motorcycles must be in compliance with noise requirements and must not exceed 96 decibels on the A scale when measured in the manner described in the Society of Automotive Engineers Standard J1287, titled *Measurement of Exhaust Sound Levels of Stationary Motorcycles*.

Participation in events will be capped at no more than 100 riders per day and riding hours will be limited to 9:00 a.m. to 4:00 p.m. Sponsoring clubs will need to apply for and receive a Special Events Recreational Use Application and License (Form 2200-127) for these events, which will set specific parameters for the event and may include such items as event registration protocols and use of picnic areas, parking lots, or other facilities at SPSRA. The permit will require clubs to satisfactorily repair damage to the trails or roads caused by the event. Following these events, the property manager and club will evaluate the outcomes and identify opportunities to improve experiences for the riders and minimize impacts to the trails and roads in potential future events.

[13] Chapter 45.05(5) addresses safety, age, and noise issues related to off-highway motorcycles and dual-sport motorcycles on department lands.

The trails selected for these special events would be closed to all other uses during these periods. The rest of the property will remain open for other visitors. The days that trails will be repurposed for use by dual-sport motorcycles will be public noticed.

To summarize, dual-sport motorcycle events would be allowed with the following guidelines and restrictions:

- All riding must be done as part of an organized event that is permitted by the department through the special event permit process.
- All events would be club-sponsored and require riders to register. Clubs must have all necessary insurance.
- All motorcycles must be highway licensed vehicles and have a valid license plate; all riders must wear a helmet and appropriate safety gear.
- All motorcycles must be tested for noise on site by the hosting club with a maximum allowable noise generated of no more than 96 decibels (on the A scale).
- The number of days for dual-sport motorcycle riding is limited to six days per year.
- Special events for dual-sport motorcycle riding are restricted to the time period from January 1 to mid-October with no more than two days in the time period from April 15 to July 31.
- Riding hours are limited to 9:00 a.m. to 4:00 p.m. on the trails that are repurposed for dual-sport motorcycles.
- The number of riders is limited to 100/day.
- All motorcycles must stay on the roads or trails designated as open for the special event, no off-trail riding will be permitted. All riders must have a state trails pass or equivalent.
- Any damage to trails or roads used in the event must be repaired at the club's expense.

POWER-DRIVEN MOBILITY DEVICES (PDMD)

Since 1990, the department has maintained a permit system to allow individuals with disabilities to use motorized vehicles and devices on department lands as a mode of personal conveyance. Permits for the use of PDMDs are issued by property managers and based on individual requests and property conditions. Use of PDMDs may be limited in operation (e.g., speed limit) or location to ensure visitor safety, environmental protection, or to minimize impacts to visitors that do not require PDMDs. PDMDs may potentially be used on trails, roads open to the public, and staff service roads.

SNOWMOBILES

Consistent with other department properties, SPSRA will provide a snowmobile trail that connects trails that are part of a larger regional network. To meet this need, a snowmobiling trail will be developed from the southern edge of the property, then along the eastern side of the property and up to Burma Road (where the existing snowmobile trail heads into DLSP at the northwest corner of the Bluff Vista unit). Part of this route is the existing snowmobile trail, but the portion where the existing trail is off department land will be moved on to department land as feasible. The alignment will be determined by the property manager in consultation with the local snowmobile club and DFRC (this route will also be partially on DFRC land). Depending on the final location of other equestrian trails, it may be possible to route equestrian use along the snowmobile trail during non-winter months. Snowmobile trail maintenance and management will be conducted by local clubs. Alignment of the trail may be modified as needed to minimize impacts to resources or other visitors or to maintain a connection between existing trails outside of the property.

c. Designated trails (non-motorized)

Objectives:

- Provide opportunities for high-quality trail experiences that are compatible with other recreation activities.
- Provide trail-based experiences that could last up to a full day for recreational biking, mountain biking, horseback riding and hiking.
- Provide opportunities for trail linkages to DLSP and, via the Great Sauk Trail, to nearby communities and other regional trail networks.
- Incorporate interpretive and educational opportunities into the trail network.
- Generally, provide separate trail networks for different users in order to minimize conflicts and provide high-quality experiences. Combine trail uses as appropriate to minimize habitat impacts and achieve construction and management cost savings.
- Locate trails in ways that incorporate interpretive and educational opportunities as well as create blocks of habitat with minimal fragmentation.
- Provide the U.S. Army and their contractors with temporary vehicle access to well monitoring sites, as needed, on the biking or equestrian trails.

Proposed management:

Non-motorized trails will be located in all management units, although not all uses will occur in each unit. All designated trails will be sited to avoid or minimize impacts to sensitive resources to the degree feasible. In addition, to minimize impacts to habitats and species, the department seeks to create some areas that have limited trails. For example, there are purposely fewer trails proposed within the Central Grassland to allow larger blocks of unfragmented habitat.

HIKING

Two types of hiking opportunities will be provided: longer distance, half-day (or longer) hikes and shorter, one hour (or less) hikes. The longer distance trails will connect the proposed visitor center, Bluff Vista overlook, Lake Wisconsin overlook, and the Hillside Prairie in the Magazine Area. The trails will be designed and constructed as primitive or lightly-developed. Together, 12 miles of long distance trails are proposed. In addition, a potential trail connection from the overlook into DLSP is authorized in this master plan, but will not be constructed unless authorized in an update to the DLSP master plan.

The shorter trails, most of which would be loops, will be constructed at various places in SPSRA. Most of these trails will be designed to provide interpretation and education about different aspects of the property. The location, length, and features of these loop trails will be determined by the property manager and will be based on visitor interest, property attributes and opportunities, availability of funding, and other factors. A short loop trail with interpretive displays will be developed at the visitor center.

The shorter-distance, loop trails will be primitive to moderately-developed trails and to the degree feasible, some will be designed and constructed for use by mobility impaired visitors. An example of a loop trail in the Magazine Area could string together the Thoelke Cemetery, one of the last remaining magazine buildings (on DFRC land), oak opening restoration work, and the Henry and Steidtman homesteads. Five miles of shorter-distance, loop trails are authorized in this master plan.

A series of trails will also be developed in the Magazine Area (units MA2, MA4, and MA5) to provide opportunities for people walking their dogs off leash. Up to three miles of primitive or lightly-developed trails for this purpose are authorized.

In addition to these trails, hiking is allowed on all roads and other trails (with the exception of groomed cross country ski trails), and all other lands at SPSRA open to the public. Hikers do not need a state trails pass.

BIKING

Up to 15 miles of "family friendly" designated recreational bike trails are proposed to be located in the Bluff Vista, Northeast Moraine, Central Grassland, Southern Link, and Magazine Area management units. These trails, primarily composed of crushed and compacted limestone, will generally be 8' to 10' wide. The trails will wind through the property and be positioned to pass by interpretive sites to the degree practical. The intent is for most of these trails to be dedicated for biking use, although there may be places where equestrian use is shared. The biking trails would be classified as moderately-developed trails.

Narrow, single-track mountain bike trails are proposed to be constructed in the Bluff Vista and Northeast Moraine units. These trails will be designed and constructed to accommodate a range of abilities, including beginners. The trail network is authorized to connect to potential mountain biking trails in DLSP, if constructed at that property in the future. The alignments of this potential trail network will be determined by the department in consultation with local clubs. Up to 10 miles of mountain biking trails are authorized on the SPSRA property. These trails will be designated as primitive.

A relatively new (and still small) demand has emerged for "fat-tire" biking on snow. Riding fat-tire bikes would be allowed on all bike trails and on roads. Until the new bike trails are constructed, winter biking on the set of former roads designated as bike (and equestrian) trails would be permitted.

Biking is allowed on SPSRA roads open to highway licensed vehicles. Biking will also be allowed on the Great Sauk Trail. All bikers (age 16 or older) will be required to have a state trails pass on designated trails.

EQUESTRIAN USE

Two types of equestrian experiences will be provided at SPSRA. Up to 12 miles of designated horseback riding trails are proposed to be constructed, primarily in the Northeast Moraine and Central Grassland units. These trails will have native soil surfaces and may be wide enough to accommodate two horses side-by-side. The intent is for most of these trails to be dedicated for equestrian use, although there may be places where bike riding is a shared use. Depending on the final location of the snowmobile trail along the east side of the property, it may be possible to designate this trail for equestrian use during non-winter months. Equestrian trails would be mostly classified as lightly-developed trails. Trails will only be open when conditions are suitable for their use.

In addition to horseback (saddle) riding, the equestrian trails would also be open to horse-drawn vehicles (carts and buggies).[14] Horse-drawn carts and buggies are allowed at all times on SPSRA roads open to highway licensed vehicles. Carts and buggies are limited to no more than two animals per vehicle.

An equestrian trail head, loading-unloading area, and trailer parking lot designed to provide adequate turning space for large rigs are proposed. This designated use area will include parking to accommodate up to 30

[14] In addition to horses, other quadruped drawn carts, wagon, or sleighs are allowed. "Quadruped" includes horses, mules, donkeys, llamas, dogs and other four-legged animals.

trailers, corral, hitching posts, an approximately 20'x20' open-sided shelter, and vault toilet. Two potential locations for this site are proposed: in the Gateway Corridor (sub-unit GC2), or in the Northeast Moraine. The site's ultimate location will be determined based on whether the WIARNG will be allowed to use the site next to the main landfill for training purposes.

Horseback riding is also allowed at all times on SPSRA roads open to highway licensed motor vehicles. Horses are not allowed on the Great Sauk Trail. All equestrian riders (over 16 years in age) and drivers will be required to have a state trails pass while on designated trails.

When the master plan for Devil's Lake State Park is updated, opportunities for including equestrian trails and a horse campground are likely to be evaluated at that property. If those facilities are ultimately constructed in DLSP, a trail connecting SPSRA and DLSP would be desirable. This master plan authorizes the construction of a connecting trail with a final location to be determined later.

WINTER USE

No formal groomed cross country ski trails will be maintained. Rather, cross country skiing would be allowed anywhere on the property (similar to State Wildlife Areas). Likewise, snowshoeing is allowed anywhere on the property and in the winter the hiking trails will be designated for snowshoeing.

During the period when the former roads are being used as biking and equestrian trails, dog sledding and skijoring are proposed to be allowed in the winter. When separate equestrian trails are constructed, dog sledding and skijoring would be allowed on, and limited to, these trails and public roads that are not plowed at SPSRA.

PROPOSED GREAT SAUK TRAIL

The Great Sauk Trail (GST) is proposed to extend from the villages of Sauk City and Prairie du Sac to near the southeastern part of Devil's Lake State Park. About 4.5 miles would run through the former BAAP property, with about half this length in or along SPSRA. Sauk County is leading a separate planning effort for the GST.

Five potential access points along the proposed GST to SPSRA are possible: (1) along the dead-end road running next to the DFRC bunkers over to the Magazine Area[15], (2) at the temporary access road crossing, (3) to the proposed visitor center near locator points "10 S" or "11 S," (4) at the base of the road headed up the bluff near locator point "5 S"), and (5) at the perimeter road in the northeast corner of SPSRA. These connections would enable GST users a variety of options to enter SPSRA, travel throughout the property, and then return to the trail.

Hiking, biking, snowshoeing, and cross-country skiing would be allowed on the proposed GST where it passes through or adjacent to the SPSRA property. Horseback riding, horse-drawn vehicles, and snowmobiles will not be allowed on the GST where it passes through or adjacent to the SPSRA property. More information about the proposed trail can be found on page 93.

d. Designated use areas, including a visitor center

Objectives:

- Develop and operate a contact facility to serve as a "starting point" for visitors. The facility should provide interpretation of the BAAP and SPSRA, maps, and information about recreational

[15] Pending formal approval by DFRC and/or BVSD.

opportunities. If other owners of the former BAAP or other partners are interested in helping construct or operate the facility, collaborate with them on design, location, content, and other issues related to providing high-quality visitor experiences.

- Provide gathering places for visitors to picnic, sightsee, relax, and learn about the property.
- Provide facilities to support equestrian and rocketry use of the property.
- Provide a site to support special events and the staging of special events.
- Enable some facilities to be reservable following standard department procedures.

Proposed management:

Four modern[16] day use areas will be developed (and will be designated use areas) and may include the following features:

- Reservoir overlook: up to 50-vehicle parking lot,[17] vault toilet, approximately 20'x30' open-sided shelter, picnic tables, grills, deck with interpretive panels and seating, a small open-air amphitheater (with seating for approximately 75 people), and interpretative and wayfinding kiosks. The developed footprint of the site will be less than 5 acres and will be designed to avoid impacts to the geologic features here.
- Weigand's Bay: up to 20-vehicle parking lot, vault toilet, kiosk, fishing platform or pier that meets Americans with Disabilities Act (ADA) standards, approximately 16'x16' open-sided shelter, and picnic tables.
- Lake Wisconsin overlook: up to 10-vehicle parking lot, approximately 16'x16' open-sided shelter, picnic tables, grills, vault toilet, kiosk. The general location of the site is shown on Map G. The exact location of the site will be determined once funding is secured and will be based on the actual facilities that will be built, site conditions, and other factors.
- Special event parking and staging area in the northwest corner of the Magazine Area: up to 20-vehicle parking lot, up to a 2-acre grass field, approximately 20'x20' open-sided shelter, vault toilet, picnic tables, and grills. The general location of the site is shown on Map G. The exact location of the site will be determined once funding is secured and will be based on the actual facilities that will be built, site conditions, and other factors.

Other designated use areas will include:

- A modest-sized visitor center, potentially about 3,000 ft^2, will be constructed in the general vicinity of locator points "10 S" or "11 S." The building's location and size will be determined by the access leading into SPSRA, future plans by the HCN and DFRC and their interest in collaborating on the development or operation of the facility, funding availability, and potentially other factors. The facility could have staff offices, restrooms, and space for interpretive displays, including displays from the Badger History Group and other groups.

[16] See NR 44.07(7) for a description of the range of facilities that can be incorporated in a modern day use area.

[17] Depending on the layout, a 50-car parking lot would require about 0.5 acre.

A paved 15-vehicle parking lot will be constructed to serve the visitor center and hikers and bikers starting their outings from the site. Picnic tables will be placed on the grounds, along with interpretive displays. A modest-sized amphitheater (with seating for approximately 150 people) for use by a variety of interpretive and educational programs may also be constructed. An interpretive trail leaving from the visitor center will be constructed. The lands near the visitor center could also be used to plant a small orchard of fruit trees from varieties grown on farmsteads elsewhere on the BAAP. In total, the visitor center grounds may include up to three acres.

The visitor center is intended to be the "jumping off point" for visitors and will provide interpretive wayfinding opportunities. The visitor center will be sited near the planned Great Sauk Trail and as a result will be both a starting point for many visitors that are biking as well as a stopping or turning around point for visitors who might be biking from Sauk City/Prairie du Sac or DLSP. Until the new visitor center is built, the administrative building by the main entrance (Building 207) will be used as a temporary entrance station (once the needed improvements have been made to make it publicly accessible) and will be a designated use area.

- A rocketry site in the southwest section of the Central Grassland. Locator point "13 S" reflects the general location of the site; the exact location of the site will be determined once funding is secured and will be based on the actual facilities that will be built, site conditions, and other factors.
- An equestrian trailhead, horse trailer parking for up to 30 trailers, and loading-unloading area. The area will also have a corral, hitching posts, approximately 20'x20' open-air shelter, and vault toilet. The site will be in either the Northeast Moraine (NM7) or the Gateway Corridor (GC2); the exact location will be determined once funding is secured and will be based on the actual facilities that will be built, site conditions, and other factors.

Other facilities may be installed at designated use areas if demand warrants and funds are available (e.g., a play structure).

When constructed, two sites will be reservable and added to the list of State Park rental facilities (Form 2500-042) when constructed: (1) the shelter, picnic area and amphitheater at the reservoir overlook and (2) the shelter and picnic area at the Lake Wisconsin overlook.

e. Hunting and trapping

Objectives:

- Provide hunting and trapping opportunities that provide high-quality experiences and are compatible with other recreational activities.
- Stock pheasants in grassland areas to provide high-quality hunting opportunities.

Proposed management:

With the exception of designated use areas, areas closed to all public access, and designated trails that are posted as closed, all portions of SPSRA will be open for the following hunting opportunities:

- Hunting for all legal species and all legal methods from the Saturday nearest October 17 through the end of the third, week-long spring turkey period (typically the first Tuesday in May).
- Learn to hunt, youth hunt, hunters with disabilities seasons.

Pheasants will be stocked primarily in the Central Grassland, Magazine Area, and Northeast Moraine units at rates determined by the property manager and the local wildlife biologist.

With the exception of the Magazine Area, trapping will be allowed from November 15 to February 15. All trap types will be allowed, but no trapping may occur within 100 yards of designated use areas, including the Great Sauk Trail when it is operational. Trapping will be allowed within 100 yards of other designated hiking, biking, and horseback riding trails, unless posted as closed to trapping.

In the Magazine Area, trapping with enclosed trigger traps (sometimes referred to as dog-proof traps), as is allowed in state parks, will be allowed from November 15 to February 15. Trapping may not occur within 100 yards of the special event designated use area in the northwestern corner of the Magazine Area, but will be authorized within 100 yards of designated hiking and biking trails, unless posted as closed to trapping.[18]

All hunters and trappers may access the property daily one hour prior to the opening of their season. All hunters and trappers will be required to leave the property, along with all other visitors, when the property closes at 11:00 p.m.

f. Dog training and trialing (hunting dogs)[19], and off-leash access (all dogs)

Objectives:

- Establish a Class 2 dog training ground in upland habitats and of adequate size to provide a high-quality experience that will have minimal impact on other visitors and is consistent with the goals of SPSRA.
- Provide the opportunity for clubs to host dog trialing events.
- Require dogs to be on-leash in areas of the property that will have more trails and higher visitation levels. Provide an area for visitors (who are not engaged in hunting) to have dogs off-leash.
- Ensure that dogs do not conflict with visitor's enjoyment of the property and have a minimal impact to nesting animals (particularly grassland birds).
- Minimize the chances for potential impacts from dogs to DFRC operations and research.

Proposed management:

With regards to regulations related to dogs, State Recreation Areas are the same as State Wildlife Areas and State Fishery Areas. Dogs must be on a leash and under control from April 15 through July 31. Outside of this time period, dogs may be off leash.

As more facilities and trails are constructed, visitation is anticipated to increase considerably at SPSRA. As such, it is likely that areas with the higher concentration of trails will receive enough use to warrant restricting areas where dogs may be off leash. Thus, with the exception of part of the Magazine Area described below, on all other lands of SPSRA dogs will be required to be on a leash not more than 8 feet

[18] Department will pursue a change to NR 10 to reflect the proposed hunting and trapping seasons.

[19] Regulations associated with dog training and trialing are found in NR 17, Wis. Adm. Code.

long and under control at all times.[20] *The exception to this requirement will be dogs used for hunting in the seasons listed above may be off-leash in all areas open to hunting.*

In a portion of the Magazine Area (MA2, MA4 and MA5), dogs will be allowed off-leash from August 1 through April 14. Up to three miles of hiking trails will be constructed in this part of the Magazine Area, with a trailhead in the parking area near the Hillside Prairie, for people walking their dogs. This area will not be fenced.

Dog training refers to any teaching or exercising activity involving hunting dogs in which the primary purpose is to enhance their performance in the field. These dogs are utilized for hunting game birds and game mammals and include breeds such as pointers, setters, retrievers and hounds. Regulations governing the training of sporting dogs vary according to what species the dogs are being trained with and where the training takes place. In addition, the department also issues permits for dog trials occurring on both public and private land. Most dog training is conducted individually by an owner and one or two dogs.

An approximately 72-acre area in the southernmost portion of the Magazine Area will be designated as a Class 2 dog training ground (see Map G). This area is currently a mix of woods and open grasslands; the department's intent is to remove much of the brushy and early successional trees to create an open aspect here. The area will be accessible from the parking lot proposed to be located south of the Hillside Prairie. This Class 2 training ground will be open year-round. Dog training subject to NR 17, Wis. Adm. Code may only occur at the SPSRA within the designated Class 2 training ground.

Consistent with SPSRA habitat management goals, the dog training grounds will be upland settings. No wetland or pond creation for dog training or trialing will be allowed. Equestrian use during dog training will not be allowed.[21]

Dog trialing events may be allowed in the Magazine Area via a special use permit. The department anticipates that most dog trials at SPSRA would be held in April, May, September, and early October. During dog trials, the Magazine Area may be closed to other visitors. In addition, judges and marshals may be allowed to ride on horseback on and off trails in the Magazine Area (with the exception of the Hillside Prairie and Geotube site) during a dog trial if authorized in the special use permit.

g. Water access and fishing

Objectives:

- Provide shore fishing access, including for mobility impaired visitors, at Weigand's Bay.
- Provide carry-in boat access at Weigand's Bay.

Proposed management:

Weigand's Bay, the site of the old pump house, will be developed as a modern day use area providing carry-in boat access, shore fishing, open-sided shelter, and a fishing platform or pier with features that support anglers in wheelchairs. Until the former pump house is re-developed, the area will be closed to public access for safety reasons.

[20] The department will pursue a revision to NR 45.06 to reflect this leash requirement.

[21] Pine Island Wildlife Area, located 15 miles to the northeast, allows equestrian use during dog training and trialing.

Although there are some small kettle ponds and small creeks on the property, they provide limited, if any, fishing opportunities. There is not access to Lake Wisconsin from the Southern Link unit, and as a result no fishing or access is proposed at that site.

h. Wildlife watching, nature photography, and collecting edible plants

Objectives:

- Provide opportunities for wildlife watching (particularly bird watching), nature photography, and general scenic enjoyment.
- Provide opportunities for harvesting fruits, nuts, mushrooms and other edible plants.

Proposed management:

Wildlife watching and nature photography are allowed throughout SPSRA, with the exception of the sites closed to all public access.

As is discussed later in this plan, many fruit (mostly apple) trees occur throughout the property, some of which are remnants from the farmsteads that existed on the property prior to its conversion to the BAAP. All visitors may harvest fruit from these trees, as well as pick berries, nuts, mushrooms and other edible plants, except ginseng.

i. Rocketry

Objectives:

- Provide limited opportunities for club-sponsored events to safely launch and retrieve rockets with minimal impact to other visitors.
- Allow an opportunity for clubs to launch low power (model) rockets ten days per.

Proposed management:

The department currently manages a model and high power rocket launch site at Bong State Recreation Area. There is more demand for launches in southern Wisconsin than can be accommodated at Bong.

Rockets are classified as either "model" (sometimes referred to as "low power") or "high power." These distinctions are based on the size and strength of the motors[22] used to launch the rockets. Model rockets weigh less than 3.5 pounds, typically are three feet or shorter in height, and are constructed of paper, wood, plastic, Styrofoam, and other lightweight materials. They are launched with size G or smaller motors. High power rockets are heavier, can be constructed with metal components, use motor sizes H to O, and require Federal Aviation Administration clearance to launch. Motors for high power rockets can only be purchased and used by certified individuals.

This master plan proposes to establish a small site (up to two acres) for launching rockets in the southwest portion of the Central Grassland unit. The site will be comprised of a launch pad up to 25 ft^2 and a surrounding area, approximately 50' x 50', cleared of vegetation. The site will be in an area with minimal

[22] The propellant mechanism in a rocket that burns and launches the rocket upward is known as a "motor." Motors are classified by letters, with each higher letter having twice the energy of the one before.

trees within 1,500', at least 1000' from the DRFC land to the south, and at least ½ mile from DFRC's storage site for silage bags. Design of the launch site and operational management will follow the guidelines of the National Association of Rocketry. The rocketry launch site will be a Type 4 recreation setting and a designated use area.

Launching of rockets will be by special event permit (Special Events Recreational Use Application and License, Form 2200-127) issued by the property manager typically to a club accredited with a national rocketry organization. Launches will typically occur on non-holiday weekends between 9:00 a.m. and 4:00 p.m. Launches may only occur when wind speeds are less than 20 miles/hour, which will limit the distance that rockets will drift from the launch site. Given the department's experience at Bong SRA, most rockets are expected to land within 500 feet of the launch site.

Rocketry events will be limited to ten days per year. The ten days for rocket launches would be based on demand and determined by the property manager. Only model rockets may be launched and they may not be launched to a height more than 2,000 feet. No more than two launch days for model rockets may occur during the spring nesting season. For the two days of launches between April 15 and July 31, the number of launches which may occur will be limited to 50 per day. Rocket launches will not be permitted when emergency burning restrictions are in place.

The authorized days for rocket launches will be timed to avoid other scheduled events or periods when the department expects high levels of visitation at the property, or to avoid impacts to sensitive resources. The rocketry site will be in an open, largely treeless area in the southwestern portion of the Central Grassland, which potentially could also be a desirable pheasant hunting opportunity. To avoid safety concerns of people retrieving rockets in areas that may have high concentrations of hunters, rocketry events will not be allowed during the pheasant hunting season (mid-October to December 31).

The Wisconsin Army National Guard flight training exercises currently occur Monday through Friday. Rocket launch dates are expected to primarily, if not exclusively, be held on weekends so there is unlikely to be overlap in uses. For as long as WIARNG is permitted to train at SPSRA they will be notified of all launch dates so that they can schedule their training exercises appropriately.

j. Special events and associated facilities

Objectives:

- Provide opportunities for a range of special events.
- Balance requests for special events with other visitor's expectations to use and enjoy the property.

Proposed management:

The department allows participatory special events and other uses on department managed lands throughout the state, as long as such events are consistent with the general use and attributes of the property, do not substantially impact natural resources, are within the capabilities of the property to host, and do not create unacceptable impacts to neighboring landowners. Depending on the type of event, parts of a property can be closed to other visitors during an event. To ensure that most of a property is open to visitors not participating in a special event, events are only authorized to use portions of properties.

Many common types of gatherings do not require special event permits. For example, an organized birding trip at a wildlife area does not require a permit. Similarly, an organized group of horseback riders meeting at

a state forest to ride the trails doesn't need one. Nor does a motorcycle club that hosts a ride that stops for a cookout at a state park.

As is the case at all other department properties, special events at SPSRA will be authorized through the use of the Special Events Recreational Use Application and License (Form 2200-127) and the property manager will have the authority to establish appropriate conditions and approve applications.[23] Special events will typically not be authorized on state or federal holidays or holiday weekends, or when they would conflict with another scheduled event that is allowed under normal use. When reviewing requests, the property manager may consider past annual events that use specific dates.

By their very nature, special events are outside a property's normal use patterns. Some special events are predictable, while others are not. The following special events occur at department properties around the state at various levels of frequency:

- Dog trials
- Marathons or triathlons
- Buckskinner rendezvous
- Weddings
- Outdoor skills sessions
- Ice fishing jamborees

In other cases, permits are requested for events that are atypical. For example, in 2009 the department issued a special event permit to allow the filming of the movie *Public Enemies* at the nearby Mirror Lake State Park. This master plan "pre-identifies" two types of recreational uses that will be allowed through the special event permit system: dual-sport motorcycle use of a subset of biking and equestrian trails and roads, and rocket launching. The department cannot anticipate all the potential events that could be requested and thus there is not a definitive, inclusive list of special events for which the department will or will not issue a permit. Although there are no precise rules dictating what events are acceptable and when a special event permit is or isn't needed, the department's approach is to require permits when an event will be noticeable to most visitors and there is a reasonable probability it may affect many visitors' use of the property.

All special events that are approved at SPSRA would be obligated to meet the requirements laid out by the property manager in the Special Events Recreational Use Application and License. If the anticipated impacts of a special event are substantially beyond the typical types of property uses, either the events are not permitted or additional safeguards are put in place to ensure that other visitors and resources are not unduly impacted. At SPSRA (as at all department properties), the department will not permit events that are expected to have an unacceptable impact on either the property's natural resources, visitors, or surrounding landowners. If an event is beyond the scope of the property's facilities to accommodate (e.g., parking), they are not permitted.

Given its size and location, much of the Magazine Area is well-suited to host several types of special events. To facilitate these events, an area to host or stage special events will be constructed in the northwest corner of the Magazine Area. This site will include an approximately two-acre grass field, a 20-car gravel parking lot, an approximately 20'x20' open-sided shelter, vault toilet, picnic tables, and grills. Depending on

[23] See the Recreation Area Operations Handbook (2505.1) for additional information.

the event, participants may be authorized to set up temporary camping. The site would be a designated use area and classified as a Type 4 recreation setting. The general location of this site is shown on Map G.

Special events could occur just within this approximately 3-acre site, in a part of the Magazine Area, in all of the Magazine Area, or potentially include sections of the main part of the property. For events held in the entire Magazine Area, access to the area could be restricted to just the event participants while the main part of SPSRA could be open for other visitors. Special events in the Magazine Area would not be authorized to use the native community management area (Hillside Prairie) or the special management area ("Geotube" site).

Special events would be limited to no more than four consecutive days. In total, special events that reserve part or all of the Magazine Area would be limited to no more than five weekends between Memorial Day and Labor Day (including the days when biking and equestrian trails are repurposed for dual-sport motorcycles). Depending upon the nature of the special event, the property manager may temporarily close the road to the Thoelke Cemetery during the event.

The event organizer or sponsor may be required to provide the department with certificates of insurance, including bodily injury, death, and property damage, for the approved event and dates. The event organizers or sponsors are responsible for any and all damages to the property resulting from the event. If damages are not adequately repaired, the department shall make the necessary repairs and bill the organizers or sponsors for the direct costs of repairs.

k. Shooting range

The department presented the Natural Resources Board a guidance document in 2014 that addressed, among a number of issues related to shooting ranges, general criteria for evaluating options to develop ranges at department owned properties. The NRB endorsed the goal of providing additional public shooting opportunities, particularly near population centers in the southern and eastern part of the state. The guidance document identified gaps in the distribution of existing public shooting ranges based on distance and population density, with a general goal of providing public shooting opportunities within 30 miles of most residents. The guidance also noted that establishing new public shooting ranges on department lands should consider need, amount of public support, cost, hunter education opportunities, and siting constraints.

The department is currently constructing a new shooting range (with 100-yard, 50-yard, and 25-yard distances) at the Mud Lake Wildlife Area in Columbia County. The department is also continuing its efforts to arrange for additional public use at private ranges in Sauk County, although to date this has not resulted in increased public opportunities at these ranges.

The Columbia County shooting range site is about 20 miles east of SPSRA. Even when this site is operational, there will still be a large population in the area underserved for public shooting range opportunities. In an effort to address this need, the department is evaluating three sites within the Lower Wisconsin Riverway for a new public shooting range. These sites are about 8 to 10 miles to the south of SPSRA. If one of these sites is determined to be feasible and suitable, it would address much of the demand in the area and there likely would not be a need to construct an additional range at SPSRA.

However if none of these three sites are suitable, the department will initiate a process to locate a public shooting range in Sauk County, similar to the process used to identify the Mud Lake Wildlife Area site.[24] This evaluation will include SPSRA and other department-owned lands in the vicinity. The public will have multiple opportunities to provide comments and input in this process. If the department proposes to construct a shooting range at SPSRA, it will follow the steps in NR 44, Wis. Admin. Code describing changes to master plans. The department will also notify the National Park Service so that they have the opportunity to conduct any additional analysis as needed.

l. Wisconsin Army National Guard use

The Wisconsin Army National Guard (WIARNG) has used the former BAAP site for limited training exercises for decades. Currently, the WIARNG conducts a variety of rotary wing (helicopter) exercises that are typically conducted during the week, often in the evenings or at night. These exercises include tactical flight training, including flights at low levels (e.g., tree top) and night vision flight training over the property. In addition, pilots practice landings and take-offs at a designated site next to the main landfill. This site is within the fenced area around the landfill that is already closed to the public. Pilots also practice picking up heavy loads (typically a concrete-filled barrel on a sling) at this same site, flying a designated loop route and then setting it back down at the site. This mimics real-world actions including supply drops as well as picking up and dropping large quantities of water during wildfire suppression.

The frequency and timing of training at SPSRA varies depending on crewmembers' availability, deployment schedules, training requirements, and other factors. Typically, the WIARNG flies about eight flights per week at SPSRA (one to two helicopters, three to five days a week). Flights over the property are typically less than one hour, with many occurring after dark (to allow "night vision goggle" training).

As described on page 9, the National Park Service transfers lands through the Federal Lands to Parks program for recreational use. Activities that are not recreation-related, such as the training exercises by the WIARNG, are not allowed on lands transferred through the FLP program, unless specifically authorized in the deed transferring ownership. The NPS has not yet transferred ownership of the parcel that includes the main landfill and the adjacent site currently used by the WIARNG (parcel V1).

The department supports the WIARNG continuing to conduct limited training exercises at SPSRA, including their use of the site next to the main landfill, so long as it does not substantially affect the recreation value of the property or cause undue damage to any resources. However, unless the V1 deed includes specific language allowing future use by the WIARNG, the NPS has informed the department that WIARNG use of the V1 site will have to be phased out. The WIARNG is in discussions with the U.S. Army and others to determine if options exist to include language in the deed before is transferred to the department.

For purposes of this master plan, the department assumes that the WIARNG will be required to phase out their use of the SPSRA. Although it appears unlikely that WIARNG will be allowed long-term access to parcel V1, because the WIARNG may continue training for the next couple years at the property (and possibly longer if appropriate language is included in the deed allowing the WIARNG to continue some or all of its training exercises at SPSRA), the assessment of impacts in Chapter IV includes those that may be associated with WIARNG activities.

The parameters of WIARNG's current training use, both next to the main landfill site as well as the SPSRA in general, are described in a formal agreement between the department and the WIARNG. This agreement has

[24] See page 116 for a description of the Columbia County shooting range siting process.

been, and may continue to be, amended over time as conditions change (e.g., as facilities are developed or as visitation patterns change). The department will not authorize training activities at SPSRA that cause permanent or undue damage to the property's resources or facilities, or would substantially affect visitors' recreational use of the property.

If WIARNG training use is authorized to continue, the department will place signs or information at the property entrance as well as near the main landfill site notifying the public of the helicopter training exercises, the training value of the site to the WIARNG, and what people can expect to see during their visit.

Figure 7: Northeast Moraine with the Baraboo Hills in the background.

Thomas Meyer, 2015

2. PROPOSED HABITAT MANAGEMENT, BY COVER TYPE AND SPECIES-SPECIFIC ISSUES

This section describes the habitat and species-specific management techniques that the department proposes to use at Sauk Prairie State Recreation Area. The department will use similar types of habitat management prescriptions to achieve desired results at many different sites on the property. For example, the suite of management actions the department will use for oak openings will be the same across the property, but different actions will be used in different locations at different times based on conditions, opportunities, needs, and potential other factors.

It is difficult to predict how the future habitat management of the property will unfold in the years to come, due in part to the level of disturbance as well as the scale of infestation by invasive plants. As such, Table 3 lists an estimate of the acreage of different habitats that the department hopes to restore after 15 years. In addition, the final target (50 years) is also provided. The department proposes to use the techniques described in this section to restore, re-create, and manage habitats. However, the agency also recognizes both that it will need to be adaptable to changing habitat conditions, as well as the likelihood that much will be learned as different strategies are implemented and evaluated.

To achieve the desired habitats at SPSRA, particularly grasslands and oak openings, much of the property will need to undergo intensive habitat re-creation over time. In some parts this will be even more challenging due to the loss of, or past disturbance to, the topsoil. The most pressing need, though, is to maintain the functional aspects of many of the property's surrogate habitats, many of which are rapidly being invaded by invasive plants (especially shrubs). These are likely to be degraded soon to the point that they won't respond to cost-effective management strategies such as prescribed fire. Indeed, some areas have already passed that tipping point and will require intensive efforts to recover.

Table 3: Existing and proposed habitats (acres)

		Current acres	Proposed in 15 years	Proposed in 50 years
UPLAND HABITATS	Grassland - native	37	700	1452
	Grassland - surrogate/degraded	838	625	67
	Oak Opening - native	0	85	1647
	Oak Opening - surrogate/degraded	2	268	0
	Shrubland	1527	807	0
	Oak Woodland - native	0	80	181
	Oak Woodland - surrogate/degraded	0	79	0
	Forest - hardwood	708	549	7
	Forest - conifer plantation	100	86	0
	Cropland	150	75	0
	Developed land	6	11	11
LOWLAND HABITATS	Herbaceous and emergent	7	10	10
	Shrub and Forest	2	2	2
	Open Water	8	8	8
		3,385	**3,385**	**3,385**

In cases where plants and animals listed as threatened or endangered in Wisconsin are known to occur at SPSRA, management actions such as prescribed fire will follow the general protocols for incidental take developed by the Bureau of Natural Heritage Conservation and program guidance documents as available.

Opportunities exist for the department to collaborate with DFRC, HCN, and researchers from a variety of institutions to study the ecological and economic outcomes of habitat management techniques, in particular conservation farming practices. Of special interest is better understanding the ability of different types of grazing systems to restore areas that have been infested with invasive plants. Potential habitat management and restoration research opportunities are further described at the end of this chapter on page 107.

a. Habitats

Grasslands – native and surrogate/degraded

Native prairie sod is very rare on SPSRA with the largest site only about 3 to 4 acres and located in the western border of the Magazine Area (known as the Hillside Prairie). Blocks of restored and surrogate grasslands exist on the property, most notably in the Central Grassland (CG1, CG2, and CG3), Magazine Area (MA2 and MA6), and the Northeast Moraine (NM4, NM5, and NM6). These vary in their composition and diversity.

Many of the areas that are currently surrogate grassland or are proposed for restoration to native grassland have been disturbed, first by agriculture, followed by the removal of farm buildings, and then the construction and subsequent demolition of buildings and other structures for the BAAP. Some portions have patchy or thin vegetation, the majority of which are non-native grasses and forbs. Some parts suffer heavy infestations of invasive herbaceous vegetation, such as spotted knapweed. Overall, the existing grasslands at SPSRA lack native species diversity. This is not to suggest that these grasslands do not have important ecological values; they do, but their ecological values are primarily derived from their physical structure rather than species composition.

Other areas of SPSRA that are proposed to be restored to native grassland habitats are more substantively impacted, either because of highly disturbed soils or because of dense infestations of invasive shrubs and weedy trees. In these areas, grassland management will typically follow a two-phase approach: first, taking active (and often aggressive) steps to restore grasslands to a functional state and then, second, maintaining and enhancing grasslands using less aggressive and time-consuming approaches.

Grasslands
Grasslands are characterized by a lack of trees and tall shrubs and are dominated by grasses, sedges and forbs. Nearly all of the native prairies across Wisconsin have been converted to farmland, overgrazed, succeeded to woods, or developed. The few remaining small remnants are typically confined to railroad corridors, bluffs, and other sites that could not be easily converted.

In the western half of the SPSRA (where part of the former Sauk Prairie once was) the native grasslands were dry and dry-mesic prairies dominated by little and big bluestem, side-oats grama, Indian-grass, and prairie dropseed. Common forbs included coneflowers, asters, prairie-clovers, blazing-stars, and goldenrods.

Surrogate grasslands now represent the vast majority of grassland habitat in the state. Surrogate grasslands are similar in structure to the former prairies that occurred in Wisconsin. These habitats can include agricultural lands such as hayfields, small grains, fallow fields, old fields, pastures, set-aside fields (e.g., CRP), and public lands planted to non-native cool-season or native warm-season grasses and forbs. Although surrogate grasslands can harbor many native prairie species and provide critical habitat for many grassland wildlife species (notably many rare grassland birds), they fall far short of the rich species diversity of the original prairie.

See the Definitions in Appendix 1 for more information about grasslands.

MANAGEMENT OBJECTIVES

- Address non-native and invasive species. The highest management priority should be given to those areas that are, or will soon be, facing extensive invasion by aggressive, non-native herbaceous and woody vegetation.
- Maintain large, open blocks of grassland habitat. Remove hedgerows, plantations, and other low quality forest patches that fragment grasslands. Seek to connect grasslands on department lands with those restored and managed on HCN lands.
- Provide high quality habitat for grassland-associated gamebirds.

- Provide successful nesting habitat, primarily for grassland obligate bird species but also some shrub-grassland species, particularly those on the list of Species of Greatest Conservation Need.
- To the degree feasible, provide a range of grassland conditions including areas supporting thin, shortgrass conditions.
- Provide habitat for grassland-obligate mammals such as prairie vole, prairie deer mouse, and harvest mouse.
- Improve soils to the degree practical.

Oak openings – native and surrogate/degraded

Although vast amounts of the SPSRA property were oak opening habitat in pre-settlement times, these were eliminated or degraded during the farming period and the subsequent BAAP development and operation. A few remnants of degraded conditions remain. In some places large open-grown oaks are now within dense forest blocks or have been overgrown with invasive shrubs and early successional trees. In other areas, for example in the Magazine Area, there are large cottonwoods and other trees that typically aren't associated with oak openings, but that in some ways provide "surrogate" oak opening settings.

Two large blocks (the Northeast Moraine and the Magazine Area) are proposed to be restored and managed primarily as oak opening habitat. These areas currently have a mix of grasses and forbs, with different densities of brush and trees. Some portions have extensive, dense grass cover; other areas support thinner and patchier vegetation, particularly where the soil is more disturbed and has a higher sand content.

Oak Opening
Of the savanna habitats, oak openings were the dominant habitat in Sauk County prior to Euro-American settlement. Today, very few examples exist with the few extant remnants mostly on dry sites; mesic and wet-mesic oak openings were almost totally destroyed by conversion to agricultural or residential uses, and by succession to forest due to fire suppression. Bur, white, and black oaks are dominant in mature stands, typically as large, open-grown trees with distinctive limb architecture. Shagbark hickory is sometimes present. Historically, American hazelnut was a common understory shrub and the herbaceous layer was similar to those found in oak forests and prairies, with many of the same grasses and forbs present. Today, most understory plants in savannas are non-native.

See the Definitions in Appendix 1 for more information about oak openings.

Generally, the areas proposed for oak openings currently lack much plant diversity and in many cases the grasses present are non-native species or are native species but aren't local genotypes. This is not to suggest that the existing vegetation does not have ecological value; it does, but its ecological value is primarily derived from the physical structure of the trees and herbaceous layer rather than species composition.

Although the department would like to eventually replant the understory with more diverse and local-genotype species mixes, maintaining the mix of open grasslands with open grown oaks and pockets of trees -- the "savanna aspect" -- is the primary current need. Most of the two large blocks proposed to be managed as oak openings have dense enough herbaceous growth to sustain prescribed fires that can be used to reduce undesirable shrub and tree growth. Similarly, occasional livestock grazing may be effective at reducing some brush and shrubs.

Other areas that are proposed to be restored to oak opening habitats have been greatly impacted, either because of highly disturbed soils or because of dense infestations of shrubs, brush, and weedy trees. In these areas, management will typically follow a two-phase approach: first, taking active (and often aggressive)

steps to restore herbaceous vegetation capable of supporting successful fires and then, second, maintaining and enhancing these habitats using less aggressive and time-consuming approaches.

In several areas proposed to be restored to oak openings, oaks will need to be planted. However, initial management needs are to reduce shrubs and early succession forests. This will largely be accomplished through the repeated use of prescribed fires over many years, which would likely damage or kill most newly planted trees. Once a more open condition has been achieved and the frequency of fires is reduced, then oaks and other savanna trees will be planted.

MANAGEMENT OBJECTIVES

- Address non-native and invasive species.
- Restore a large block of oak opening habitat between the more wooded areas to the north (Devil's Lake State Park) and the more open grasslands to the south. Restore a second large block of oak opening in the Magazine Area.
- Provide high quality habitat for deer, turkeys, and small game.
- Provide successful nesting habitat for oak opening species, particularly species with declining populations throughout the Midwest.

Shrublands (upland)

Characterized by often dense thickets of woody non-native invasive shrubs, over the last two decades shrublands have become a dominate cover type on SPSRA. In the absence of aggressive management, they are dramatically increasing their distribution over time. Under natural conditions, upland shrubland is generally a transitory habitat, arising either due to a temporary absence of fire in an open setting or as an interim phase to a wooded condition.

Honeysuckle, autumn olive, multiflora rose, and buckthorn are the primary shrub components and support several birds such as Bell's vireo (State Threatened), hooded warbler, American redstart, orchard oriole, brown thrasher and rose-breasted grosbeak.

Even if considerable grassland and savanna restoration work is achieved at SPSRA over the next several decades, many portions of the property are likely to have a sizeable shrub component. The department's intent is to maintain shrubs as part of grasslands and oak savannas, albeit on a reduced scale from the existing coverage.

MANAGEMENT OBJECTIVES

- Maintain some areas in native shrub cover as part of a mosaic of grassland and savanna habitats.
- Provide habitat for shrub-associated species such as Bell's vireo (State Threatened), hooded warbler, American redstart, orchard oriole, brown thrasher and rose-breasted grosbeak.
- Provide habitat for deer, turkeys, and small game.

Oak Woodlands

There is an opportunity to restore and manage oak woodlands in the Bluff Vista unit where degraded oak woodland and small embedded open rocky "glade" habitats are found coming down the bluff (and potentially including part of Devil's Lake State Park). Although this area was more open before Euro-American

settlement and before the ammunition plant was constructed, it is now densely covered with trees and shrubs and will require active management to restore.

The other area proposed to be restored to oak woodland is the block of land east of STH 78 in the Southern Link unit. This approximately 32 acre site is currently farmed and will be planted with trees to re-create an oak woodland habitat transitioning to oak opening, both towards the water (to improve views of Lake Wisconsin) and to the west (the rest of the Southern Link unit).

Because of their mostly closed canopy combined with the lack of woody understory, oak woodlands provide long sight lines in shaded settings. These conditions are attractive for many recreation activities, particularly trail-based pursuits as well as provide habitat for a number of declining plants and animals.

MANAGEMENT OBJECTIVES

- Control non-native and invasive species.
- Control native species that are having undesirable impacts, including trees such as elm, basswood, red maple, and ash.
- Provide quality habitat for oak woodland species, particularly species with declining populations throughout the Midwest.
- Invigorate light dependent understory plant species, particularly species with declining populations.
- Create open, park-like conditions typical of managed oak woodlands, both for ecological and aesthetic purposes.
- Provide quality habitat for deer, turkeys, and small game.

Forests and plantations

At the time of the BAAP's construction in 1942, nearly the entire property was used for farming. Wooded areas were generally confined to steep slopes, wet areas, or sites that were unsuitable for cropping or grazing. A few scattered woodlots associated with farmsteads were also present.

Oak woodland
The oak woodland community occupies a position on the vegetation continuum that is intermediate between oak openings and the oak forests (especially southern dry forest). Oak woodland differs from oak openings in the limb architecture of its trees – they are characterized by more upward growing crowns rather than the wide, spreading crowns of oak openings.

Describing the differences between woodland and forest is difficult because of the absence of intact reference stands, but the oak woodland was subjected to frequent (annual) wildfires of low intensity, lacked the dense woody understory that characterizes most oak forests, and often had relatively lower canopy closure than true forest.

See the Definitions in Appendix 1for more information about oak woodlands.

Southern Dry-Mesic forest
Oak is a predominant cover type in the southern dry-mesic forest. Characteristic dominants in oak forests are black oak and northern pin oak, although white, bur, and red oaks sometimes exert dominance. Common associates include: aspen, pine, and red maple. The herbaceous understory flora is diverse and includes many species prevalent in the southern dry forest.

Southern dry-mesic forests typically occur on loamy soils of glacial till plains and moraines, and on erosional topography with a loess cap, south of the tension zone. Typical surface soil textures are loamy sand and coarse or shallow loams. This community type was common historically, although white oak was considerably more dominant than red oak, and the type is still common today.

Central Hardwoods
The central hardwood cover type consists of variable associations of upland hardwood species, predominantly oaks, hickories, elms, black cherry, hackberry, red maple, white ash, green ash, basswood, and sugar maple. Oaks are the most common overstory dominants. However, no single tree species constitutes a majority of the timber volume. Central hardwoods tend to be mid-successional habitats; successional directions tend toward northern hardwoods. Northern hardwoods become most prominent on mesic sites. Red maple, elms, shagbark hickory, and ironwood increasingly dominate sites that are marginal for the vigorous growth of sugar maple, or sites that lack northern hardwood seed sources.

Over the ensuing 33 years of the plant's operation some wooded areas became established, mostly through gradual succession, in places that were not developed. Many wooded areas that developed in the 1950s and 1960s are now comprised of northern red oak, red maple, Siberian elm, box elder, green ash, black cherry, and cottonwood. Pine, spruce, and walnut plantations were also planted at different sites around the BAAP.

When the plant ceased operations for good in 1975 many areas were no longer actively managed and the extent of wooded areas increased, again through natural succession. Wooded areas that developed in the late 1970s and early 1980s are generally still comprised of earlier successional species such as boxelder and aspen, along with some black cherry.

Apart from the plantations, the forests at SPSRA are all classified in the department's forest inventory system (WisFIRS) as central hardwoods. Many types and conditions of forests are captured within the "central hardwoods" category (see sidebar on previous page). In the department's Natural Heritage Inventory system, the higher quality forests at SPSRA have characteristics associated with southern dry-mesic forests. Based on the current forest cover types and stand conditions, it appears that only a limited amount of active forest management has occurred over the last 70 years. One undated management plan stated that the first successful timber harvest on BAAP occurred in 1974 when 82,600 board feet of sawtimber and 47 cords of pulpwood were removed.

The SPSRA property provides a unique opportunity to restore and maintain a large "transitional" landscape – from the deep forests of Devil's Lake State Park to the open grasslands at SPSRA and adjacent HCN land. Oaks would be maintained as the predominant tree species throughout much of this gradient.

Many of the wooded areas will be thinned or harvested to restore them to oak woodland, oak opening, or prairie habitats. In other areas, oaks, hickories, and other trees will be planted to develop the desired ecological conditions.

In places like SPSRA where invasive species are widespread and are the dominant vegetation in areas, it is critical to appropriately manage them before and/or after timber sales to ensure that the resulting habitat meets long term goals. There are several places in the property where timber was harvested without proper follow-up treatment; the results are dense thickets of invasive plants, particularly shrubs, rather than the desired habitats. Forest conversions will only be completed once there is a plan, as well as adequate staff and resources in place, to complete the conversion to other desired habitats. Depending on the situation, this may involve treatment of the understory prior to or shortly after a timber harvest. The department's intent is to avoid replacing productively growing timber with dense stands of invasive plants.

Any proceeds from the sale of forest products harvested from SPSRA will be used to manage or develop the SPSRA. All planting and harvesting activities associated with woodlands, plantations, and forests will be to benefit habitat conditions or improve safety, not just revenue generation or commercial activity.

Management Objectives

- Restore and manage wooded habitats in a gradient of tree densities from southern-mesic forests to oak woodlands to oak openings to open grasslands.
- Provide high quality habitat for deer, turkeys, and small game.
- Harvest marketable forest products on a predictable timeframe.
- Harvest the plantations, balancing economic value with ecological needs. Potentially leave some small representations of the plantations for interpretive purposes.

NOTE: Although the timing of future harvests of plantations is estimated in the descriptions of management by unit, the plantations may be harvested or thinned earlier to meet habitat management needs or improve the effectiveness of timber harvest elsewhere on the property.

Lowland herbaceous, emergent vegetation and ponds

Although SPSRA is primarily an upland setting, there are a few scattered lowland areas that support wetland and open water habitats. Some of these wetlands are naturally occurring, others have been created. Open wetlands are part of the mosaic that makes up the tallgrass prairie ecosystem.

Ponds occur in a couple of locations throughout the property. Although they are all small, they add to the habitat diversity in these local areas. The extent of the emergent or wet-soil herbaceous vegetation varies depending on water levels, which changes from year to year. Ponds that typically hold water are found at the Oleum West wetland, Kerns Corners, in the Northeast Moraine, and the Magazine Area. None of these ponds are known to harbor fish, and as a result they are important sites for amphibian conservation.

Some of the major areas of herbaceous wetlands, wet depressions, and ponds at SPSRA are:

- Kerns Corner ponds in BV1, which are the result of digging out clay, are rimmed with cattail, reed-canary grass, and a few native grasses and sedges.
- Thoelke, Henry and Steidtman ponds in MA1 and MA2. These native kettle depressions are located in the northeast part of Magazine Area, with the Henry Pond possibly deepened as a result of pre-BAAP roadway on its west edge. Native emergents, submergents and reed-canary grass are present.
- The former Oleum plant area has two low areas. The east one is a native kettle depression which used to receive treated water from the oleum production process. Native emergent vegetation along with reed-canary grass are present and some shagbark hickories, ash, box elder and big-toothed aspen are found in surrounding uplands. The western one, where the stream flowing off the South Bluff is impounded by a berm and railroad grade, is generally wooded.
- The settling ponds/Final Creek area along the southern portion of the property. While there are some native sedges, grasses, and herbs in the low areas, reed canary grass and cattails are also found here.
- Eschenbach and Huber Ponds in NM6 and NM5 are native kettle depressions east of the former nitroglycerin area. The westernmost pond was probably deepened by construction of the roadway on west its side; it had contaminated soil dug out of it during the deconstruction phase.
- Mitigation wetland. This is a small, man-made pool and marsh at the lower end of the Geotube site that holds the Gruber Grove sediments. It contains native herbaceous and emergent vegetation along with reed-canary grass.

Management Objectives

- Maintain and enhance the quality and extent of a mosaic of wetlands for the benefit of wildlife.
- Restore wetland hydrology.
- Reduce non-native and invasive herbs, grasses, shrubs and trees.
- Increase wetland diversity/species richness by introducing native wetland plant species.
- Provide opportunities for wetland research, education and interpretation.
- Protect or restore pond water quality for the benefit of wildlife.

Lowland shrub

This habitat was not common on the former BAAP lands prior to Euro-American settlement and only a few scattered areas in SPSRA currently harbor this habitat, mostly along the lower portions of the South Bluff and in areas where clay was dug out near Kern's Corner. In shrub-settings, tall shrubs such as willows and dogwoods typically dominate. Understory vegetation is currently predominantly non-native species, although species such as button bush, bluejoint grass, as well as several types of sedges, nettles, and ferns would likely have been common prior to settlement.

MANAGEMENT OBJECTIVES

- Maintain and enhance the quality and extent of a mosaic of lowland shrub habitats for the benefit of wildlife.
- Restore wetland hydrology where appropriate.
- Allow native willow-dogwood shrub carr where soil and moisture are appropriate and where this does not interfere with exotic shrub control and prescribed fire.
- Reduce non-native and invasive shrubs.
- Increase wetland diversity/species richness by introducing native wetland plant species.
- Provide opportunities for wetland research, education and interpretation.

Streams

Two streams flow through SPSRA, both with headwaters that originate in Devil's Lake State Park and are part of the Otter Creek watershed. The drainage pattern of these streams is generally north to south, flowing from the South Bluff of the Baraboo Hills to the prairie below. Within Devil's Lake State Park these streams flow over and through rock fields, sometimes disappearing from view. Historically, the streams flowed out into the prairie and were absorbed into the sandy soils. The hydrology of these two streams within SPSRA has been altered through ditching, channelization, artificial impoundments, road construction, and perched culverts. Currently, mesic to wet grasslands and forests border most of the streams and ditches.

The larger, more western of the two streams flows out of a pine hollow and has been ditched in a westerly direction. It is connected to two ponds, both on HCN land (the western pond is known as the "Ballistics Pond"). During rain events, the stream flows through a small swale to the west and joins a tributary of Otter Creek (which is on the west side of USH 12). Several north-south oriented ditches bring additional surface water to the creek during periods of heavy rainfall. Although unnamed, most locals refer to this stream as Pine Glen Creek (WBIC: 1259400).

The second stream, in the northeastern part of SPSRA, flows from a perched wetland area within Devil's Lake State Park and courses south through culverts under the north perimeter road and then flows past the Oleum landfill through a series of ditches. Many small seeps originate from the base of the Baraboo Hills and flow in a southerly direction into this stream, eventually contributing to scrapes and ponds at the base of the bluffs. Remnants of sedge meadow are present in the spring seeps, but are dominated by non-native or invasive herbs, grasses, shrubs and trees. This stream is also unnamed (WBIC: 5031986).

MANAGEMENT OBJECTIVES

- Improve streams and their corridors for the benefit of wildlife and fish.
- Reduce flooding in the Otter Creek sub-watershed.
- Reduce streambank erosion and improve stream water quality.
- Improve in-stream habitat to benefit aquatic wildlife.

- Increase the aquatic-terrestrial interface for shoreland and terrestrial animals.
- Provide opportunities for aquatic research, education and interpretation.
- Work with HCN to develop and implement plans to re-establish the flow of the streams out into the open prairie to be absorbed and drain into the groundwater.
- Maintain water quality of the ponds.
- Manage the vegetation surrounding the ponds to benefit wildlife, particularly amphibians.

Farmland

Of all the cropland within the former BAAP, only a small portion lies on SPSRA. Approximately 145 acres of land are currently used to grow row crops by the DFRC under a land use agreement. These lands have been actively farmed since settlement. Depending on soil conditions and other factors, some additional lands within SPSRA may be suitable as cropland. In particular, there are likely opportunities to return some portions of the property to row crops or other farming systems for a limited number of years as a means to reduce weed species and prepare soils for replanting to native species. Lands at SPSRA will not be converted or used for agricultural purposes just to generate revenue. As required in the deeds from NPS, the department will seek NPS approval for all farming lease agreements.

Many areas on SPSRA may be appropriate for different browsing and grazing animals, particularly those that can be used to assist in managing invasive shrubs. Sustainable grazing of grasslands can be a cost effective technique to create habitat conditions preferred by many rare grassland birds. Although large portions of the BAAP property were grazed during the plant operations, most of the fences are now gone. In addition, grazing operators would need to develop a system for providing water. Long-term grazing operations will be used as a means to provide or improve habitat for grassland species, not just to generate revenue.

Management Objectives

- Maintain existing cropland in agricultural use until conditions are appropriate to restore to native habitats.
- Establish pastures on which to graze cattle, goats, bison, or other animals as a means of addressing invasive plants and other undesirable species.
- Evaluate the effectiveness of different grazing and cropping systems to achieve both habitat management objectives and economic returns.
- Limit public access on active farmlands as needed to ensure public safety and to avoid impacts to cropping or grazing operations.

b. Species

This section describes the management actions proposed to address the life history needs of particular species that may not be sufficiently addressed in the habitat management strategies described previously.

Game species

The department believes the proposed management of habitats, as described in the preceding pages, will maintain and enhance populations of game mammals and birds known to occur at SPSRA. In addition, the department intends to stock pheasants at rates set by the property manager and the local wildlife biologist primarily in the Central Grassland, Magazine Area, and Northeast Moraine units.

Bats

Many species of North American bats that hibernate in caves are at risk from an emerging disease known as White-Nose Syndrome (WNS). This rapidly spreading disease, which causes mortality rates averaging 95%, was documented in Wisconsin for the first time in 2014. Broad scale treatments using fungicides or bio-control agents are not possible in caves due to likely impacts to other sensitive cave organisms. Further study of potential treatments and recovery options is urgently needed.

Bats are currently hibernating in three places on the former BAAP, but not on SPSRA. One of the hibernation sites is a set of three former storage bunkers partially built into the hillside on DFRC land. Department bat scientists are collaborating with DFRC to use the bunkers for bat hibernation and research. The bunkers provide stable temperatures and high humidity, favorable conditions for bat hibernation. Unlike caves or other natural hibernation sites, the bunkers can be cleaned and disinfected to reduce exposure to the fungus that causes White-Nose Syndrome. The bunkers can also be sealed to prevent disturbances to hibernating bats.

At the department's request, five storage bunkers in the former "Nitro" area (parcel P2 within sub-unit NM5) have been left to provide potential additional bat hibernation sites. To make them more useable as hibernation sites, additional soil may need to be added to the tops of the bunkers and the front entryways will need to be insulated and secured. In collaboration with scientists at the University of Wisconsin, the US Fish & Wildlife Service, the National Wildlife Health Center, and others, the department has prepared an implementation strategy for managing WNS in Wisconsin. This strategy may involve the department's participation in WNS research requiring the use of the bunkers.

Species of Greatest Conservation Need (SGCN)

Many Species of Greatest Conservation Need occur or have been known to occur on the former BAAP and SPSRA (see the RPA for a full listing of species). The department believes the proposed management of habitats, as described in the preceding pages, will maintain and enhance populations of the SGCN species known to occur at SPSRA, as well as possibly support additional rare species over time.

Bluebirds

A series of bluebird boxes were established in the Magazine Area, originally as part of an assessment of risks to wildlife health from potential exposure to soil contaminants. The boxes are maintained by volunteers. The continued management of bluebird boxes or other types of similar efforts to benefit wildlife is authorized in this plan. Motorized access to construct or maintain bird houses or other similar projects is limited to the open public roads, unless approval is granted by the property manager for other arrangements.

Neotenic Salamanders

Two large concrete reservoirs, both about 12 feet deep, that supplied water to the BAAP complex exist in the Bluff Vista unit. The valves that drain each reservoir are rusted closed. The west reservoir is designed to hold approximately 4 million gallons. It currently has about three feet of water and apparently has one or more cracks in the concrete at about this level. It was regularly treated with chlorine until sometime around 2000. The east reservoir is larger and is designed to hold about 6 million gallons. The water level in this reservoir has fluctuated somewhat over the years due to changes in precipitation and groundwater flow but typically holds at least ten feet of water. Both reservoirs were emptied, cleaned, repaired, and refilled multiple times since their construction in 1942; the last known draining of the reservoirs is unknown. There is no connection between the reservoirs.

The east reservoir contains an estimated 1,200 neotenic Eastern Tiger Salamanders that live their entire lives and breed here in a larval form. It is surmised that at some point adult tiger salamanders[25] fell into the reservoirs, laid eggs, but then could not climb out due to the vertical lip at the top of the reservoir. Their offspring were born and developed into a larval stage. Under normal conditions (e.g., in an ephemeral pond), in the autumn these animals would have climbed out of the water and progressed through the rest of their metamorphosis – including absorbing their tail fins, developing larger legs, and converting their breathing from gills to lungs.

However, since these larval-stage salamanders could not scale the vertical lip at the top of the reservoir they were forced to stay in the water. Although many of these individuals may have continued to develop into adult forms and subsequently drowned, at least some retained larval features but become sexually mature – a condition known as neoteny. And this cycle appears to have continued for years. Although the neotenic salamander population was formally documented in 1993, it is unknown how long they have existed in the east reservoir. The salamanders were noted by BAAP workers many years ago. In 2014, a small population of apparent neotenic salamanders was also located in the west reservoir (a little more than a decade after the last chlorine treatment). Research has shown that the salamanders found in the reservoir are not genetically different from the local population – they are the same species (*Ambystoma tigrinum*).

Neotenic tiger salamanders have developed elsewhere in the country in waters that are permanent, have an adequate food supply, and do not have predator (fish) populations. Neoteny appears to be more common in other species and subspecies of tiger salamanders that live in the western U.S. Neoteny is rare in Eastern Tiger Salamanders, the species found in Wisconsin, likely in part because there are few permanent ponds that do not have fish, either naturally or as a result of stocking. The rarity of neoteny in Eastern Tiger Salamanders may also be related to genetic aspects unique to the species. The population of neotenic Eastern Tiger Salamanders in the east reservoir is believed to be the largest currently in existence.

Unfortunately, the population of salamanders in the east reservoir has contracted a virus (what is believed to be a form of the herpes virus) as well as potentially other diseases that apparently do not occur in the local salamander population. As such, unless future research indicates otherwise, these individuals cannot

[25] Eastern Tiger Salamanders (*Ambystoma tigrinum*) are common in Wisconsin and live in a variety of habitats including grasslands, savannas and woods. They have adapted to living in agricultural and urban landscapes and readily breed in farm ponds. Adults and larvae eat almost anything they can catch and swallow, from earthworms and beetles to young rodents. They range in size anywhere from 6" to slightly larger than one foot long.

be released back into the wild. Salamanders in the west reservoir have been tested for health concerns with the results pending.

The department recognizes that this population of tiger salamanders is an interesting consequence of the propellant plant and has research and educational value. The department is identifying institutions (including museums, aquaria, zoos, schools, and research organizations) that are interested in receiving neotenic salamanders for research, education, or display purposes. Potentially beginning in 2016, the department plans to capture and distribute the requested number of salamanders to these institutions. For health reasons, organizations receiving these animals will be required to maintain them in captivity for their entire lives.

The department also recognizes that these salamanders are potentially an appealing draw for the public to visit the property. However, given their steep sides, the reservoirs pose an important public safety hazard, even with the existing chain link fences that surround them. As such, when funding is available, the department intends to raze and level the reservoirs. Redeveloping the reservoir site is estimated to cost over $2 million. The department does not anticipate having adequate funds to redevelop the site for at least several and possibly many years. Remaining salamanders in the reservoirs when they are razed will be euthanized.

Fruit trees

A number of fruit trees, mostly apple along with some pear and plum trees, occur on SPSRA. Although many are less than 70 years in age (and thus must have originated from naturally dispersed seeds), others are older and are associated with the farmsteads that occurred on the property prior to the construction of the BAAP. A group of local citizens is inventorying and mapping the locations of these trees and is interested in better understanding the varieties present and their potential value in the management of these crops. These trees have not been actively managed for decades and are in varying stages of health.

The department will continue to work with the local group on their efforts and will accommodate the preservation of the specimen trees to the degree practical in the overall management of habitats on the property. The department may plant some of these varieties near the future visitor center as part of the overall interpretation of SPSRA.

c. Management Actions

The management strategies and prescriptions that the department proposes to use to manage habitats at SPSRA are described below. These prescriptions are consistent with the department's approach to managing other properties in the region. The property manager may, by posted notice, close portions of the property to public access that are being intensively managed, including areas being grazed.

Mechanical cutting

A variety of machines are available to cut, mow, and chop up brush, shrubs, and woody material (e.g., Fecon machines and brush hogs). The department will use the type of machine best suited to the nature of the management needed. In some cases, it may be most effective to use brush saws or chainsaws. In most situations woody residue would be left in place to decompose, piled and burned in prescribed fires, or removed as part of a biomass harvest (see below). After cutting, the stumps may be treated with herbicides to limit re-growth.

Forest product sales

Commercial timber sales or firewood sales will be used to remove marketable forestry products. Harvest treatments could include clear cutting, thinning, shelterwood, single tree or group selection, and salvage cutting. The department will follow the guidelines and best management practices described in the department's Timber Sale Handbook (2461), Public Forest Lands Handbook (2460.5), and the Silviculture Handbook (2431.5) when conducting forest managementon the property.

Where feasible, and depending on current management objectives, timber sales will be used to sustainably manage forests and/ or to convert current forest stands into the desired cover types described in this plan. This will not be a viable option in all of the stands on the property. Some of the Central Hardwood forest stands, for example, contain low volumes, undesirable species, and poor quality timber. Where possible, though, timber sales will allow managers to attain management objectives at a minimal cost. Timber sale activities in more desirable stands may be combined with those in less desirable stands in order to achieve desired objectives. Such activities can improve the SPSRA property for the future without a sizeable expenditure by the state.

In places like SPSRA where invasive species are widespread and are the dominant vegetation in areas, it is critical to appropriately manage them before and/or after timber sales to ensure that the resulting habitat meets long term goals. Forest conversions to other cover types will only be completed once there is a plan, as well as adequate staff and resources in place to complete the conversion to other desired habitats. Depending on the situation, this may involve treatment of the understory prior to or shortly after a timber harvest. The department's intent is to avoid replacing productively growing timber with dense stands of invasive plants.

Bio-fuel harvests

Harvests of non-commercial timber, brush and herbaceous vegetation, intended for use as biomass, may be used to restore and maintain habitats. The department may combine bio-fuel harvests with forest product sales to improve the economic value and feasibility of the harvest. Bio-fuel markets and demand will determine the cost-effectiveness of using this management action to achieve habitat management goals.

Prescribed fire

All prescribed fires will follow the protocols described in the department's Prescribed Burn Handbook (4360.5). Generally, fire will be used on a rotating basis in various-sized management areas. The frequency

and size of the prescribed fires will be based on site conditions and regional and property priorities. Although it is anticipated that some portion of SPSRA would be burned each year, the scheduling of fires is dependent on weather and the availability of staffing and may not actually occur every year.

The department's intent is to conduct prescribed fires at frequencies that successfully invigorate native species and set back undesirable species. Prescribed fires will be used where adequate residual vegetation is present to sustain fires hot enough to be successful. In some areas where grassland and oak opening restoration is proposed, there currently isn't adequate herbaceous material present to sustain productive fires. As desired or feasible, the department may seed these areas to develop an adequate mass of herbaceous vegetation to hold a successful fire. Fires will generally be conducted in the spring and fall. Early spring (generally prior to late April) and fall burns tend to favor forbs. Late spring burns (generally late April to mid-May) are best for stimulating warm season grasses and controlling cool season grasses and brush.

Prescribed fires in oak woodland habitats are designed to burn shrubs, small saplings, and woody debris and typically are not as hot or intense as in more open habitats such as oak openings or grasslands. Fires will generally be conducted in the spring and/or fall and would, ideally, occur almost annually for the first 5-10 years during the "restoration" phase and 2-3 times over a 10 year period during the "maintenance" phase.

Fires are not permitted on the four areas (the main landfill, deterrent burning ground, landfill #5, and the Geotube site) required to be maintained in grass cover because fires result (temporarily) in bare soil conditions which could make them susceptible to erosion.[26]

Chemical use

Herbicides will be applied where they can be effective at controlling target plant species, particularly following mechanical cutting. In most cases these will be spot treatments (e.g., on stumps or on localized outbreaks of nuisance plants). Occasionally, herbicides may be used on large blocks to kill existing vegetation to facilitate re-planting. They may also be applied broad scale following late spring burning, where they can be effective in controlling grasses such as reed canary or smooth brome grass (refer to the document, "Reed Canary Grass Control Methods in Herbaceous Wetlands" by the Wisconsin Reed Canary Grass Task Force). The chemicals used and the application process will follow the protocols described in DNR Manual Code 4230.1.

In addition to use of herbicides by department staff, application of herbicides and insecticides may occur as part of farming operations on SPSRA under an agreement with the department.

Grazing and browsing

Grazing and browsing have proven to be effective management tools to reduce shrubs and invasive weeds at several public properties in Wisconsin. In particular, goats' dietary preference for shrubs and woody material has been successfully used to remove undesirable vegetation. Scientists at the UW-Madison have been conducting research in collaboration with DFRC on some of their lands at BAAP. The researchers grazed goats in paddocks infested with invasive shrubs and other weed species.

In addition, fall mowing of shrubs followed by spring cattle grazing has shown to be very effective at suppressing brush at properties in central Wisconsin. Light to moderate grazing (season-long) with cattle can also be an effective tool for the long-term maintenance of moderate- to short-height grassland vegetation

[26] The U.S. Army is responsible for the management of these four sites.

structure preferred by a number of grassland bird species. Typically this level of grazing is equivalent to one or two average-weight beef cattle per two acres. Managed intensive rotational grazing, done in a "bird friendly" manner with ungrazed refuge paddocks, can also provide some habitat for grassland birds. As grazing was a historical land use prior to the construction of the BAAP, having some permanent "bird friendly" pastures at SPSRA could combine the use of conservation farming practices with educational opportunities.

Although more research is needed to improve and better understand the factors that drive different habitat outcomes (e.g., type of animal, stocking density, sequencing different types of animals, duration of grazing periods, etc.), grazing appears to be well-suited to the habitat management needs at SPSRA. Grazing may be used where conditions are appropriate and could include goats, cattle, or other species. Goats would be contained primarily using temporary fencing while larger animals typically require more permanent fencing. Paddocks would be of various sizes (potentially 10 to 300 acres) and could include both temporary and permanent grazing sites.

Grazing will typically start in May and run into October. Depending on the types of animals involved, it may be appropriate to close the portions being grazed to public use. In these cases, affected trails would be temporarily re-routed as needed and feasible. Apart from the administrative building (Building 207), there are no potable water sources currently on the property. As such, grazing operations would have to address this need. In addition, many of the fences that remain are in poor condition.

In collaboration with local graziers, DFRC, UW researchers, HCN, and other grazing experts, the department will develop a more detailed grazing plan after the master plan is approved. This plan will address the locations and rotation of grazing paddocks, desired habitat outcomes, water sources, fencing, ways that impacts to public use will be mitigated, monitoring of soil or vegetation, and other topics as appropriate.

The Wisconsin Department of Health Services undertook an evaluation of the bioaccumulation through the terrestrial food chain of contaminants of concern that could potentially lead to a health hazard for people who consume animals from the property (animals used in grazing as well as game animals).[27] The evaluation applied a set of assumptions that are more conservative than are ever likely to materialize. For example, one assumption was that animals would spend 100% of their time at SPSRA; in reality, for cattle or goats grazing on the property for habitat management purposes, the animals would only be on the property from late spring to the fall and the individual cattle and goats on the property may differ from year to year. Another assumption was that the level of soil contamination was at the maximum allowable threshold considered to be remediated and that this level existed uniformly across the entire property, which is not the existing situation.

The conclusions of the DHS report, incorporating the conservative risk estimates, indicated that:

- Regular consumption of agricultural grazing animals with a high percent fat content (e.g., cattle and sheep) from SPSRA may pose a human health risk to both children and adults.
- Regular consumption of agricultural grazers with a lower percent fat content (e.g., bison and goat) from SPSRA is unlikely to pose a human health risk to either children or adults.

[27] The Department of Health Services sent a letter (May 2013) to the department summarizing the human health assessment of the consumption of animals harvested from the SPSRA. The letter and appendices are posted on the department SPSRA website.

The report notes that the elevated risks calculated for cattle and sheep are likely improbable given the difference between the assumptions and actual conditions on the property and people's eating habits. As a further precautionary measure, the department will require that cattle (or other grazing animals with similar fat content) spend no more than two months a year in the Settling Ponds area (MA5). In addition, the department will provide educational information to graziers on the soil contaminants of concern present at SPSRA and their potential for bioaccumulation in animals that graze on the land.

Late season haying

Late season cutting and baling of hay or grasses (generally, after August 1) may be used where conditions are considered appropriate to provide useable habitat for nesting grassland birds and suppress the growth of shrubs and tree seedlings. Haying typically would not continue after the end of August to allow some regrowth prior to the onset of winter.

Biological control

Biological control refers to the use of animals, fungi, or diseases to control invasive populations. Control organisms usually come from the native range of the target species, and require a period of study to ensure that they will remain specific to the target population, and will not harm native species, crops, or other desirable ornamental species. Bio-control agents require both federal and state permits for their use.

Biological control typically does not eliminate the invasive species, and usually takes several years to show results. However, biological control has been effective for some species. Examples include the *Galerucella* beetle which has been used with some success to control the European perennial purple loosestrife (*Lythrum salicaria*), and *Larinus* sp. weevils for control of Spotted knapweed (*Centaurea biebersteinii*).

Grazing animals can also be utilized as biological control agents. For effective control, grazing may need to be used in multiple consecutive years, generally during the rosette (early growth) to early flowering stages, sometimes with multiple treatments per year. This practice is best used as part of an integrated pest management plan including manual, mechanical, or chemical controls. See "Grazing" above.

Grading, excavation, and soil improvement

As needed, areas may be graded to flatten berms, fill in ditches, remove rubble, or restore topographic relief. Soil improvement efforts will reflect both the degree of past disturbance as well as the availability of resources. In some places the department may seek to remove various types of rubble or may add topsoil (from local sources) to improve long-term habitat outcomes. In other areas, sandy or rubble deposits may be left to support open conditions and associated species.

In some places ditches may be filled and drainage tiles broken to aid in wetland restoration efforts. Wetlands and depressions that have filled in with sediment may be excavated. Wetland basin catchment areas for streams may be constructed prior to re-meandering streams. Monotypical reed canary grass areas may be tilled or cultivated as part of a strategy to increase wetland plant diversity.

Seeding and planting

Depending on the conditions, areas may be planted with grassland species using seed drills, hand broadcasting, or other methods. In some areas with weed infestations, cropping fields for several years will help reduce the soil seedbank of weeds, after which grasslands can be seeded. In other areas, prescribed fires followed by inter-seeding of native grassland species may be used.

Oaks (bur, white, and red) and other native trees that are associated with oak opening and oak woodland habitats may be planted. Trees will be planted using machines or by hand, depending on the material planted. In some cases, trees may be transplanted from undesired to desired locations within the property.

Cropping

Where appropriate, the department may rent SPSRA land for crops. Cropping can help prepare the site for the future planting of grassland species (see above). Depending on the interest, tillable lands on SPSRA could be used to grow corn, soybeans, alfalfa, wheat, oats, or other crops and small grains. To minimize the establishment of weed species, the department will seek to rotate fields through a series of different crops (and their respective herbicide treatments) immediately prior to planting with grassland species. Rental agreements will not be instituted without the prior review and approval of the NPS.

Vegetated buffers and runoff reduction

Where possible, wetlands will be surrounded by a 100-foot buffer zone of vegetation to reduce the amount of storm water runoff from entering.

Alum treatments and pond vegetation

Some ponds may require treatment with alum to reduce algal blooms, and improve water quality. This will be followed with a plan to plant native lacustrine emergent, submergent, and floating-leafed aquatic plants.

Figure 8: View of the eastern section of the Central Grassland unit. The main landfill, where most of the 1,400 buildings that were part of the Badger Army Ammunition Plant are now buried, is seen in the upper left.

Michael Mossman, 2015

3. PROPOSED RECREATION AND HABITAT MANAGEMENT, BY MANAGEMENT UNIT

In this section of the master plan, proposed management objectives and actions are presented by the different units of the property. The intent here is to enable readers to see how the habitats, recreation facilities, and cultural resources will be managed together in each part of the property.

Much is proposed to be accomplished in this master plan. From a habitat perspective, it will take decades of management to restore many places on the property. Initial efforts will focus on slowing the spread and adverse impacts of invasive species. Of particular concern is the conversion of many areas from surrogate grasslands to invasive shrubs such as honeysuckle, autumn olive, and multiflora rose. Woodlands are also being infested, primarily with buckthorn. As such, the department proposes to initially work on conducting prescribed burns, brushing, herbicide treatments, and other actions in areas where it is still possible to return to surrogate conditions with reasonable effort. Areas that are too degraded will be deferred. It is the department's hope that following this "triage" approach will result in the best outcomes given limited staffing and funding.

It will likely also take many decades to fully develop the recreation facilities and opportunities described here. Initially, this plan calls for using many of the former roads as trails for biking, horseback riding, cross country skiing (un-groomed), and hiking. Over time, new trails will be constructed and many of the roads will removed.

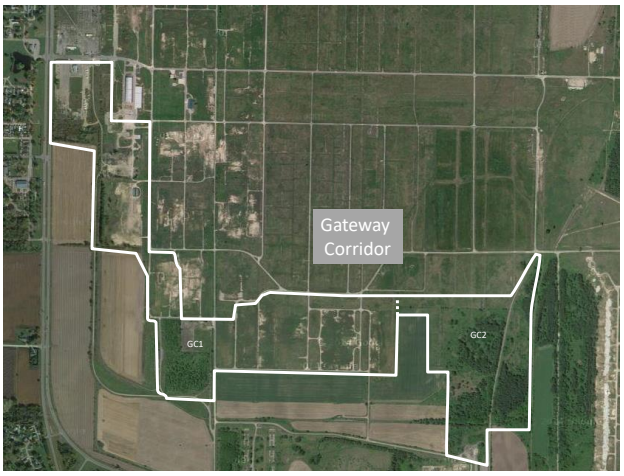
Figure 9: The view from the reservoir site looking southeast over the TNT production area, which was never completed. The buildings were torn down to use the materials for construction of the Rocket Area in 1944.

Badger History Group archives

a. Gateway Corridor

Existing conditions

Figure 10: Gateway Corridor unit



This 254-acre unit comprises a band of connecting parcels from USH 12 into the main part of the property. Much of the far western portion of this unit was heavily developed with various administrative and storage buildings and although nearly all the buildings have been removed, the corridor is considerably disturbed. The western portion of the unit lies on the outwash plain and is flat with a slight slope upward as one travels east. The eastern end of this unit includes part of the terminal moraine and rises high enough to provide good views northwest across the open grasslands on the parcels owned by the HCN as well as the Baraboo Hills. The existing vegetation is patchy, sparse, and comprised mostly of non-native, weedy grasses and forbs in the west portion and shrubs, early successional forest (primarily box elder with some black cherry and oaks), and about 19 acres of pine plantings in four spots in the east portion.

Given the narrow and somewhat convoluted shape of the corridor, the habitat value of the corridor is especially dependent on surrounding lands, particularly the HCN lands to the north. No occurrences of any plant species of conservation or management concern are known to occur in this unit. Rare grassland birds (see Appendix 4) have been recorded in the vicinity and may utilize habitat here, although given the narrow orientation of this unit the ecological value here is directly affected by the management of adjacent lands.

Four buildings, all on the western side, remain in this unit – the administrative building (Building 207), two Quonset huts, and an open-sided storage building (approximately 30'x60'). The administrative building currently houses offices and display space for the Badger History Group. With the transfer of the property to the state, the building is now required to meet access standards established by the Americans with Disabilities Act if it is open to the public. The building does not meet the required ADA standards; in addition, it suffers from some operational limitations. The building is currently closed to the public.

The Quonset huts and storage building are in marginal but functional condition. The department does not have a use for the open-sided storage building, which was designed to store flammable gases. A small shed that houses the Bluffview drinking water well is located on a one-acre parcel (R2), which is owned by the Bluffview Sanitary District. This parcel is surrounded by department -owned land. Five concrete pads (approximately 20'x150') as well as several concrete footings remain in the eastern portion of the Gateway Corridor.

As the primary entryway into the main part of SPSRA, this corridor provides an opportunity to showcase and explain to visitors some of the habitat management techniques that they may see throughout the property (e.g., grazing with different animals, prescribed fire, plantings, and late season haying).

The department is currently evaluating broader staff office and equipment storage needs in Sauk County. One option might be to consolidate department staff offices that are currently widely dispersed into a central location and also store a range of vehicles and equipment associated with the department's habitat management and law enforcement (warden) activities. The portion of SPSRA near USH 12 provides an

opportunity to construct a facility to meet these needs as well as potentially house archival material from the Badger History Group.

Discussion of the proposed management

The primary long-term objective for this unit will be to provide an attractive entryway into the property and to showcase different restoration and management techniques that visitors will see elsewhere on the property. The department will coordinate with the HCN and DFRC on potential interpretive displays along the entryway. Given that this unit is heavily disturbed and will require large amounts of work to restore, habitat management efforts will be minimal here until a proposed visitor center is built.

Public access from USH 12 to the Northeast Moraine and Central Grassland is currently on a twisting set of roads through both the Gateway Corridor and land owned by DFRC. A modern, paved, two-way road, with an extended shoulder for bike and pedestrian use, will be constructed entirely on department land in the Gateway Corridor.

Discussion of the proposed management specific to Sub-Unit GC1

A property sign and a kiosk explaining recreation opportunities, habitat management goals and strategies, Wisconsin Army National Guard use of the site, special events, interpretive opportunities and other information will be installed along with a small, 6-car parking lot at the main entrance on USH12. The entrance sign will acknowledge the NPS and the FLP program in the department receiving the property. The existing administrative building (Building 207) will serve as temporary management headquarters for the property and house the museum for the Badger History Group. Currently this building is closed to the public and will remain so until improvements can be made to meet current public building standards. The department and the BHG are working together on identifying funding for this purpose. The long term plan is to remove Building 207 and replace it with a visitor center elsewhere on the property.

The department will use the Quonset huts for storage as long as they remain functional and will remove the open-sided storage building when funds are available.

Until the visitor center is built, habitat management efforts in this sub-unit will be limited to maintaining the existing open aspect and treating the shrubland in the southwestern portion, possibly using grazing. When the visitor center is constructed (potentially in 8 to 10 years) the department may use the entry corridor to showcase and explain different restoration and management techniques. Potential management examples include grazing systems, prescribed fire, brush cutting, late season haying, biomass harvest, and other innovative conservation farming methods.

Discussion of the proposed management specific to Sub-Unit GC2

A new visitor center is proposed to be constructed in the vicinity of locator points “10 S” or “11 S” (see Map C) and may be located in GC2 depending on the location of the access road into the main part of the property. Further information about the proposed visitor center can be found on page 27. If the visitor center is not located in this sub-unit, the equestrian trailhead and parking area may be located here.

From a habitat perspective, this sub-unit will be managed primarily for oak opening habitat. The pine plantations will be managed (some pines may be retained for educational purposes or for a picnic area associated with the visitor center) and the existing shrub and early successional forest will be thinned. The few remaining oaks and large specimen trees (e.g., cottonwoods) will be left to facilitate the restoration to oak opening habitat conditions. White and bur oaks will be planted as needed.

Some of the only remaining physical structures of the plant on SPSRA (concrete bases of metal rest houses) occur in this sub-unit near where the visitor center may be located and could be incorporated into interpretation of the area. For more discussion on the management of cultural and historic resources here, see page 89.

Summary of proposed property use and facility development

OBJECTIVES:

- Work with the Ho-Chunk Nation and DFRC to identify a route, using existing roads to the degree possible, into the main portion of the department land. Potentially enter into agreements with the HCN or DFRC as needed to allow public use of this road.
- Develop a visitor center near locator points "10 S" (potentially in GC2) or "11 S" that offers interpretive wayfinding opportunities, display space for the Badger History Group and others, and potentially limited office space for department staff and a small meeting space. Potentially develop an equestrian trailhead and parking area here if the visitor center will be located elsewhere.
- Develop interpretive opportunities along the entry road that provide visitors background information about the property and the types of management they are likely to see on the property.
- Evaluate the possibility of constructing a building near USH 12 for department staff, equipment storage related to the department's habitat management and law enforcement functions, and secure storage for Badger History Group's archival materials.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Improve existing entryway road and build new sections where necessary. This road will have an extended shoulder for bike and pedestrian use. When the visitor center is constructed, plow the entry road to the center during the winter.
- Construct a visitor center near locator points "10 S" (potentially in GC2) or "11 S." Develop the grounds around the visitor center with parking, picnic area, outdoor informational displays, potential orchard, and other features. If the visitor center is not located in GC2, potentially site the equestrian trailhead and parking area here.
- Construct interpretive displays for placement along entry road and at the visitor center.
- Determine if construction of a central staff building and storage facility is warranted and feasible. If so, submit a request through the building plan process.

ii. Longer-term Prescriptions (16-50 years)

- Remove the existing administrative building (Building 207).
- Potentially construct a building near the USH 12 entrance that houses department staff and provides equipment storage as well as storage for the archives of the Badger History Group.

SUMMARY OF AUTHORIZED FACILITIES:

- Administration building (Building 207) – necessary improvements to allow public access will be made and parking lot resurfaced.
- New visitor center, parking, and associated facilities.

- Department staff office building and equipment storage.
- Property entrance sign.
- Six vehicle parking lot at USH12 main gate.
- Two-way road – 2.3 miles.
- Bike/pedestrian path parallel to entry road.
- Habitat management demonstration with interpretive signs or roadside stations.
- Existing Quonset huts.

Summary of proposed resource management and protection

OBJECTIVES:

- Provide a visually attractive setting for the main entrance into the property by restoring and maintaining grassland (western portion of the unit) and oak opening habitats (eastern portion) that are dominated by native species.
- Maintain and enhance grassland and oak opening habitat through the use of a variety of active management techniques.
- Use the entry corridor as a place to showcase and demonstrate pre-settlement grassland and oak opening habitats as well as habitat management techniques.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Manage the pine plantations according to the department Silvicultural Handbook.
- Remove trees in far northern part of GC2 to widen the open corridor between the grasslands in the Central Grassland and HCN lands.
- Thin the woody and shrubby area along the eastern side of this unit to create an oak opening structure, leaving oaks and some black cherry trees.
- Remove invasive species such as multiflora rose, autumn olive and spotted knapweed.
- Plant white and bur oaks in GC2 to begin conversion to oak opening habitat.

ii. Longer-term Prescriptions (16-50 years)

- Improve soil conditions of highly degraded lands to the degree practical.
- Restore approximately 175 acres of native grassland habitat in GC1 to provide wildlife habitat, especially for birds. Plant a diversity of prairie grasses and forbs.
- As part of this restored native grassland, potentially establish a series of demonstration sites showing different habitat management techniques including grazing systems, prescribed fire, brush cutting, late season haying, biomass harvest, and other innovative conservation farming methods. Provide interpretive displays along the entry road.
- Remove invasive species such as multiflora rose, autumn olive and spotted knapweed and promote some scattered establishment of oaks.
- Harvest remaining pine plantings when they reach maturity.
- Continue restoring oak opening around the proposed visitor center (if in this unit).

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native	0	64	174
Grassland – surrogate/degraded	146	100	0
Oak opening – native	0	25	78
Oak opening – surrogate/degraded			
Shrubland	70	25	0
Oak woodland – native			
Oak woodland – surrogate/degraded			
Forest – hardwood	19	19	0
Forest – conifer plantations	19	19	0
Cropland			
Developed land	0	2	2
LOWLAND HABITATS			
Lowland herbaceous and emergent			
Lowland shrub and forest			
Open water			
TOTAL	*254*	*254*	*254*

Summary of proposed cultural and historic resource management and interpretation

The entry corridor provides an opportunity to explain to new visitors the natural and social history of the site, its national significance, and what they will (or will not) see in the other portions of the property. Topics for interpretation in this unit include: habitat management methods, overviews and pictures of the entire BAAP, and explanations of the former uses of this area (administration and nitro-cotton and Ball Powder production).

If the visitor center is constructed here, it may be possible to plant an orchard of fruit trees at the visitor center site using varieties that had been grown on the BAAP by the former residents. For more discussion on the management of cultural and historic resources here, see page 89.

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	231
Type 4 setting	3
Habitat management area	0
Native community management area	0
Special management area	20
TOTAL	**254**

b. Bluff Vista

Existing conditions

This 250-acre unit has a complex geology and exhibits the greatest topographic relief of the entire property. Resting on the south flank of the quartzite Baraboo Hills and bordering the south edge of the South Bluff State Natural Area of Devil's Lake State Park, this unit descends southward with a vertical drop of 240 feet to the outwash plain and former prairie. The steep drop down the slope is interrupted by two large reservoirs, totaling 10 million gallons, which provided water for the ammunition plant. They were constructed by excavating a large quantity of quartzite and sandstone and depositing the rubble in broad, fan-shaped piles to the south, east and west of the reservoirs (see the photo on page 11).

The reservoir site provides impressive views to the south over of the BAAP, the Johnstown Moraine and entire former 14,000-acre Sauk Prairie on the outwash plain, the Wisconsin River valley, Ferry Bluff, and Blue Mounds (25 miles away). Important geological features are exposed around the reservoirs, including an excellent example of a cobbly Cambrian beach with impact-marks from rocks in the subtropical surf, and other boulders that were scoured by silt-laden winds that descended from the nearby edge of the Pleistocene ice sheet.

The East Reservoir contains a fishless pond ecosystem with 1,200 neotenic eastern tiger salamanders that live their entire lives and breed here in a larval form. The salamanders have contracted a virus and potentially other diseases that apparently do not occur in the local salamander population. As a result, unless additional testing determines otherwise, the neotenic individuals cannot be released back into the wild. For more information on the management of the salamanders, see page 47.

This unit also straddles the Johnstown Moraine. The unglaciated western section is characterized by large quartzite boulders and rock outcroppings that support overgrown examples of oak woodland and bedrock glade natural communities. Northern red oak, red maple, black cherry and elm are the dominant tree species. The glaciated eastern section has less extreme topography, including the broad, low moraine and a natural kettle pond (wastewater from the production of sulfuric acid was drained into this pond for many years and it is likely that water levels were elevated in the past as a result).

At the base of the main slope and spoil piles are two shallow spring-fed ponds that were excavated in the late 1990s and which drain westward onto Ho-Chunk Nation land and into the ditch network. At times of high water, the ditches drain west under USH 12 into Otter Creek. An intermittent stream, originating from the South Bluff of Devil's Lake State Park, passes through meadows and beaver ponds, then enters SPSRA and runs across this unit in a northeast to southwest orientation. It is dammed by berms and the former railroad bed to form a woodland pond, and then drains into the soils below the spoil area and into the network of ditches, most of it seeping into the outwash plain.

Prior to Euro-American settlement, this unit was characterized by savanna and glade communities—a transition between the grassland (on the outwash plain) and oak opening (on the moraine) below and the oak woodland of the South Bluff of Devil's Lake above. Just prior to construction of the ammunition plant, it was a combination of pastured oak openings and woodlands in the sloped areas, open to semi-wooded pasture on the less extreme slopes above, and cropland at the base of the slopes. Since 1942, pines have been planted (and some since harvested) in some areas, while most open and partially wooded pastures have succeeded to woods. In recent years native and non-native shrubs have invaded almost the entire area. The massive piles of rocky spoil created in 1942 during the construction of the reservoirs are now entirely vegetated, primarily with trees.

Much of this unit was identified in the Rapid Ecological Assessment as a Primary Site (SPSRA Baraboo Hills Woodland). The significance of the site is that it creates a transition between the forests of the Baraboo Hills and South Bluff/Devil's Nose State Natural Area and the savanna habitats of SPSRA's Northeast Moraine unit, as well as the expansive grassland on Ho-Chunk Nation land. The opportunity exists to manage an important portion of this unit as oak woodland and oak opening as part of this transition. If the canopy over the rock outcroppings (and possibly some of the rocky spoil area) on the unglaciated slope are opened, they could provide important glade habitat for a number of herptiles (particularly snakes).

Discussion of the proposed management

Vehicle access to the unit will be upon a three-season paved one-way road approximately 1.85 miles in length. The southern 0.50 mile segment will be a paved two-way road offering potential access to the Pioneer Cemetery on HCN lands. The fence separating SPSRA and DLSP will be removed when funds are available. When the exterior fence between SPSRA and DLSP is removed, the existing snowmobile trail will be slightly re-aligned to provide an improved route in the exterior road corridor over to Burma Road.

Figure 11: Bluff Vista unit

The primary recreation facility in this unit will be the day use area at the site of the reservoirs. When developed, this site is expected to be the most heavily visited part of the SPSRA property. This master plan also proposes to construct a modest amount of trails in the Bluff Vista. Although there is sizeable topography here (and up into DLSP) that could provide high quality trails, the thin soils and rock outcrops may make it difficult to site some trails in parts of this unit. In addition, a trail network here will need to ensure that there are not unacceptable impacts to the ecological values of the South Bluff/Devil's Nose State Natural Area.

When funds are available, the reservoirs will be drained, razed, and filled in. Given current budget constraints it remains unknown when adequate funds will be available but the department anticipates it will be at least several years. The reservoir area will be closed to the public until the structures are razed or otherwise safe for public visitation.

The Bluff Vista unit will be managed as part of the transition from the heavily forested Devil's Lake State Park to the open grasslands below on the HCN lands and the oak opening of the Northeast Moraine. The primary management required to recreate the dynamic transition from grassland and oak opening to the woodland of the South Bluff is to remove non-native invasive shrubs, open much of the canopy—leaving primarily scattered oaks, hickories and (at the base of the slopes) cottonwoods—and re-establish a fire regime. A thinning harvest is scheduled in 2019 for about 80 acres in BV1. The shrubs and overstory trees shading the glades will be removed to improve conditions for reptiles.

Some areas currently in grass, oldfield and shrubs will be planted with white and bur oaks (e.g., the grassy perimeter strip, former Oleum Plant, the fields at the east perimeter, the meadow adjacent to the Oleum East kettle pond, and the low open area east of the Kerns Corner ponds). Sites identified as potential (and probably former) glades will receive special attention to encourage re-establishment of native vegetation.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT BV1

The canopy will be opened throughout the sub-unit to create oak opening and bedrock glade conditions and oak woodland where there is some natural protection from fire. Following the thinning of the forest, prescribed fires will be used to encourage the growth of understory grasses and forbs.

Currently, the stream that emanates from the northeast and is directed into a system of ditches mostly seeps into the sandy ground of the outwash plain, though in times of high water it flows farther westward and contributes to chronic flooding of Otter Creek. The department will work with the HCN to develop and implement appropriate plans to re-establish the natural hydrology and allow water to flow out onto the grassland and soak into the outwash plain. This will alleviate flooding of Otter Creek, create diversity within the grassland (adding temporary ponds and areas of hydrophilic vegetation), and restore a rare example of natural hydrology among streams exiting the Baraboo Hills.

The ponds at the "Kern Corner" (locator point "4 S") provide a good waterfowl and shorebird watching opportunity. Interpretive signs will be placed explaining both their creation and commonly seen plants and wildlife. Additional interpretive opportunities include hydrologic restoration of the streams flowing off the South Bluff, the woodland to grassland transition, daily life on the nearby former farmsteads, and plant operations. For more discussion on the interpretation of cultural and historic resources here, see page 89.

A modern day use area will be developed at the reservoir site and offer a number of improvements to support recreation and interpretation. A paved parking lot for up to 50 vehicles[28] will be constructed along with an approximately 20' x 30' open-sided shelter and vault toilet. This parking area, which will be located in a portion of where the existing reservoirs are, will also provide access to a trailhead offering biking and hiking opportunities connecting Devil's Lake State Park with SPSRA. Two trail connections will be established to Devil's Lake: one for on-road bikes (that will connect via Burma Road) and one for hiking. A mountain biking trail connection into DLSP might also be developed later depending on the outcome of a revised DLSP master plan.

An overlook deck offering open-air style seating for teaching and programs will also be built at the reservoir site. The deck will include a series of interpretive panels highlighting the glacial and geologic features evident at the reservoir site as well as history of the propellant plant, ecological transitions, and different aspects of the viewshed. A small amphitheater (seating for approximately 75 people), similar in design to the new amphitheater at Mirror Lake State Park, is also proposed here.[29] One option could be to use quartzite blocks in building the amphitheater. Much of the woody vegetation will be removed where it blocks the southward view from the reservoir area.

Interpretation of the reservoir area will include the Cambrian beach area as well as the boulders that were pitted by the powerful, silt-laden winds flowing off the glacier. The day use area will be classified as a Type 4 recreational use setting.

The department expects that the day use area at the reservoir site will likely be the most visited part of SPSRA. Given its proximity to the South Bluff/Devil's Nose State Natural Area and its importance in managing the continuum from forest to oak woodland and oak opening, the department will seek to restore the area where the reservoirs are sited and develop the day use area to complement the long-term

[28] A 50-vehicle parking lot would require about 1/3 of an acre. The reservoirs are over 2 acres in size.

[29] The amphitheater at Mirror Lake holds 200 people and is approximately 20 yards by 35 yards in size (less than 1/6 of an acre).

ecological goals here. Although invasive species, in particular garlic mustard, are prevalent in the general vicinity, the department will seek to ensure that public use of the area, as well as on the trails originating from the site, do not substantially worsen the spread of invasives.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT BV2

This sub-unit will be thinned to reduce tree density. Around 2025, the white pine plantation will be thinned to improve growing conditions for remaining trees. The remaining trees will be harvested when they reach full marketable size. The wetland and small pond area will be passively managed. The small former building site in the southwest corner will be restored to oak woodland conditions over time.

Summary of proposed property use and facility development

OBJECTIVES:

- Provide one of the key destination sites on the property that takes advantage of the vistas over SPSRA and the surrounding landscape. Use the spectacular views here as a primary setting to provide interpretation of the property's geologic, cultural, and human history.
- Provide recreational connections to DLSP, including a trailhead for hike and bike trail connection to the rest of SPSRA and DLSP.
- Offer interpretive wayfinding opportunities.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Develop a modern day use area at the reservoir site that provides visitors with views of the property, Wisconsin River valley, Blue Mounds and other features. Construct an overlook deck offering open-air style seating for programs about the ecology, geology, history and landscape of the area. An amphitheater offering a gathering space for interpretation and events will be built within walking distance of the parking lot. In addition, an approximately 20' x 30' open-sided shelter, vault toilet, and a paved parking lot for up to 50 cars will be constructed.
- Construct approximately two miles of hiking (longer distance and loop trails), one mile of recreational biking, and one mile of snowmobile trails. Make appropriate connections between DLSP and SPSRA.
- Build approximately two miles of mountain biking trails. Make appropriate connections between DLSP and SPSRA.

SUMMARY OF AUTHORIZED FACILITIES:

- One-way paved road up to reservoir, two-way paved road elsewhere.
- Trailhead.
- Parking lot – up to 50 vehicles, paved.
- Open-sided shelter – approximately 20' x 30'.
- Overlook deck.
- Open-air amphitheater with seating for approximately 75 people.
- Vault toilet.
- Approximately one mile of bike trails (along the shoulder of the road up to the overlook or new off-road trail).

- Approximately one mile of lightly and moderately developed hiking trail.
- Part of the snowmobile trail from the southern boundary of SPSRA to Burma Road.
- Approximately two miles of narrow, single-track mountain biking trail.
- Interpretive kiosks and signs.

Summary of proposed resource management and protection

OBJECTIVES:

- Provide a seamless transition from the forest and oak woodland habitats in DLSP to oak woodland and oak opening habitats in the Northeast Moraine.
- Restore and manage the bedrock glade communities to benefit native species, particularly reptiles.
- Restore the hydrology of the headwater streams that flow off the South Bluff.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Restore the slope to a dynamic mosaic of oak-hickory oak opening and woodland that is continuous and transitional with the grassland and oak opening to the south, and the forests of the broad quartzite bluff to north. Remove trees that block the southward view from the reservoir site.
- Restore the natural hydrological regime so that water that drains off the quartzite bluff flows out into the prairie (and seeps into the sandy soil), with associated permanent and temporary ponds and wetlands.
- Maintain the ecological values of the Baraboo Hills Woodland Primary Site. Restore the oak woodland and oak opening habitats of the site. Address non-native invasive woody vegetation, and prevent its re-establishment.
- Manage the pine plantations according to the department Silvicultural Handbook.
- Evaluate options for managing the spoil piles so they contribute to the transition between grassland, oak opening and oak woodland.
- In collaboration with the Ho-Chunk Nation, evaluate methods of restoring natural hydrology and stream course, and appropriate engineering of the east-west road that runs along the south boundary of the unit, to allow for migration of aquatic species.

ii. Longer-term Prescriptions (16-50 years)

- Continue to manage a dynamic mosaic of oak-hickory oak opening and woodland that is continuous and transitional with the grassland to the south, and the forests of the broad quartzite bluff to north.
- Further develop oak opening and woodland in sub-unit BV1 and expand these habitats throughout remainder of unit.
- Manage the unit in a continuum with grassland - oak opening below and woodland above, with no sharp boundaries in structure or management in either direction. Coordinate management with adjacent lands in Devil's Lake State Park.
- Evaluate pine plantations and plan for their management and eventual removal. Some white pines may remain for their full life span as biological legacies.

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native			
Grassland – surrogate/degraded	28	18	2
Oak opening – native	0	26	90
Oak opening – surrogate/degraded			
Shrubland	48	31	0
Oak woodland – native	0	48	138
Oak woodland – surrogate/degraded			
Forest – hardwood	143	95	0
Forest – conifer plantations	12	12	0
Cropland			
Developed land	5	6	6
LOWLAND HABITATS			
Lowland herbaceous and emergent	7	7	7
Lowland shrub and forest	2	2	2
Open water	5	5	5
TOTAL	*250*	*250*	*250*

Summary of proposed cultural and historic resource management and interpretation

The overlook area provides an exceptional opportunity to educate visitors about a wide variety of natural and human aspects of the BAAP site and the surrounding landscape. With the entire property in view, a series of images (displayed on boards or on electronic devices such as tablets or phones) could convey what the site looked like in pre-settlement times, during the farming era, at different points in time during the BAAP's construction, operation, deconstruction, and a vision for future conditions.

In addition, the overlook provides a unique opportunity to describe the ecology and geology of the Baraboo Hills, the Wisconsin River valley, and the Driftless Area.

The department proposes to incorporate a series of display panels in this unit including at the overlook, next to the bluff showing the ancient Cambrian beach and the pitted boulders, as well as potentially other spots.

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	149
Type 4 setting	6
Habitat management area	95
Native community management area	0
Special management area	0
	250

c. Northeast Moraine

Existing conditions

This large block is noted for its rolling topography and mix of open grasslands and wooded areas that provide ample opportunities for high quality recreation experiences, particularly trail-based activities. Overall, this approximately 1,200-acre unit was relatively undeveloped during the construction and operation of the plant. As such, this unit provides some of the best opportunities at SPSRA to accomplish important habitat management objectives without having to engage in more intensive habitat re-creation.

The undulating topography resulting from the glacial moraine provides a range of microclimate conditions that historically supported oak openings with varying tree densities. A sizable portion of this unit was cropped and pastured through the 1950s and 1960s. Current vegetation is a mosaic of surrogate grassland, upland shrubs, young forest dominated by early succession species including green ash, elm, cottonwood, box elder, conifer and walnut plantations, and some row cropping. A low undulating swale with some wetland depressions and a small pond (sometimes referred to as the "duck pond") is found along the southeast portion of this section. Sixty years ago this area was almost entirely open with a few large scattered trees; today it is mostly wooded.

Small, scattered areas of conifers and walnuts were planted in several places in the Northeast Moraine between 1955 and 1987. The red pine stands are typically younger and are pole to small sawlog in size, the walnuts stands are small sawlogs, and the white pine stands have small to large sawlogs.

The portions of this unit that have been greatly altered include the "Nitro" area (which still contains a set of storage bunkers that may be used as bat hibernacula in the future), a landfill in the northeastern part, the Deterrent Burning Ground (which has been remediated and capped to address further groundwater contamination issues), and an approximately 25-acre excavation area (borrow pit) where a large amount of material was removed to cover and shape the main landfill. This site has been graded and the sides smoothed out. In addition, there is a storage shed (approximately 100'x300') located in the western end on NM2.

Discussion of the proposed management

The proposed Great Sauk Trail would run along the western and northern border of this unit. This portion of SPSRA will be managed primarily to provide trail experiences including hiking, recreational biking, mountain biking, horseback riding, cross country skiing (un-groomed trails) and snowshoeing. To the degree practical, most of the trails will be designed to move between open grasslands and areas with more trees and will take advantage of the hilly terrain. Approximately six miles of recreational biking and eight miles of mountain biking trails will be constructed in this unit as funding and labor are available. In addition, approximately seven miles of equestrian trails will be constructed. Although these trails may share the same corridors in some places, the intent is to provide separate trail networks to provide desired experiences for each user group and to minimize conflicts. Where biking and horseback riding occur on the same trail, the department may route users in opposite directions for safety reasons. The locations of these biking and horseback riding trails are generally depicted on Map F; the actual locations will be determined in the field.

A snowmobile route will be located near the perimeter along the eastern side of this unit continuing up along to the Bluff Vista unit. A hiking trail from the visitor center up to the overlook at the reservoir site will traverse this area. In addition, shorter loop hiking trails may be established here.

Until the trails are built, approximately 5 miles of the former road network in this unit will be used as trails for both biking and horseback riding. Although some of these roads are wide and straight (and thus of moderate

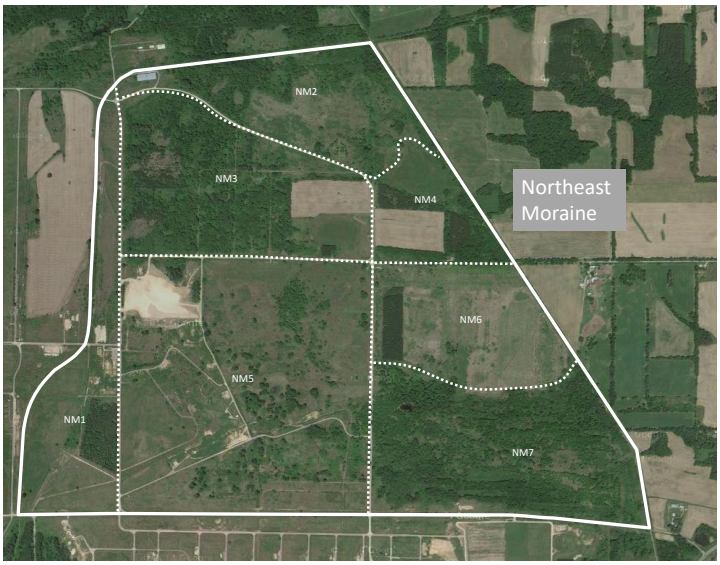
value from a trail perspective), others are narrower and more meandering. The department believes all these roads are wide enough with adequate sight-lines to accommodate both biking and horseback riding concurrently. Surfaces are a combination of gravel (in some cases with rather large aggregate) and asphalt that is generally in poor condition, but serviceable for biking and horseback riding.

A horse trailer parking lot for up to 30 trailer rigs, along with room for six cars will be constructed, either in the Gateway Corridor or the Northeast Moraine. This site will be a designated use area and will include a corral, hitching posts, an approximately 20'x20' open-sided shelter, and vault toilet. Potable water will not be initially provided but may be available later if water lines are installed in SPSRA as part of a new municipal system.

From a habitat perspective, the Northeast Moraine will be managed primarily as a large oak opening with varying tree density. Pockets of open grasslands, oak woodlands, and a small number of ponds and associated wetlands will be present. The initial priorities will be to harvest the pine plantations that fragment the open grassland and shrublands and to reduce the shrubs and young trees (except oaks) that are invading the grasslands. In some areas oaks will need to be planted to facilitate the restoration of oak opening and woodland habitats.

In the course of restoring this area, there may be opportunities to return some portions to row crops or other farming systems for a limited number of years as a means to reduce non-native invasive species and prepare soils for replanting to native species.

Figure 12: Northeast Moraine unit



Discussion of the proposed management specific to Sub-Unit NM1

Most of this management sub-unit lies at the very edge of the outwash plain and is generally flat. This area, part of which was a rail yard, is heavily infested with invasive plants and will be treated using techniques described in Chapter II.B.2. The intent of this sub-unit, bordered by the Great Sauk Trail and a primary north-south road, is to continue the open grasslands of the lands to the west on HCN land and to begin the transition to oak opening that will occur on lands to the east. The southern part of this sub-unit helps make the open grassland connection from the HCN land to the Central Grassland. The pine plantation here will be removed as soon as practical, although some oaks in the block may be left for the transition to oak opening.

A trailhead and parking lot will be constructed here at the site of the former nitric acid plant (locator point "11 S").

A new visitor center is proposed to be constructed near locator points "10 S" or "11 S" and may be located in NM1 (or NM5) depending on the location of the access road into the main part of the property. Further information about the proposed visitor center can be found on page 27.

Discussion of the proposed management specific to Sub-Unit NM2

Bordered by the Great Sauk Trail to the north, this sub-unit will be managed primarily as oak opening. The existing storage shed will be maintained for the time being but will be removed when the property manager believes it is no longer serviceable or needed. Upon removal, the site will be restored to oak opening habitat.

The area is currently a mix of grassland, shrub, and forest and early efforts will be focused on thinning the forested areas and decreasing the density and scope of the shrubs.

Discussion of the proposed management specific to Sub-Unit NM3

The central hardwoods forest which comprises much of sub-unit NM3 will be thinned and treated to eliminate unwanted trees and invasive shrubs. This area may be well suited to experiment with various techniques to remove and manage early successional forests and dense shrub cover. Oaks will be planted as needed to create oak opening habitat after initial treatments to remove unwanted shrubs and early successional trees.

The Deterrent Burning Grounds will be permanently maintained in open, grass cover by the U.S. Army or its contractors. The site is closed to public access. The agriculture land will continue to be farmed until funds are available to convert the parcel to grassland and oak opening habitats.

Discussion of the proposed management specific to Sub-Unit NM4

The two pine plantations here will be harvested to provide contiguous open habitat between Landfill #5 and the existing agricultural field. After harvest, the sites will be treated to reduce invasion by weedy shrubs and will be planted to oak opening habitat. The agriculture land will continue to be farmed until funds are available to convert the parcel to grassland and oak opening habitats.

The landfill will be permanently maintained in open, grass cover by the U.S. Army or its contractors. The site is closed to public access.

Discussion of the proposed management specific to Sub-Unit NM5

This large block will be managed as an oak opening and over time will require planting of oaks, hickories, and other associated trees as well as ground flora.

The immediate area around the bunkers will remain closed to the public until the structures are secured. The department may use one or more of the bunkers here and some of the concrete bases as interpretive features to explain the production of nitroglycerin that occurred here. The 25-acre sand and gravel borrow pit will be classified as a special management area and the department may use material from here to fill in the reservoirs, to restore the former pump house at Weigand's Bay, or other purposes on the property.

A new visitor center is proposed to be constructed near locator points "10 S" or "11 S" and may be located in NM5 (or NM1) depending on the location of the access road into the main part of the property. Further information about the proposed visitor center can be found on page 27.

Discussion of the proposed management specific to Sub-Unit NM6

Although the large grassland in NM6 was planted with non-local seed, this sub-unit currently provides important habitat for many grassland birds and other associated species. As such re-planting the area to local genotypes is considered a lower priority for now. This area will be a priority to conduct prescribed fires in the near-term.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT NM7

This area is centered on the swale that drains to the east. The area near the "duck pond" harbors many large open-grown oaks and has been the focus of past restoration work. Much of the rest of NM7 is heavily overgrown with shrubs and early successional forest. This sub-unit may be well-suited to experiment with various techniques and combinations of techniques, such as biofuel harvest, to thin forests and remove dense shrub cover. Oaks will be planted as needed to create oak opening habitat. Around 2019, part of NM7 is currently scheduled for a thinning harvest.

Summary of proposed property use and facility development

OBJECTIVES:

- Provide high-quality trail experiences for hiking, recreational biking, mountain biking, horseback riding, cross country skiing, snowshoeing.
- Provide a connecting snowmobiling trail between the southeastern portion of the BAAP and DLSP.
- Provide adequate facilities to support equestrian use.
- Develop a visitor center near locator points "10 S" or "11 S" (and potentially in NM1 or NM5) that offers interpretive wayfinding opportunities, display space for the Badger History Group and others, and potentially limited office space for department staff and a small meeting space.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Develop a trailhead and parking lot (ten cars) near locator point "11 S."
- Build approximately six miles of recreational biking, eight miles of mountain biking trails, seven miles of equestrian, and four miles of hiking trails (longer distance and loop trails).
- Develop interpretive materials for the nitroglycerin area, bunkers, and other sites.
- Construct, either here or in the Gateway Corridor, a designated use area for loading/unloading horses that provides parking area for up to 30 horse trailer-rigs and six cars, a corral, hitching posts, an approximately 20'x20' open-sided shelter, and vault toilet.

SUMMARY OF AUTHORIZED FACILITIES:

- Trailhead & parking lot – up to 10 vehicles, gravel surfaced.
- Designated use horse loading/unloading area (either in this unit or in the Gateway Corridor unit) with a parking lot designed to accommodate up to 30 horse trailers and six vehicles, gravel surfaced. The site will also include a corral, hitching posts, an approximately 20'x20' open-sided shelter, and vault toilet.
- Approximately six miles of new recreational biking, seven miles of equestrian, and four miles of hiking trails.
- Approximately eight miles of new narrow, single-track mountain biking trail.
- New visitor center, parking, and associated facilities (either in this unit or in the Gateway Corridor unit).
- Part of the snowmobile trail from the southern boundary of SPSRA to Burma Road.

Summary of proposed resource management and protection

OBJECTIVES:

- Establish and maintain a mosaic of oak opening, grassland, and shrubland habitats that support a diversity of plants and animals.
- Support and enhance habitat for rare plants and animals.
- Convert non-native surrogate grassland to ecologically appropriate native prairie and oak opening plants.
- Reconstruct oak opening using ecologically appropriate native species.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Reduce woody encroachment in grassland and oak opening areas (NM6, NM5 and NM2).
- Thin the wooded swale in NM7, focusing on leaving the larger trees to create an oak opening setting.
- Establish white and bur oaks where necessary to restore oak opening and woodland habitat.
- Harvest the conifer plantation in NM6, possibly in conjunction with a bio-fuel harvest.
- Improve conditions for prairie vole by addressing invasive vegetation (particularly spotted knapweed).

ii. Longer-term Prescriptions (16-50 years)

- Convert 300 acres of surrogate grassland to native prairie species.
- Reconstruct approximately 800 acres of oak opening (including 45 acres currently in row crops) using grazing, prescribed fire, and other techniques described in Chapter II.B.2. Plant native herbaceous plants and oak saplings as needed.

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native	0	249	365
Grassland – surrogate/degraded	324	137	25
Oak opening – native	0	32	815
Oak opening – surrogate/degraded	0	208	0
Shrubland	485	204	0
Oak woodland – native			
Oak woodland – surrogate/degraded			
Forest – hardwood	323	291	0
Forest – conifer plantations	42	34	0
Cropland	31	50	0
Developed land			
LOWLAND HABITATS			
Lowland herbaceous and emergent	0.1	0.1	0.1
Lowland shrub and forest			
Open water	2	2	2
TOTAL	*1,207*	*1,207*	*1,207*

Summary of proposed cultural and historic resource management and interpretation

Some of the interpretive opportunities here include the remnants of several farmsteads, a TNT plant that was never completed, the production of nitroglycerin (and the explosion that killed four workers), the storage bunkers and their potential use as bat hibernaculum, glacial history and the terminal moraine. For more discussion on opportunities for interpretation here, see page 89.

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	1,169
Type 4 setting	13
Habitat management area	0
Native community management area	0
Special management area	25
	1,207

d. Central Grassland

Existing conditions

This 879-acre unit was heavily disturbed during plant operations and was used primarily in the production of rocket propellant and related materials. Hundreds of structures and dozens of miles of roads were constructed here. Much of the topography and soils were altered during construction and deconstruction (e.g., contaminated ditches were dug out and filled). At both the eastern and western edges of the production area are 8 to 15 foot high protective berms, on and around which woods have developed since 1942.

Despite these impacts, the bulk of this unit harbors surrogate grasslands, some mixed with native species, some recently hayed, some with light to dense shrub growth. Some scattered pines and a few large oaks are present. Together, these habitats support important populations of grassland and open shrubland birds (e.g., Eastern Meadowlark, Dickcissel, Willow Flycatcher, and Field Sparrow). This unit could support larger populations of many rare and common grassland birds if woody invasives are controlled and connections are developed between this unit and adjacent grassland tracts, especially the large block of land owned by the Ho-Chunk Nation. Other connections include those to the grassy expanses in the Northeast Moraine and Magazine Area. Indeed, this unit, and its continuity with nearby grasslands, shrublands and oak openings, is critical to maximizing the ecological value of SPSRA (and the entire BAAP property) for grassland wildlife.

As a large grassland block, this area could provide quality pheasant hunting opportunities through a put-and-take operation.

The eastern portion of the Central Grassland (sub-unit CG4) mostly lies outside the actual rocket production area and contains the main landfill, where the majority of the former structures of the ammunition plant are now buried. The landfill complex is fenced and includes two large grass-covered mounds. Other portions of this sub-unit are hillier than the rest of the Central Grassland and are currently mostly wooded with a spruce plantation and post-1942 origin woods, although some older open-grown oaks also occur. The far eastern part of CG4 includes some crop fields currently used by DFRC.

The far western portion of the Central Grassland is wooded, within which lies about 14 acres of a white pine plantation, which will eventually be harvested. Removing these trees will help to minimize forest cover growing between the Central Grassland and the large grassland block owned by the Ho-Chunk Nation. Thinning the northern end of this wooded section will create a corridor for movement of wildlife associated with grasslands.

Discussion of the proposed management

The central portion of the Central Grassland will be managed as a large grassland with some scattered open-grown oaks. Initial priority will be to reduce the shrubs and young trees that are invading the area using fire, brushing, grazing, or other techniques. Also of priority is to establish native grasslands in the portions of this block that have not experienced extensive impacts to soils. In the course of restoring this area, there may be opportunities to return some portions to row crops or other farming systems for a limited number of years as a means to reduce weed species and prepare soils for replanting to native species.

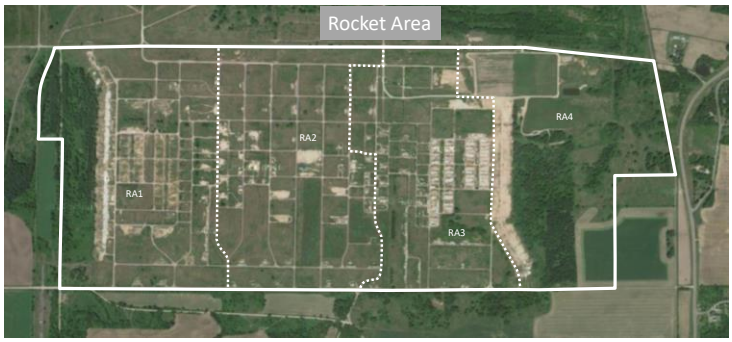
This unit will have only a limited amount of recreational development. This unit will be managed to provide high quality pheasant hunting opportunities through stocking in the fall. Some trails will be established in the area, but they will primarily be located around the perimeter. One option for trails might be to put them along the top of the berms at each end of the Central Grassland to provide visitors with views east and west. Trails will be sited to minimize impacts to hunting use here and some trails may be closed during the

pheasant season. Trails will cross the eastern side of the Central Grassland to connect the Northeast Moraine with the Southern Link (and the Wisconsin River).

In the southwestern portion of the Central Grassland a small site to support rocketry will be constructed.

Discussion of the proposed management specific to Sub-Unit CG1

Figure 13: Central Grassland unit



A short-term need is to thin and eventually harvest the pine plantation and other trees in the northwestern portion of CG1 to open up the corridor between the main part of the Central Grassland and the HCN land. Together, these two blocks of land comprise over 2,000 acres of grassland habitat. The wooded corridor along the western edge of the sub-unit will be thinned and converted to oak opening and grassland habitat.

An approximately two-acre site in the southern part of this sub-unit will be used for launching rockets. The site will consist of a set of launching pads and a viewing area, along with a small parking lot. The site will be developed based on the National Association of Rocketry guidelines. This site will be classified as a Type 4 recreation management area and will be reserved through a special event permit system administered by the property manager.

Discussion of the proposed management specific to Sub-Unit CG2 and Sub-Unit CG3

These two areas will be managed with the same objective of providing open grassland habitat with a few scattered large oak trees. The primary management technique in both sub-units will be prescribed fire. Some of the southern part of CG2 was less disturbed and may be appropriate to convert to a rotation of agricultural crops for several years to reduce weeds.

Discussion of the proposed management specific to Sub-Unit CG4

This area is gently rolling and will support trails that wind up the eastern half of the property.

The sub-unit is mostly classified as a central hardwoods forest (primarily box elder and black cherry with some oaks) and will be restored to an oak opening with pockets of grassland and oak woodland. Oaks will need to be planted here because there are not enough of them in this stand to create an oak opening or woodland. The 14-acre white spruce plantation will be clearcut and removed. A small 5-acre central hardwood stand in the eastern portion of the sub-unit is currently scheduled for a commercial thinning in 2019. A portion of CG4 is currently farmed and will remain in agricultural use for the near term.

The main landfill will be maintained by the U.S. Army or its contractors. The landfill and a surrounding buffer area are fenced and will remain closed to public access. Although it is likely that WIARNG training use at the area next to the main landfill will be phased out, the department intends to allow the WIARNG to continue using this area for helicopter landing and take-off and sling load exercises for at least the next several years. Many piles of sand, soil and rubble exist within the fenced area, along with some woody vegetation. The WIARNG, with permission from the department, may re-grade areas and modify or cut

vegetation here to improve conditions for their training purposes. The equestrian trails in the area will be sited to minimize exposure to helicopter landings/take-offs on land on the west side of the main landfill.

Summary of proposed property use and facility development

OBJECTIVES:

- Provide a limited amount of trail opportunities.
- Provide pheasant hunting opportunities through stocking.
- Provide an opportunity for rocketry that has open habitats in the general down-wind direction.
- At least for the next several years, provide Wisconsin Army National Guard access to and use of the land inside the fence surrounding the main landfill for training purposes (but not to disturb the cover of the landfill itself).

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Establish a 10 car parking area and a two-acre area to accommodate launching rockets.
- Construct approximately four miles of equestrian and three miles of biking trails, primarily along the periphery of the large grassland block; construct approximately four miles of hiking trails (longer distance and loop trails).

SUMMARY OF AUTHORIZED FACILITIES:

- 10 car parking lot and a two-acre site to support rocketry.
- Approximately four miles of new equestrian, three miles of biking, and four miles of hiking trails.
- Part of the snowmobile trail from the southern boundary of SPSRA to Burma Road.

Summary of proposed resource management and protection

OBJECTIVES:

- Establish a large block of grassland habitat in the western three management sub-units (CG1, CG2, CG3) that is largely devoid of trees and shrubs. Maintain scattered large open-grown oaks, cottonwoods and shagbark hickories.
- Create high-quality habitat that supports viable populations of grassland birds.
- Actively maintain desired grassland species through the use of a variety of management techniques described in Chapter II.B.2.
- Minimize forest cover in the connection between this unit and the large grassland block on Ho-Chunk Nation land.
- Restore grassland and oak opening habitat in the eastern management sub-unit (CG4).

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Remove non-native invasive woody vegetation from the grasslands in CG1, CG2, and CG3.
- Evaluate threats and prioritize areas for restoration and appropriate non-invasive surrogate grassland cover.
- Plant highly disturbed sites with native or non-invasive surrogate grassland vegetation and manage as needed to prevent heavy invasion by woody and herbaceous non-native invasive plants such as autumn olive and spotted knapweed.
- Restore/replant the parcels that have not experienced sizeable impacts to soils (estimated 200 acres) to native prairie species. Evaluate potential to farm these parcels with a rotation of row crops to reduce weedy species prior to planting with prairie species.
- Thin the wooded block at the north end on CG1 to improve the open connection between the grasslands of the HCN land and those in CG1, CG2, and CG3.
- Manage surrogate and native grasslands to maintain their open aspect.
- Maintain the small number of large oak, hickory and cottonwood trees that currently exist scattered in the area.

ii. Longer-term Prescriptions (16-50 years)

- Replant 400 acres to native grasses and forbs.
- Once woody vegetation has been reduced to desired levels, manage surrogate and native grasslands primarily through prescribed fire.
- Include grazing, haying, or other techniques as needed on surrogate grasslands as a means to reduce invasion of woody vegetation.
- Establish scattered oaks as needed to create oak opening habitat.
- In highly disturbed areas, improve soil as needed and feasible.
- Harvest remaining plantations and thin wooded areas along the western side of the unit. Replant with native grasses and forbs and scattered oaks to re-create native grassland and oak opening habitat.

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native	0	223	612
Grassland – surrogate/degraded	253	166	33
Oak opening – native	0	0	234
Oak opening – surrogate/degraded	0	60	0
Shrubland	505	301	0
Oak woodland – native			
Oak woodland – surrogate/degraded			
Forest – hardwood	83	83	0
Forest – conifer plantations	21	21	0
Farmland	17	25	0
Developed land			
LOWLAND HABITATS			
Lowland herbaceous and emergent			
Lowland shrub and forest			
Open water			
TOTAL	*879*	*879*	*879*

Summary of proposed cultural and historic resource management and interpretation

Interpretive opportunities could include grassland restoration, different types of grazing systems, different aspects of the production of rocket paste, and the main landfill (where many of the former 1,400 buildings that used to be on the BAAP property are now buried).

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	0
Type 4 setting	2
Habitat management area	827
Native community management area	0
Special management area	50
	879

e. Southern Link

Existing conditions

This 180-acre corridor links the main portion of SPSRA with the Wisconsin River valley. STH 78 bisects this parcel. This unit provides an interesting recreational opportunity to travel between the main part of the property and a Lake Wisconsin overlook. Much of this portion of the property is currently farmed in row crops by the Dairy Forage Research Center through a rental agreement. A crescent shaped area in SL1 is a mix of former pasture, some low land and a small wooded block.

The portion of this unit east of STH 78 is about 50 feet above Lake Wisconsin and, although the parcel does not extend down to the shoreline, it provides excellent views of the water. As such, this part of the property provides a quality opportunity to establish both a day use area overlooking the water as well as a starting point for visitors to enter into the rest of the SPSRA property by biking or walking.

About 1/3rd of the unit is wooded to some degree. The forest on the east side of STH 78 is of relatively high value and is nearing full stocking. Some small farmed wetland pockets also occur here. A small (8 acre) grassland area lies within the farmed lands west of STH 78.

Discussion of the proposed management

Map 14: Southern Link unit

Vehicle access to a modern day use area overlooking Lake Wisconsin will be from STH 78. The day use facilities will include an approximately 16' x 16' open-sided shelter that will provide vistas of Lake Wisconsin. An approximately ½ mile, paved, two-way moderately-developed road will be built leading to a ten-vehicle parking lot. This parking lot will also serve as a trailhead for on-road bicycle use for the recreation area. This trailhead will also have a single vault toilet and information kiosk. A loop nature trail would leave from this general area.

Upon leaving the trailhead, a crushed aggregate trail for pedestrian and bicycle use will be built on the west side of STH 78 and enter the main portion of the property. This approximately 1.0 mile moderately-developed trail up to the Central Grassland will be 10 feet in width. A portion of the trail may utilize the entrance roadway.

Although the farmland in this unit would be among the easiest parts of SPSRA to replant with prairie species and would have a high likelihood of success, this conversion from row crops is a low priority given the more pressing restoration work that is needed in other parts of the property to address areas before they become too degraded. The existing farmland will continue in agricultural use until funds are available to construct a day use facility in sub-unit SL2 overlooking Lake Wisconsin. The 19-acre forest block in SL2 includes a wide variety of upland hardwood species and is quickly approaching full stocking. A thinning harvest will be conducted around 2019.

The land east of STH 78 may be planted to oak woodland (through a department regeneration grant) before the shelter and associated facilities are constructed. A portion of the area will be an open grassy area for a picnic and day use area. The small wetland sites will also be restored. The department will work with Wisconsin Power & Light (which owns the narrow slope down to Lake Wisconsin) to identify potential ways to open up the view from a picnic shelter out over the lake.

Summary of proposed property use and facility development

OBJECTIVES:

- Develop a modern day use area in SL2 with views of Lake Wisconsin.
- Establish a connecting biking and hiking trail from the day-use area to the Central Grassland.
- Provide part of the snowmobile trail.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Construct an approximately two-acre modern day use area and Lake Wisconsin overlook.
- Construct a biking and hiking trail from the day-use area east of STH 78 to the Central Grassland. Work with DFRC to potentially site a connecting trail from the day-use area to the Magazine Area (possibly on or adjacent to the perimeter road).

SUMMARY OF AUTHORIZED FACILITIES:

- Biking and hiking trail – approximately 1.0 mile.
- 10 car gravel or paved parking lot.
- Two-way moderately-developed road – approximately 0.5 miles.
- Open-sided shelter – an approximately 16’ x 16’.
- Vault toilet.
- Information kiosk.
- Part of the snowmobile trail from the southern boundary of the property to Burma Road.

Summary of proposed resource management and protection

OBJECTIVES:

- Restore the degraded oak opening in sub-unit SL1.
- Restore small wetlands in sub-unit SL2.
- Convert the agricultural land in management sub-unit SL2 to oak woodland.
- Actively manage the existing forest in sub-unit SL2 and convert to oak woodland over time.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Maintain the existing agricultural lands in SL1 in active farming use.
- Evaluate options to restore the degraded oak opening in SL1.
- Restore the agricultural lands to native oak woodland. Restore the farmed wetlands.

ii. Longer-term Prescriptions (16-50 years)

- Supplement the diversity of the understory plants in the blocks of oak opening habitat in SL1.
- Work with Wisconsin Power & Light, which owns the narrow strip of land along Lake Wisconsin, to thin some of the trees and improve the view overlooking Lake Wisconsin.

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native	0	0	0
Grassland – surrogate/degraded	2	2	0
Oak opening – native	0	40	132
Oak opening – surrogate/degraded			
Shrubland	22	7	0
Oak woodland – native	0	32	43
Oak woodland – surrogate/degraded			
Forest – hardwood	54	54	0
Forest – conifer plantations			
Farmland	102	40	0
Developed land	0	2	2
LOWLAND HABITATS			
Lowland herbaceous and emergent	0	3	3
Lowland shrub and forest			
Open water			
TOTAL	*180*	*180*	*180*

Summary of proposed cultural and historic resource management and interpretation

This area was not actively used in the operation of the BAAP facility and was mostly farmed since 1942. There may be opportunities to develop interpretive materials related to wetland and habitat restoration, farming operations, and the formation of Lake Wisconsin.

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	50
Type 4 setting	2
Habitat management area	128
Native community management area	0
Special management area	0
	180

f. Magazine Area

Existing conditions

The bulk of this 607-acre unit was home to more than eighty "magazines" (buildings used to store propellant material). Because these buildings were widely spaced for safety reasons, much of this area was relatively undisturbed. Soils throughout much of this area were only moderately impacted and large portions were grazed over the course of the plant operations. The topography is mostly rolling with some small scattered kettle ponds and wet depressions, particularly in the northeastern section. Given its undulating hills and current oak opening conditions, the area is well suited to provide high quality recreation experiences, particularly trail-based activities.

Most of MA2 was identified in the REA as the Prairie and Savanna Primary Site (SPSRA02). This 110-acre site features a small (approximately 3 acre) remnant prairie (known as the Hillside Prairie, which the Sauk Prairie Conservation Alliance has been instrumental in helping manage for many years) and adjacent oak opening that has become overgrown. The remainder of this sub-unit, about 100 acres, is surrogate grassland that supports rare and declining grassland birds including Savannah Sparrow and Bobolink. Rare plants have been recorded from this general area in the past, although recent attempts to relocate them have been unsuccessful.

Current vegetation in most of the Magazine Area is primarily a mix of surrogate grassland (largely brome grass) with shrubs, cedars, and early succession trees becoming increasingly established. Although there are some large open-grown oaks here, there are many large cottonwood trees scattered throughout this unit that provide, in some ways, surrogate oak opening conditions. A high priority for management is to address the various shrubs, cedars and other early successional woody vegetation that is invading much of the unit and to maintain the open surrogate grassland in MA2.

Several small ponds are also present, which add to the ecological diversity of the area. The Thoelke Cemetery is located in the northeastern portion of this unit. This unit also contains the "Geotube" disposal site, which contains contaminated sediments that were dredged from Gruber's Grove Bay. The immediate area where the tubes are buried under a clay cap is closed to public access to protect the integrity of the protective cover.

This unit also includes two narrow strips of restored prairies between the perimeter road and the property boundary (in the far southwestern corner of the property). The eastern edge of the narrow east-west oriented strip has been invaded with shrubs.

Map 15: Magazine Area unit

Discussion of the proposed management

Because the Magazine Area is separated from the rest of the property, it provides a unique opportunity to potentially host special events that do not interfere with visitors to the main part of the property.

With its gently rolling topography and largely undisturbed condition, the Magazine Area is one of the most scenic parts of SPSRA and is well suited to support trails. The long-term goal is to establish approximately four miles of biking trails; until these are constructed approximately three miles of old roads will be used for biking. Two sites here will likely draw a number of visitors – the Thoelke Cemetery and the Hillside Prairie.

Sub-units MA2 and MA4 will be available for off-leash dog use from August 1 to April 14. Approximately three miles of walking trails will be constructed in the area. Sub-unit MA5 will be managed as a Class 2 dog training ground and as such will be open for off-leash dog use, too.

The Magazine Area will be managed as a large block of oak opening habitat with a grassland block in MA2 and a few small pockets of oak woodland scattered throughout the unit. The Hillside Prairie will continue to be a priority to maintain and will be connected to a larger restored grassland to the east. Initial management priority will be to eliminate the invasive shrubs, cedars, and young trees in MA1, MA2 and MA3.

Although a number of scattered large trees occur throughout the area, many are not oaks but rather cottonwoods. These trees, in combination with the dense growth of brome grass and other herbaceous plants create a "surrogate oak opening" habitat. Initial management will focus on enhancing this surrogate habitat through prescribed fire and possibly mowing, grazing, and other techniques. Cedars, shrubs, and early succession trees will be removed. Over time, bur oaks and native grasses and forbs will be planted.

The department will also work with DFRC to identify opportunities to conduct forest management in the band of DFRC land between the Magazine Area and the Central Grassland. Reducing the forest cover on these DFRC lands will improve the ecological value of SPSRA lands for oak opening and grassland species.

Discussion of the proposed management specific to Sub-Unit MA1

A staging area for special events will be developed in the northwest section of this sub-unit. This will include an approximately two-acre cleared, grassy area along with an approximately 20'x20' open-sided shelter, vault toilet, and picnic tables. This site is intended to support events that may use just this site, some or all of the Magazine Area, or potentially portions of the main part of the property.

A small parking lot will be established near the Thoelke Cemetery to accommodate both visitors to the cemetery as well as people that will be using the site as a starting point for biking, hiking, hunting and other activities. This area will be managed as oak opening habitat, with a denser concentration of trees near the cemetery.

Discussion of the proposed management specific to Sub-Unit MA2

A small parking lot will be established south of the Hillside Prairie to accommodate both people visiting or helping restore the prairie as well as people that will be biking, hiking, hunting, dog training, and other activities. This sub-unit will be an initial priority for habitat management work at SPSRA. Efforts will focus on maintaining the open aspect of much of this area through the use of prescribed fire, tree cutting, and potentially grazing. The Hillside Prairie and adjacent oak opening will also be a managed through fire and addressing invasive shrubs. The wooded areas will be thinned.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT MA3

This sub-unit will be managed primarily as open grassland with a small woodland area maintained near the Geotube site. The Geotube area will remain closed to public access to ensure the integrity of the cap.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT MA4

The area will be managed as open grasslands through a variety of management techniques.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT MA5

Part of this sub-unit is relatively heavily wooded and will be thinned to create oak opening and grassland habitats. This sub-unit will be designated as a Class 2 dog training ground.

DISCUSSION OF THE PROPOSED MANAGEMENT SPECIFIC TO SUB-UNIT MA6

This small narrow sub-unit, which lies outside the perimeter fence, was restored to prairie grasses and forbs many years ago. The east-west running portion is increasingly being invaded with shrubs, especially on the east end. This sub-unit will be managed as open grassland.

Summary of proposed property use and facility development

OBJECTIVES:

- Provide a staging and use area for special events.
- Provide high quality biking and hiking experiences.
- Provide a Class 2 dog training ground and an area for off-leash dog use from Aug 1 to April 14.
- Provide vehicle access to the Thoelke Cemetery and the Hillside Prairie, as well as appropriate parking.
- Provide interpretation of the cemetery and former church, former farmsteads and associated remains, morainal topography, and the magazines.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Establish a special events area with an approximately two-acre grass area, an approximately 20'x20' open-sided shelter, vault toilet, grills and picnic tables.
- Establish an approximately 72-acre Class 2 dog training ground in sub-unit MA5.
- Establish two, 10-car parking lots – one near the Thoelke Cemetery and the other near the Hillside Prairie.
- Develop approximately four miles of new biking trails and six to seven miles of hiking trails.

SUMMARY OF AUTHORIZED FACILITIES:

- Special event area with an approximately two-acre grass field, an approximately 20'x20' open-sided shelter, vault toilet, grills and picnic tables.
- 10-car parking lots near the Hillside Prairie and Thoelke Cemetery.
- Approximately four miles of new biking trails and seven miles of hiking trails.
- 72-acre Class 2 dog training ground.
- Part of the snowmobile trail from the southern boundary of the property to Burma Road.

Summary of proposed resource management and protection

OBJECTIVES:

- Establish and maintain oak opening along with a mosaic of grasslands, oak woodlands, and wetlands to support a diversity of plants and animals.
- Support and enhance habitat for rare plants and animals.
- Convert non-native surrogate grassland to ecologically appropriate native prairie plants.
- Work with DFRC on thinning or removing the forest blocks on their land between the Central Grassland and the Magazine Area.
- Maintain and enhance the Hillside Prairie and adjacent oak opening within the Prairie and Savanna Primary Site. Connect the Hillside Prairie to larger restored grasslands to the east.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Continue to manage the Hillside Prairie remnant and the narrow prairie plantings along the southwest border of the SPSRA property.
- Reduce the number of trees and shrubs in the surrogate grassland in MA2 (Primary Site SPSRA02).
- Leave scattered open grown oaks and other large trees like cottonwoods, but reduce shrubs and undesirable woody vegetation.
- Assess opportunities to thin the small forested patches to restore them to oak opening or woodland conditions. If there is a good opportunity, harvest trees in these areas potentially in association with harvests on DFRC lands.
- Address invasion of shrubs, particularly in MA1, MA3, and MA5.
- Plant scattered oak to replace the large cottonwoods that currently provide surrogate oak opening settings.

ii. Longer-term Prescriptions (16-50 years)

- Continue to manage the Hillside Prairie remnant and the narrow prairie plantings along the southwest border of the property.
- Convert 100 acres of surrogate grassland to native prairie plantings, centering on the Primary Site (MA2).
- Supplement the diversity of the understory plants in the primary blocks of oak opening habitat in MA1, MA2, and MA3.

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native	37	84	235
Grassland – surrogate/degraded	85	202	7
Oak opening – native	0	2	364
Oak opening – surrogate/degraded	2	0	0
Shrubland	397	239	0
Oak woodland – native			
Oak woodland – surrogate/degraded	0	79	0
Forest – hardwood	79	0	0
Forest – conifer plantations	6	0	0
Farmland			
Developed land			
LOWLAND HABITATS			
Lowland herbaceous and emergent			
Lowland shrub and forest			
Open water	1	1	1
TOTAL	*607*	*607*	*607*

Summary of proposed cultural and historic resource management and interpretation

Many interpretive opportunities occur here. Notable topics could include the Thoelke Cemetery, farm life, the glacial history here, and the former settling pond area (and its subsequent clean-up and restoration). In addition, the Hillside Prairie has a unique history. For more discussion on opportunities for interpretation here, see page 89.

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	487
Type 4 setting	3
Habitat management area	93
Native community management area	17
Special management area	7
	607

g. Weigand's Bay

Existing conditions

The operation of the propellant plant required massive amounts of water. To meet this need, a large pump house was built at the end of a peninsula in Weigand's Bay that moved water from Lake Wisconsin up to the reservoirs at the north end of the BAAP property. The building sat on four acres, which were transferred to the department. The pumps have been removed, contaminants eliminated, and much of the building taken down. The concrete walls and floors remain. The water depth along the structure is approximately 20 to 30 feet and the bay is known to hold large populations of pan and game fish; as such, the former pump house provides an opportunity to create a high quality fishing experience, including for people with mobility limitations.

Map 16: Weigand's Bay unit

The ground slopes gently towards the water on the south side of the peninsula; the slope is steeper on the north side. Vegetation on the entire peninsula is predominately poor quality trees (e.g., box elder) and dense brush. A considerable amount of poison ivy is present. This small, heavily wooded parcel is well-suited to be maintained in forest cover with a goal of improving the quality of the composition of trees over time and to maintain a forest with older growth characteristics. Numerous dead trees have fallen over into the water. Some clearing of shoreland areas would improve fishing access along the point, but needs to be balanced with the improved fish habitat characteristics that coarse woody material in the shore zone provides.

In addition to the pump house parcel, the Town of Merrimac owns the western-most portion of the peninsula (approximately 8 acres). The department purchased 3.5 acres (under the Statewide Fisheries Habitat program) between the Merrimac land and the pump house parcel creating a contiguous block of public land from Ruthe Badger Lane out to the tip of the peninsula. As part of this master plan process, the 3.5-acre parcel will be re-designated to be part of Sauk Prairie State Recreation Area. There is not contiguous public ownership from the Weigand's Bay parcel to the rest of the SPSRA property.

The department and the Town of Merrimac have agreed that this combined 16-acre block of public land should be managed cooperatively and the department has agreed to take on primary management responsibility for public use of the entire block. Although this master plan only addresses state-owned lands, the department will manage the town-owned lands using the management practices and prescriptions mentioned below. The department will pursue a formal agreement with the Town of Merrimac addressing management responsibilities.

This unit provides an opportunity to establish a small day use area that provides shore fishing (including ADA compliant fishing opportunities), a carry-in launch for canoes, kayaks, and other boats, picnicking, and a short hiking trail. Access to this area will be along the northern Weigand's Bay Road. The access road may be realigned in the future to reduce the impact on neighboring landowners.

Discussion of the proposed management

A paved parking lot for up to 20 vehicles will be constructed for carry-in boat access and shoreline fishing opportunities. An information kiosk and vault toilet will be developed near the parking lot. The remaining

pump house structure will be developed into a fishing site with handicapped accessible fishing opportunities. Signage will be placed near Hwy 78. Trail connections will also be made to the 6.5 acre Town of Merrimac lands west of the department lands.

The habitat of the Weigand's Bay parcel will be managed primarily as a wooded peninsula. The shoreline will be opened up somewhat to improve fishing opportunities, but coarse woody debris will be left along the shore for fish habitat. The trees in this area will be managed primarily for recreational and aesthetic purposes.

Summary of proposed property use and facility development

OBJECTIVES:

- Establish a modern day use area at the site of the former pump house with parking, a carry-in launch for canoes, kayaks, and other boats, parking, a vault toilet, and information kiosk.
- Provide approximately ½ mile of walking trails.
- Provide high quality fish habitat and shore fishing opportunities along the entire peninsula.
- Re-construct the former pump house into a fishing site including access for people with mobility issues.
- Realign the entrance road as needed to reduce impacts from the public use of the road on neighboring landowners.

PRESCRIPTIONS:

i. Near-term Prescriptions (0-15 years)

- Develop a modern day use area, parking, trails and entrance road.
- Convert the remaining pump house structure to a platform or pier that provides fishing opportunities, including for people with accessibility limitations.
- Improve shore fishing access by thinning some trees along the shore.

SUMMARY OF AUTHORIZED FACILITIES:

- Parking lot – up to 20 vehicles (with handicap-accessible spaces), paved, safety lighting as needed.
- Carry-in access for boats.
- Vault toilet.
- Fishing platform or pier on the former pump house with opportunities for accessible fishing.
- Approximately ½ mile of moderately developed trail, primarily to provide shore fishing access.
- Information kiosk.

Summary of proposed resource management and protection

OBJECTIVES:

- Improve the quality of the forest over time through forest management.
- Address invasive species to minimize their impact on the ecological and recreation values of the peninsula.

PRESCRIPTIONS:

ii. Near-term Prescriptions (0-15 years)

- Manage the forest for older growth characteristics.
- Clear some vegetation along the shoreline to improve fishing opportunities, while leaving adequate woody material in the near shore area for aquatic habitat.
- Address invasive species issues as staffing allows.

iii. Longer-term Prescriptions (16-50 years)

- Continue to address invasive species.

SUMMARY OF LAND COVER:

Land cover	Current amount (acres)	Desired amount in 15 years (acres)	Desired amount in 50 years (acres)
UPLAND HABITATS			
Grassland – native			
Grassland – surrogate			
Oak opening – native			
Oak opening – degraded			
Shrubland			
Oak woodland			
Forest – hardwood	7	7	7
Forest – conifer plantations			
Farmland			
Developed land	1	1	1
LOWLAND HABITATS			
Lowland herbaceous and emergent			
Lowland shrub and forest			
Open water			
TOTAL	*8*	*8*	*8*

Summary of proposed cultural and historic resource management and interpretation

Interpretive opportunities here include the pump house and pipeline up to the reservoir site, Lake Wisconsin, settlement of the area, and forest management. For more discussion on opportunities for interpretation here, see page 89.

Land management classification

Land management classification	Acres
Recreation management area	
Type 3 setting	0
Type 4 setting	8
Habitat management area	
Native community management area	
Special management area	
	8

C. Proposed cultural and historical resources management and interpretation

Probably more than any other property in the department's portfolio of lands, the SPSRA has a diversity of cultural and historic stories to tell the people who come to see the property and participate in various recreational activities. The department proposes to incorporate these, as well as ecological and geological information, into visitor experiences.

Although nearly all of the physical evidence of the property's former use as a propellant plant has been removed, there are still some cultural and historic resources on SPSRA, including a cemetery, several farmstead remnants, and miscellaneous infrastructure from the manufacturing era. In addition, several conifer and walnut plantations that were planted at different times still exist, as well as many fruit trees associated with farmsteads. To complement the limited number of physical elements remaining at the property, the Badger History Group has a large collection of pictures, documents, drawings, and artifacts that tell the story of the BAAP.

Despite the removal of the farmsteads and nearly all the infrastructure associated with the production of propellant, there are still many opportunities to inform visitors about the site and its human and natural history through a variety of interpretive methods. To facilitate the interpretation of key cultural and historic resources, seven areas – ranging in size from 13 to 166 acres – were identified within SPSRA. These are areas in which interpretive efforts may be most effective in integrating cultural and historic interpretation into visitor experiences. Options for interpretation include the use of signage and kiosks, as well as a broad range of information, video and audio recordings and historic photographs available through hand-held electronic media (e.g., smart phones and tablets).

The proposed master plan would provide vehicle access adjacent to or within all seven areas; other parts would also be accessible from trails. Of course, lands owned by Dairy Forage Research Center or the Ho-Chunk Nation also contain a number of opportunities for education and interpretation that could be combined with opportunities at SPSRA. The department will work with these partners to identify opportunities to collaboratively manage or facilitate public understanding of these areas.

It is the department's hope that protecting and showcasing the remaining cultural and historic resources on SPSRA, as well as providing educational and interpretive displays across the property, will contribute to the public's understanding and appreciation of the site's significance to the county, state and nation.

Following the approval of the master plan, the department will prepare a Property Interpretation Plan consistent with similar plans developed for other State Parks and State Recreation Areas. The department will work with the Ho-Chunk Nation, the Badger History Group, and other organizations in developing that plan. As with other state properties, before any impacts to the soil will occur, staff will consult with the department archaeologist to ensure that sensitive sites will not be impacted.

The seven cultural and historic resource areas are described here and shown in Map K at the end of the document.

1. ENTRANCE ROAD AND DEMONSTRATION AREA – approximately 100 acres.

This area is within the Gateway Corridor unit and offers a good opportunity to demonstrate historical, current and experimental habitat management techniques being used at SPSRA and other lands of the former BAAP. This may include roadside viewing areas with interpretive materials. There are also several cultural items that can be covered from these same roadside stations, including:

- General pictorial overviews of the plant representing different historic periods, taken from approximately the same viewing site during pre-BAAP, construction, production, deconstruction and recent.

- Special emphasis on administration, single-base (Nitro-cotton or NC) and Ball Powder production areas and possibly the production workers who died in accidents in these areas. The only structural remains are intact concrete bases of warehouses or rest houses at east end of Ball Powder (GC2).
- Pre-BAAP farmsteads and community buildings such as Sumpter town hall, Methodist Church, Gasser and Roick families. Demonstrations of historical land use (e.g., grass hay or pasture) could incorporate on-site historical information such as historical first-hand accounts of local residents.

2. OVERLOOK, WATER RESERVOIRS AND GEOLOGICAL AREA – approximately 13 acres.

This area is within the Bluff Vista unit, on the south flank of the South Bluff, overlooking nearly the entire BAAP and may be the most important interpretive site of SPSRA. Many opportunities exist here to provide interpretation for visitors about what they are seeing from the view as well as sites at the overlook, including:

- There are excellent examples of the Cambrian shoreline that were exposed during construction of the reservoirs in 1942. These show the juxtaposition of the ancient quartzite monadnock and the sands and cobbly beaches that developed when it was inundated by Cambrian seas. This includes pock-marks on exposed quartzite caused by percussion from quartzite fragments tossed about in the surf. There are also *in situ* quartzite boulders scoured by silt-laden winds that descended from the edge of the ice sheet that stood nearby to the east, during the last glaciation about 12,000 years ago. These features can be integrated into the greater story of the Baraboo Hills and glaciation that is told at adjacent Devil's Lake State Park, especially with the view of the terminal moraine, outwash plain and Paleozoic blufflands seen from the overlook here. To a large extent, the features seen here complement rather than duplicate those preserved at DLSP.
- The function of the reservoirs was crucial to plant operation and the site now provides conceptual connections between production, siting of the plant, the Wisconsin River, and groundwater. Excellent ground and aerial photography of the site before and during construction provide lessons in engineering, land use history and plant succession (which has changed the local landscape, even on the massive spoil piles since they were created in 1942). This will help interpret the history and significance of the transition between prairie and woodland that this unit represents.
- This is the site of the unusual population of neotenic eastern tiger salamanders that developed in the East Reservoir, and their historical and biological significance can be described. It is one of many interesting examples of unintended consequences of the plant.
- The overlook provides a rare opportunity to view a broad sweep of landscape and—with the help of graphics and text—imagine changes that have taken place over millennia and especially in historic times. This could include the ancient Cambrian seascape, the advance of the Wisconsin glacier, the creation of today's basic landscape with the terminal moraine, kettle ponds, outwash plain, Driftless Area bluffland and Wisconsin River valley; the Sauk Prairie on the outwash and savanna on the moraine and woodland on the South Bluff; the area's use by Native peoples, and the changes that ensued with Euro-American settlement, farming, the construction of the plant, production, deconstruction and subsequent land management.

3. PIONEER CEMETERY-KERN CORNERS AREA – approximately 50 acres.

Just below the overlook, this area is in the southwest corner of the Bluff Vista unit and potentially could extend to Ho-Chunk Nation lands. Its features illustrate geology, the prairie-bluff woodland transition, wetland creation and management, other hydrological issues, and Euro-American history. Interpretive opportunities include:

- If the area's natural hydrology is restored (allowing the incoming stream to empty and soak into the outwash plain and its grassland), this will demonstrate an important experiment, and the effects of stream

channelization and restoration on flood events (i.e., on nearby Otter Creek). Meanwhile, scrapes made here to provide clay for deconstruction and landfilling activities on-site have created artificial wetlands that provide important wildlife habitat.

- This will be an excellent vantage to view and interpret the grassland-woodland transition to be restored here.
- The Pioneer Cemetery land contains graves from the local community, spanning the time from original Euro-American settlement to 1942. At least one gravestone shows that one person could not be buried with their spouse, who died prior to 1942.
- Several former farmsteads were here, including some with apple trees that remain along with foundation remnants. The road that leads over the Baraboo Range here (now known as Burma Road) was an important travel corridor between Baraboo and the Sauk Prairie and points south.
- Several BAAP structures stood in this area or on adjacent Ho-Chunk Nation land, including the massive water treatment plant that received water from the pumping station on Weigand's Bay on Lake Wisconsin. There are many dramatic aerial photographs of this area as it changed during the construction of the plant in 1942.
- The south part of this area is excellent for viewing and hearing the grassland bird community that figures so prominently in the biological significance, management and goals of SPSRA and the Ho-Chunk Nation tract.

4. TNT-NORTH MORAINE AREA – approximately 165 acres.

Located in the northern part of the Northeast Moraine unit, this area is now much invaded by dense exotic shrubs and native and exotic trees, which currently hide several interesting and important historical and geological features including:

- The terminal moraine and a kettle pond that has largely recovered as a site for wastewater retention.
- At least three farmsteads (Erickson, Gattwinkel, Schlag) with some remnant features such as a hand pump, foundations, shade trees, and beds of garden flowers. In addition are the foundations of a power plant and other structures from the aborted TNT plant.
- 1942 aerial photographs in combination with more recent photographs demonstrate how quickly land cover can change, both with management and lack thereof.

5. NITROGLYCERINE, BAT BUNKERS, AND MORAINE FARM AREA - approximately 105 acres.

Centrally located in the Northeast Moraine unit, this scenic area's interpretive opportunities include:

- An overlook (complete with historic photographs, personal interviews and other materials) of the use of nitroglycerine in the production of propellant, the odd features associated with this production, and the 1945 explosion that killed four men, including the uncle of Karl Armstrong (who during the Vietnam Era attempted to bomb the plant and bombed Sterling Hall on the UW-Madison campus).
- Bunkers retained as potential hibernacula or refuge sites for bat reintroductions, potentially when such sites are needed in response to recovery from white-nose syndrome.
- Morainal topography, 3-4 kettle ponds and oak savanna remnants.
- The Huber and Eschenbach farmstead sites, which maintain some good structural remnants (e.g. intact barn foundation), garden flowers, and shade trees.

6. MAGAZINE PASTURE, THOELKE CEMETERY COMMUNITY AREA - approximately 85 acres.

Located in the northeast part of the Magazine Area, this area incorporates several farmsteads, a church site, cemetery and savanna oaks and scenic kettle ponds. Interpretive opportunities include:

- Thoelke Cemetery and adjacent church foundation, with day lilies and graves with mostly German names, including a child who was buried without other family members.
- Farmstead remains for the Thoelke, Henry, Schlag, and Steidtman families. The Henry site includes a house foundation, sidewalk with boot scraper, horseshoe and baby footprint embedded, cistern and irises. This site figured prominently in interviews with family members in documentary "Powder to the People" and with photos in the "Inside the Fence" exhibition. The Steidtman farm was the site from which the father would not leave and had to be physically removed in 1942. The Schlag farmstead remnant has large shade trees, house foundation, and the remains of root cellar. Many fruit trees occur here, although it is uncertain if they were planted by farm families before BAAP was constructed or naturalized after 1942.
- Morainal topography including scenic knolls, kettles and oak savanna trees. Ponds contain important breeding populations of invertebrate and amphibians, and are used by waterfowl. A bluebird nest-box trail runs through this area.
- Although no remnants of magazine buildings remain here, some are nearby on DFRC property. Although the future of these buildings is unknown, there may be opportunities to work with DFRC to showcase them. Historic photos could show changes from the farm community to production (propellant storage in magazine buildings) and restoration in this area.

7. HILLSIDE PRAIRIE, MAGAZINE PASTURE AND FINAL CREEK AREA - approximately 75 acres.

This area in the southwest portion of the Magazine Area includes a native prairie and oak grove, farmsteads, and a geological feature that served as a settling pond for production wastewater. Interpretive opportunities include:

- The periglacial[30] outlet channel for Glacial Lake Merrimac, cut through the moraine here as the glacier receded. The channel was used by BAAP as part of a series of settling ponds for production wastewater that entered through Final Creek. The swale used to drain into nearby Lake Wisconsin at Gruber's Grove, which continues to be impacted by contamination originating from the BAAP.
- The "Hillside Prairie" is likely the only true prairie remnant on SPSRA. Although probably grazed to some extent during the farming era, it is believed that the sod was never plowed. Along with the adjacent grove of native bur oaks, this area has been managed by volunteers with the Sauk Prairie Conservation Alliance.
- The Kurtz and Waffenschmidt farmstead remnants.

[30] "Periglacial" refers to places at the edges of glacial areas.

D. Proposed infrastructure and facilities management

Although nearly all the former infrastructure that was part of the BAAP has been removed, some facilities remain or will be constructed at Sauk Prairie State Recreation Area to meet the needs of visitors and staff. This section describes how the facilities, present or proposed, will be managed.

1. EXISTING AND PROPOSED FACILITIES

a. Roads

Over 150 miles of roads were built during the operation of the BAAP, of which more than 70 miles are located on SPSRA (including roads along boundaries). The remnants of that road network are in varying states, with most in fair to poor condition. The department proposes to permanently maintain a subset of approximately 15 miles of the former road network as designated roads for public vehicle access; the remainder will be converted to trail use, used for staff management access, or removed over time. The proposed network of designated public roads (see Map F) will be a combination of asphalt and gravel surfaces for many years, depending on visitor use levels and funding availability. All roads open to the public will be classified as moderately developed roads. The department's goal, to the degree that funding is available, is to pave all public roads. Gravel roads will be graded as needed. A limited amount of new road may need to be constructed to fill gaps between existing roads or to improve traffic flow.

In addition to roads open to the public, the department will maintain approximately seven to eight miles of former roads for management access by department, DFRC, or BVSD staff. These roads will be closed to the public and will be classified as moderately developed roads.

Once the proposed new visitor center is built, the department will maintain the entrance road to the center year round. Until the visitor center is built and depending on the road access into the main part of the property, the department may plow the entrance road to a parking area near locator points "10 S" or "11 S."

The department will coordinate with the HCN, DFRC, and BVSD regarding use and maintenance responsibilities of roads along boundaries where there is joint ownership. All designated public roads will be inspected twice a year and any deficiencies noted will be addressed.

b. Designated trails

Designated trails for hiking, biking, snowmobile riding, and horseback riding will be developed as funding and staffing are available. In many cases former roads will be used with the goal of narrowing and resurfacing them as appropriate. The department will seek to collaborate with partners in developing these trails.

Trails will cover the complete range from primitive to fully-developed. Some trails may be one-way. All trails will be inspected twice a year and any deficiencies noted will be addressed.

Proposed Great Sauk Trail

A proposed state rail-trail will connect the villages of Sauk City and Prairie du Sac to near the southeastern part of Devil's Lake State Park. This trail, known as the Great Sauk Trail, would provide public recreation opportunities and possibilities for connections between existing state and local trails. About 4.5 miles of the trail will follow an existing rail corridor through the former Badger Army Ammunition Plant. The DOT, Wisconsin River Rail Transit Commission, and department entered into an interim lease agreement in 2011 that allows development of a recreational trail in the corridor, although the DOT can re-take possession of the corridor at any time with one year's notice. Within SPSRA, the department proposes to surface the trail

with crushed, compacted limestone. However, if funding is available (e.g., from a partner group), the trail in SPSRA may be surfaced with asphalt.

The Great Sauk Trail is a partnership project between Sauk County, local units of government and the Department of Natural Resources. Sauk County is leading this planning project and completed a cooperative plan in April 2015. The larger planning horizon for the proposed Great Sauk Trail may include the construction of successive segments with the potential goal of providing a trail connection between the City of Middleton and the 400 State Trail in Reedsburg.

c. Reservoirs and overlook

The department proposes to construct a day-use area at the site of the reservoirs with an observation deck, amphitheater with seating for approximately 75 people, picnic area, shelter, and parking. The site will be designed and managed to provide views of the BAAP property and other notable features. The site will be inspected twice a year and any deficiencies noted will be addressed.

When funds are available, the two reservoirs will be drained, razed, and filled. Fill material may come from an on-site sand and gravel borrow pit, from digging up roads elsewhere on SPSRA that are no longer needed, or from other sources. It is estimated that filling the two reservoirs will require approximately 70,000 cubic yards of material with total redevelopment costs over $2 million. The department does not anticipate having the funds to re-develop the site for years.

d. Weigand's Bay (former Pump House)

The site will be developed and managed as a carry-in boat access site, shelter, picnic area, and shore fishing site. When funds are available, the remaining pump house structure will be reduced to a platform or pier to provide fishing opportunities. The site will be inspected twice a year and any deficiencies noted will be addressed.

e. Parking lots

Twelve parking areas are proposed on the property, ranging in size to accommodate 6 to 50 cars. One parking area will be developed to accommodate horse trailers. All parking lots will be inspected twice a year and any deficiencies noted will be addressed.

f. Picnic areas and shelters

Picnic areas will be developed and maintained at the following locations:

- Visitor center
- Bluff Vista overlook (with shelter)
- Weigand's Bay (with shelter)
- Lake Wisconsin overlook (with shelter)
- Horse trailer parking and loading area (with shelter)
- Special event staging and parking area in the Magazine Area (with shelter)

Picnic areas will be mowed as needed, typically two to four times/month during the growing season. All picnic areas and shelters will be inspected twice a year and any deficiencies noted will be addressed.

g. Visitor center

A visitor center, potentially in collaboration with other landowners of the former BAAP depending on their interest, is proposed. The location for the center will depend on input from HCN, DFRC, and others and could

be near the locator points "10 S" or "11 S." This building will have staff offices, restrooms, and space for interpretive displays, including displays from the Badger History Group. A paved 15-vehicle parking lot is proposed to be constructed to serve the visitor center and hikers and bikers starting their outings from the site. An amphitheater (with seating for approximately 150 people), picnic tables, interpretive displays, and potentially a small orchard of apple trees of varieties grown by farm homesteads before construction of the plant will be placed on the grounds.

h. Department staff office building and equipment storage

Currently, department staff associated with the resource management operations (e.g., wildlife management and forestry) are housed in various facilities throughout Sauk County. At some point in the future, the department may pursue consolidating these staff, as well as local conservation wardens, into a central office building. Along with office space, storage facilities for associated equipment (pick-up trucks, firefighting equipment, tractors, plows, brush hogs, trailers, boats, etc.) would be necessary. Given its location and access to USH 12, SPSRA may be a logical place to locate this facility. These buildings may also be an appropriate place to provide secure, long-term storage of archival material related to the BAAP property.

The master plan authorizes the department to construct a staff office building and equipment storage buildings in the Special Management Area in the western portion of GC1, should the department elect to address this need at SPSRA.

2. OTHER EXISTING FACILITIES ON THE PROPERTY

a. Administrative building (Building 207)

The existing administrative building (often referred to as Building 207) near the main entrance gate, was built in the 1970s and is in marginal condition. It currently houses the archives of the Badger History Group (BHG) and a small museum operated by their volunteers. The building's transfer in ownership from the GSA/NPS to the department triggered the requirement for it to meet the access standards outlined in the American Disabilities Act (ADA) in order to be open to the public. The building does not meet these standards and, as a consequence, the museum has been temporarily closed to the public. In addition, the building has operational limitations that affect its long-term viability and utility. Given the long lead time required in the process of building new state facilities, it is expected to take 8 to 10 years for a visitor center to be approved, funded, and built. Once the visitor center is operational, it is highly likely that the administrative building (Building 207) would be removed.

The department recognizes the integral nature of the Badger History Group's archives and their work to educate and interpret the history of the site into visitor's overall experience. As such, the department is committed to providing display space for the group in the new visitor center and, to the degree possible, interim space over the next 8 to 10 years.

To better understand the costs associated with making the improvements needed for the museum to reopen in the existing administrative building (Building 207), the department contracted with an engineering firm to assess the structure. Addressing just the minimal repair and ADA compliance costs are estimated to total approximately $100,000. Before spending limited funds addressing deficiencies in a structure that is likely to be removed in a decade, over the next six to eight months the department will evaluate other options to house the BHG and agency staff.

If adequate space for the next 8 to 10 years for the BHG and department staff is located, the department will propose to prevent further deterioration of Building 207, but to leave it unoccupied. The building would be removed when the visitor center is built. If adequate space cannot be found, the department will plan to make the necessary improvements to the building to make it ADA compliant and to address operational issues.

b. Landfills and capped lands

The U.S. Army is responsible for inspecting and maintaining the grass cover on the main landfill, landfill #5, the Geotube site, and the Deterrent Burning Grounds (DBG). The U.S. Army is responsible for maintaining the fences around the main landfill, DBG, and the Geotube site. The department is required to provide access to the landfills and the DBG to the U.S. Army and their contractors.

In the event that additional dredging of contaminated sediments in Gruber's Grove Bay is undertaken, the Geotube site (in MA3) could be expanded to receive the material.

c. Monitoring wells

The U.S. Army is responsible for inspecting and maintaining the monitoring wells. The department is required to provide access to the monitoring wells to the U.S. Army and their contractors.

d. Storage buildings

The open-sided storage building in the Gateway Corridor will be removed when funds are available. The Quonset buildings in the Gateway Corridor and the large storage building in the north end of the Northeast Moraine unit will be used for storage and maintained as long as deemed appropriate and feasible by the property manager. When buildings are taken down, all concrete and demolition debris will be removed and the area will be graded to a natural-appearing contour.

The storage buildings and their immediate surrounding areas will be closed to public access.

e. Bunkers

The bunkers in the former "Nitro" area are not well-suited to provide bat hibernation sites in their current condition, primarily because they become too cold in the winter. The bunkers need additional soil piled on their surface to insulate them and provide necessary over-winter conditions. In addition, improvements are needed to the front entryways to make them more secure from unregulated entry. These improvements may be made when funding is obtained and when researchers are available to conduct the necessary treatment and monitoring steps. Until then, the bunkers will be locked to prevent public access and surface piping and other materials removed. An associated building near the bunkers has been closed up.

f. Fences

Some internal fences exist on SPSRA, most of which are in poor condition and will be removed when funds are available. Fences that could be used in grazing operations will be maintained to the degree practical.

The portions of the BAAP perimeter fence that still exist along the border of SPSRA may be kept where adjacent landowners wish to maintain the fence. The perimeter fence may also be kept along the southern boundary (adjacent to Keller Road) as a means to reduce the likelihood of dogs wandering off the training ground site. The fences surrounding the main landfill, Deterrent Burning Ground, and the Geotube site will remain.

3. FACILITIES AND STRUCTURES TO BE REMOVED

a. Roads

Approximately 70 miles of road, in varying conditions, exist on SPSRA. As described earlier in this plan, about 22 miles will be used as public access or service roads. Approximately 12 miles of former roads will be temporarily converted to bike and equestrian trails. Roads that are no longer needed will be removed as feasible.

b. Building foundations and rubble piles

Hundreds of concrete foundations from former buildings throughout SPSRA were moved to a staging site on HCN lands and crushed into rubble and placed in a large pile northeast of the main entrance gate. The DOT plans to reuse this material in reconstruction work on USH 12.

c. Miscellaneous features

In some areas of SPSRA various structures remain above ground, including fire hydrants, pipes, and utility bases. If they do not serve any interpretative function, these features will be removed and disposed of as staffing and funding allows.

E. Proposed general property management policies and provisions

The following section describes general property administration and management policies and provisions that apply to all of SPSRA.

1. FUTURE INVOLVEMENT OF THE U.S. ARMY AT THE FORMER BAAP

As described in the deeds transferring ownership, the U.S. Army has permanent responsibility to address contamination and safety issues related to the construction, operation, and deconstruction of the plant. As such, it has an ongoing need to have access to SPSRA to assess and monitor any known issues and to address future issues if they arise. As an example, the U.S. Army is responsible for maintaining the landfills and their associated effluent collection and treatment systems in perpetuity.

2. AGREEMENTS WITH THE HO-CHUNK NATION AND DAIRY FORAGE RESEARCH CENTER

The department will collaborate with the Ho-Chunk Nation to develop policies and agreements addressing issues of mutual interest including: public and staff access routes; border road use, maintenance, and enforcement; coordination of and assistance with habitat management; protection and management of cultural resources; and other issues. All formal agreements with the Ho-Chunk Nation will be approved by the department secretary or designee.

The department will collaborate with the USDA Dairy Forage Research Center to develop policies and agreements addressing issues of mutual interest including: public and staff access routes; border road use, maintenance, and enforcement; coordination of and assistance with habitat management; protection and management of cultural resources; and other issues. All formal agreements with the Dairy Forage Research Center will be approved by the department secretary or designee.

3. CLEAN UP AND RECLAMATION

Although the property has been inspected and evaluated and is believed to be free of contaminants and hazards, the possibility exists that some may be located in the future. In the event that this occurs, the department will secure the site as appropriate, and contact the U.S. Army. The department and U.S. Army will take proper steps to protect visitors, including potentially closing the property or portions of the property until the issue has been satisfactorily resolved.

Additional dredging of contaminated sediments in Gruber's Grove Bay may be required at some point in the future. Contaminated sediments previously dredged from the bay were buried in "Geotubes" at a site in the Magazine Area. If additional dredging of sediments is required and if the U.S. Army and the department conclude that placing the sediments on top off or adjacent to the existing Geotube site is the most suitable location, then the department will contact the National Park Service and other federal and state agencies as appropriate to seek any approvals that may be needed.

4. SPECIAL USES OF THE PROPERTY

As with other department properties, groups will have the opportunity to host special events at SPSRA. The department's intent is that most special events take place either within the special event area in the northwest corner of the Magazine Area or use that site as a staging area for events held within the Magazine Area in part or whole. The Magazine Area is separate from the rest of the property and events that need the space could reserve the nearly 600 acres here. Special events would not be authorized to use the native community management area (Hillside Prairie) or the special management area ("Geotube" site).

Groups interested in hosting special events will need to apply for a permit (Special Events Recreational Use Application and License, Form 2200-127) with the property manager.

5. FUNDING CONSTRAINTS

Implementation of the master plan is dependent upon staffing and funding allocations that are set by processes outside of the master plan. Operational funding for the department is established by the state legislature. Development projects also follow a separate administrative funding and approval process. Many of the initiatives contained within this plan are dependent upon additional funding and staffing support. Therefore, a number of legislative and administrative processes will determine the order and rate at which different components of this master plan are implemented.

6. FACILITY MANAGEMENT AUTHORITY

The property manager may relocate or temporarily close roads, trail segments, or other public use facilities as deemed necessary after appropriate authorization by normal department approval processes. Any new road or trail (or other facility) location and design must be consistent with the land classification requirements (NR 44) and the management objectives for the management area in which it is located.

7. PUBLIC HEALTH AND SAFETY

All facilities will comply with federal, state, and local health and sanitation codes. The property manager has the authority to close trails and other facilities on the property when necessary due to health, safety, or environmental damage concerns. In designated public use areas, such as parking lots and trails, trees or other natural elements that are deemed public hazards will be removed. Safety inspections will be completed at least twice per year.

8. AUTHORIZED RESPONSE TO CATASTROPHIC EVENTS

Wildfires, timber diseases and insect infestations shall be controlled to the degree appropriate to protect the values of each management area. Necessary emergency actions may be taken to protect public health and safety. Appropriate management responses to catastrophic events will be determined on a case-by-case basis.

9. REFUSE MANAGEMENT

Visitors are required to carry out any refuse they produce. No refuse or recycling receptacles will be available. Burying refuse is not allowed anywhere on the property.

10. ROAD MANAGEMENT PLAN AND PUBLIC VEHICLE ACCESS POLICY

The following management prescriptions apply to department managed roads:

- Maintain permanent service roads and public access roads in a sustainable condition according to best management practices.
- Regularly inspect active roads, especially after heavy storm events. Clear debris as needed from the road surfaces, culverts and ditches to decrease unsafe conditions and prevent damage.
- Maintain stable road surfaces to facilitate proper drainage and reduce degradation from traffic during wet or soft conditions; or close the road when these conditions exist.
- Monitor soil disturbance and take measures to prevent excessive damage.
- Restore roads used in timber harvests to non-erosive conditions, in accordance with Wisconsin Forestry's Best Management Practices for Water Quality.

A large number of roads were built on the property during its use as a propellant plant. Some of these roads will be used to provide public vehicle access, for different types of trails, and for staff use. Public access roads managed by the department shall be constructed and maintained as moderately developed roads. Many of the former roads are no longer needed, closed to public use, and gated or signed as such. As resources are available, the department will remove unneeded roads.

11. DISABLED ACCESSIBILITY

All new construction and renovation of infrastructure will follow guidelines set forth within the Americans with Disabilities Act and also be done in a manner consistent with NR 44 standards of the land use classification of the site where the development is located.

The department recognizes a need to provide reasonable access to department lands by persons with physical disabilities, which includes permitting persons with disabilities to use motorized vehicles on department lands when use of motor vehicles is essential to assure access due to a person's physical limitations (DNR Manual Code 2527.7). The property manager has the authority to make reasonable accommodations, including motorized vehicle access for people with disabilities, but shall be consistent with the access standards of the management areas' recreational use setting sub-classification, if one applies.

12. CULTURAL AND RESOURCE MANAGEMENT

The protection and preservation of areas, objects, and records of cultural importance will be coordinated with the department Archaeologist. As appropriate and consistent with extant legislation, the department will further consult with other interested individuals, organizations, and communities. This consultation will typically include (but is not necessarily limited to) notification to interested parties of activities and potential impacts in areas of known concerns. Protection of cultural resources will be coordinated with the Wisconsin Historical Society (WHS) as required by applicable state and federal historic preservation laws and regulations.

Protection of burial sites will follow Section 157.70 of Wisconsin Statutes, and the department's "Burials, Earthworks, and Mounds Preservation Policy & Plan." Consistent with this legislation and to the extent practicable, accommodations will be made to avoid or minimize adverse impacts on cultural sites that may be affected by management and development activities. Cultural resources may be developed for scientific and educational purposes to the extent that the integrity of the resource is maintained.

13. ENDANGERED, THREATENED AND SPECIAL CONCERN SPECIES PROTECTION

Implementation of all management prescriptions in the master plan will be carried out with consideration of the needs of endangered, threatened, and species of special concern and the potential impacts to the species and their habitat. Management actions planned during plan implementation will be checked against a database of listed species to ensure that department actions do not result in the unauthorized taking of any known endangered or threatened resource.

14. BEST MANAGEMENT PRACTICES FOR WATER QUALITY

All forest management activities will comply with the most recent version of the guidelines in the Wisconsin Forestry's Best Management Practices for Water Quality.

15. DRINKING WATER

Drinking water on the property is currently available only at the administrative building (Building 207), which is closed to the public until necessary improvements are made. The department plans to construct a new visitor center, which will include drinking water sourced from either the local municipal system or an on-site well.

Drinking water may also be provided elsewhere on the property if needed and cost effective, including providing water for grazing animals.

The newly created Merrimac Sanitary District is proposing to install a drinking water system, funded by the U.S. Army, which would include SPSRA. The department will continue to work with the U.S. Army to identify the best places to provide drinking water on the property.

Pursuant to the property's deed restrictions, the department will not access or use groundwater under SPSRA without prior approval from the U.S. Army.

16. PEST CONTROL

Wisconsin Statute 26.30 states; "It is the public policy of the state to control forest pests on or threatening forests of the state…" Any substantial forest pest events will be evaluated with consideration given to the property management goals and the potential threat of the pest to other landowners. Infestations of the non-native gypsy moth caterpillar will be managed according to the Forest's Gypsy Moth Management Plan. Responses to infestations from other forest pests may include timber salvage or pesticide treatments. Any response to a serious pest outbreak will be evaluated by an interdisciplinary team of scientists and communicated through press releases and notices to interested parties.

17. CONTROL OF INVASIVE SPECIES

Invasive plants will be controlled using appropriate and effective methods, including but not limited to the use of bio-control, herbicides, cutting, hand removal, fire, or grazing. Control methods may be restricted in certain sensitive management areas. Given the large infestations of invasive plants (particularly shrubs) on the property, the department may seek to use and research unconventional approaches.

18. CHEMICAL USE

Herbicides and pesticides may be used for various purposes such as the control of invasive plants or to control plant competition in vegetation regeneration areas and insect control, except as restricted in the management prescriptions in this master plan. All department procedures and herbicide and pesticides label requirements will be followed.

19. FIRE SUPPRESSION

As stated in Wisconsin Statutes 26.11, "The department is vested with power, authority and jurisdiction in all matters relating to the prevention, detection and suppression of forest fires outside the limits of incorporated villages and cities in the state except as provided in sub (2), and to do all things necessary in the exercise of such power, authority and jurisdiction." Forest fire suppression actions will consider the property management goals and the threats of the fire to life and property. Appropriate techniques will be used in each event to provide effective fire suppression while minimizing resource damage.

20. NON-METALLIC MINING POLICY

The department may use gravel, sand, dirt or other fill material from department-owned lands for its use. A large amount of material was taken out of a borrow pit in the Northeastern Moraine unit. If the department needs fill material in the future, this borrow pit may be well suited as a source of material. Restrictions associated with the Federal Lands to Parks program prohibit the use of materials at SPSRA by other units of government.

21. DARK SKY PROTECTION

All lighted facilities at SPSRA will be evaluated to minimize fugitive light issues and maintain night viewing opportunities. Evaluations will balance visitor and staff safety with the recognition that state properties are some of the best opportunities for the public to experience and learn about the night sky.

22. METAL DETECTORS, PAINTBALL AND AIRSOFT POLICY

Use of metal detectors on department property is authorized only by permit (NR 45.04) issued by the property manager. Chapter NR 45.04 prohibits activities involving paintball guns, paint markers, or discharge of similar devices on any lands, except when authorized by the department. Although no facilities are proposed in this master plan to specifically accommodate these activities at SPSRA, the property manager may permit them on a special event basis.

23. DRONES AND FLYING ACTIVITIES

Per s. NR 45.04(1)(c), Wis. Adm. Code, flying-related activities, including the use of model airplanes and drones, are restricted to areas posted for their use. No such areas are currently proposed in this master plan, aside from the permitted use of model and high powered rockets in limited instances as described on page 31.

24. GEOCACHING

Geocaching will be allowed on SPSRA, but not in any areas closed to the public. Caches may not be placed without the applicant filling out Geocache Placement Notification, Form 2500-118, and submitting it to the property manager. The property manager may require the cache be periodically moved to avoid over-use of an area or the development of volunteer trails. Additionally, it is the responsibility of the geocache placer to monitor the cache regularly and report any vandalism or deterioration of property as well as any change in location.

The department takes no responsibility for any vandalism or other damage to the geocaches due to events such as new developments, timber cuts, wildfires or department-prescribed fires.

25. FIREWOOD COLLECTION PERMIT

The property manager can issue firewood collection permits as deemed appropriate to complement management objectives to remove standing invasive/non-desirable trees, clean up after timber sales, and to remove unwanted downed trees.

26. FUNDS GENERATED FROM USE AND MANAGEMENT OF THE PROPERTY

Per the requirements in the deeds transferred through the Federal Lands to Parks program, all funds generated from use and management actions at SPSRA (e.g., logging, farming, reserving shelters, etc.) will only be used to fund habitat management actions or facility development and operations at SPSRA.

27. THE DEPARTMENT'S ADAPTIVE APPROACH TO PROPERTY MANAGEMENT

Property master plans lay out the department's intended management goals and objectives and the actions that will be taken to achieve them. Master plans are intended to establish a 15 year "game plan" for a property at which point the property undergoes a review to evaluate if changes to the master plan's goals, strategies, timing, or other factors are needed.

As is characteristic of most issues in environmental systems, there is complexity, uncertainty, and variability inherent in the relationships and interactions between human activities and such factors as soil compaction and

erosion, vegetation composition and structure, and animal species, populations, and communities in a particular place, such as the SPSRA. Similarly, public recreational needs are also complicated and changing. Uses of a property, recreation trends, and shifts in regional opportunities evolve over time.

In recognition of this dynamic, the department approaches property management in an adaptive manner. As conditions change and knowledge is gained, the department adjusts management strategies and techniques *within the parameters of the master plan*. If changes to management practices are needed that are beyond what is authorized in the master plan, the department can revise the plan through a variance or amendment process (NR 44, Wis. Adm. Code). The department's general policy is to minimize variances and amendments to existing property master plans to the degree feasible, but in instances when important conditions, needs, or opportunities change, modifications to master plans are sometimes necessary. The master plan variance and amendment processes evaluate needs, opportunities, and impacts and include opportunities for public input.

The implementation of this master plan will be checked on an annual basis to determine progress made in meeting the plan's management objectives. On-going monitoring is a requirement of Forest Certification Requirement and by Manual Code 9314. See page 106 for additional information on annual reports and public involvement.

F. Proposed real estate plan and practices

1. PROJECT BOUNDARY

In 2002 the NRB established the project boundary for SPSRA and an acquisition goal of 3,800 acres. The existing SPSRA project boundary generally follows the BAAP boundary and includes the lands owned by DFRC (2,105 acres), Bluffview Sanitary District (164 acres), DOT (60 acres) and Town of Sumpter (3.6 acres) as well as the land transferred to the Ho-Chunk Nation (1,553 acres). About 80 acres within the boundary, where it extends to the Weigand's Bay site, are privately owned.

The department proposes to adjust the SPSRA project boundary to remove the Ho-Chunk Nation's lands. When the initial project boundary was established in 2002, it was unclear which lands would be transferred to the Ho-Chunk Nation and which might come to the department. This issue has now been resolved and in recognition that the HCN is a sovereign nation the department is proposing to remove these 1,553 acres from the SPSRA project boundary.

The department also proposes to adjust the boundary along portions of the eastern and southeastern property that border the realigned STH 78. Adjusting the project boundary here will enable the department to attempt to acquire access rights into SPSRA from STH 78 at an existing entry road (Gate 7), simplify the existing boundary, and remove land from the boundary that the department has no interest in acquiring. The department may attempt to acquire a public access easement or a small strip of land in fee title to allow access into the east side of the property from STH 78 at Gate 7. The net change of this modification is the removal of approximately 171 acres from the project boundary.

The new project boundary would encompass 5,590 acres.

A trail connecting the Weigand's Bay site and the main part of the property is not proposed in this master plan. As such, the department does not anticipate attempting to acquire any privately-owned lands located between the Weigand's Bay site (old pump house) and the main property over the next 15 years.

2. RE-DESIGNATION OF LAND

In 2003, the department purchased a 3.5 acre parcel on Weigand's Bay under the authority of the Statewide Fisheries Habitat program. The parcel is located between where the former pump house was located and a Town of Merrimac park. As part of this master plan, this 3.5 acre parcel will be re-designated to be part of Sauk Prairie State Recreation Area.

3. ACQUISITION GOAL AND POLICIES

The current acquisition goal for the property is 3,800. This goal was established when the department had a general understanding of the lands it was slated to receive through the Federal Lands to Parks program, but before the actual list of parcels was finalized. The department anticipates the last three parcels for which it is scheduled to take ownership will be transferred from the NPS in the coming months, at which point the department will own 3,388 acres at SPSRA.

It is the policy of the Natural Resources Board and the department to acquire lands from willing sellers only. As required by state and federal laws, the department pays just compensation for property, which is the estimated market value based on an appraisal. At times, it is in the interest of the department and the landowner for the department to acquire only part of the rights to a property, or an easement. The department has a number of easement options available to address these situations.

4. AIDS IN LIEU OF TAXES

For all State properties acquired after 1992, the department makes an annual payment in lieu of property taxes to replace property taxes that would have been paid if the property had remained in private ownership. For SPSRA lands, the department's "payments-in-lieu-of-taxes" (often referred to as PILT) in 2014 were $16,478 to the Town of Merrimac and $36,223 to the Town of Sumpter. These monies were distributed by the towns to the other taxing jurisdictions (e.g., school districts) following their regular allocation process. More detailed information on how the department pays property taxes may be found in a publication titled, Public Land Property Taxes, PUB-LF-001 and can also be found at: http://dnr.wi.gov/org/land/facilities/realestate/pilt.html.

5. EASEMENTS, ACCESS PERMITS, AND LAND USE AGREEMENTS

Easements can provide access across state property for utilities, town roads, or county highways. Easements are permanent and will continue to be upheld under the master plan. Access permits can also provide access across state property. Land use agreements provide for a variety of uses on a department property, such as snowmobile trails. The department may enter into these types of agreements as necessary or appropriate. The department may enter into formal arrangements with the Bluffview Sanitary District and the Town of Sumpter providing them with appropriate access to the well house and Thoelke Cemetery, respectively. The department may also enter into farming agreements or contracts consistent with the objectives and actions described in this master plan.

Occasionally, the department enters into agreements with other parties related to the use and operation of a property. In other cases, as at SPSRA, the lands that the department has acquired come with easements in the deeds. At SPSRA, access easements are part of several deeds. The deeds also require that concession agreements, permits, leases or other agreements are reviewed and approved by NPS.

6. POSTING SPSRA BOUNDARIES

The department has placed many boundary signs and placed maps at the entrance to minimize the opportunities for visitors to accidently trespass on adjacent lands of the former BAAP. Trespass on to lands outside of the former BAAP has been less of an issue because there is a boundary fence or perimeter road surrounding most of the original BAAP.

G. Proposed public communication and involvement plan

The public, recreation and conservation groups, businesses, schools, government agencies, and others will have opportunities to both stay informed and to assist the department on implementation of this master plan. The public will be periodically informed about activities and developing issues at Sauk Prairie State Recreation Area through press releases, postings on the department website, and notification through the GovDelivery email system. The GovDelivery system and website will also be used to notify the public of the six days when portions of the biking and equestrian trails will be repurposed for use by dual-sport motorcycles.

The public will also be notified of opportunities for involvement when substantive new issues related to management of the property arise. Annually the department will also issue a brief report, through the same channels, that summarizes the following:

- For the past year, the primary management and development activities that were completed and other important issues that were addressed.
- For the up-coming year, outline any planned management and development activities and any changing management actions or approaches.

The annual report may also include other information of interest to the public on various topics related to management and use of the property. Some of the additional types of information that may be included from time to time are: the status of forest insect or disease problems, storm damage, new information on endangered or threatened species, recreational management problems or new opportunities, and recreational use changes or trends. The report will be available on the department web site.

In the event the department considers a change to the master plan (plan variance or amendment) the public will be informed of the proposal and the review and comment process. As appropriate, news releases will be used to announce master plan amendment or variance proposals and review procedures. The department will also maintain a contact list of persons, groups, and governments who have requested to be notified of potential plan changes.

Another option for the public to be involved with the property is through a friends group. Every year friends groups provide thousands of volunteer hours to help support the mission and activities of more than 70 Wisconsin state parks, forests, trails, and recreation areas. Some of the activities that a friends group could be involved with include:

- Raising money to purchase and develop interpretive displays, signs, shelters, kiosks, and educational materials.
- Organizing annual property cleanups and regular habitat management or trail work days.
- Planning and helping with special events including candlelight nights, educational programs and other special events.
- Assisting with the construction of trails, shelters, and accessible facilities.

If a friends group for Sauk Prairie State Recreation Area is formed, the department will work with the group to achieve mutually beneficial outcomes.

Department Contact Person

Management of SPSRA is coordinated by staff at Devil's Lake State Park. Department staff at DLSP may be contacted regarding questions about Sauk Prairie State Recreation Area or the master plan. The contact information is:

Devil's Lake State Park
S5975 Park Road
Baraboo, WI 53913-9299
608-356-8301

H. Proposed research opportunities

The department is committed to working with academic and agency researchers as well as citizen-based monitoring teams interested in pursuing a range of topics at SPSRA. Given the property's history, location, size, habitats, and condition, SPSRA is uniquely positioned as a research site. Indeed, early deliberations about the BAAP's future use recommended the site for a range of research topics including integrated, cross-discipline issues. Some of the research topics for which SPSRA and the other former BAAP lands may be especially fertile ground to pursue include:

- Effectiveness of grazing, brushing, haying, and cutting to remove invasive shrubs.
- Economic costs and benefits of biofuel harvests of shrublands.
- Soil restoration options in formerly developed areas.
- Visitor use levels, recreational activities pursued, and patterns of visitation.
- Impacts of different recreational uses on plants and animals.
- Biotic inventories before and after invasive species control efforts.
- Bird distribution over a forest to savanna to grassland continuum.

The department's ability to assist or oversee research projects will be based on staff availability. All research projects that involve the collection of specimens are required to have a Scientific Collector's Permit. Authority for issuance of Scientific Collectors permit is provided by s. 29.614, Wis. Stats. In addition, DNR Manual Code 9440.1 outlines the procedure for scientific collecting on any department property.

All research projects on department-owned land or supported by the department require approval by the Bureau of Science Services and the property manager. See DNR Manual Codes 8103, and 8104 for further information.

I. Proposed implementation plan

Department master plans describe the desired future states for properties and the actions and strategies the agency will use to achieve them. Master plans typically do not assign priorities to the proposed work or a schedule of implementation, primarily because completing many aspects of master plans is driven by the availability of funding and staffing, which can fluctuate in unanticipated ways from year to year. Budgets, partnership opportunities, the relative needs of other properties, and other factors all affect the timing of when different parts of a property's master plan may be implemented.

However, given the many unique aspects of SPSRA, the department believes that there is benefit in describing which parts of the proposed master plan are priorities and are anticipated to be the focus of initial efforts. This section identifies those tasks that the agency proposes to address at the outset. Of course, the timing and degree of accomplishment will largely be influenced by the resources the department and partners are able apply here.

Before addressing potential implementation priorities, this section of the master plan starts with a description of the recreation facilities and opportunities that the department proposes to make available to the public initially following approval of the master plan.

1. INITIAL RECREATION OPPORTUNITIES AVAILABLE TO THE PUBLIC

The following recreation opportunities will be available to the public when the SPSRA master plan is approved, or shortly thereafter (see Map N):

- With the exception of designated use areas, designated trails, and areas closed to all public access, all portions of SPSRA will initially be open for the following hunting opportunities:
    - Hunting for all legal species and all legal methods - Saturday nearest October 17 through the end of the third spring turkey season.
    - Learn to hunt, youth hunt, hunters with disabilities seasons.
- Trapping will be allowed *in the main part of the property*[31] from November 15 to February 15. All trap types will be allowed, but no trapping may occur within 100 yards of designated use areas, including the Great Sauk Trail when it is operational. Trapping will be allowed within 100 yards of other designated hiking, biking, and horseback riding trails in the main part of the property, unless posted as closed.
- Dog-proof trapping, as is allowed in state parks, will be allowed *in the Magazine Area* from November 15 to February 15. Trapping may not occur within 100 yards of the special event designated use area in the northwestern corner of the Magazine Area, but will be authorized within 100 yards of designated hiking and biking trails, unless posted as closed.
- All areas open to the public will be available for wildlife watching, hiking, snowshoeing, cross country skiing, edible food picking, nature photography and other similar uses.
- Approximately 12 miles of former roads will be designated as biking and equestrian trails. Given their current condition, these trails would be classified as moderately- to fully-developed trails.

[31] Includes the Gateway Corridor, Bluff Vista, Northeast Moraine, Central Grassland, and the Southern Link management units.

- Parking along road shoulders will be allowed, except as posted. Some parking areas may be designated to alleviate congestion and impacts.
- 72-acre Class 2 dog training ground will be established and signed.
- Snowmobile trail from the southern boundary of SPSRA to Burma Road will be established.
- Dogs will be allowed off leash from August 1 to April 14 in units MA2, MA4, and MA5 in the Magazine Area.
- Rocket launching will be allowed once the launch site is properly prepared. Additional tree clearing may be required.
- Dual-sport motorcycle riding may begin by repurposing the bike and equestrian trails that will be established on the former roads (see above). Up to six miles of these trails may be repurposed for motorcycle use.

The reservoir overlook area and the Weigand's Bay sites will be closed to the public until they can be secured and are safe for public visitation. The main landfill, Deterrent Burning Ground, Landfill #5, and the Geotube areas will be closed to public access.

2. PRIORITY RECREATION FACILITY DEVELOPMENTS

The property improvement projects described for each of the management units in the preceding chapters should generally be implemented according to the three phases as indicated in Table 4. The phases will generally be as follows: Phase I – years 1 to 5, Phase II – years 6 to 10, Phase III – years 11 to 15. The rate of development will depend upon the availability of funding and the approval of the proposed improvement projects as part of the Department of Natural Resources' Capital Development Process.

Table 4: Proposed phasing for selected facility developments and improvements.

Development	Phase
Roads and parking lots	I, II, and III
Entrance and interpretive signs	I and II
Trails	I, II, and III
Vault toilets	II and III
Open-sided shelters	II and III
Redevelopment of Weigand's Bay (fishing platform/pier, parking, etc.)	II and III
Other facilities (corral, picnic tables, grills, gates)	I, II, and III
Redevelopment of reservoir overlook (viewing deck, amphitheater, etc.)	III
Visitor Center	III

3. PRIORITY HABITAT MANAGEMENT ACTIONS

From a habitat perspective, the highest priorities are to prevent areas that are still providing surrogate habitat conditions from degrading to the point where more intensive and expensive restoration or re-creation work will be required. The best examples of this are surrogate grasslands and/or oak openings in the Central Grassland, Magazine Area, and Northeast Moraine that retain enough ground vegetation for prescribed fires to be an effective management tool, but that are rapidly becoming infested with invasive shrubs and early successional trees. If the shrub density continues to increase, there will not be enough undergrowth to support fires hot enough to reduce the shrubs. Indeed, in some portions of these units, it is likely that other techniques, such as grazing or brushing, will be needed before fire will be effective. Priority habitat management actions include the following:

- Conduct prescribed burns in CG1, CG2, CG3, NM1, NM5, NM6, MA1 and MA2.

- Thin the woody cover on the slope of the Bluff Vista (BV1) to restore a mosaic of oak opening and woodland that is continuous and transitional with the grassland and oak opening to the south, and the forests of the broad quartzite bluff to north. Remove trees that block the southward view from the reservoir site.
- In collaboration with the Ho-Chunk Nation, evaluate and implement methods of restoring natural hydrology of the streams flowing off the south bluff of the Baraboo Hills out into the grasslands.
- Harvest the conifer plantations in NM1 and NM6, possibly in conjunction with a bio-fuel harvest.
- Incorporate and evaluate different types of grazing systems as a means to reduce shrub and early succession trees on smaller scales to identify the most effective approaches to apply elsewhere on the property and potentially elsewhere in the state and upper Midwest.
- Continue oak opening restoration efforts in NM7 near the "duck pond."

Figure 17: Construction of the Magazine Area, looking north. The Central Grassland is in the middle and the Baraboo Hills are seen in the distance. UW-Madison researchers have conducted grazing experiments with goats on Dairy Forage Research Center lands near the left side of the photo.

Badger History Group archives

CHAPTER III: BACKGROUND AND SUPPORTING INFORMATION

This chapter briefly summarizes the past and current conditions of Sauk Prairie State Recreation Area. Much of the material for this chapter is taken from the *Regional & Property Analysis, Sauk Prairie Recreation Area* (DNR Pub LF-063). Rather than restate the information in the Regional and Property Analysis (RPA) here, readers interested in additional details about the property are encouraged to review that document. It may be viewed on the web at dnr.wi.gov (keyword "Sauk Prairie Recreation Area" then open the Documents tab).

A. Findings and conclusions of the Regional & Property Analysis

The Regional & Property Analysis describes a wide range of aspects and attributes of both SPSRA and the broader landscape within which it sits. The document culminates in a series of findings and conclusions that set the stage for this master plan. They are summarized here:

- The property offers a significant opportunity to manage a landscape scale surrogate grassland habitat.
- A mosaic of grassland, shrubland, and savanna habitats could be established to meet the needs of many animal species.
- The bluffs at the north end of the property are part of the extensive Baraboo Hills and offer opportunities for coordinated management of oak woodland and glade restoration.
- Grassland and shrubland birds, a group of species of critical conservation need in Wisconsin, would benefit from a diversity of grassland habitat in large, unfragmented tracts.
- Currently the high level of shrub and tree encroachment in the grasslands of SPSRA threatens the diverse grassland bird community.
- Streams and ponds are rare at this site and provide water resources and wetlands that connect the forested Baraboo bluffs with the grasslands and prairies.
- Thirty-three rare animal species have been recorded at the BAAP property, including four State Threatened and 29 Special Concern species. Seven rare plant species are known from the BAAP, including two State Endangered (one is also Federally Threatened) and five State Threatened species.
- SPSRA provides habitat along the Lower Wisconsin River migratory corridor.
- Storage bunkers at the BAAP can provide a unique research opportunity to aid in the conservation and recovery actions for bat populations suffering from White-Nose Syndrome.
- Two ecologically important sites were identified on SPSRA and warrant high protection and/or restoration consideration:
    - Sauk Prairie Recreation Area Baraboo Hills Woodland
    - Sauk Prairie Recreation Area Prairie and Savanna
- In the development of recreation plans, SPSRA should be considered in the larger context of the Baraboo Hills/Devil's Lake recreation landscape.
- SPSRA is readily accessible to many residents.
- Both motor and non-motorized trail networks should be considered in the master plan. A number of trail opportunities are lacking within the Baraboo Hills/Devil's Lake recreation landscape that may be met here.
- Access to Lake Wisconsin should be considered.

- Hunting and trapping should be considered for the property in the future. Additionally, limited/controlled hunts could be considered as this would offer a unique experience in the region.
- A number of non-traditional outdoor recreation uses should be considered for inclusion in the master plan. With the large open spaces available at SPSRA, the potential exists to fill out the Baraboo Hills/Devil's Lake recreation landscape with potential uses such as 112rocketry, shooting ranges, geocaching, dog parks, paintball, community gardens and other recreation activities not typically found on department lands.
- The best overall functional role for SPSRA is to fulfill the highlighted ecological opportunities available while maximizing compatible recreation opportunities. This approach also takes into consideration the nine key values identified in the *Badger Reuse Plan*, approved by the Sauk County Board in 2001.

Although some conditions have changed over the last three years, these findings and conclusions remain relevant.

B. History of the site

Soon after the last glacier receded from the area some 15,000 years ago, people arrived, as evidenced by occupation in the nearby Raddatz Rockshelter. The Mound Builders built over 300 mounds in the Sauk Prairie area about 1,000 years ago, some of which remain today. For thousands of years, successive populations of Native Americans called the area home, no doubt drawn by the fertile prairies, wooded hills and the Wisconsin River. At different times, the general area was occupied by Muscoutin, Kickapoo, Ho-Chunk, Sauk and Fox tribes. Sauk and Ho-Chunk populations were described by European explorers Marquette, Joliet, and Carver in the 17th and 18th centuries. The Native Americans were forced out of the area through a series of armed conflicts, federal directives, and treaties.

By the 1830s, European immigrant families were settling on the Sauk Prairie. Over the ensuing decades they built a durable and prosperous farming community. Farms were typical of those in southern Wisconsin; lands were devoted to growing a variety of crops including wheat, corn, small grains and hay. Cows, hogs, and chickens were raised along with work horses. Nearly all farms had pastures. Most farms were between 40 and 160 acres. Early photos show a largely treeless landscape on most of the land that would become the BAAP property.

In 1941-1942, after over 100 years of Euro-American settlement, the federal government forced out the landowners and took possession of 10,000 acres north of the village of Prairie du Sac. Although the Badger plant was intermittently active over its lifetime, it ceased operations for good in 1975 and the U.S. Army declared the facility excess to its needs in 1997. The federal government, through its real estate and property arm, the U.S. General Services Administration (GSA), initiated a process to dispose of the Badger property. A contentious debate over Badger's future ensued, with calls to reestablish an industrial manufacturing center competing with pleas to return the land to its original inhabitants and owners.

The former BAAP property has a number of story lines highlighting its significance including the complex geological history given its juncture at three major landforms, the human history of Native Americans, Euro-Americans, and the construction and operation of the Badger Ordnance Works, and the process of salvage and reuse.

C. History of the Badger Army Ammunition Plant and Sauk Prairie State Recreation Area

The Badger Ordnance Works, later renamed the Badger Army Ammunition Plant, occupied approximately 10,500 acres on the open plain extending south from the Baraboo Range.[32] At great hardship, more than 80 farm families were

[32] About 3,000 acres that were considered surplus to the plant's function were sold in 1946, mostly to returning veterans.

forced to abandon their homes and land within a few months' time. Following the nation's entry into World War II, the Badger Plant was constructed in 1942 to produce smokeless gunpowder and solid rocket propellant. The plant provided material for the duration of the war effort, and was again operational during the Korean and Vietnam conflicts. At its peak use, BAAP contained 1,400 buildings, over 150 miles of roads and 60 miles of rail, and countless miles of steam, water and power lines. At the height of its activity, Badger employed over 10,000 people and remained a major employment center for Sauk County for decades.

The plant had been in standby (idle) status since 1975. In late 1997, the U.S. Department of Defense determined that the BAAP facility was no longer needed to meet the nation's defense needs and began the decommissioning process. Subsequent efforts to define a future for the Badger property proved challenging due to the site's unusually rich natural and cultural history, environmental issues, the wide range of potential reuse options, and the complexity of local, state, national, and tribal interests involved.

In early 2000, the Sauk County Board of Supervisors acted to establish a locally-driven planning process to identify reuse options. With the assistance of then U.S. Congresswoman (now Senator) Tammy Baldwin and funds provided by the U.S. Department of Labor, the Badger Reuse Committee (BRC) was convened. The 21-member BRC included representatives from neighboring communities, local, state, and federal governments, and the Ho-Chunk Nation. In its mission statement, the BRC charged itself with the task of developing "a common vision for the reuse of the Badger property that can be meaningfully considered and realistically implemented by the appropriate local, state, and federal agencies."

The results of BRC's considerable deliberations are documented in the *Final Report on the work of the Badger Reuse Committee*, which was endorsed by committee members and the Sauk County Board in May 2001. Early BRC meetings were devoted to gathering and reviewing basic information about the Badger property and its role – past, present, and future – in Sauk County's landscape, community and economy. Based on this information, the BRC defined nine key values to guide consideration of future uses (see Section D). The committee's final report was agreed to by all parties and serves as the primary guidance document for planning future uses and management. The complete report and related information about the BRC can be found at: http://www.co.sauk.wi.us (search "Badger Reuse Plan").

In September 2001, the Badger Intergovernmental Group (BIG) convened to work out ownership agreements with General Services Administration (GSA) for the BAAP property. The BIG included representatives from the department, GSA, DOA, Governor's Office, Ho-Chunk Nation, USDA Dairy Forage Research Center, Towns of Sumpter and Merrimac, Sauk County, and the U.S. Army. This GSA-led group of future landowners and local government officials focused on parcel footprints and future planning and operations. As a result of these meetings, an agreement was reached that BAAP would be primarily owned by three parties: Ho-Chunk Nation, USDA-DFRC, and the department. Bluffview Sanitary District, DOT and Town of Sumpter are also landowners of the former BAAP.

When the future ownership arrangement was developed, the partners initially evaluated the property using the U.S. Army's system of parcel boundaries. Most of these parcels were labeled (e.g., "V3") and named (e.g., "East Rocket Press Houses"). Parcel boundaries were often drawn down the middle of roads. As a consequence, given the somewhat convoluted collections of parcels transferred to the different partners, in many instances the landowners own to the median of boundary roads, but have joint access to the whole road.

In December 2002, the Natural Resources Board approved establishing Sauk Prairie State Recreation Area with a department acreage goal of 3,800 acres. In 2004, the department applied to the National Park Service (NPS) under the Federal Lands to Parks program (FLP) to obtain lands at BAAP for public park and recreation use. In the document outlining the terms and conditions of transfer, the department described its general intentions for future use and management ("program of utilization"). To date, NPS has received title to 3,051 acres from GSA and conveyed them to department.

D. Property features and attributes

As stated before, the SPSRA and the broader BAAP property have a number of important, unique, and interesting natural and cultural features and attributes. These resources have been described in great detail in other documents and publications, many of which are listed in Appendix 2. In particular, the 2000 summary report to the Badger Reuse Committee, *Natural, Historical and Cultural Resources at the Badger Army Ammunition Plant, Sauk County, Wisconsin*, provides an excellent overview. This section largely reiterates information in that document.

1. ECOLOGICAL FEATURES AND ATTRIBUTES

Ecologically, the SPSRA property can play a pivotal role in the regional conservation of grasslands and savannas. Of note here are two opportunities: (a) managing lands as part of an ecological continuum of habitats from the forests in Devil's Lake State Park to oak woodland to oak opening to open grassland, and (b) managing large blocks of grassland and oak opening habitats.

Although most of the BAAP has been dramatically altered, some pockets of important high quality habitats remain. In addition, a number of rare species are able to use the "surrogate" habitats that exist. Inventories and surveys of the BAAP over the years have found a number of rare and declining plants and animals. A list of rare plants and animals that have been recorded at SPSRA, their legal status, their current and anticipated population trends, and the expected impact of the implementation of this master plan on the population in the area is provided in Appendix 4.

a. Habitats and plants

Remnants of the following native habitats remain on the SPSRA: bedrock glade in the Bluff Vista west of the reservoirs; dry and dry-mesic prairie along the southwestern perimeter fence and at the Hillside Prairie site in the Magazine Area; oak savanna in the Magazine Area and the Northeast Moraine; and pine relict, southern dry forest and southern dry-mesic forest in the Bluff Vista. All of these sites are small but have the potential to form the focal points to larger restoration efforts.

Some rare plants have been found on the SPSRA (Appendix 4), including the federally-threatened prairie bush clover and the state-threatened woolly milkweed. Unfortunately, neither species has been found recently despite repeated attempts to relocate the populations. It is likely both have been extirpated from the property.

b. Animals

Limited inventories have been completed for invertebrates, amphibians, reptiles and mammals at the former BAAP property. The most complete inventory was conducted by The Nature Conservancy in 1993, which found many of the grassland, savanna, and woodland species common to southern Wisconsin. Notable species from these groups that have been located at BAAP include Cope's gray treefrog, prairie deermouse, prairie vole, and the population of neotenic salamanders in the east reservoir. Rare and declining animals recorded at SPSRA are listed in Appendix 4.

The category of animals that has been well inventoried at the former BAAP property is birds. The BAAP, including large portions of SPSRA, harbor important populations of many grassland and savanna birds. In addition to the 1993 survey work, comprehensive inventories of breeding birds at BAAP were conducted in 1998, with a follow-up survey in 2012. The 1998 survey located large populations of bobolink, dickcissel, Eastern and Western meadowlarks, clay-colored sparrow, upland sandpiper, red-headed woodpecker, and Bell's vireo. The later survey found many of the same species, but the populations of some had decreased due to loss of habitat (e.g., utility poles used by red-headed woodpeckers had been removed) or degradation of habitat that has occurred since the

cessation of grazing and as invasive shrubs have infested more areas (e.g., Eastern meadowlark and upland sandpiper).

Despite the property's ecological challenges, the SPSRA is unquestionably an important bird site and comprises one of southern Wisconsin's best opportunities to restore large blocks of grassland and savanna habitat. In reflection of its value to birds, the former BAAP property was selected as one of Wisconsin's Important Bird Areas by the Wisconsin Bird Conservation Initiative and the National Audubon Society.[33]

2. GEOLOGIC FEATURES AND ATTRIBUTES

The complex geological history here largely determined the pattern of soils and native vegetation that developed at the property, and influenced Native and Euro-American uses of the land and the layout of the propellant plant. The juxtaposition of the ancient Baraboo Hills, the terminal moraine of the last ice sheet and its outwash plain provide an opportunity to show visitors many geologic stories and to relate the property's geologic past to its natural and human history. The following list highlights some of the interpretive opportunities at SPSRA:

- Precambrian quartzite outcrops west of reservoirs.
- Cambrian shoreline features at reservoirs, including the inclusion of large weathered quartzite boulders within sandstone that was laid down when the region was covered by a large inland sea.
- Terminal moraine and ground moraine, covering eastern half of SPSRA.
- Glacial outwash plain - small amount in the Northeast Moraine (most of the outwash plain is on HCN land).
- Periglacial features.
- Juxtaposition and interrelationships of landforms, on-site and in surrounding landscape.
- Influence of geology on natural and human history:
  - Influence on native vegetation (glades and oak woodland on quartzite, short- to mid-grass prairie and savanna on moraine, tallgrass prairie on outwash plain)
  - Influence on human use of the site (e.g., farming, locations of different parts of the BAAP).

3. CULTURAL AND HUMAN HISTORY FEATURES AND ATTRIBUTES

Although SPSRA has many ecological and geologic features to showcase, what sets the property apart from others in the department's portfolio, are the stories about its human and cultural history.

Sauk, Ho-Chunk, and earlier Native Americans tribes lived, hunted, gathered, and made ceremonial use of this area for thousands of years prior to the arrival of Euro-American settlers. The Ho-Chunk ceded their land in 1837, which was followed by settlement by Euro-Americans. The early white settlers turned the prairie and savanna into productive farmland. Succeeding generations continued this tradition, as farming practices progressed. In 1941, the federal government announced plans to build a $63 million "powder plant," what became known as the Badger Ordnance Works.

The plant was the single largest and most visible expression of Wisconsin's contribution to the WWII, Korea and Vietnam war efforts. It offers opportunities to show and describe stories related to workers' lives in the facility, how the plant operated and its impact on the surrounding residents and businesses, the use and impact of the materials produced here, and the eventual closure and deconstruction of the facility.

[33] For more information about the 91 Important Bird Areas in Wisconsin, see http://www.wisconsinbirds.org/iba/.

E. Elements that guided and influenced the development of the proposed master plan

Given the unique history of the property, a number of policies, issues, plans, agreements, and circumstances guided the development of this plan and will continue to influence future recreational uses and habitat management actions that can feasibly be implemented.

1. NATURAL RESOURCE BOARD AND DEPARTMENT POLICIES

The Wisconsin Natural Resources Board (NRB) sets policy for the Department of Natural Resources and exercises authority and responsibility in accordance with governing state laws. NRB policies are described in NR 1, Wis. Adm. Code and address property management, fish and wildlife management, forestry and fire control, land acquisition, master planning, and many other issues.

Two issues of particular public interest at SPSRA, motorized use and a shooting range, have been the focus of recent NRB deliberations. The NRB has requested the department evaluate potential opportunities to provide both motorized recreation areas and shooting ranges on its properties, particularly in the southern part of the state.

a. Motorized recreation areas

In January 2009, the department presented to the Natural Resources Board a concept plan for funding, locating, and managing a motorized recreation area (MRA) in the state. Part of the plan described the preferences for selecting an area for a MRA, which included:

- Proximity to a major metropolitan area
- Large parcel
- Acquisition affordability
- Lack of environmental issues or species of conservation concern
- Limited or no conflicts with adjacent neighbors
- Areas where there is a demonstrated demand for motorized recreation and community support
- Land that has limited timber or agricultural production potential

The NRB did not make any official decisions at the January 2009 meeting, but concurred with the department's approach and proposal. The NRB deferred making any decisions until the department brought forward a specific proposal for a motorized recreation area.

b. Shooting ranges

In May 2014, the NRB endorsed the department's approach to provide additional public shooting opportunities, especially near population centers in the southern and eastern part of the state. The NRB approved the goal of providing public shooting opportunities within 30 miles of most residents and to consider need, amount of public support, cost, hunter education opportunities, and siting constraints in identifying appropriate locations.

The department recently went through a process to identify a location for a new public shooting range in Columbia County. In that process, the department developed the following criteria to evaluate its properties as potential sites:

- Minimize the number of residences within the 1,000 yard buffer.
- Avoid wetlands or hydric soils or soils with hydric inclusions.

- Avoid State Natural Areas.
- Avoid archeological sites.
- Pursue direct road access, preferably located adjacent to major highways or roads.
- Minimize impact on other recreational users.
- Minimize impact on blocks of wildlife habitat.
- Pursue areas where topography is supportive of developing a shooting range.

Department staff identified seven sites on state properties that met the established criteria. An ad-hoc citizen work group was then formed to study the potential sites with the goal of recommending a preferred site for a new range to the department. The three towns with potential sites were each invited to select a member to represent their town, as were the Columbia County Board, the Columbia County Sporting Alliance, the Columbia County Conservation Congress, local business and other conservation organizations.

The ad-hoc group worked through a process to develop additional evaluation criteria and ultimately narrowed the seven sites to two potential locations, Dekorra Wildlife Area and Mud Lake Wildlife Area. The department then implemented a public input process to obtain citizen feedback on the two sites. Public input was gathered by department staff attending town board meetings in each town, hosting an open house in Portage to answer questions and posting an online survey which collected feedback for 30 days. All of the comments and information provided was summarized and distributed to the ad-hoc committee for review. The ad-hoc committee recommended Mud Lake Wildlife Area as their top recommendation.

2. BADGER REUSE PLAN

The Badger Reuse Committee was an independent advisory group whose members came from a cross section of community interests. The committee sought to identify recommendations for future reuse of the property for which there was consensus. To this end, the committee adopted nine key values to guide future use of the Badger property (see sidebar). More detailed criteria, by which reuse ideas and proposals could be evaluated, were developed and nested within the nine values. The committee heard 25 proposals for future uses; ecological conservation, industrial and commercial development, agricultural research, firearms training, recreation, landfill, and prison inmate housing and training were among the topics for future uses that were suggested. The committee also evaluated potential future ownership scenarios.

Badger Reuse Committee's Key Values to guide consideration of future uses at the Badger Army Ammunition Plant

Value 1 stresses the need to manage the Badger property **collaboratively,** and as a **single unit**.

Value 2 directs the federal government to complete the **highest quality cleanup** of the Badger property in a timely manner.

Value 3 pertains to maintenance of buildings and infra-structure that are **historically significant** or are needed to support cleanup activities and other approved uses.

Value 4 emphasizes the desire to reuse the Badger property in a way that contributes to **reconciliation** and the **resolution** of past conflicts.

Value 5 recognizes the **great potential** of the Badger property to provide **educational, research,** and **recreational** opportunities.

Value 6 focuses on the role that **sustainable agriculture** opportunities can and should play in the reuse of the Badger property.

Value 7 addresses the **protection** and **enhancement** of the Badger property's **natural features,** and the critical role of the Badger lands within the broader landscape.

Value 8 recognizes the importance of the Badger property in providing **open space** and protecting the characteristic **rural landscape** of our area.

Value 9 involves the need for future uses of the Badger property to contribute to **economic stability** and **sustainability** in our local municipalities.

The committee's final report, issued in 2001 and commonly referred to as the Badger Reuse Plan, outlined a vision for the reuse of the BAAP property that sought to "promote an appreciation of the Sauk Prairie landscape

through the education, restoration, research, recreation, agriculture and other activities." In addition to the values and criteria, the committee also developed a conceptual map of future use.

The Reuse Plan is a visionary document – both in the sense that it describes the participants' common set of values and themes to guide future uses of the property as well as in the sense that it was a pioneering effort by a collection of partners to craft a conceptual future for a property with a rich, troubled, and complex history. To quote from the report's summary (page 4),

> *In the past, the Badger lands have too often been a place of division, pain, and conflict. It is the hope of the committee that all members of our community may now contribute to a new beginning at Badger, one that honors the past while serving future generations.*

Although the Reuse Plan is not a legally binding document and is now nearly fifteen years old, the department believes it remains a central guidance document for the development of the SPSRA master plan and ongoing use and management of the property.

3. FEDERAL LANDS TO PARKS PROGRAM

In 2004 the department submitted an application to the National Park Service to receive the SPSRA property through the Federal Lands to Parks (FLP) program. As part of the application (in the program of utilization) the department provided a general description of intended future uses of the property, including prairie and savanna restoration and low-impact recreation. It also noted that more specific details regarding habitat management and recreational uses would be developed during the development of the master plan.

Lands conveyed under the FLP must be used for public park purposes in perpetuity and cannot be sold or leased without NPS approval. In the Acceptance of Terms in the FLP application, the department agreed that the property shall revert back to the NPS/GSA if there is a breach of conditions or covenants; that is, if the property is used or managed in a manner inconsistent with the application, or any amendments, approved by the NPS.

Not surprisingly, over the ensuing decade since the department submitted the FLP application and the program of utilization, a number of issues and conditions have changed. For example, in 2004 it appeared that the department would be responsible for many buildings that were slated to remain on the property after transfer; this turned out not to be the case because the U.S. Army removed nearly all the buildings. Another example is that the application states that the department will prepare a master plan for the entire 7,354-acre BAAP property and that issues common to all three primary partners (HCN, DFRC, and DNR) will be handled in a manner that does not adversely impact the other partners. Although all partners agree on the need to coordinate planning and ensure that their respective uses have minimal impact on each other, it is now clear that each landowner needs to prepare a management plan for their property that meets their respective legal requirements and administrative needs. Together, these plans provide an overall plan for the former BAAP property.

The department and NPS both recognized that each would need to remain flexible going forward and the FLP agreement states that the program of utilization may be amended as needed, if agreed to by both the department and NPS.

4. RESTRICTIONS AND REQUIREMENTS RELATED TO THE PROPERTY DEEDS

The SPSRA property has been transferred from the National Park Service to the department in a series of deeds that stipulate several conditions related to future use of the parcels. The primary restrictions and requirements are summarized here:

- Reasonable public access to the Thoelke Cemetery from a public road must be provided. No buildings or other structures may be constructed within 90' of the cemetery.

- The property is subject to an easement for railroad use (see below).
- The property is subject to easements for electric, gas, telephone, water and sewer utilities.
- The roads whose centerlines represent boundaries between landowners are open for use by both landowners (see below).
- The U.S. Army retains the right to enter the property for any purpose as long as it owns any portion of the former BAAP or to address any remedial, corrective, monitoring, testing or response action needed. As long as the U.S. Army is responsible for the operation and maintenance of the landfills on the property, the U.S. Army also retains the right to excavate and remove clay from any portion of the property that is needed to address landfill management issues.
- The property shall be used and maintained exclusively for public park or recreation purposes in perpetuity as set forth in the program of utilization that was part of the department's Federal Lands to Parks program (FLP) application.
- The property may not be sold, leased, assigned or otherwise disposed, except to another government agency and with the approval of the Secretary of the Interior. The department may enter into agreements with third parties to provide recreational facilities and services compatible with the FLP application and any amendments to that document.
- The development of facilities on the property shall comply with the requirements of the American with Disabilities Act (ADA).
- Groundwater under certain portions of the property is contaminated. Groundwater under any portion of the property may not be used for any purpose without the approval of the U.S. Army.
- Some portions of the property have restrictions in their deeds related to digging or disturbing the soil including, but not limited to, raking, scratching, scraping, tilling, excavating, drilling, trenching, or plowing. These areas include: the main landfill, Deterrent Burning Ground, Landfill #4, Landfill #5, the Oleum Landfill, the New Acid Pond, the "Geotube" dredge material disposal site, and the easement associated with any process sewer pipeline. Although the deeds have not yet been modified, the restrictions related to surface disturbance are no longer required for Landfill #4, the Oleum Landfill and the New Acid Pond.
- Some portions of the property were treated for contamination down to a depth of four feet but the possibility exists that contaminants may still exist below this level. As a result, these areas may not be used in ways that disturb the soil below four feet.

5. RAIL LINE EASEMENT

The Wisconsin Department of Transportation (DOT) purchased a permanent easement along the main north-south rail line that runs through the BAAP property, including approximately 2.5 miles that runs across, or along the border of, the parcels transferred to the department. The DOT and the Wisconsin River Rail Transit Commission subsequently entered into an interim trail use agreement with the department allowing for use of the corridor as part of the State's rail-trail network. The lease is subject to possible future reconstruction and reactivation for rail service.

6. RAPID ECOLOGICAL ASSESSMENT (REA)

The Wisconsin Natural Heritage Inventory program conducted an evaluation focusing on rare plants, selected rare animals, and high-quality natural communities at SPSRA.[34] The assessment identified two areas (SPSRA Baraboo Hills Woodland and SPSRA Prairie and Savanna) that warranted high protection and restoration considerations in the master plan development. These areas, known as Primary Sites, were identified because they generally encompass the best examples of rare and representative natural communities, documented occurrences of rare species populations, or opportunities for restoration or connections to nearby areas. In addition, the REA identified three other high priority sites; two focused on grassland birds and one focused on shrubland birds.

The REA is available on the department's web site.

7. ENVIRONMENTALLY-RESTRICTED AREAS AND ISSUES

The site's former use as an industrial complex resulted in spills of liquids with some level of toxicity. More problematic were the disposal methods used for various materials used in production. Although the U.S. Army and its contractors used methods common at the time, it is now understood that these disposal practices inadvertently resulted in contamination of soils and the underlying groundwater. The U.S. Army has spent over $200 million removing buildings and remediating contamination issues. As a result, only a small number of sites have restrictions on their future use. The environmentally-related issues and restrictions are described here:

a. Groundwater

Four plumes of groundwater are contaminated due to previous disposal practices or spills. The areas where contamination occurred include the Propellant Burning Ground, Deterrent Burning Ground, Rocket Paste Area, Nitrocellulose Production Area, and the fuel oil release site near the former powerhouse (near the main gate). Approximately 200 monitoring wells have been placed near and down-gradient of these sites, both on and off the BAAP property to monitor groundwater contamination. It is possible that additional monitoring wells may be installed in the future. The U.S. Army retains the permanent right to access all parts of the property to monitor existing or future wells. Although recreational use around these wells is not prohibited or restricted, the department may need to take measures to prevent damage to the above-ground well casings. A map of the locations of the contaminated groundwater plumes and the existing monitoring wells is located on the department web site. The department must receive approval from the U.S. Army before using groundwater under SPSRA.

b. Landfills, capped sites, and clean up areas

Eleven landfills or sites that were capped exist on the BAAP property, with seven on SPSRA. The caps of four of these sites on SPSRA are required to be protected and maintained in grass cover (main landfill, Landfill #5, the Deterrent Burning Ground, and the Geotube site). The U.S. Army is responsible for maintaining and monitoring these sites. They are closed to public access. The Oleum landfill, the New Acid Pond site, and Landfill #4 are no longer required to be maintained with a grass cover and are open to public access.

As noted above, some portions of the property were treated for contamination down to a depth of four feet but the possibility exists that contaminants may still exist below this level. As a result, these areas may not be used in ways that disturb the soil below four feet.

[34] The REA also included lands that were recently transferred to the Ho-Chunk Nation.

c. Final Creek – Settling Ponds area

The topography of the BAAP property tilts slightly southward and, combined with a series of ditches and sewer lines, a large portion of the property drained to a small swale at the south end of the Magazine Area (M1). This swale contained four settling ponds which were dredged in the 1970s to remove contaminated sediments. These sediments were subsequently placed in the main landfill. The entire Settling Ponds area now meets the environmental standard for recreational use.

8. ACCESS INTO THE MAIN PART OF SPSRA

Based on the distribution of existing roads, road access to the main part of SPSRA is limited to only about one mile from USH 12. Other options to access the main part of the property (the Bluff Vista, Northeast Moraine, and Central Grassland units) using existing roads require access across either DFRC lands or HCN lands. The department will need to work with DFRC and HCN to identify which, if any, roads on their lands they would be amenable to allowing long-term public use to access SPSRA and the legal mechanism to permit this use. Another option would be to construct new roads in the Gateway Corridor on department lands.

9. ROADS

Over 150 miles of concrete, asphalt, and gravel roads were constructed on the former BAAP, including a perimeter road that encircles the plant. Today, most are in fair to poor condition. Those in the best condition tend to be those that have been most heavily used to transport the demolished buildings to the main landfill (most of these roads were converted to gravel to hold up to heavy equipment and have been periodically re-graded as needed). Many of the roads or road bases could be re-purposed for different types of trails.

Department ownership boundaries are often located down the middle of roads. The deeds for the parcels that have been transferred provide for the full use of these border roads by both landowners. The department will need to work with DFRC and HCN to identify which border roads to maintain either for public access or management purposes, and how responsibility for repair and upkeep will be allocated.

10. CEMETERIES

Two cemeteries existed on the BAAP property prior to the U.S. Army's acquisition of land; no burials are believed to have taken place since 1942. The cemeteries will be maintained by the Town of Sumpter. The Thoelke Cemetery is located in the M3 parcel, in the northeastern section of the former Magazine Area. The Pioneer Cemetery is located in the O6 parcel in the north central part of the BAAP on HCN lands.

11. REMAINING BUILDINGS

Of the over 1,400 buildings that were erected as part of plant operations, nearly all have been removed. Although only a handful of structures remain, remnant building materials remain scattered around the former building sites in the form of various types of rubble. The remaining buildings on SPSRA are described here along with associated limitations and intended future uses.

a. Administrative building (Building 207)

Located near the main entrance off of USH 12, this building has office space, a meeting room, bathrooms, and storage. The Badger History Group was using the meeting room for a small museum, but with the transfer of the ownership of the building to the state, the building is required to meet accessibility codes in order to be open to the public. As a result, the museum was closed to the public. Updating the building to meet required accessibility and to address some safety and operational issues is estimated to cost approximately $100,000.

b. Weigand's Bay Pump House

The former Pump House on Lake Wisconsin has largely been torn down and all contaminants have been remediated. A portion of the remaining structure, a concrete frame, could provide the foundation for a fishing platform or pier on Weigand's Bay. The water depth along the structure is approximately 20 to 30 feet and the bay is known to hold large populations of pan and game fish. The structure provides an opportunity to create a high quality fishing experience for people with accessibility limitations. Department lands on the peninsula abut land owned by the Town of Merrimac. There is not contiguous public ownership from Weigand's Bay to the rest of the SPSRA property.

c. Bunkers

At the department's request, five storage bunkers in the former "Nitro" area (P2) have been left to provide potential bat hibernation sites. If extra material is added to the tops of the bunkers and their fronts are more secured and insulated, the bunkers could provide stable temperatures and high humidity, favorable conditions for bat hibernation. Unlike caves or other natural hibernation sites, the bunkers could be cleaned and disinfected to reduce exposure to the fungus that causes white-nose syndrome. The bunkers can also be sealed to prevent disturbances to hibernating bats. Although they present some safety issues associated with the drop-off from the top, the bunkers do not have any contamination issues and do not have use restrictions.

d. Storage and other buildings

Four buildings remain on the department's lands. The largest, south of the Oleum landfill, is approximately 100' by 300' and is partly used by DFRC to store hay in exchange for DFRC allowing the bunkers on their land to be used for bat hibernation and research (rather than hay storage). Structurally, this building is in generally good condition, although a number of repairs are needed. The other buildings, which are near the main entrance, include a pair of "Quonset Hut" structures and an open-sided storage building. The buildings do not have any contamination issues or use restrictions.

12. RESERVOIRS

Operation of the plant required massive amounts of water. The U.S. Army built two large reservoirs (four and six million gallons) more than halfway down the South Bluff on the northern boundary of the property. The concrete reservoirs remain and are filled to different depths. Currently the only source of water is from precipitation and groundwater. The valves that drain each reservoir are closed and inoperable. The west reservoir appears to hold about three feet of water, likely due to cracks in the concrete at about this level. The larger east reservoir has been nearly full for many years. A six-foot fence has been erected around the reservoirs as a safety precaution. The east reservoir holds approximately 1,200 neotenic salamanders.

13. FARMING AGREEMENTS

Currently, the department has farming agreements with the DFRC covering about 150 acres of land, in 9 fields, to incorporate into their crop rotation. The fields are planted in alfalfa/grass, winter wheat, corn, and soybeans. While there was extensive grazing in the past (prior to the department receiving the parcels), currently no grazing occurs on department lands. In addition to the acres the DFRC currently rents, they have expressed interest in potentially renting additional acreage from the department for crops, bedding material, or grazing. DFRC has also assisted the department by mowing and spraying herbicides to help maintain the roads and road shoulders on department lands.

14. WISCONSIN ARMY NATIONAL GUARD TRAINING USE

The BAAP property has served as a training site for military rotary wing aircraft (helicopters) from the Madison-based unit of the Wisconsin Army National Guard for many years. The BAAP site is desirable from the WIARNG's perspective because it provides a tactical flight training area for aviation crewmembers in relatively close proximity to their home base (the next closest flight training area is Fort McCoy). Current training use of the property includes high and low level flying, night flights, landings in different settings, and moving concrete-filled barrels to mimic transporting supplies and large water drops.

The frequency and timing of training at SPSRA varies depending on crewmembers' availability, deployment schedules, training requirements, and other factors. Typically, the WIARNG flies about eight flights per week at SPSRA (one to two helicopters, three to five days a week). Flights over the property are typically less than 60 minutes, with many occurring after dark (to allow "night vision goggle" training).

The department supports the WIARNG continuing to conduct limited training exercises at SPSRA, including their use of the site next to the main landfill. However, unless the V1 deed includes specific language allowing future use by the WIARNG, the NPS has informed the department that WIARNG use of the V1 site will have to be phased out. The WIARNG is in discussions with the U.S. Army, General Services Administration, and the National Park Service to determine if options exist to include language in the deed before is transferred to the department.

15. LAKE WISCONSIN OVERLOOK

Along the southeastern corner of the property is an approximately 50-acre parcel between STH 78 and Lake Wisconsin. The department's ownership doesn't extend to the water (Wisconsin Power & Light owns the sliver of land along the shore). Given the very steep hillside along the river here, not having contiguous ownership to Lake Wisconsin is not relevant since there is not a practical way to provide shore access. With some modest tree trimming, this parcel would have a fine view of Lake Wisconsin and the opposite lands.

16. DRINKING WATER

The buildings on the HCN and department lands currently source their drinking water from a Bluffview Sanitary District well. The department will work with the BVSD to determine future options for the department's continued use of water from this well. Alternatively, the Merrimac Sanitary District may, with funding from the U.S. Army, construct a public water supply for the overall area to address long-term drinking water needs. The department will work with the Merrimac Sanitary District and the U.S. Army to determine options for providing drinking water at SPSRA if a new water system is developed.

17. OTHER ISSUES THAT AFFECT THE FUTURE USE OF THE PROPERTY.

The department's management of the property is subject to the Americans with Disabilities Act and the National Historic Preservation Act.

F. Regional context

1. OTHER PROTECTED LANDS

SPSRA sits in close proximity to other publicly-accessible lands. Other conservation properties within 15 miles include:

State Parks
Devil's Lake
Mirror Lake
Natural Bridge

State Wildlife Areas
Dell Creek
Lodi Marsh
Pine Island
Waunakee

State Fishery Areas
Baraboo River (Remnant)
Hinkson Creek
Leech Creek (Remnant)
Lodi Spring Creek
Rowan Creek

Other properties
Baraboo Hills State Recreation Area
Ice Age Trail
Lower Wisconsin State Riverway
Marx-Fish Lake Natural Resource Site
Riverland Conservancy preserves
US F&WS Waterfowl Production Areas

State Natural Areas
Ableman's Gorge
Baraboo River Floodplain Forest
Baxter's Hollow
Cady's Marsh
Devil's Lake Oak Forest
East Bluff (DLSP)
Fern Dell Gorge
Ferry Bluff
Gibraltar Rock
Hemlock Draw
Honey Creek
Lodi Marsh
Lower Narrows
Lost Lake
Mazomanie Bottoms
Mazomanie Oak Barrens
McGilvra Woods
Natural Bridge and Rockshelter
Pan Hollow
Pewits Nest
Pine Hollow
Pine Island Savanna
Parfrey's Glen
Schluckebier Prairie
South Bluff/Devil's Nose

Many SNAs are nested within other larger properties, including several that are owned by The Nature Conservancy or other private conservation organizations.

2. LAND USES AND TRENDS

With a wealth of natural resources, easy access to the Madison metropolitan area via Interstate 90-94 and USH 12, and a varied and scenic landscape, not surprisingly Sauk County is drawing many new residents. Indeed, over the last decade the county's population grew at twice the state's average rate of growth. On a percentage basis, the Village of Lake Delton and the Town of Dellona have experienced the most rapid growth over the last ten years. Population growth has resulted in more jobs, more homes and more development pressures in different parts of the county. In turn, this has led to the price of agricultural lands increasing faster in Sauk County (at an 11% annual average increase for the last decade) than in the state (6.6% annual average increase). The price of forestland in Sauk County has also risen more than the state average over the last ten years.

Land use in Sauk County and the surrounding counties is dominated by farming which are typically modest-sized operations. About two-thirds of the land in Sauk County is in farms with an average farm size of about 185 acres.

Over the last decade the number of farms in the county has gradually increased while the average size has declined a corresponding amount. Although the amount varies somewhat from year to year, just over half the land in farms in Sauk County is in crop production, about a quarter is in woodland, and about 10% is in pasture. The remainder is in farmsteads, ponds, roads and various structures.

3. RECREATIONAL-RELATED

Understanding the supply and demand of recreational resources is an important component of planning for recreational opportunities. If there is a demonstrated shortage of a particular resource, it is important to know what the future demand for that resource will be. As part of developing the Statewide Comprehensive Outdoor Recreation Plan (SCORP) the department conducted a series of town meetings across the state in 2005. These meetings collected over 1,400 responses about citizen's perceptions of recreation issues and barriers to recreation. The 2005 SCORP details recreational issues mentioned by respondents from the Southern Gateway Region (in which SPSRA resides):

- Budget constraints on park and recreation programs
- Increased competition for natural resources
- Increasing ATV usage and associated impacts
- Increasing multiple-use recreation conflicts
- Lack of maintenance on parks and recreation areas
- Lack of park and recreation staff
- Overcrowding
- Poor water quality impairing recreation
- Protecting silent sport areas

These results show the need for well-maintained public lands and park facilities in the region which allow diverse recreational activities while providing an exceptional user experience with minimal conflicts between incompatible uses.

Another way to understand this demand is by gauging user perceptions of a particular recreation amenity. The 2005 SCORP also assessed visitor perceptions of their top recreation needs. For the Southern Gateways Region, these needs include more:

- ATV usage opportunities
- biking trails
- camping opportunities
- canoeing opportunities
- cross-country skiing opportunities
- hiking and horse trails

4. ECOLOGICAL AND HABITAT-RELATED

Eastern Sauk County sits at the confluence of three major ecological zones. To the west lies the unglaciated Western Coulee & Ridges, a landscape characterized by steep-sided valleys and many cool, clear streams supporting abundant trout populations. To the north lies the Central Sand Plains, a wide, flat, sandy region that was once mostly the bed of the enormous Glacial Lake Wisconsin. To the east lies the Central Sand Hills, an area

dominated by the rolling and somewhat random topography that typifies the end and ground moraines left behind by glaciers.

This part of the state has opportunities to provide a variety of important ecological outcomes. Some of the major opportunities for habitat management and restoration include dry and dry-mesic prairies, oak openings, oak woodlands, and southern dry-mesic forest. One of the most prominent features of the region is the Baraboo Range – a large, ancient, quartzite monadnock that rises 500 feet above the surrounding plains. The Range supports the largest block of hardwood forest in southern Wisconsin and is critical habitat for many species, in particular forest-interior birds.

Figure 18: View of the Northeast Moraine unit looking east. The large sand excavation pit is in the foreground and Lake Wisconsin is at the top of the photo. Land owned by the Ho-Chunk Nation is in the foreground. The east end of the Central Grassland is visible on the right side of the photo.

CHAPTER IV: ANALYSIS of the ENVIRONMENTAL IMPACTS

A. Introduction

This section of the document describes the department's assessment of the anticipated impacts of the proposed management and public use of SPSRA. **The purpose of this analysis is to inform decision-makers and the public of the anticipated effects on the quality of the environment of the proposed management and public use of SPSRA. The assessment of impacts is an informational tool that does not compel a particular decision by the department or the Natural Resources Board or prevent either from concluding that other values outweigh the environmental consequences of a proposed action or project.** This assessment has been prepared consistent with Wisconsin Environmental Policy Act (WEPA) requirements for environmental review (NR 150, Wis. Adm. Code).

This analysis only addresses the impacts that are believed likely to occur if this master plan is implemented, not impacts that have resulted from previous actions or land uses at the property. The guidelines for developing master plans call for them to be evaluated every 15 years and revised as needed (NR 44, Wis. Adm. Code). As such, this section only addresses those impacts, positive and negative, that are expected to occur over the next 15 years.

There are peer-reviewed articles and reports addressing recreational and human use impacts on habitats and wildlife. However, very little of this research and assessment is directly applicable to the SPSRA property given its unique past, the collection of proposed future uses, and the specific habitats and wildlife species present. For several of the proposed activities there either have been no or very few published studies conducted on their impacts to native plants and animals or other visitors to a property. The department has a long history and in-depth knowledge of the SPSRA property and surrounding BAAP lands. In addition, the department has extensive experience managing, restoring, and operating conservation and recreation properties. Thus, the following assessment of impacts is based on both existing research, as incomplete as it is, and the knowledge and experience of department professionals.

Table 5: Estimated range of visitors to SPSRA over the next 15 years.

Year	Estimated annual visitor-days
2017	20,000 to 40,000
2018	10,000 to 20,000
2019	10,000 to 20,000
2020	10,000 to 20,000
2021	10,000 to 20,000
2022	20,000 to 40,000
2023	20,000 to 40,000
2024	20,000 to 40,000
2025	30,000 to 50,000
2026	30,000 to 50,000
2027	30,000 to 50,000
2028	40,000 to 60,000
2029	40,000 to 60,000
2030	40,000 to 60,000
2031	50,000 to 75,000

As part of what was at the time the world's largest propellant manufacturing plant, the SPSRA is a highly disturbed property. In large portions the native soils were graded or removed during the plant's construction. The subsequent periodic operation of the facility resulted in contamination in several areas. The deconstruction of the buildings and infrastructure, and associated clean-up actions, helped improve environmental quality but further impacted plants and animals on the property. Most of SPSRA is now heavily infested with invasive or non-native plants.

Clearly, the restoration and management of native grasslands and savannas here will have a very large and positive impact on the populations of native plants and animals in the region. The improvement in habitats at SPSRA will benefit the existing native species, which are largely utilizing surrogate conditions, as well as other species not currently on the property but which may colonize the area in the future. **In light of the substantial and long-term increases in populations of native species at SPSRA (including many rare species) that are anticipated from habitat restoration and management, the uses of the property are expected to have relatively minor adverse impacts on overall improvement to populations.**

Many of the expected impacts result from the anticipated visitation and recreational use of the property. The department expects visitation at the property to be driven by the amount and quality of recreational facilities present. As a result, it is likely that the number of visitors to SPSRA may be limited initially and increase over time as a visitor center, trails, picnic shelters, overlooks, education and interpretation kiosks, and other features are built.

Table 6: General seasonal distribution of recreational activities at SPSRA.

Recreation Activity	Spring			Summer			Fall			Winter		
	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
Bicycling	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Canoe and kayak access		✓	✓	✓	✓	✓	✓	✓				
Cross-country skiing	✓									✓	✓	✓
Dog training	✓	✓	✓	✓	✓	✓	✓					
Dog trialing		✓	✓	✓	✓	✓	✓					
Dog - off leash exercising	✓	✓				✓	✓	✓	✓	✓	✓	✓
Driving for pleasure		✓	✓	✓	✓	✓	✓	✓	✓			
Dual-sport motorcycle riding (6 days)			✓	✓	✓	✓	✓					
Education and interpretation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fishing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gathering mushrooms, nuts and berries		✓	✓	✓	✓	✓	✓	✓				
Hiking	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Horseback riding		✓	✓	✓	✓	✓	✓	✓				
Hunting - deer								✓	✓	✓		
Hunting - turkey		✓	✓					✓	✓	✓		
Hunting - pheasant								✓	✓	✓		
Hunting - small game, furbearer								✓	✓	✓	✓	✓
Nature photography	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Picnicking		✓	✓	✓	✓	✓	✓	✓				
Rocketry (10 days)	✓	✓	✓	✓	✓	✓	✓				✓	✓
Snowmobiling	✓									✓	✓	✓
Snowshoeing	✓									✓	✓	✓
Special events	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trapping									✓	✓	✓	✓
Wildlife (bird) watching	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Estimating the number of future visitors to SPSRA is difficult. Although there are properties in southern Wisconsin that share some similarities to SPSRA, this property is unique in many ways. Further, the department has only limited data on visitation patterns of nearby properties. As a result the department is able to only roughly estimate the number of visitors that may come to the property if the master plan is implemented.

The department estimates that total annual visitor-days[35] at SPSRA may be in the ranges listed in Table 5 (previous page). These estimates are based on the recreation facilities that are proposed, the anticipated initial interest in visiting the property, and the visitation at nearby park and recreation properties. Some activities take place at particular times of the year (e.g., snowmobiling, turkey hunting) while others can occur throughout the year. Table 6 shows when different recreation activities may or are most likely to occur on the property.

Visitation levels can, of course, be very influenced by weather over the course of the year, but visitation at SPSRA is likely to follow the weekly and seasonal patterns seen at other recreation properties. As such, regardless of the number of visitors, the department expects that about 75% of visitation will occur from May to October. Further, it expects about 75% of visitation in any given week to be on Friday, Saturday, and Sunday. Holidays will typically see spikes in visitation.

[35] Visitor-days are the total number of people that visit the property in a day, regardless of the length of their stay or the number of recreation activities in which they participate.

The department's experience at state parks and recreation areas in the region is that most vehicles average about 2 to 3 people per vehicle. Thus, if 35,000 people visit the property in a year (approximately the average of what the department expects over the next 15 years), then the number of cars expected on the property **daily** is shown in Table 7.

Table 7: Potential daily vehicle traffic over the year.
(assuming 35,000 visitors/year, 2.5 people/vehicle, 75% of visitation from May through October, and 75% of visitation on Friday through Sunday)

	May to October	November to April
Monday to Thursday	25	8
Friday to Sunday	100	33

On July 30, 2012 at a public open house meeting, the public was asked to identify issues to include in the planning and review process. The results of that meeting were summarized in a document prepared in September 2012 and are incorporated into this analysis.

All necessary state and federal permits will be obtained before the department proceeds with the development of a project within SPSRA. Examples may include complying with state and federal wetland laws in the form of Water Quality Certification(s) to allow work or limited fill in wetlands for the purposes of overall wetland enhancement or restoration.

The department has engaged in ongoing discussions regarding the proposed management and use of SPSRA with the property's two primary neighbors, the Dairy Forage Research Center and the Ho-Chunk Nation, to ensure that the public's use and enjoyment of SPSRA does not substantively affect their operations. The department very much appreciates the excellent working relationships it has with these and the other landowners of the former BAAP and wants to ensure that its management of SPSRA is compatible with our neighbors' ability to successfully use and manage their properties.

The department has also discussed the property and its ongoing and proposed management at various meetings and presentations with local officials, organizations and groups, and the general public for many years.

Note: As indicated in Chapter II, although the department supports the WIARNG's continued training use at SPSRA on a limited basis, it anticipates that due to requirements of the Federal Lands to Parks program the WIARNG will be required to phase out training exercises at the property. However, there is a possibility that WIARNG may be allowed to continue some or all of its training exercises at SPSRA if language is included in the deed to parcel V1 transferring the land to the department. Because this possibility exists, the following assessment of impacts includes those that may be associated with WIARNG activities.

B. Anticipated impacts to the environment

1. POTENTIAL IMPACTS TO THE PHYSICAL ENVIRONMENT

a. Regional land use

Given the demand for opportunities to participate in outdoor recreation activities in reasonably close proximity to cities and villages, combined with improvements to USH 12, implementation of this master plan may result in more people moving to the area than is currently projected by the U.S. Census Bureau. This could also increase demand in nearby communities for housing greater than is currently projected. In addition, the number of visitors to the area is expected to increase if the plan is implemented, which could increase the number of retail and service enterprises. The extent of changes to the number of people living and working in the area (beyond what is currently projected by the U.S. Census Bureau) due to the management and use of SPSRA is expected to be minor.

The changes in the number of people living and working in the area could increase the conversion of some undeveloped or under-developed lands into developed properties, in particular along USH 12. Local units of government may need to adjust their land use plans to reflect changing development pressures that result from public use of SPSRA.

b. Geological and glacial resources at SPSRA

Much of the surface of SPSRA, especially in the Gateway Corridor, Central Grassland and parts of the Northeast Moraine, were substantially altered during the construction, operation, and deconstruction of the munitions plant. If the proposed master plan is fully or partially implemented, it is anticipated that there would be only minimal additional impacts to the geological or glacial resources of the SPSRA property.

Rather, the department proposes to protect and highlight the geological and glacial features at SPSRA to visitors. In particular, the department proposes to showcase the geological resources in the Bluff Vista unit. Although facility development (including trails) may result in some site-specific impacts to these resources, they are expected to be minor.

c. Air

If the proposed master plan is fully or partially implemented, it is anticipated that air quality may be impacted by a couple of factors. First, the department proposes to periodically conduct prescribed fires in much of SPSRA over time. Most fires would be conducted in the spring. Some of these fires may be several hundred acres in size or larger. It is the department's intent to conduct these prescribed fires when the prevailing wind direction will keep smoke over SPSRA until it dissipates. Although it is possible that some smoke may travel over nearby residences and neighboring landowners, the department expects these impacts (i.e., visibility, inhalation, etc.) to be minor and temporary.

Concern has been raised regarding the potential release of toxic chemicals or materials during the use of prescribed fire at SPSRA. All of the land within SPSRA has been cleared of all known contaminants to a depth of four feet. Any contaminants below four feet would be materials that are unlikely to be taken up by plant roots. As a result, the department believes that the use of prescribed fire at SPSRA will result in the release of materials similar to prescribed fires at other properties around the state.

It is likely that the existing and future road and trail networks will provide adequate fire breaks. If additional fire breaks are needed, the department will evaluate potential soil disturbance areas to ensure that no known contaminants would be released.

A second source of impacts to air quality is likely to be vehicle traffic on the gravel roads. Many of the roads open for vehicle use on SPSRA will, at least initially, remain surfaced with gravel and, depending on the amount of traffic, may generate localized dust conditions. The department expects these impacts to be similar to the localized and temporary impacts that result from traffic on gravel roads throughout Sauk County.

Dust is likely to be created during the dual-sport motorcycle events, although the magnitude is expected to be minor and localized. Concern was raised by members of the public that motorcycle riding might cause the release of harmful or contaminated dust from areas at SPSRA where there are restrictions on surface disturbance. Seven sites at SPSRA have restrictions related to surface disturbance. No biking or equestrian trails are proposed on these sites and thus none of the trails repurposed for motorcycle use will be on any of these seven sites.

Depending on conditions, another source of dust may be the WIARNG helicopters. As part of training, the helicopters hover over the ground, especially at the proposed take-off and landing area adjacent to the main landfill site. When they are close to the ground, the helicopters will generate considerable wind and dust. Given the frequency of current WIARNG flight training, it is expected that the helicopters could create localized dust conditions for a couple of hours per week over the course of the year.

Several activities at SPSRA will also generate exhaust emissions. Increased vehicle traffic resulting from visitors is expected to be only a small incremental increase to the existing traffic loads in the general area. Thus, the department expects that any emissions-related impacts to air quality from visitors driving to and around SPSRA will be negligible.

The Blackhawk helicopters that are flown by WIARNG consume about 120 gallons of fuel per hour and generate the following air emissions per hour of flight time: nitrogen oxides – 1.78 pounds, volatile organic compounds – 0.4 pounds, carbon monoxide – 5.5 pounds, and particulate matter under 10 microns in diameter – 1.6 pounds.[36] Currently, WIARNG helicopters are at the SPSRA property approximately 5 to 10 hours per week and thus would be using about 600 to 1,200 gallons of fuel a week while at SPSRA. If the WIARNG is no longer able to use SPSRA for some of their training activities, then crewmembers would need to fly an additional 30 to 45 minutes each way to reach the training site at Fort McCoy. This extra travel would consume additional fuel and generate additional emissions.

The re-purposing of trails and roads for dual-sport motorcycles up to six days a year will result in emissions from these vehicles. If 100 riders participate using bikes that average 60 mpg and each goes 60 miles while at SPSRA, then each of these six days will result in emissions associated with using 100 gallons of gas.

To put these emissions in perspective, there are approximately 6 miles of USH 12 and STH 78 roadway adjacent to or passing through the former BAAP (4.2 and 1.8 miles, respectively). An estimated 11,000 and 2,300 vehicles pass by the SPSRA on these roads each day, respectively. Thus, the approximately 50,000 vehicle miles (4.2 miles x 11,000 vehicles + 1.8 miles x 2,300 vehicles) driven just along the borders of the property generate emissions approximately equal to using 1,660 gallons of gas each day (assuming the vehicles average 30 mpg). Therefore, the department expects that any emissions-related impacts to air quality from vehicle use within SPSRA, the WIARNG helicopter training, and the use of dual-sport motorcycles on the six days of approved use will be minimal relative to the vehicle traffic in the immediate vicinity.

[36] See *Supplemental Draft Environmental Impact Statement for the Military Training Activities at Makua Military Reservation*, August 2008.

Snowmobiles traveling along the proposed approximately seven miles of trail on the southern, eastern, and northern edges of the property will generate exhaust emissions. These emissions are expected to be similar to the emissions generated elsewhere on the approximately 200 miles of snowmobile trails in Sauk County.

d. Water resources

If the proposed master plan is fully or partially implemented, it is anticipated that impacts to water resources would be beneficial. The most important positive impact could be the collaborative efforts of the department and HCN to restore the hydrology of the streams emanating along the south bluff of the Baraboo Hills. The master plan proposes that these creeks will be restored to flow out onto the flat outwash plain and drain into the sandy soils on HCN lands. This in turn will help to replenish groundwater.

Implementation of the master plan is not expected to adversely impact the quality of groundwater or waters in Lake Wisconsin.

e. Soil resources

In many places at SPSRA that were built upon, the soil was disturbed, removed, or degraded. The Central Grassland in particular has many areas without native topsoil. Other areas at SPSRA were farmed for many decades but were largely left in reserve since 1942 and were not developed as part of the BAAP. The northern part of the property, which encompasses the southern flank of the Baraboo Range, naturally has thin, rocky soil in places.

Habitat management actions are expected to slowly improve soil conditions over time throughout the property.

Much of the recreational use is not expected to result in adverse impacts to soils. The activities that have the most potential to adversely impact soils include mountain biking, equestrian activities, and the repurposing of trails for use by dual-sport motorcycles. All of these activities could result in compaction and erosion of soils on the trails. The department designs and manages trails to ensure that they are sustainable and are not prone to erosion or other problems. If trails become unsafe or cause environmental damage, the property manager has the authority to close all or sections of trails as needed until the problems can be fixed. Clubs hosting dual-sport motorcycle riding events on biking and equestrian trails will be required to repair damage to trails caused by the event.

Some areas at SPSRA are deed restricted from disturbances to the topsoil. Activities that are prohibited in these areas include scratching, scraping, tilling, digging, excavating, drilling, and plowing. These prohibitions exist on the landfills and other capped sites. Other portions of SPSRA were temporarily under this restriction until they could be adequately evaluated. Concern was raised during the comment period that the draft master plan proposed placing trails in areas that are restricted from soil disturbance. No trails are proposed in areas that have restrictions related to disturbing the soil.

The WIARNG's current training use allows pilots to practice helicopter landing and take-offs at a site next to the main landfill in the Central Grassland unit. Helicopters are not authorized on the landfill itself or to disturb the landfill cover. As stated earlier, the department will not authorize WIARNG training activities at SPSRA that cause permanent or undue damage to the property's resources or facilities. As stated earlier, it is likely that WIARNG training activities at SPSRA will be phased out due to requirements of the Federal Lands to Parks program.

As a result of these factors, implementation of the master plan is not expected to substantively or permanently adversely impact soil resources at SPSRA.

f. Sound

For some people, an attraction of public lands is the ability to listen to the sounds of nature and enjoy quiet surroundings.

At different times of the day and year and depending on the wind direction, human-induced sounds will be heard in different parts of the property. Some sounds will be of short duration (e.g., guns used in hunting, rockets being launched), others will be intermittent (e.g., snowmobiles, vehicles on roads, dual-sport motorcycles passing by on trails or roads on the SPSRA property), while others will be more continuous (e.g., the traffic noise from USH 12 and STH 78). For some visitors, these sounds will detract from their experience at the property; for others, the sounds will not be an issue.

Approximately 15 miles of roads on the property will be open to motor vehicles. Given the irregular shape of SPSRA, few places on the property are more than 0.5 mile from a road open to the public. The amount of sound generated from vehicle use of the roads in SPSRA will depend on the number of vehicles, their speed, road surface, and the sounds generated by the vehicles.[37]

Although sound limits have been established for motorboats and snowmobiles in Wisconsin, no maximum standard exists for motor vehicles (cars, vans, trucks, motorcycles). Instead, these vehicles are required to have a functioning exhaust system in proper working condition that prevents any excessive or unusual noise. As a result, it is difficult to estimate sound levels that visitors may hear from vehicles on the roads within SPSRA. Given the modest number of vehicles expected even on weekends during the warmer months (see Table 6) the department expects that sounds generated by vehicle traffic will generally be minimal.

For up to six days per year, up to half of the biking and equestrian trails may be repurposed for use by dual-sport motorcycles. On these days, these trail corridors will experience sounds analogous to those that may be heard along the road corridors on the property. Depending on the speed of the motorcycles and the number that are traveling together, it is possible that the sound level along the travel route during these six days may be considerably higher than the sound level along the roads during their typical use throughout the year.

The entire property is within three miles of USH 12 and the southeastern portion of the Magazine Area abuts STH 78. With the prevailing western and southern winds during the summer, it is not uncommon to hear the traffic from these highways on different parts of the property.

The launching of model rockets on up to 10 days per year will generate sound up to about 105 decibels (at a distance of 30 feet) during their combustion phase, which lasts 1-2 seconds. Since sound decreases with distance[38], visitors 500' from the launch site would hear a sound of about 80 decibels, which is analogous to a telephone dial tone or loud conversational speech, for 1-2 seconds. .

Given the limited number of days where rocketry and dual-sport motorcycles will be allowed, natural sounds are expected to be the most common sounds heard by visitors at SPSRA during the non-winter months. If visitors are displaced from SPSRA because of noise from rocketry or dual-sport motorcycles, there are many other nearby properties open to the public that do not provide these opportunities. The department owns

[37] The speed limit at SPSRA is 25 mph. Most sounds generated by vehicles traveling at 25 mph or less is from the vehicles themselves, rather than from the friction of tires on the roads.

[38] The intensity of sound is a function of distance. As distance from a sound source is doubled, the intensity of the sound decreases by 6 decibels. Conversely, decreasing the distance by a factor of 10 increases the sound level by 20 decibels.

more land and public access easements in Sauk County than any other county in southern Wisconsin (over 30,000 acres); the vast majority of these lands only provide opportunities for low intensity activities.

The approximately seven mile snowmobile trail winding along the southern, eastern, and northern property border will generate sounds as snowmobiles move past. For much of this route, the trail parallels STH 78. Snowmobiles manufactured after 1975, which comprise most of the machines in use today, may not exceed 88 decibels at 50 feet (on the A scale as measured in accordance with the procedures established for the measurement of exhaust sound levels of stationary snowmobiles in the January 2004 Society of Automotive Engineers Standard J2567).[39] As such, when a snowmobile passes visitors that are 100 yards away, they would experience a sound analogous to a garbage disposal (80 decibels); the traffic from STH 78 is likely to be as noticeable, if not more so.

Helicopter flights generate substantial noise and wind, both of which vary based on the height and speed of the aircraft. A helicopter similar to the model flown by members of the Wisconsin Army National Guard generates sound levels of 80 decibels at 500 feet.[40] At 80 feet above the ground, it is estimated that this type of helicopter would generate approximately 94 decibels of sound. Given the current frequency of training sessions, it is anticipated that the helicopters would create this level of sound 5 to 10 hours per week.

2. POTENTIAL IMPACTS TO BIOLOGICAL RESOURCES

Virtually all activities associated with our current society have some level of impact on biological resources – positive, neutral, or negative. These impacts are often species-specific; while some plant and animal species benefit from specific actions, others may be adversely impacted. Impacts can either be direct (the activity causes mortality) or indirect. Indirect impacts typically occur in one of two ways – either physical changes to habitat conditions or changes that affect species' ability to carry out different aspects of their life cycles (e.g., reproduction, nesting, feeding, over-wintering, and migrating).

At BAAP and SPSRA, as is true across much of southern Wisconsin, the landscape-scale conversion of prairies and oak savannas to agriculture began over 150 years ago. This transformation virtually eliminated native vegetation and had primarily adverse impacts on many native animal species – both through changes to habitat as well as disruptions to life cycles. While a fairly wide range of animals were able to adapt (and in some cases thrive) during the early decades of low-intensity farming into the 1940s, the subsequent and rapid conversion of farmland to an industrial plant at SPSRA also had a profound negative impact on many species.

For some species, the conversion of lands to surrogate habitats (e.g., hayfields or pasture lands) can provide acceptable conditions for them to complete their life cycles. Maybe most notably, the open, grazed lands in much of BAAP provided suitable habitat for many grassland birds to thrive.

The removal of nearly all the physical infrastructure of the munitions plant was another large impact to the site, but marked a turning point in the restoration of the property. Viewed through the lens of past disturbances here, the proposed restoration of grasslands and oak savannas at SPSRA will generate substantial improvements in the quality and quantity of natural habitats present, the health of populations of many native species, and an improved quality of natural settings for a range of recreation opportunities. While there will be impacts associated with conducting habitat restoration actions, constructing and managing recreation facilities, and the

[39] Wis. Stat. s. 350.095.

[40] See U.S. Army Public Health Command. 2010. Operational noise consultation. No. 52-EN-0D55-10. Operational noise contours, proposed aviation activity, Savannah River Site. Aiken, South Carolina.

public's use of the property, the department expects these impacts will be exceeded by the overall benefits associated with the restoration of habitats at SPSRA.

The following discussion describes the anticipated impacts resulting from the proposed management and use of the property.

a. Terrestrial habitats and species

Habitat restoration and management actions

The proposed restoration and management of terrestrial habitats are anticipated to result in increases, potentially sizeable increases, to populations of native plants and animals. Specifically, rare and declining species associated with grasslands and savannas are expected to benefit from the habitat restoration and management at SPSRA. Examples include:

- Henslow's Sparrow
- Grasshopper Sparrow
- Bobolink
- Dickcissel
- Eastern Meadowlark
- Western Meadowlark
- Upland Sandpiper
- Savannah Sparrow
- Red-headed Woodpecker
- Monarch Butterfly

A more complete listing of rare or declining species that have been recorded at BAAP, as well as rare vertebrates that have not been recorded at SPSRA, but are known to occur nearby in similar habitats and may establish breeding populations in the future at SPSRA as habitats are restored, is found in Appendix 4.

The quality of the grassland, savanna, and forest habitats at SPSRA is expected to considerably improve over time, resulting in increased diversity in both species composition and vegetation structure. However, implementation of the plan is not likely, by itself, to increase populations of any Species of Greatest Conservation Need[41] to the extent that they would be removed from this status.

The proposed plan should also have a noted positive impact on populations of game species, although not all game species would be affected equally. Populations of species that respond directly to the availability of restored grasslands and savannas should increase with restoration and management of additional habitat. Species that are more flexible and adaptable in their habitat needs (such as deer, turkey, raccoon and fox) are also expected to show populations increases as habitat is restored. Overall, it is expected that game populations will benefit from implementation of the proposed plan, although population responses will vary depending on the species and applied habitat management practices.

In carrying out standard management practices to improve habitat quality, for example conducting prescribed burns, some animals may be unintentionally killed. To minimize these impacts on species listed as threatened or endangered in Wisconsin that are known to occur at SPSRA, management actions will follow

[41] See the Definition section in Appendix 1.

the general protocols for incidental take developed by the department's Bureau of Natural Heritage Conservation.[42]

Construction, maintenance, and operation of recreation facilities

The construction, maintenance, and operation of recreational facilities are expected to result in some impacts to terrestrial resources. These actions could include building such facilities as parking lots, shelters, and trails, as well as maintaining the trails through periodic brush clearing, mowing, and grading. It is expected that these actions will be localized and minimal, resulting in disturbances only to habitats and species in the immediate vicinity of the work being conducted. The department will review the Natural Heritage Inventory database and consult the state archaeologist before constructing recreation facilities to identify occurrences of any rare species and cultural/historical resources that may be impacted and develop strategies to minimize any adverse impacts.

Deconstruction of facilities

Although nearly all the infrastructure from the farming era and the BAAP is gone, most of what remains will be removed over time. In addition to a few buildings, the property is heavily fragmented with former roads and rail lines. When the removal of roads and remaining infrastructure occurs, this work is likely to be noisy and result in impacts to terrestrial resources in the immediate vicinity. However, these impacts are expected to be for limited durations and localized and are not expected to result in any long-term displacement or impact to terrestrial resources at SPSRA. Further, the removal of roads and rail lines is expected to result in an overall decrease in habitat fragmentation.

Recreational use of trails, roads and other facilities

Research has been conducted around the country and abroad on impacts to plants and animals related to the recreational uses of protected areas. These studies document a variety of outcomes for wildlife and their habitats from peoples' use and enjoyment of conservation lands. Most existing studies evaluating recreational impacts focus on parks, preserves, and wilderness sites that have substantially better ecological health and complexity than SPSRA. Department staff have used these studies to the degree that they are applicable to help inform their assessment of potential impacts of the proposed recreational use of SPSRA. A bibliography of selected references on this subject is found in Appendix 5.

MOTOR VEHICLES ON PUBLIC ROADS WITHIN SPSRA

Approximately 15 miles of roads are proposed to be permanently maintained to provide public vehicle access throughout the property. These roads will have a posted speed limit of 25 mph. There will be no limit on the number of vehicles permitted to travel these roads when the property is open (6:00 a.m. to 11:00 p.m.) All highway-licensed vehicles will be allowed on these roads. If projected visitation levels materialize, there may be an average of hundreds of vehicles each week using roads within SPSRA. However, as is the case in most other department properties, it is expected that most visitation will occur in the spring and fall and on the weekends. Thus, weekends and holidays in April, May, June, September and October are likely to receive the highest concentrations of traffic.

Researchers in other parts of the country have noted a variety of environmental impacts, some modest and some considerable, associated with roads used by motor vehicles. Impacts to terrestrial resources

[42] See http://dnr.wi.gov/topic/erreview/take.html for more information.

can include: (1) displacement, nest desertion, and breeding failure of native species, (2) disruption of communication and behavioral cues for birds and herptiles, (3) formation of a barrier to movement for mammals and herptiles, (4) spread of invasive plants, (5) fragmentation of habitat and creation of edge effects, (6) death or injury from vehicle-wildlife collisions, and (7) increases in scavengers and predators searching for injured or dead prey animals.

These impacts can lead to a reduction in the number and diversity of species in an area. A strong correlation between the volume of traffic and the level of impact has been shown. However, virtually all existing published data focus on roads that receive substantially higher levels of traffic (often thousands of vehicles per day) and where speeds are generally much higher than 25 mph. The department is not aware of research on the impacts from motor vehicles that occur at the speeds anticipated at SPSRA.

There is also literature that demonstrates some wildlife species are attracted to, and do well in, roadside habitats.

The department's experience at state properties with internal roads with 25 mph speed limits is that occasionally, but rarely, animals are hit and injured or killed by vehicles. Thus, it is possible that some slow-moving animals could be hit by passenger vehicles here at SPSRA. In addition, exhaust from passenger vehicles could impact sensitive species.

The department expects the sounds generated from motor vehicle traffic on roads within SPSRA will generally be minimal and spread across the property. During special events it is likely that there will be increased traffic in portions of the property, which will result in temporarily increased sound levels, commotion, and movement in portions of the property.

Based on the number of vehicles anticipated and their speed, the department expects that the motor vehicle use of public roads within SPSRA will have a minimal impact of plants and animals on the property.

MOTOR VEHICLES ON SERVICE ROADS WITHIN SPSRA

Approximately 7 miles of service roads are proposed to be maintained for use by department staff. Some of these roads, primarily in the Magazine Area, will also be used by DFRC as corridors to move farm machinery and equipment. Potential impacts would be similar in nature to those of public roads (e.g., potential animal deaths, disturbance caused by noise or exhaust, etc.) though considering there are fewer service roads and given the low levels of anticipated use, any impacts from motor vehicles are expected to be even more minor and temporary.

USE OF POWER-DRIVEN MOBILITY DEVICES (PDMD)

As is the case for all department properties, individuals with disabilities may receive a permit from the property manager to use a power-driven mobility device to access SPSRA. PDMDs may include highway-licensed vehicles, motorized wheelchairs, ATVs, UTVs, or other specially designed machines. PDMDs may potentially be used on trails, roads open to the public, and staff service roads. The use of PDMDs may impact wildlife (e.g., small animals and insects could be hit and birds and other animals could be disturbed by the sounds and motions of these devices), but given the anticipated low use levels, the department expects these impacts to be minimal, temporary and localized.

NON-MOTORIZED TRAIL USES

A number of research studies have been conducted evaluating the impacts of hiking, biking, horseback riding and other non-motorized trail activities on wildlife. Generally, these studies find a wide range of impacts – including reduction in abundance, changes in flight responses and alert distances, nest abandonment, feeding disruption, and spreading of invasive species – associated with non-motorized trail uses; however, some studies did not find substantial impacts. Trails can also provide easier access into habitats by predators (e.g., coyotes, raccoons, foxes and skunks), which in turn can affect populations of prey species. Not all of the non-motorized trail use impacts that are noted in research findings are consistent in their frequency or severity. Impacts can be highly variable across habitat types and between species. For example, which predator species are present in a specific area can determine whether impacts on nesting birds near trails are positive or negative. And some animals can become habituated to human interactions leading to reduced response levels.

The department expects that the hiking, biking, and equestrian trails will have some impact on the habitats through which they are located (e.g., soil erosion and compaction). Depending on the level of participation, trail use by hikers, recreational and mountain bikers, snowshoers and skiers, dog walkers, horseback riders and horse cart drivers, and other non-motorized users may cause a variety of impacts to wildlife including increased flight/fleeing distance, nest abandonment, pair-bond disruption, and other responses that may lead to lowered survival. Trail users may disturb animals throughout much of the year, including at sensitive times in their life cycles (e.g., birds that are nesting, mammals seeking to conserve energy in the winter).

In addition, although invasive species are prevalent throughout SPSRA, the development and use of trails may also result in the spread of some invasive plants into areas where they do not currently exist. Shoes, boots, bicycle tires, skis and snowshoes, paws, hooves, and droppings can all spread seeds and plant material from one area to another.

Although the department will avoid siting trails in sensitive areas to the degree feasible and will minimize trails in some areas in order to create larger blocks of habitat, it is possible that non-motorized recreational activities may disturb and harm wildlife. However, given the anticipated recreational use levels and the nature of the wildlife responses, these impacts are expected to be minor when balanced against the extensive habitat improvements that are planned and associated increases in wildlife that are expected. While individual animals may experience stress and stress responses (e.g., increased time and energy spent on vigilance and avoidance movements that results in weight loss, reduced breeding success, and susceptibility to disease), populations are not expected to be affected.

MOTORIZED TRAIL USES

Researchers in other parts of the country have noted a variety of environmental impacts, some minor and some considerable, associated with trails used by motorized vehicles such as ATVs, off-road motorcycles, 4-wheel drive trucks, and snowmobiles. Impacts to terrestrial resources can include displacement, nest desertion and breeding failure of native species, spread of invasive species, edge effects, direct impacts to habitats, and death or injury from collisions.

Potential impacts from the two types of motorized trail uses proposed at SPSRA are described here.

Dual-sport motorcycles

Dual-sport motorcycles, like all highway licensed vehicles, may drive on the 15 miles of public roads whenever the property is open. Dual-sport motorcycles will also be authorized to travel on up to 50% of the network of bike and equestrian trails when permitted by the department through the issuance of a Special Events Recreational Use Application and License (Form 2200-127). To minimize potential impacts during these special events, the master plan proposes the following restrictions and limitations on the use of dual-sport motorcycles at the SPSRA property:

- All dual-sport motorcycle riding on repurposed biking and equestrian trails must be part of a special event authorized by the department.
- Limit the number of days for dual-sport motorcycle riding to six days per year.
- Require all motorcycles to be tested for noise before riding on the repurposed trails and require that the maximum allowable sound generated be no more than 96 decibels (on the A scale).
- Restrict riding days to two days during the spring nesting season (April 15 to July 31).
- Prohibit riding days during the fall hunting season (mid-October to December 31) to prevent safety conflicts.
- Restrict riding hours to between 9:00 a.m. and 4:00 p.m.
- All motorcycles must stay on designated trails or roads; no off-trail riding will be permitted.
- Limit number of riders to 100/day.
- Require that damage to trails or roads used in the event be repaired.

Existing research indicates that trails open to motorized vehicle traffic year round, as well as more concentrated motorized recreation sites, can have a noticeable effect on the number and diversity of species in an area. A correlation between the volume of traffic and the level of impact has been shown. The published data focus on areas with ongoing motorized recreational use. The department is not aware of research on the impacts from dual-sport motorcycles or other types of motorized recreation occurring at the low levels proposed at SPSRA (e.g., just dual-sport motorcycles, limited to six days/year, maximum of 100 riders, limited hours of riding, sound limits for motorcycles, etc.) Thus, it is difficult to directly apply the results of existing published research to estimate the level of impact that may occur at SPSRA.

ATV and off-road motorcycle riding occurs at a site at Bong State Recreation Area. Generalized bird survey data have been collected for years, both from the site as well as the surrounding property. There doesn't appear to be a sizeable reduction in the number of species or number of birds in the area where motorized recreation is allowed compared to other areas on the property. Rather, the distribution of birds appears more influenced by the type and quality of habitats present.

The use of dual-sport motorcycles at SPSRA, even with the limitations listed above, is likely to have some level of impact on terrestrial resources. The likely impacts are both similar to, and different from, the regular vehicle traffic that will occur on the publicly-open roads at SPSRA. Dual-sport motorcycles are registered vehicles that must meet the same safety and use requirements as cars, pick-ups, SUVs, and other types of motorcycles used on public roads. Like all highway-licensed vehicles, dual-sport motorcycles may drive the open public roads at SPSRA in unlimited number when the property is open (6:00 a.m. to 11:00 p.m.) Thus, the sounds, movement, and emissions

generated by the dual-sport motorcycles during the six days they are accessing the repurposed trails will be analogous to the impacts they (and all the other vehicles) generate elsewhere on the property's open roads.

The impacts from dual-sport motorcycles will be different from the regular vehicle traffic in that during the six days of special events the motorcycles will be travelling in areas of the property that won't normally experience motor vehicles in the immediate vicinity. Thus the sounds, movement, and emissions generated by the dual-sport motorcycles will be impacts to these trail corridors for these six days that they do not experience the other 359 days of the year.

The proposed master plan requires that all dual-sport motorcycles used at SPSRA during events that repurpose bike and equestrian trails be tested for noise and must not exceed 96 decibels.[43] Depending on the speed of the motorcycles and the number that are traveling together, it is possible, and potentially likely, that the sound level along the designated travel route during these six days will be higher than the sound level along the roads during their typical use throughout the year. This use may cause displacement, nest desertion, breeding failure, and other impacts to some native species. The sounds and movement of motorcycles may also result in animals being displaced for longer periods than just the days that the motorcycles are using the repurposed trails.

Some slow-moving animals such as snakes could be hit by dual-sport motorcycles during these six days. In addition, exhaust from the motorcycles could impact sensitive species. The repurposing of trails for motorcycle use is not expected to be a greater impact on spreading invasive species or directly impacting habitat on the property than biking and horseback riding use of these trails during the rest of the year.

By limiting and restricting dual-sport motorcycle use as described here, the duration and magnitude of impacts to species and their habitats at SPSRA will be reduced. While individual animals may experience stress and stress responses (e.g., increased time and energy spent on vigilance and avoidance movements that results in weight loss, reduced breeding success, and susceptibility to disease) any impacts to populations are expected to be minor. When balanced against the habitat improvements that are planned and associated increases in wildlife that are expected, impacts from the use of dual-sport motorcycle at SPSRA are expected to be limited.

Snowmobiles

The proposed snowmobile trail will run on or parallel to the existing trail that goes from the southern boundary along the east side of the property up, then along the northern boundary to Burma Road, where it will meet up with the existing trail that continues on through Devil's Lake State Park.

Snowmobiles manufactured after 1975, which comprise most of the machines in use today, may not generate sounds that exceed 88 decibels at 50 feet (on the A scale as measured in accordance with the procedures established for the measurement of exhaust sound levels of stationary snowmobiles in the January 2004 Society of Automotive Engineers Standard J2567).[44] The sounds and movement

[43] Section NR 45.05(5), Wis. Adm. Code, addresses safety, age, and noise issues related to off-highway motorcycles and dual-sport motorcycles on department lands. These restrictions are in place at Bong State Recreation Area.

[44] Wis. Stat. s. 350.095.

of snowmobiles may impact wildlife by causing them to expend energy reserves in the winter moving away from the machines. Snow compaction on trails may impact small mammal use of tunnels under the snow surface.

There are no limits on the number of snowmobiles that may use the trail. Snowmobile trails are open when conditions allow; there are approximately 200 miles of snowmobile trails in Sauk County and they are typically open about 60 days/year. The department is not aware of substantial impacts to wildlife from the use of snowmobile trails throughout Sauk County. The impacts to terrestrial resources from snowmobile use of the proposed trail at SPSRA are expected to be similar to the impacts from snowmobile use throughout the state network.

ROCKETRY

Launches of model rockets may only occur when authorized by the department through the issuance of a Special Events Recreational Use Application and License (Form 2200-127). To minimize potential impacts to biological resources (and other visitors to the SPSRA property), the master plan proposes the following restrictions and limitations on rocketry:

- Launches are limited to ten days per year.
-
- Only two of the ten dates for model rockets may occur between April 15 and July 31. For the two days of launches in this time period, the number of launches which may occur is limited to 50 per day.
- Launch dates may not occur between mid-October and December 31 to prevent safety concerns related to people retrieving rockets in areas where pheasant hunting may be underway.
- Launches are prohibited when emergency burning restrictions are in place.

The proposed location for the launch site is within an area that will be managed for grassland birds. Thus, to the degree that there are impacts associated with launching rockets, these impacts are likely to disturb species associated with grassland habitats. Disturbances are likely to be caused both by people in the area (e.g., setting up and retrieving rockets as well as spectators watching the launches) and the noise generated launching the rockets. The impacts to species will be lowered due to the placement of the launch area away from the center of the managed grassland tract.

Rocket launching has occurred at Bong State Recreation Area in Kenosha County since the early 1980s. Both model and high power rockets are launched at the site. Typically, rocket launching events are held at the Bong site about 12 days/year and include a variety of rocket sizes.

Launching rockets generates noise during the motor's combustion phase. The noise generated by model rockets lasts for approximately one to two seconds and is described as being similar to an air compressor hose being disconnected.[45] Depending on their size, high power rockets can generate considerably more sound than model rockets. A search of the scientific literature found no documents describing adverse impacts on biological resources from launching model or high power rockets.

[45] The department is not aware of published reports noting the decibel levels generated by different sized motors, but informal testing indicates that model rocket launches generate approximately 85 to 105 decibels of sound at 30 feet. For reference, a 12-gauge shotgun creates about 135 decibels at 30 feet, four times as loud.

Surveys of grassland birds have been conducted at Bong for years within, near, and distant from the rocket launch area. These surveys indicate that there is not a sizeable reduction in the number of species or number of birds in the area where rocket launching is allowed compared to other areas on the property. Rather, the distribution of birds appears more influenced by the type and quality of habitats present.

Given the anticipated rocketry use levels, the conditions imposed on use, and the nature of the expected wildlife reactions to the launchings, when balanced against the habitat improvements that are planned and associated increases in wildlife that are expected, the impacts arising from these events are expected to be minor. The department expects that any wildlife population impacts or displacements of individuals, if they occur, will be temporary and minimal.

In the decades that rockets have been launched at Bong State Recreation Area, the department is only aware of two small wildfires that were accidentally started. In recent years, launches have been banned during periods when there is an emergency burning restriction in place (as is proposed in this master plan); no wildfires have been started since this policy was implemented.

Special Events

In addition to the proposed special event use of SPSRA for dual-sport motorcycle riding and launching rockets, other types of special events may occur at the property (as they may at other department properties, too). Every year the department receives requests from organizations to host a variety of events. State parks and recreation areas host most of the special events that occur on department properties. As noted earlier, these events include dog trials, running or triathlon races, weddings, ice fishing jamborees, buck skinner rendezvous, and various outdoor skill sessions. Most special events are held in the warmer months and on weekends.

Special events often result in larger than typical concentrations of people at the property, more noise, and more commotion. In turn, this can lead to disruptions to wildlife, most commonly causing them to temporarily leave an area. Depending on the nature of the event, the area from which wildlife are displaced is likely to be small or modest in size.

Although the department does not conduct pre- and post-event surveys to assess potential impacts to wildlife, it does survey properties periodically for a range of rare and sensitive species. The department has not observed a correlation between population levels of rare species and the occurrences of special events at its properties.

With the parameters for approval for special events described on page 32, the department anticipates some impacts to wildlife from special events could occur, but expects they will be localized, of short duration and minor.

Off-leash dog use

Visitors that exercise their dogs off-leash (allowed from August 1 through April 14) in a portion of the Magazine Area (sub-units MA2, MA4, and MA5) may disturb some wildlife there. Research indicates that in some instances, dogs that frequent an area can cause displacement of birds leading to a reduction in the number and diversity of species present. In other cases, research indicates that dogs alone resulted in shorter flush distances and distances moved for birds than either dogs on leash or walkers without dogs. This research confirms department biologists' experiences that the presence of dogs causes flushing of nearby animals, although it is not always clear if the flushing and avoidance behavior is due to the dogs, people, or both. That is, people's presence in an area may be causing the same responses as

people with dogs. The seasonal prohibition of dog exercising during the breeding season will minimize negative impacts on nesting birds.

Exercising dogs off-leash during the August 1 through April 14 time period is a legal and popular use of State Wildlife Areas, State Forests, State Fishery Areas and other similar properties throughout the state. Although wildlife are often flushed and displaced when people and their dogs pass through an area, the department is not aware of any substantial or long-term impacts to wildlife resulting from this use at other state properties. As such, if this area is heavily used for off-leash dog walking, the department expects there may be some reduction in the number and diversity of wildlife species in the area (MA2, MA4, and MA5) but that any impacts to the property as a whole will be minimal.

DOG TRAINING AND TRIALING

The department operates over fifty Class 2 dog training sites around the state varying in size from tens to hundreds of acres.[46] The department is not aware of any research on the effects that training hunting dogs has on the plant and animal populations at the sites. However, it is likely that the wildlife composition of these sites is reduced to some degree during the more intensively used periods. In addition to the disturbance that dogs may cause, wildlife may also flush or exhibit avoidance behaviors due to the occasional discharge of firearms used in training, similar to the impacts that occur from hunting. Thus, it is likely that the proposed 72-acre Class 2 dog training ground will be similar to the impacts at other dog training sites around the state.

Dog trialing events cover larger areas and thus have the potential to affect more lands. However, these events are shorter in duration (e.g., a weekend) and more spread out (e.g., throughout the Magazine Area). Any impacts to biological resources from dog trials are likely to be minimal, localized, and of short duration.

OTHER RECREATION ACTIVITIES

Some other recreation activities may also have impacts on terrestrial resources, although these impacts are expected to be limited, local, and temporary.

Hunters may disturb non-target species during the hunting seasons both due to their movements through areas as well as from the sounds of discharging firearms. The planned release of pheasants for hunting on SPSRA may disturb some grassland species, however impacts to grassland songbirds are likely to be minimal since most would have migrated south by mid-October.

Trappers may disturb wildlife in the act of setting and monitoring traps and may inadvertently spread invasive species. Picnickers may disturb wildlife in the immediate vicinity of day use areas. Since they predominantly walk off-trail, people gathering berries, mushrooms, and other edible plants may disturb terrestrial resources and spread invasive species. Anglers and wildlife watchers may also have minor impacts on terrestrial resources.

Although participants in all of these activities may have adverse impacts on various types of terrestrial resources, these impacts are expected to be minor and temporary.

Other sources of potential impacts

[46] See http://dnr.wi.gov/topic/hunt/documents/dogtrain/dogtrainingcounty.pdf.

WIARNG helicopter flights generate substantial noise and wind, both of which vary based on the height and speed of the aircraft. Studies in other states have shown that: (1) daytime helicopter overflights can have negative impact on geese; (2) red-tailed hawks demonstrate the ability to become habituated to helicopter overflights; and (3) nesting bald eagles can be disturbed by helicopters. In all cases, helicopters produced more sound than fixed-wing aircraft.

Helicopter training exercises have been conducted for decades at SPSRA. Although helicopters are flown over different parts of the property, pilots often follow a standard flight path for at least part of their training exercises. The department evaluated bird census data collected during several breeding seasons to assess potential impacts from these flights, which typically occur multiple times a week throughout the year. The distribution and abundance of grassland and shrubland birds, which are likely among the species most sensitive to impacts from helicopters, does not appear to be correlated with the standard flight path over the property. That is, no discernible pattern is seen in the distribution or abundance of grassland and shrubland birds related to the helicopter flight pattern used at the former BAAP. Rather, the distribution of birds appears to be much more a function of habitat conditions. Impacts from the helicopter training on bird distribution and abundance appear to be secondary to the effects of habitat abundance and quality. There is a lack of information about other potential impacts including reproduction, physiological stresses, and behavior patterns.

As stated earlier, it is likely that WIARNG helicopter training at SPSRA will be required to be phased out.

b. Aquatic and wetland habitats and species

Only a small amount of open water and wetland occurs on SPSRA and less than 10 acres of scattered wetlands are proposed to be restored. Despite this limited acreage, these wetlands may be very important for amphibians, which may concentrate in them during breeding seasons. Along with terrestrial habitat improvements, these small wetlands could lead to increases in local amphibian populations. As such, a small but positive impact to these habitats is expected from implementation of the plan. In addition, restoration of the streams flowing off the South Bluff is expected to improve conditions for aquatic invertebrates and several non-game fish in these systems.

The proposed master plan calls for the eventual removal of the concrete reservoirs and the reuse of the site as a designated day use area with an overlook, shelter, small amphitheater, and parking. The removal of the structures will result in the loss of any remaining neotenic salamanders and other aquatic animals in the reservoirs. The department is contacting various institutions to house as many salamanders as possible for research or display purposes, but it is likely that hundreds if not a thousand neotenic salamanders may remain in one or both of the reservoirs when they are eventually razed. This loss would not affect the local population of wild salamanders. However, this loss would eliminate this source of neotenic salamanders for scientific research, would prevent visitors from potentially seeing the salamanders and learning about different aspects of their unusual life history, and would bring to an end this occurrence of a unique and interesting biological event.

The department's efforts to relocate as many of the salamanders as possible and to better understand how best to translocate individuals without inducing metamorphosis will marginally mitigate the loss of the population at the reservoirs. However, whether the reservoirs fail on their own or the department eventually razes them, the population at this facility will be lost and as a result future research opportunities will be reduced and visitor experiences will be diminished.

Because no trails or facilities are proposed to be located in any wetland areas, recreational use of the property is expected to result in only minor, if any, adverse impacts to aquatic or wetland species or their habitats.

3. POTENTIAL IMPACTS TO CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

None of the proposed developments or actions in the master plan are expected to adversely impact known occurrences of cultural, historical, and archaeological resources on SPSRA. In the course of implementing this master plan, some actions will require the disturbance to soil. Prior to any surface disturbance, the department will review the most up-to-date information on the known locations of cultural, historical, and archaeological resources and take measures to avoid impacts to them. Thus, impacts to occurrences of cultural, historical, and archaeological resources from the development of facilities at SPSRA are expected to be minimal.

The proposed master plan seeks to protect, restore, and manage the many cultural, historic, and archaeological resources at SPSRA. The department intends to integrate some of these resources into visitor experiences and to educate the public regarding their significance and value. A potential outcome is that the public will have a greater understanding and appreciation of the cultural, historical, and archaeological resources of the property as well as southern Wisconsin. Another potential outcome is that some resources may be vandalized or inadvertently damaged by the public.

Discoveries of new archaeological or historical sites in the course of implementing the plan would be reported to the State Historical Society. If any sites of archaeological or historical significance could be affected by development or management activities, the department would comply with applicable state law (Sec. 44.40, Wis. Stats.) or federal law (Section 106 of the National Historic Preservation Act) by submitting specific site information and any relevant management plans to the State Historical Society.

The department anticipates that the overall impact to cultural, historic, and archaeological resources at SPSRA from the proposed actions in the master plan will be positive.

4. POTENTIAL IMPACTS TO FARMLAND AND FARMING

If the proposed master plan is fully or partially implemented, it is anticipated that the approximately 150 acres on SPSRA that are currently farmed in row crops by the DFRC will be converted over time to native habitats (primarily grasslands and oak openings). As a consequence, DFRC may seek to replace this acreage by renting additional farmlands from nearby landowners, by cropping some of their lands in the BAAP that are currently uncultivated, or some other approach. The conversion of cropland at SPSRA to native habitats is expected to have a minimal impact on farming and farmland in the area.

The master plan also calls for incorporating grazing on lands as a means to restore and manage habitats. The department would contract with local farmers or DFRC for this grazing. This is likely to result in increased opportunities for local goat or cattle graziers. In addition, the master plan authorizes the conversion of degraded lands to crop use for several years as part of the process to restore habitats. This conversion of lands to crop use, typically for five to ten years, is expected to have a minimal but positive impact on farming in the area.

The inclusion of research on grazing systems and conservation farming as habitat management techniques (particularly their use to reduce invasive shrubs) may substantially benefit not only the habitats at SPSRA but also other lands affected by invasive plants in other parts of the state as knowledge gained here is applied elsewhere.

5. POTENTIAL IMPACTS TO RECREATIONAL PARTICIPATION

If the proposed master plan is fully or partially implemented, there would be an increase in opportunities for the public to engage in outdoor recreation activities. Popular activities at SPSRA are likely to be bird watching, biking, horseback riding, hunting, and learning about the history and cultural and ecological features of the property. Although there are places in the general area that provide biking and horseback riding opportunities, it is possible that SPSRA will be a popular destination for these outdoor activities.

The development and operation of SPSRA is expected to increase participation in outdoor recreation by local residents, either through an increase in the number of people participating or an increase in the frequency of their participation. Although SPSRA will draw visitors from elsewhere in the state and Midwest, it is not expected to result in an increase in the rates of participation in outdoor recreation in these broader populations. Instead, the property is likely to draw visitors that mostly would have visited other properties.

The proposed re-purposing of the biking and equestrian trails for dual-sport motorcycle use will result in a broader range of visitors to the property and may result in a minimal overall increase in total visitor-days. However, it will displace other visitors from using these trails during the proposed six days. In addition, this motorized use may affect other visitors' use and enjoyment of other portions of SPSRA that remain open. The department believes the planned motorized use is unlikely to substantially impact other visitors' overall use of and satisfaction with SPSRA and thus is unlikely to affect overall visitation patterns.

6. POTENTIAL IMPACTS TO SOCIAL AND HEALTH CONDITIONS

There is considerable research indicating that participation in outdoor recreation can lead to improved health outcomes. If the development and operation of SPSRA increases participation in outdoor recreation, people engaged in these activities are expected to realize improvements in their overall health.

The prescribed fires conducted at SPSRA will be conducted so that the smoke will stay over the property before it dissipates rather than travel over nearby residences. Smoke may affect people visiting SPSRA or DLSP, however these events would be of limited duration and scope and thus any impacts (e.g., visibility, inhalation) are expected to be minimal.

Exposure to sounds can have health consequences. During the days that dual-sport motorcycles and rocketry are permitted on SPSRA, there will be an increase in the sound level in portions of the property. These uses may adversely affect other visitors' use and enjoyment of portions of SPSRA. The noise may also affect neighboring landowners. However given the distance that most neighbors are from SPSRA, and that on average 11,000 cars and trucks a day travel the adjacent stretch of USH 12, this impact is expected to be minor.

As noted in the grazing section on page 50, soil contamination issues and the potential for bioaccumulation of toxins in animals on SPSRA have been evaluated by the Wisconsin Department of Health Services (DHS). The DHS report concluded that regular consumption of wild game from SPSRA would not pose a human health risk. The report, incorporating conservative risk estimates, also indicated that:

- Regular consumption of agricultural grazing animals with a high percent fat content (e.g., cattle and sheep) from SPSRA may pose a human health risk to both children and adults.
- Regular consumption of agricultural grazers with a lower percent fat content (e.g., bison and goat) from SPSRA is unlikely to pose a human health risk to either children or adults.

The report noted that the elevated risks calculated for cattle and sheep are likely improbable given the difference between the assumptions and actual conditions on the property and people's eating habits. As a further precautionary measure, the department proposes to require that cattle (or other grazing animals with similar fat content) spend no more than two months a year in the Settling Ponds area (MA5). In addition, the department will provide educational information to graziers on the soil contaminants of concern present at SPSRA and their potential for bioaccumulation in animals that graze on the land. Eating edible plants (including fruits) and mushrooms from SPSRA does not present a human health risk.

The level of contaminants remaining in the soil is below the established clean-up standards for visitors or staff that works continually at the property (which assumes incidental ingestion of soil, inhalation of particulates emitted from soil, and dermal exposure).

7. POTENTIAL IMPACTS TO VISITORS FROM USES OF THE PROPERTY

As was described in the 2005-2010 Statewide Comprehensive Outdoor Recreation Plan, people pursuing recreation activities can sometimes conflict with others engaged in the same activity as well as people engaged in other activities. For example, hunters pursuing the same game in the same place can conflict with each other. Similarly, horseback riders can conflict with, and be adversely impacted by, bikers using the same trail.

People participating in different recreation activities can also have asymmetric impacts on each other. Asymmetric impacts occur when one activity disrupts another activity more than it is disrupted by that activity. An example of an asymmetric impact is the interaction between anglers and water-skiers using the same part of a lake; the water-skier may be affected to a small degree by the angler, but the angler may be substantially impacted by the water-skier. Generally, asymmetric impacts generate the most controversy.

A variety of recreational activities and uses are proposed at SPSRA. Based on its experience managing properties throughout the state, the department anticipates that participants in some activities may impact or detract from the experiences of participants in other activities.

The following summary of potential impacts to visitors from uses of the property is arranged by use:

a. Dual-sport motorcycles

Up to half the existing biking and equestrian trails may be repurposed for use by dual-sport motorcycles up to six days of the year. These trails will be closed to other uses and as a result some visitors may be inconvenienced and have their experience diminished because of a reduced opportunity.

The days when dual-sport motorcycles are permitted on the property will be louder along the trail corridors that are repurposed for their use than other days and this is likely to diminish some visitors' experiences, either directly or indirectly. For example, some visitors may find the sound generated by up to 100 motorcycles over the course of a day to be bothersome and to reduce the quality of their visit. Some visitors may be displaced to other portions of the property or to other properties as a result of the motorcycle use. Other visitors may be only marginally affected, while others may be interested in watching and, thus, their experience may be improved by the presence of motorcycles.

Because dual-sport motorcycles are legal to ride on any street, road, or highway, their owners can ride them on the public roads at SPSRA any time the property is open. Of course, some people currently drive vehicles (e.g., other types of motorcycles, cars, trucks, etc.) on roads that generate sound louder than the allowable level for dual-sport motorcycles (96 decibels). Thus, the level of impact for many visitors may be similar to the routine vehicle traffic on the open roads in the property.

Visitors may be indirectly impacted if, for example, they intend to watch wildlife (birds) near the trail corridors that are repurposed but are not successful because the sounds from motorcycles displace wildlife (birds).

Although these direct and indirect impacts may be substantial from some visitor's perspective and may reduce the quality of their visit on the six days that dual-sport motorcycles are allowed on some of the biking and equestrian trails, these potential impacts are not expected to substantially affect the overall recreational value of the property.

b. Rocketry

The launching of model rockets generates a noise similar to releasing an air compressor hose that is under pressure. The sound emitted lasts less than two seconds. Visitors that are near the rocketry site during one of

the 10 days/year that rocket launches will be permitted will see and hear rockets being launched. Visitors 200 yards away would hear a sound comparable to a vacuum cleaner or garbage disposal for up to two seconds. During the ten days per year when model rockets are being launched, the noise from this activity may disturb some people and reduce the quality of their visit. Other visitors may be interested in watching and, thus, their experience may be improved by the presence of rocketry.

Visitors may also be indirectly impacted if, for example, they intend to watch wildlife (birds) near the rocketry site but are not successful because the sounds displace wildlife (birds). However, the sound emitted from the rocket launches would not be audible from the vast majority of the property and thus wildlife watchers would have ample opportunities away from the launch site to enjoy wildlife.

The sound generated by launching rockets may conflict with some horseback riders whose animals may be startled. These horseback riders may be displaced to a different part of the property or to a different property.

c. Special events

The periodic use of the property by groups for different types of special events may affect some visitors and their enjoyment of SPSRA. Impacts that participants in special events may have on other visitors could be direct or indirect and could include noise, commotion, crowding, or other issues. For example, a running or biking race event might close portions of roads and could generate sounds and commotion not typically on the property. In some limited instances, the Magazine Area may be temporarily closed to accommodate a special event (e.g., a dog trial) and this could bother some visitors.

A number of restrictions for hosting special events are described on page 32. If these restrictions and conditions cannot be satisfactorily met, the department will not permit the event. Similarly, if the event is beyond the capacity of the property it will not be permitted. The department regularly turns down requests at properties throughout the state for special events that would have unacceptable impacts. As is the case at other properties, the department believes that any impacts from special events to other visitors to SPSRA will be temporary and modest.

d. Dog training and trialing

Over 50 dog training grounds have been established on department properties throughout the state. Some are closed during the spring nesting season (April 15 to July 31) while others are open during this period. When pheasant hunting season begins in mid-October, trainers typically shift to hunting and visitor use of training grounds transitions to hunting.

Training activities at these grounds typically consist of owners working with their dogs on locating or tracking game and retrieval practice. People with dog training licenses may release captive-raised animals (e.g., partridges, pheasants and ducks) on training grounds, shoot them, and have their dog practice finding and retrieving the animals. Generally, the use level at any given time at training grounds is low since people prefer to train their dogs with few distractions. If there are more than a couple of people using a training ground, others that arrive will typically find a different place or return at a different time rather than attempt to train in a crowded situation.

With their light levels of use and low level of impact, dog training grounds typically have minimal impacts on other users at department properties or neighbors. The department is not aware of any pattern of problems or complaints related to the use of dog training grounds on its properties. Any impacts associated with the dog training ground at SPSRA are expected to be minor and temporary.

Dog trialing events can typically involve dozens of dogs, their owners and trainers, along with judges, marshals and spectators. There can be high levels of activity associated with dog trials. Because the dog trials will be held within the Magazine Area, this use should not conflict with visitors in other parts of SPSRA. Since the Magazine Area can be closed to other visitors during trialing events to minimize conflicts, some visitors may be temporarily displaced from this portion of the property. However, this is not expected to be a large inconvenience.

The department will work with DFRC to ensure that their operations are minimally affected by dog trials in the Magazine Area.

e. Snowmobiles

A snowmobile trail is proposed to be located along the eastern border of the property (on department and DFRC lands). An existing snowmobile trail is near this alignment and the department is not aware of any complaints related to the use of this trail. Although there will likely be modestly more visitors at SPSRA in the winter in the coming years, any impacts from the proposed trail to other visitors are expected to be minor.

f. Hunting

The SPSRA property will be open at the beginning of the pheasant season (mid-October) through the third week-long spring turkey hunting period, which typically ends in early May. During this time, hunters may pursue all legal species with all legal methods.

Hunting occurs at many places within Devil's Lake State Park from mid-November through the third turkey hunting period. Most hunting occurs in areas away from the more heavily-used sections of the park and in forested habitats, which help to reduce conflicts with non-hunters. The department's experience at DLSP and other properties is that there are few conflicts between hunters and non-hunters during this period.

The time period with the potential for the most conflicts between hunters and non-hunters at SPSRA may be mid-October to mid-November when the weather is nice enough to draw hikers, bikers, horseback riders, and others to the property. Given the grasslands and savannas the department seeks to restore, hunters will be more visible in these habitats than in the forests at DLSP. As a result, the presence of hunters on the property may detract from some non-hunters' experiences at SPSRA and may cause some people not to visit the property during the open hunting seasons.

g. National Guard training exercises

The Wisconsin Army National Guard current use of the area next to main landfill (within the fenced area that is closed to the public) and the air space over the property has only modest effects on visitors to SPSRA. The department anticipates that, like its other properties, the majority of visitation at SPSRA will occur on the weekends. The WIARNG's current use of the area occurs Monday through Friday when fewer visitors are expected. Further, a focus of training is developing night vision flying skills and as a result a fair amount of the training flights occur in the evening or at night when far fewer visitors are expected.

Some visitors may be bothered by seeing helicopters flying around the property and landing at the main landfill site. They may view the helicopters as frightening and out-of-place at a state recreation area. Other visitors may enjoy seeing the helicopters, recognize the need for high-quality and cost-effective training for WIARNG members, and be thankful for the soldiers' contributions to both national security and local assistance in emergency situations. For these visitors, their experience at the property may be enhanced by seeing the helicopters.

The WIARNG conducts training exercises at other department properties including the Kettle Moraine State Forest in the southeastern part of the state and Black River State Forest in the central part of the state. Both of these properties receive extensive public recreational use. The department is not aware of any pattern of problems or issues related to WIARNG use at these properties. As stated earlier, it is likely that WIARNG training activities at SPSRA will be phased out over the next several years due to requirements of the Federal Lands to Parks program.

8. POTENTIAL IMPACTS TO SURROUNDING BAAP LANDOWNERS AND NEARBY RESIDENCES FROM USES OF THE PROPERTY

a. Habitat restoration and management actions

The habitat restoration and management actions on SPSRA are not expected to result in noticeable impacts on surrounding lands. Many of the management techniques proposed to be used at SPSRA are similar to the management of surrounding lands (e.g., timber harvests, herbicide use, prescribed fire, and brush cutting). Staff and contractor use of equipment in managing habitats (e.g., chainsaws, tractors, brush cutters, and mowers) is expected to generate sounds similar to those generated by equipment used to manage and operate farmland and forests in the surrounding landscape.

Although prescribed burns are designed to keep smoke over the property until it dissipates, it is possible that some smoke may drift over HCN and DFRC lands. Neither HCN nor DFRC have expressed a concern about this prospect. It is possible that smoke may also drift over nearby residences; however, any impacts are expected to be minimal and temporary.

b. Recreational use of trails and other facilities

The recreational use of SPSRA may result in the following types of impacts to surrounding lands:

Trespass

Although the SPSRA has been open to the public only a short time, there have already been a number of trespass issues onto HCN and DFRC lands. In most cases this appears to be the result of visitors not understanding where they are on the property or that the department's lands are the only parts of the former BAAP that are open to the public. The department has placed many boundary signs and placed maps at the entrance. Trespass on to lands outside of the former BAAP has been less of an issue because there is a boundary fence or perimeter road surrounding most of the original BAAP.

Rocketry

DFRC expressed concern about people retrieving rockets that fall onto their property and inadvertently damaging crops or research projects. The proposed location for the rocket launch site should help resolve this concern and the department will include appropriate language in the special event permit to ensure any impacts are minimized.

DFRC also expressed concern that the proposed launch site might be close enough to their silage bag storage site to present a danger if a rocket inadvertently landed on and punctured a bag. The silage bag storage site is 3,000 feet to the southwest of the proposed launch site.

The distance that a rocket can drift from the launch site is a function of the rocket's maximum height, its descent speed, and the wind speed. As noted in Chapter II, no launches will be allowed if the wind speed exceeds 20 mph and launch heights for model rockets are capped at 2,000 feet. Rockets typically descend at 20

feet/second (with parachute). Thus, the likely maximum drift distance is approximately 2,930 feet from the launch site. This calculation is determined as follows:

Descent time: 2000 feet divided by 20 feet/second = 100 seconds

Maximum drift speed: 20 mph = 29.3 feet/second

Maximum drift distance: drift speed * time = 29.3 feet/second * 100 seconds = 2930 feet

This maximum height limit (2,000 feet) is considerably higher than most model rockets reach. As a practical matter, most model rockets don't exceed 1,200 feet in height. The average wind speed at the Baraboo/Dells airport is 6.7 mph (10 feet/second) with the prevailing (and strongest) winds coming from the west and south. As a result, the vast majority of model rockets are expected to land within 500 feet of the launch site within the Central Grassland unit.

In some cases (estimated to be about 5% to 7% of launches), rockets do not properly separate or the parachute does not fully open. When this occurs, the rocket falls to the ground quickly, typically within 300 feet of the launch site. In a worst case scenario where the rocket is launched at a 30 degree angle, reaches an altitude of 2,000 feet and the parachute fails to deploy, the maximum distance that it could travel from the launch site is approximately 2,500 feet.

Sounds

Sounds will be generated by people hunting with shotguns, handguns, and rifles. Similar sounds may also be generated by firearms used in dog training exercises in the Class 2 training ground in the Magazine Area. These sounds would be similar to the sounds generated on adjacent lands by people engaged in hunting or shooting.

Sounds will also be generated by up to 100 dual-sport motorcycles during the six days they will be permitted on SPSRA. However, this use is not expected to have a substantive impact on surrounding properties because motor vehicles (including dual-sport motorcycles) drive on roads within the SPSRA and throughout the surrounding landscape. The two roads that border the east and west sides of SPSRA (STH 78 and USH 12) carry approximately 2,300 and 11,000 vehicles each day, respectively.[47]

Sounds will also be generated by the launching of model rockets during the ten days they will be permitted on SPSRA. However, these sounds are unlikely to be audible from nearby properties. The closest residences are about 9,000 feet from the proposed launch site. Model rockets typically generate up to 100 decibels of sound at 30 feet; at 9,000 feet away the sound would be approximately 50 decibels[48] which is equivalent to the sound generated by moderate rainfall or conversational speech inside a house.[49]

The rocket launching site is located approximately 3,000 feet from the nearest border of HCN land and 7,000 feet from where DFRC conducts its grazing research. At these distances, the sounds from launching model rockets would be about 60 decibels (about the same as normal conversational speech) and 55 decibels, respectively.

Sounds will also be generated by snowmobiles using the proposed trail at SPSRA during the winter. The sound level is expected to be similar to the sounds generated by snowmobiles using the current alignment (which is

[47] See https://trust.dot.state.wi.us/roadrunner/.

[48] See http://hyperphysics.phy-astr.gsu.edu/hbase/acoustic/isprob2.html.

[49] See http://www.industrialnoisecontrol.com/comparative-noise-examples.htm and http://www.chsl.org/soundchart.php.

the same or adjacent to the proposed alignment) as well as elsewhere on the network of trails in Sauk County around the SPSRA property.

Traffic

The development of recreation facilities is expected to lead to incremental increases in visitation to the property over the next 15 years. The department projects that approximately 75,000 people may annually visit SPSRA by 2030. Although this is a small fraction of the number of visitors to Devil's Lake State Park, the SPSRA property is likely to result in a minor increase in traffic on local roads. This increase may be most noticeable on roads that currently do not receive much traffic, such as Weigand's Bay Road North.

Dogs

This plan proposes to allow dogs to be off-leash from August 1 to April 14 in a portion of the Magazine Area (sub-units MA2, MA4, and MA5). Dogs are allowed off-leash during this same time period on most other department properties (except State Parks and State Natural Areas, where dogs are generally required to be on-leash all the time). Although dogs (and people) occasionally wander off of department properties, the department is not aware of major problems related to dogs wandering off of wildlife areas, fishery areas, state forests, and other similar types of properties in Sauk County or in other parts of the state. As such, the department expects any impacts from off-leash dog use of a portion of the Magazine Area to be minimal.

Special events

Although the nature and scope of all the types of special events that may be permitted are not known, it is likely that some special events may impact DFRC, HCN, and surrounding landowners. Increased traffic, sound, commotion, dust, and other associated outcomes may have a deleterious effect on lands surrounding SPSRA. The staging area for special events, in the northwest corner of the Magazine Area, is near DFRC cropland. Some participants in special events may accidentally or purposefully trespass onto adjacent DFRC lands. It is possible that some special events could interfere with DFRC's use of department roads that traverse the Magazine Area.

The property manager will work with groups that are permitted to host special events to minimize impacts from the events on surrounding landowners. This may include limiting numbers of participants, timing of events, locations, parking, and other factors. If a proposed event would create unacceptable impacts to surrounding landowners or their operations, then they will not be permitted.

c. Facility management

The construction, deconstruction, and operation of facilities at SPSRA may result in impacts to nearby residences similar to housing, road, and other types of development projects that occur in the surrounding landscape. Although different types of construction and deconstruction projects are proposed at SPSRA (e.g., parking lots, picnic shelters and vault toilets at day use areas, a visitor center, the conversion of the former pump house on Lake Wisconsin to a fishing platform and picnic area, the removal of the reservoirs and conversion to a day use area) these developments are relatively modest in scope. This work is expected to result in impacts that could include increased noise and traffic on local roads from workers and materials being transported to and from the property. However, these impacts are expected to be minor and temporary.

d. Other activities

Wisconsin Army National Guard flight training exercises over SPSRA will generate sounds that may be heard at surrounding residences. The WIARNG has been conducting these exercises for decades at BAAP and the department is aware of only limited concerns from neighboring landowners related to this use. The

department does not expect that continued training exercises conducted within SPSRA will result in any substantive impacts to surrounding residences.

9. POTENTIAL IMPACTS TO THE LOCAL AND STATE ECONOMY

a. Financial costs of implementation

Estimating the costs of the proposed facilities and anticipated habitat management and restoration at SPSRA is difficult for several reasons. From the perspective of the proposed facilities, actual department costs will be affected by the amount of assistance received from partners, a potential friends group, volunteers, and donations from local businesses. In addition, the Wisconsin Army National Guard has expressed interest in potentially using the construction and deconstruction needs at SPSRA as part of their training exercises. From a habitat perspective, actual costs will vary based on the responses to previous treatments (particularly grazing), changing costs of materials, ability to offset management costs through the sale of timber or biomass, assistance received from volunteers, and other factors.

SPSRA is projected to attract tens of thousands of visitors a year. Of course, the number of people that actually visit the property and the economic impacts they have are yet to be seen. These visitors may encourage the development of new businesses or may lead some existing businesses to expand. In addition, SPSRA may result in a minor increase in additional housing demand in the area. Together, these changes may require local governments to fund small improvements or expansions to roads, schools, water and sewer services and other types of infrastructure.

What follows is a discussion of potential financial outcomes related to the management and use of SPSRA.

Estimated costs of removing or remediating existing structures and facilities

Based on industry standard costs associated with construction and demolition, the department developed the following general estimates of addressing the existing structures:

- Removing roads. There are approximately 50 miles of roads that could be removed and the ground restored. This material may have value to area contractors and the department expects that some or all of this material could be traded to local construction businesses for the cost of removing the material.
- Cracking, draining, and filling the reservoirs with sand/gravel. In 2013, the department estimated this work would cost approximately $2.3 million, including the repair work that would be needed on the road leading up the reservoirs following the trucking of approximately 70,000 yds^3 of fill material to the site.
- Converting the remaining structure at the former pump house to a fishing platform or pier. Contaminants at the site have already been addressed. In 2007, the department estimated that addressing the underwater portion, removing the upper structures and developing an ADA compliant fishing platform or pier would cost approximately $606,000. The cost of this work is expected to have increased slightly since the 2007 estimate due to inflation.
- Addressing the administrative building (Building 207). The estimated cost to upgrade the utilities, convert the entrance and bathrooms to ADA standards and address operational problems is $100,000.

The total cost to address existing structures and facilities is just over three million dollars.

Estimated costs of establishing the proposed facilities

The summary presented here includes some of the estimated construction costs. Some additional costs are not included (such as fencing, installation of water pipes) are not included here because the amount or type are not currently known. More details of estimated costs of the proposed facilities are described in Appendix 3. As with any property, there are often unanticipated costs that arise over time.

The estimated costs of establishing proposed facilities are as follows:

Trails	$1,359,500
Roads and parking lots	$1,669,000
Visitor Center	$575,000
Entrance and interpretive signs	$23,500
Open-sided shelters	$165,000
Viewing deck (Bluff Vista)	$45,000
Amphitheaters (Visitor Center, Bluff Vista)	$150,000
Vault toilets	$325,000
Other facilities (corral, picnic tables, grills, gates)	$75,000
TOTAL	$4,387,000

Estimated costs of operating the existing and proposed facilities

The department's operating expenses will be directly driven by the number of visitors and the degree to which the property requires ongoing oversight. Initially, the department intends to hire limited seasonal staff, based out of Devil's Lake State Park, to provide visitor management services and property management at SPSRA. In addition, full time staff stationed at Devil's Lake State Park will also be assigned to property management at SPSRA when needed. The estimated staffing cost is approximately $20,000/year.

As facilities and trails are built in years to come, more visitors are expected. In turn, the expected operating costs and staff time will increase to approximately $100,000/year. This would include a full time property manager and part time law enforcement and maintenance staff.

Estimated costs of restoring and managing habitats

The anticipated costs for habitat management are difficult to determine due to the range of potential management techniques that may be used as well as the increasingly large challenge posed by invasive shrubs. In addition, many portions of the property need to be intensively restored in order to re-create native habitats. In some areas, the costs associated with this type of intensive restoration are likely to be driven by the degree to which conventional row cropping in a corn-soybean rotation can be used prior to planting of native seeds.

The department has extensive experience managing habitats using many of the techniques proposed here (e.g., prescribed fire, brushing, cutting) and less experience in other techniques (e.g., rotational grazing). The following rough estimates of costs were developed applying some of the unique conditions at SPSRA with staff experiences at other properties. Factors considered included the large number of former roads that can be used (at least temporarily) as fire breaks and access routes, the lack of vegetation that can support a self-sustaining fire in some areas, the density of shrubs in some areas, and existing soil conditions.

Estimates are provided for the three major habitat types that are planned for SPSRA: grasslands, oak openings, and oak woodlands.

Estimated annual management costs:

- Native grassland = $40/acre, treatments about every 4 or 5 years
- Surrogate/degraded grasslands = $75/acre, treatments about every other year
- Native oak opening = $80/acre, treatments about every 4 or 5 years
- Surrogate/degraded oak opening = $80/acre, treatments about every 4 or 5 years
- Native oak woodlands = $80/acre, treatments about every 4 or 5 years
- Surrogate/degraded oak opening = $80/acre, treatments about every 4 or 5 years

Estimated costs to convert surrogate or degraded habitats to native condition:

- Conversion to native grassland = $1,000/acre
- Conversion to native oak opening = $700/acre
- Conversion to oak woodland = $500/acre

Estimated acres to convert from surrogate or degraded habitats to native condition:

- Grasslands – 664 acres over 15 years
- Oak openings – 85 acres over 15 years
- Oak woodlands – 80 acres over 15 years

Combining these scenarios and factoring in costs for the management and restoration of minor habitats (e.g., wetlands and streams), the department estimates that direct habitat management costs will be in the range of $75,000 to $125,000 annually over the next 15 years for a total cost of approximately $1.5 million.

b. Financial benefits of implementation

Estimated direct spending by visitors

If implemented, it is expected that SPSRA would help diversify the local economy and provide financial benefits on several fronts. One of the most obvious ways would be the direct spending by visitors engaged in different outdoor recreation activities. Research has shown that most people engaged in outdoor trips spend between $10 to $40 per person per day on travel-related items, regardless of whether they are biking, hunting, bird watching, hiking, or participating in other nature-based activities.[50] People who engage in overnight trips, horseback riding, and motorized activities typically spend more than this amount (often double or more). The $10 to $40/person/day figure includes trip-related expenses (primarily food purchased both in restaurants and grocery stores, gasoline, and other items including bait, ammunition, fees, and a variety of supplies). It does not include equipment purchases (e.g., bikes, guns, cross county skis, saddles, etc.), which are typically considerably more.

Another type of spending is shopping that occurs at local stores on items not directly related to the participation in outdoor recreation activities. That is, someone might visit an area to go bird watching or biking and stop at an antique store and buy a lamp. The person didn't buy the lamp because of the trip, but the purchase took place in the local area (as opposed to in a different area) because the trip was taken. It is unknown how much of this type of spending the establishment of SPSRA would create or the resulting sales tax revenue it would generate.

For purposes of demonstrating what the economic benefit to local communities might be if this master plan is implemented, this assessment uses the estimates of yearly visitors and assumes one-quarter would be residents from the local area that spend on average $5/visit and three-quarters would be from further away and spend on average $25/visit. Using these conservative assumptions, it is estimated that visitation to SPSRA could generate in the range of $7.5 to nearly $13 million in direct travel-related spending over the next 15 years.

In addition to the jobs this direct spending could help support (and the associated income taxes), these travel-related expenditures would also result in approximately $380,000 to $645,000 and $38,000 to $64,500 in state and county sales tax revenue, respectively, over the next 15 years.

This visitation and spending would, in turn, generate indirect spending by businesses providing supplies and services to the direct retailers. In addition, the wages and salaries paid by the directly and indirectly involved retailers and industries circulate through the economy. The economic benefits that are beyond the direct effects are known as "multiplier" or "ripple" effects and add a sizeable additional benefit to local communities. These multiplier effects can be calculated using a modeling system developed at the University of Minnesota, but have not been calculated for SPSRA.

[50] See: (a) Southwick Associates. State-Level Economic Contributions of Active Outdoor Recreation – Technical Report on Methods and Findings. Prepared for the Outdoor Industry Foundation, 2007. (b) Bicycling Federation of Wisconsin and the WI Department of Transportation. The Economic Impact of Bicycling in Wisconsin, 2005. (c) International Association of Fish and Wildlife Agencies. The Economic Contributions of Hunting, 2001. Washington, D.C. (d) U.S. Fish and Wildlife Service. The 2001 National and State Economic Impacts of Wildlife Viewing. Arlington, VA.

Estimated direct spending by the department associated with developing and managing the property

Many of the supplies (fuel, herbicides, rakes, fence posts, etc.) that department staff use in the management and operation of state properties are purchased from local vendors. Similarly, construction and upkeep of some facilities will likely employ local firms that will also source materials locally. In addition, many of the staff that will be involved with management of SPSRA live in nearby communities and contribute to these local communities through their spending. The amount of this spending is expected to positively impact the local economy but the level is unknown.

Estimated changes in property values near SPSRA

Studies in other parts of the country have examined the changes in the selling prices of properties adjacent and near public conservation and recreation properties.[51] Generally, property values increase next to and near conservation and recreation properties.

It is unknown if this pattern will manifest itself here. There are many protected conservation lands in the immediate vicinity and the addition of SPSRA may not result in the increases seen at other new public properties. Further, the previous use of the property as a manufacturing plant followed by many years of being idled likely affected surrounding property values. Although it is unknown how the conversion of part of the former BAAP to recreation and conservation uses may affect the values of nearby properties over time, no negative impact is expected.

c. Property taxes

When the department acquires property, the land is exempted from property taxes. However, for lands acquired after 1992 the department makes annual payments-in-lieu-of-taxes (PILT) to all taxing jurisdictions (county, town, school district, etc.) in an amount equal to the property taxes that would have been paid had the land remained in private ownership. In 2014, the department made PILT payments on 2,224 acres at SPSRA (of the 3,385 acres the department will eventually acquire). For 2014, these payments totaled $36,223 to the Town of Sumpter and $16,478 to the Town of Merrimac. The towns distributed these payments to each of the taxing jurisdictions within their boundaries (e.g., school districts, county government) following their established mill rates. Under the current law, these payments will continue and will be adjusted each year to reflect the change in the value of land in the taxation district. In addition, under the current law the department will make PILT payments on the remaining lands when they are transferred to the state.

Over the next 15 years, if the property values in Sauk County, the Town of Sumpter, and the Town of Merrimac are constant, under the PILT program as it exists now, the department estimates it will make payments-in-lieu-of-taxes related to SPSRA totaling approximately $950,000.

[51] Examples include: (a) Crompton, John L. 2001. Impact of parks on property values: a review of empirical evidence. *Journal of Leisure Research* 33(1):1-31, (b) Nicolls, Sarah and J. Compton. 2005. Impacts of regional parks on property values in Texas. *Journal of Park and Recreation Administration* 23(2):87-108, (c) Kroeger, Tim. 2008. Open space property value premium analysis. National Council for Science and the Environment 2006 Wildlife Habitat Policy Research Program. Defenders of Wildlife, Washington, D.C.

10. POTENTIAL IMPACTS ON ENERGY CONSUMPTION

If the proposed master plan is fully or partially implemented, there may be an impact on energy consumption but the scale and direction is unknown.

Department staff will consume transportation fuel in conducting habitat monitoring and management as will staff patrolling the property. However, nearly all of the expected energy consumption associated with the development and operation of SPSRA will be tied to the transportation fuel consumed by visitors travelling to the property.

The department estimates that over the next 15 years, SPSRA will draw an average of approximately 25,000 to 45,000 visitors each year. Although these visitors may consume fuel driving to the property, a more relevant figure is the comparative impact on energy consumption. The net consumption will be a function of what visitors would have done had they not visited SPSRA. That is, if visitors to the property would have done something around their home rather than drive to SPSRA, then their energy consumption visiting the property will be more. On the other hand, if they would have traveled further from home than SPSRA to pursue other interests, then their net energy consumption would be less. Until the department has a clearer indication of the number of visitors and their travel patterns, it cannot accurately estimate the total net fuel use related to the property.

The proposed re-purposing of bike and equestrian trails for dual-sport motorcycles potentially could result in increased energy use. If dual-sport motorcycles get an average of 60 miles per gallon, riders travel 60 miles a day while at SPSRA, and the property hosts 100 riders for each of six days, this recreational use would result in the consumption of approximately 600 gallons of gasoline. As with general visitation, if motorcycle riders would have traveled further than SPSRA to participate in a riding event, then the property may result in less overall energy consumption. If, however, riders would have done something that didn't use energy instead of traveling to SPSRA and riding their motorcycles, then providing this recreational activity at SPSRA will result in increased overall energy consumption.

C. Issues related to the cumulative effects, risks, and precedent.

1. SIGNIFICANCE OF CUMULATIVE EFFECTS

In analyzing cumulative impacts, the department considered the effects related to: (1) the construction and use of recreational facilities (including trails), (2) the active management and restoration of habitats using a variety of techniques, (3) the use of parts of the property by the Wisconsin Army National Guard, and (4) the restoration or removal of remaining unneeded infrastructure.

In evaluating the cumulative nature of the proposed actions at SPSRA, the department also examined relevant past and present actions at SPSRA, as well as actions occurring and proposed on nearby lands (in particular the former BAAP lands).

a. Cumulative effects of impacts outside the boundary of SPSRA

The following issues beyond the boundary of SPSRA may contribute to the cumulative impacts on the environment related to the use and management of SPSRA:

Realignment and upgrading of USH 12.

The DOT is upgrading USH 12 from two to four lanes to the north of SPSRA (from Ski Hi Road to the northwest side of Baraboo). In addition, the curved section of USH 12 adjacent to DFRC land is scheduled to be realigned in the next couple of years. These improvements will improve safety and reduce the travel time on USH 12 and may result in additional traffic passing by SPSRA. Additional commuters may settle in the region as well due to these improvements.

The work on USH 12 may potentially increase the number of visitors to SPSRA (more than would have visited the property had the highway not been improved), especially visitors on their way to other locations that stop at SPSRA for an outing. With increased visitation, there may be additional, cumulative impacts related to energy consumption, air emissions, economic benefits from visitor spending, and other factors.

Current and proposed management of other BAAP lands.

HO-CHUNK NATION.

As stated in their management plan, the HCN lands at BAAP will be managed for the following goals:

- Protect the aesthetic, cultural, scenic and wild qualities as well as the native wildlife and plant communities. Special emphasis will be placed on designated federal and state-listed species, species of special concern, and other unique biotic features.
- Protect, conserve, and maintain all significant cultural sites.
- Provide for and manage the use and enjoyment by visitors and maintain a diversity of low-impact recreational opportunities for people of all abilities.
- Utilize sound natural resource and agriculture management practices to improve water quality, maintain soil productivity, and protect wildlife habitat.
- Develop a bison program to support HCN nutritional programs and provide educational opportunities.
- Strive to operate a self-supporting project through grants, donations, bequests, and fee-based recreation that is consistent with the overriding commitment to preserve Badger's natural, historical and cultural features.

- Ultimately, establish and maintain a visitor's center that includes information and exhibits on Badger's geologic and natural uniqueness, bison management, cultural significance and history of the ammunition plant. The center would also provide information and exhibits on the history of Native Americans and Euro-American habitation of the Sauk Prairie as well as an educational classroom.

DAIRY FORAGE RESEARCH CENTER

The active portion of the DFRC complex is comprised of 2,006 acres, which are planted in a rotation of crops including corn for grain and silage, alfalfa, soybeans, winter wheat, and red clover. Approximately 40 acres are used for small research plots and 235 acres are used for pasture. The remaining acres consist of buildings, roads, and woodlots. The current herd size consists of about 350 cows, and 350 calves and heifers.

To better enable the DFRC to conduct research designed to find solutions to problems associated with the economic and environmental sustainability of dairy farms, the DFRC is currently developing options for enhancing the research capacity of its farm. After reviewing several options, the Center is planning to build a new research complex near the former Conservation Club site that can house approximately 450 cows. An environmental assessment was completed for the proposed project in 2011 and concluded that a new complex would have fewer individual and reduced cumulative adverse environmental impacts than using the existing facility. Future construction of the proposed facility is dependent on the availability of funding.

BLUFFVIEW SANITARY DISTRICT

Approximately 163 acres along the southwestern portion of the BAAP is planned to be transferred to the Bluffview Sanitary District for their wastewater treatment facilities. In addition, a one-acre parcel near USH 12 houses a drinking water well.

TOWN OF SUMPTER

The Town of Sumpter plans to receive ownership of the parcels encompassing the two cemeteries (Pioneer - 2.6 acres, Thoelke – 1.0 acre). The Town intends to maintain these sites for public visitation.

Collectively, the restoration and management of native plant communities on these lands is expected to have an important and positive cumulative impact on both the habitats as well as the recreational values at SPSRA.

Current use and management of surrounding lands.

The SPSRA property sits within a landscape that is dominated by a combination of forest blocks and agricultural fields. Most of the crop land here is used to grow soybeans and corn along with some hay and alfalfa. The forests are typically managed for a variety of wood products including sawlogs, pole timber and firewood. Some of the forest blocks owned by conservation groups are managed for old growth characteristics. The management of lands around SPSRA has been generally consistent for many decades.

The populations of the cities of Baraboo and Sauk City/Prairie du Sac have increased over time and the developed footprints of these municipalities have grown steadily.

The public conservation and recreation lands in the surrounding area have been managed to provide a variety of natural settings and native habitats, mostly associated with mesic, older growth forests. These lands draw large numbers of visitors each year.

The future management of surrounding lands is expected to be consistent with past actions. The management and use of surrounding lands generally complements the proposed management and use goals of SPSRA. As such, the department anticipates the cumulative effect of management activities on surrounding lands will be beneficial to the goals of the SPSRA property.

b. Cumulative effects of impacts inside the boundary of SPSRA

The following issues related to the use and management within the boundary of SPSRA may contribute to the cumulative impacts on the environment:

Past uses and activities on the property

The site's past uses have had sizeable and adverse cumulative impacts on the environment over the last many decades. Some of the impacts include: degraded and contaminated soils, contaminated plumes of groundwater, polluted air, and loss of native species and biological richness. Starting with the Euro-American settlement and throughout the era of the munitions plant, the site's native biodiversity was markedly altered. Although some species were able to survive over the last 150 years and others became re-established more recently after the plant operations ceased, the overall suite of species present has been vastly diminished. Non-native and invasive species are now the dominant vegetation on the property.

The past cumulative degradation of environmental conditions at SPSRA presents extensive challenges to restoring high quality habitats for native plants and animals.

Future uses and activities

Proposed recreational use of the property

A diverse set of recreational opportunities are proposed at SPSRA. People participating in different activities at SPSRA may have cumulative impacts with regards to space and time. That is, people participating in various activities at the same place at the same time can have cumulative impacts both on wildlife in the area and on each other. For example, one activity may generate sounds and another activity may generate rapid movements that together may have a larger impact than either activity by itself. Similarly, people pursuing different activities may have an adverse cumulative impact on someone else. For example, a bird watcher may receive cumulative impacts from horseback riders and mountain bikers.

These types of impacts may also accrue if different recreational uses occur at a place over different time periods; or, at different places at the same time. Thus, by separating recreational uses over space or time (to minimize conflicts between people pursuing different recreational activities), the proposed plan may be increasing the cumulative impacts generated from recreational use of the property.

Over time, people visiting SPSRA and participating in recreation activities could have a cumulative adverse impact on natural resources. For example, the cumulative impact of thousands of visitors hiking, biking, and horseback riding each year over decades could lead to compaction of soils, erosion in steeper areas, and other unintended consequences. However, the department has developed and managed trail networks for decades without adverse impacts at properties that receive far more visitors than are anticipated at SPSRA. When issues such as erosion occur, the department takes necessary steps to resolve them. The same is true for the use and management of the full range of recreation facilities that the department manages that receive intensive use, including such amenities as camp sites, picnic areas, beaches, and corrals.

Some recreation activities proposed at SPSRA may have greater cumulative impacts than others. Concern has been raised by some members of the public that launching rockets ten days per year, riding dual-sport motorcycles six days per year, training dogs, riding snowmobiles during the winter, and the National Guard flying helicopters could have negative cumulative impacts on wildlife and visitors seeking quiet experiences. Although the department is not aware of any research related to evaluating the cumulative impacts of these types of recreational uses on grasslands and savanna ecosystems, it expects that these activities could impact habitat quality and use of the property by some sensitive species, particularly SGCN.

In addition, it is expected that some potential visitors will not come to SPSRA due to a desire not to have to interact or experience others engaged in activities they find objectionable.

However, there is value in placing these impacts into context. The site's use as an industrial plant and the subsequent deconstruction of the complex has left the property in a considerably degraded condition. In addition to the physical impacts that have occurred at the property over the last 75 years, the site is bordered by a highway that carries over 11,000 vehicles each day. Invasive plants are the dominant vegetation throughout the property, the natural soil profile has been extensively degraded in many places, the drainage pattern has been altered, and the SPSRA property contains seven landfills or capped areas. The plan's proposed restoration and management actions would maintain and expand protection of critical ecological habitats and associated species, including Species of Greatest Conservation Need. Over time, the proposed habitat management actions are expected to lead to important increases in the population of grassland- and savanna-dependent species on the property.

The cumulative improvements to habitat quality from the proposed management actions over time are expected to have greater positive impacts on the populations of these species at SPSRA than the cumulative adverse impacts that may result from use of the property.

For visitors who may be disturbed by various uses of the property, there are other nearby properties open to the public that do not accommodate many of these activities. The department owns or owns public access easements on over 30,000 acres of land in Sauk County, which is more than any other county in southern Wisconsin. In addition, The Nature Conservancy owns over 9,000 acres in Sauk County that are open to the public for low intensity uses.

From an economic perspective, the proposed management of SPSRA is likely to have a positive, if modest, long-term cumulative impact on the local tourism economy. Construction of the Great Sauk Trail (rail-trail) from Sauk City/Prairie du Sac to SPSRA and continuing on towards DLSP is expected to noticeably contribute to the popularity of SPSRA. If the Great Sauk Trail eventually is connected to the 400 State Trail in Reedsburg, this would likely lead to additional visitation in the general region and SPSRA.

The recreational facility developments proposed here would fill a demonstrated need for additional or improved recreational opportunities in southern Wisconsin. The recreational opportunities that would be created here are designed to complement each other and provide visitors with multiple experiences. In addition, there is the potential for different types of special events occurring on the property. Cumulatively, these opportunities may lead to increased recreational use of the property.

From a social perspective, the proposed recreational uses at SPSRA are expected to have a positive cumulative effect on people's appreciation of human and natural history and could improve the physical and mental health of visitors. These cumulative effects could be considerable over time.

FUTURE CLEAN-UP AND MONITORING

The groundwater under the property will be monitored for many years to come. Additional monitoring wells may be installed while other wells that are no longer needed may be capped. The cumulative impact of these wells is expected to be minimal.

If additional sediments from Gruber's Grove are dredged and buried in a contained system on SPSRA they may be placed on top off or next to the existing "geotube" site. This would have a cumulative impact to the site.

Although the department is not aware of any existing plans or requirements for additional environmental clean-up at SPSRA, such actions may occur in the future if contaminants are located or other issues emerge.

Because the nature and extent of future clean-up actions are unknown, their cumulative impacts, if any, are unknown. By definition, clean-up activities are designed to improve the environment and thus the department anticipates that these actions will result in overall benefits to the environment.

Habitat restoration and management

The restoration of habitats at SPSRA to conditions of naturally functioning ecological systems is expected to take decades. Over time, these management actions are expected to have an important and positive cumulative impact on native species. It is likely that the populations of native plants and animals will gradually increase at SPSRA and that birds, small mammals, herptiles, and invertebrates that once occurred at the site will become reestablished as habitat conditions improve. This is likely to lead to more ecologically complex and stable systems over time.

It is expected that the cumulative impact of habitat restoration and management actions will result in SPSRA becoming a "population source" rather than a "population sink" for many native species.

Facility deconstruction and construction, operation and management

As funding and staffing are available, over time a number of facilities to support recreational use of the property will be constructed. These include picnic areas, parking lots, vault toilets, a visitor center, amphitheaters, roads, and a variety of trail types. Much of the infrastructure that remains is proposed to be removed. Depending on timing, these construction and deconstruction activities may have cumulative impacts on wildlife and visitors. However, the department expects any adverse impacts associated with these activities to be minor in nature and, for the deconstruction work, improve overall environmental conditions at SPSRA over time.

Wisconsin Army National Guard use

The Wisconsin Army National Guard (WIARNG) has used the BAAP site for limited training exercises for decades. Currently, the WIARNG conducts a variety of helicopter exercises that are typically conducted during the week, often in the evenings or at night. Tactical flight training including low level flights (e.g., tree top), night vision flight training, landings, take-offs, and sling load operations practice at a designated site next to the main landfill. Helicopters typically enter and leave the property along specified ingress/egress flight routes. Training exercises are suspended during the gun deer hunting season and may be suspended at other periods of high visitor activity. The WIARNG avoids flights below 500' over people and livestock as reasonably possible.

The WIARNG training activities at SPSRA is likely to be phased out over the next several years. However, if this training use continues, it is expected to have minor cumulative environmental impacts at the property.

Although some uses and actions will have negative impacts, in sum, the cumulative outcomes from the proposed management and use of SPSRA are expected to generate a long-term, positive effect on the quality of different aspects of the human environment.

2. SIGNIFICANCE OF RISKS

The management and use of SPSRA pose a low overall potential for risk to the human environment. No new, high risk actions are proposed, nor are any actions which involve an irretrievable commitment of resources, or actions that could not be reversed in the future.

The proposed facilities are similar in nature to other trails and recreation facilities found elsewhere in Wisconsin. The proposed land management actions would be a continuation of existing approaches to habitat management used by the department throughout southern Wisconsin.

A proposed action which some people may consider a higher risk activity is the use of fire as a habitat management tool. The risks associated with prescribed burns would be mitigated by using experienced staff to conduct the burns, burning only under low risk conditions, having appropriate firebreaks pre-established, and having fire-fighting equipment and personnel present on site during burns. By reducing fuel loads over time, periodic prescribed burns also reduce the chances of a wildfire turning into a catastrophic, uncontrolled event.

3. SIGNIFICANCE OF PRECEDENTS

To be sure, SPSRA has a very distinctive past and portions of the proposed management plan reflect the unusual opportunities and challenges here. However, many aspects of the proposed master plan, for example providing a range of recreation experiences, managing grasslands and savannas, and working with partners, are common to other department properties.

The only new recreation opportunity proposed here that doesn't occur at another department property is the re-purposing of trails and roads for use by dual-sport motorcycles. The department will evaluate the popularity and outcomes of this use and assess the practicality of applying what is learned here to other properties. As such, the department believes this proposed recreational use has the potential to set a precedent for other public properties elsewhere in the state.

D. Degree and nature of controversy regarding the proposed master plan.

1. ISSUES OF PUBLIC CONCERN AND CONTROVERSY THAT WERE RAISED PRIOR TO THE RELEASE OF THE INITIAL DRAFT MASTER PLAN IN AUGUST 2015.

The following issues were raised as concerns or controversies by the public during the initial phases of developing the draft master plan:

a. Motorized recreation and a shooting range.

The first phase of the master planning process focused on developing a Regional & Property Analysis, which was released in 2012 and described the attributes and features of the property and the broader context within which it sits. Public comments on this document were extensive and covered a range of topics. As part of this public input, among many other comments, some people noted the demand for motorized recreation in the region and that the SPSRA property might be a good fit for a variety of different motorized vehicles. Demand for a shooting range was also expressed.

In the next step of the planning process in 2013, the development of a draft property vision, goals, and conceptual alternatives, the department included motorized uses and a shooting range as potential recreation opportunities in the Magazine Area in one of three alternatives. In the public comments subsequently received on these alternatives, the incorporation of motorized uses and a shooting range was seen by many commenters as a deviation from the department's original statements of its intent for the property (which had focused on managing the property to provide conservation outcomes and low-impact recreation), as well as the department's application to the NPS to acquire the land for park purposes (again, for conservation and low-impact recreation). Further, many remarked that motorized activities at SPSRA were inconsistent with the values and concepts agreed to by the Badger Reuse Committee, of which the department was a member (see below).

During the comment period for the draft vision, goals, and conceptual alternatives the potential inclusion of a shooting range and motorized uses at SPSRA generated more public comments than all other issues combined. A large majority of comments received were strongly opposed to the inclusion of either a shooting range or motorized uses at SPSRA.

b. Badger Oversight Management Commission (BOMC) and public participation in the development of the draft master plan.

Public input and involvement in the master planning process is critical to the agency's ability to craft well-reasoned, successful plans. The department fully understands that the support of the general public is imperative for a property to meet its ecological and recreation potential.

To ensure that all citizens have opportunities to inform and guide the outcome, the department follows a standard approach when developing master plans to ensure adequate public involvement at three critical times – after the release of the regional & property analysis, after the release of the draft master plan, and at the Natural Resources Board meeting when the plan is considered.

In response to the high level of public interest in the future of SPSRA, the department has gone beyond the standard approach during the development of this master plan. Over the past several years, staff members have spent time soliciting public input in a variety of formats and have attended meetings and made

presentations to convey the department's perspectives and positions. Representatives from the department have attended nearly every BOMC meeting over that last several years. The amount of staff time and effort focused on public participation in the development of this master plan exceeds other planning efforts in the department's recent history.

Developing master plans, particularly for high profile and popular properties, is often marked with controversies over competing recreation uses. And for newly acquired properties, where there is a "blank slate" of existing recreational uses, reaching agreements on future uses can be especially challenging. The department concluded that, rather than engage in ongoing public discussions and negotiations throughout the development of the plan, the planning process would progress most efficiently if staff completed the draft master plan (based on the extensive comments received during the public input opportunities) and then gathered public input on the entirety of the document. Some members of the Badger Oversight Management Commission and the public expressed concern that this approach did not provide adequate opportunities for input during the plan development process.

c. Neotenic salamanders.

Concerns have been raised over the last several years regarding the fate of the approximately 1,200 Eastern Tiger Salamanders that live in the reservoirs. These salamanders are neotenic, meaning they live their entire lives and breed in a larval, tadpole-like condition, and never leave the water. Although a rare occurrence in this species, it has been recorded elsewhere, generally in waters that are permanent and do not have predator (fish) populations.

The reservoirs present important public safety issues and need to be razed. The department intends to drain the reservoirs, crack them so they won't hold water in the future, and then fill them with material. Initially, the department proposed moving as many of the salamanders as possible to interested captive or research facilities (mostly schools, universities, museums and zoos) around the country and then releasing the remaining individuals into nearby ponds and wetlands. Unfortunately, the population of salamanders in the east reservoir has contracted a virus and potentially other diseases that are not known to occur in the local tiger salamander population. As such, these individuals cannot be released back into the wild.

The department is currently in the process of identifying captive facilities interested in receiving animals. Individuals not transferred to captive facilities will be euthanized.

The decision to remove the reservoirs (and thus the salamanders) generated controversy. Some members of the public requested that the salamanders be maintained in the reservoirs as part of a unique opportunity to showcase one of the unintended consequences of the BAAP's operations and as a means to educate the public about an unusual biological event. In June 2015 the department received a petition with over 1,750 electronic signatures stating that the salamanders and the reservoirs should be saved. Alternatives related to the salamanders are described in Chapter V.

d. Adherence to the Badger Reuse Plan.

On several occasions concerns were raised by members of the public that the department did not appear to adhere to the 2001 Badger Reuse Plan (BRP) and did not seek to align the development of the master plan to the values and criteria set out in that document. The department was a signatory to the document and some members of the public felt that the department had abandoned its earlier commitment to follow the BRP in developing the SPSRA master plan.

During the development of the Badger Reuse Plan, many potential future uses were discussed ranging from industrial use to ecological restoration. Although the Reuse Committee reached consensus on the overall concepts related to recreation (criterion 5.3), consensus was not reached concerning specific recreation activities. To be sure, at that time there was support and a strong preference for low-impact recreational use of the property as a whole; however, that was not the only recreational setting considered.

Throughout the planning process, representatives of the department have stated on numerous occasions that the BRP was a crucial guiding influence in developing this master plan and was the foundation on which staff began their work. However, as with all department planning processes, as staff evaluated options and alternatives they also took into account more recent information, changing conditions on the property, and ongoing public perspectives and input.

The department also received many ideas and perspectives from the public during the first phase of the master planning process about recreation and conservation possibilities and needs. In particular, the department received input to incorporate opportunities for ATVs and motorbikes, a shooting range, and other uses that went beyond what was included in the Badger Reuse Plan. As such, staff incorporated this input into the planning process.

e. Groundwater contamination.

Four plumes of contaminated groundwater are known to emanate from the BAAP. The U.S. Army is responsible for monitoring and addressing this contamination and has engaged in a number of treatments over the last several decades. The department is responsible for overseeing and approving groundwater and surface water monitoring and treatment methods.

Local citizens have expressed concerns for many years about contamination associated with activities at the BAAP site and its impact on and off site. A local group, Citizens for Safe Water Around Badger (CSWAB), has been actively engaged with the U.S. Army questioning the cleanup of contamination and pressing it and the department to exceed established standards for environmental cleanups. CSWAB has routinely expressed concerns about the environmental contamination resulting from the BAAP operations as well as the department's oversight of clean-up activities.

f. Health impacts to visitors and animals from residual contaminants.

Concerns have been raised by the public that the health of visitors may be at risk through direct exposure to soils in some places. In addition, concerns have been raised by the public that eating edible plants, berries, apples, mushrooms, and animals (game species as well as goats, cattle, and other grazers) from SPSRA may also lead to adverse health impacts.

2. ISSUES OF PUBLIC CONCERN AND CONTROVERSY THAT WERE RAISED RELATED TO THE INITIAL DRAFT MASTER PLAN.

In responding to the initial draft master plan, which was released on August 11, 2015, the public raised a range of concerns. This revised draft master plan has been modified to address many of the issues raised. A summary of the issues and concerns raised during the public comment period and explanations for how the initial draft master plan was revised to create this version is included in Chapter VI, starting on page 183.

Figure 19: Bunkers in the Northeast Moraine that were used to store nitrocellulose material.

Thomas Meyer, 2015

CHAPTER V: ALTERNATIVES and their ENVIRONMENTAL IMPACTS

A. Introduction

Throughout the process of developing this draft master plan, many alternatives and options to meet the property vision and goals were evaluated. There are, of course, numerous small-scale variations to the proposed draft master plan that were examined. For example, different configurations of where to manage for grasslands and oak openings in the Magazine Area or which of the former roads to convert to biking and equestrian trails in the Northeast Moraine. In addition, the department evaluated regional needs, public input, property characteristics and other factors to identify a wide variety of potential recreation opportunities worthy of assessing. This chapter describes the more substantive alternatives that were considered when developing the draft master plan, their potential impacts, and the reasons they were not incorporated into the draft master plan.

The master plan lays out the department's plan for managing the property over the next 15 years. Some ideas were evaluated but were not included in the plan because the department does not have the staff or resources to pursue them at the present time. These options might be appropriate for the property later and are described here with the thought that they might be helpful as an initial list of options to consider in future updates to the plan.

B. The "no action" or minimal management alternative

Alternative: Given the unique history and condition of the property, if the property is to reach the recreation and conservation potential described in the proposed master plan there is a very large amount of work ahead for the department. An alternative to the proposed plan is for the department to simply let SPSRA remain largely "as is" and to undertake just a minimal amount of management work to address any safety issues that emerge and provide minimal facilities to support recreational use. In this alternative, the department would invest few resources in habitat management actions to restore and enhance habitats and instead would rely heavily on volunteers to maintain grasslands and savannas. Similarly, only a few facilities, such as parking lots, would be constructed to accommodate visitors.

Discussion: Taking very limited management actions at SPSRA would likely result in several undesirable outcomes. Most obviously from a habitat perspective, the invasive plants (particularly shrubs) that are proliferating through the property would most probably spread throughout the property at increasing densities. This would further degrade the ecological quality of the property and prevent the development of the grassland to forest continuum. In the absence of management, over decades some parts dominated by shrubs may succeed to forests and the property would no longer provide important grassland habitat for birds. Without management, much of the property would likely become impenetrable thickets of brush.

From a recreation standpoint, SPSRA could be "managed" without any facilities or developments. The department could simply construct a limited number of parking lots around the exterior and require visitors to walk (or possibly bicycle or ride horses) into the property on the former roads, which would presumably slowly deteriorate over time. Without adequate habitat management, the quality of hunting and wildlife watching experiences would be greatly diminished.

If the department doesn't develop and maintain roads, trails, interpretive displays, and other facilities, providing interpretation of the site and educating visitors about the property's unique human and natural history would be very difficult.

Taking a minimal approach to management would cost far less than the proposed plan, but would also likely result in very little visitation and economic benefit to the area. In addition, this alternative would likely lead the NPS to consider the property to be in noncompliance with the department's original justification for obtaining the property and would potentially put the SPSRA in jeopardy of reversion to the federal government.

Decision: To meet the property's potential and to achieve the goals for which the property was acquired, the department concluded that this alternative was unacceptable.

C. Property and administrative alternatives

1. DIFFERENT VEHICLE ACCESS POINTS

Alternative: Given the configuration of ownership parcels, vehicle access to the property could be via USH 12, STH 78, Keller Road, or at the end of Halweg Road. The department evaluated options other than the main entrance on USH 12 for a single entry point, as well as the potential to have two or more access points.

Discussion: Although alternative entrances are possible, each has complications and obstacles. An entrance at the end of Halweg Road in the northeastern corner of the SPSRA property would require additional road construction work and would likely create an undesirable increase in the traffic on this local dead-end road. The Keller Road entrance at the southeastern corner of the property would also require some road improvements and, more importantly, require all the traffic to flow through the Magazine Area (and across DFRC land) to get to the rest of the property and the reservoir overlook (which is likely to be the most popular place on the property). This traffic pattern would impact groups hosting a variety of special events in the Magazine Area and cause additional disruption to DFRC operations.

Incorporating an entrance from STH 78 was recommended by the Town of Merrimac to make access into the property easier for people arriving from the east. Adding an entry point on STH 78 in addition to USH 12 would not only reduce travel time for some people, it would reduce traffic at any one entrance. If the USH 12 and STH 78 entrances were connected by a drivable route, SPSRA would likely become a short-cut connection for hundreds of vehicles a day. This scenario would both interfere with visitors' enjoyment of the property and substantially complicate department staff's ability to monitor and control property use.

Currently, the department does not own land at an existing access gate along STH 78 and the Wisconsin Department of Transportation is unlikely to authorize another entrance in the section of the highway where department land fronts the road. Thus, the department would have to acquire additional land or rights at an existing entrance (most likely Gate 7) in order for access from STH 78 to be an option.

Decision: The department recognizes the benefit of allowing some form of access to the property from STH 78, however does not currently have the staffing needed to adequately address the associated property monitoring and control that would be needed if a drivable connection between the two highways were created. Thus, the department will pursue options to develop limited access into the property from STH 78 that do not result in the creation of a short-cut between USH 12 and STH 78. As a step towards developing potential access from STH 78, this master plan also proposes to adjust the SPSRA project boundary along the southeastern portion (see below).

2. PROPERTY BOUNDARY MODIFICATION

Alternative: This draft master plan proposes to modify the existing project boundary in two ways. First, this master plan proposes to remove the Ho-Chunk Nation lands from the SPSRA project boundary. As noted in the Introduction, when the initial project boundary was established it was unclear which lands would be

transferred to the Ho-Chunk Nation and which might come to the department. This issue has now been resolved and in recognition that the Ho-Chunk Nation is a sovereign nation the department is proposing to remove their 1,553 acres from the SPSRA project boundary.

Second, this master plan proposes to modify the project boundary to align it with the new STH 78 location along the southeastern portion of the property. The current project boundary here is convoluted line that includes land that the department has no interest in acquiring and passes through the Dairy Forage Research Center's farm complex. Further, in part due to the recent improvements to STH 78 that realigned sections of the road, the existing boundary leaves out a small strip of land contiguous with STH 78 that the department may wish to acquire in order to provide public access rights into SPSRA at an existing entry road (Gate 7, see above).

Another change to the property boundary that was evaluated was to modify the remaining project boundary to simply coincide with the department's land ownership. This would exclude former BAAP lands owned (or to be owned) by DFRC, the Bluffview Sanitary District, Department of Transportation and the Town of Sumpter. This would also exclude the small part of the boundary that connects the Lake Wisconsin frontage at Weigand's Bay to the main part of the SPSRA property.

Discussion: Reducing the project boundary to correspond with the intended department ownership would remove any misinterpretation that may exist that the department seeks to acquire lands from the partners who also own land that was part of the former BAAP. Although at some point in the future the department may wish to establish a trail to connect the Weigand's Bay parcel with the main part of the SPSRA property, it does not propose a connection now. Removing the privately-owned lands would also make this apparent.

However, at some point in the future, the department may seek to exchange or trade lands with partners inside the proposed project boundary. Or, similarly, if a landowner inside the boundary no longer wishes to own or manage some of their property, the department may want to take on the ownership or management responsibilities of these lands. And if there is a demand for a trail connection to Weigand's Bay at some point in the future, the department may wish to pursue acquiring a narrow strip of land to the main part of SPSRA. Modifying the existing boundary as part of this master plan could potentially require making another modification later.

The existing ownership arrangement was agreed to by the Badger Intergovernmental Group[52] and reflects the department's and its partners' desire to work together on issues of joint management interest and concern. Further, the public was informed in 2002 of this boundary, and little has changed in terms of ownership issues (other than the Ho-Chunk Nation receiving their land) to necessarily trigger a further boundary change. Finally, it may be premature to modify the boundary before the department has a better understanding of operation and management issues that may emerge in the future.

Decision: The department concluded that it was most appropriate to propose removing the Ho-Chunk Nation land from the project boundary and aligning the southeastern boundary with STH 78, but to retain the remainder of the boundary for now.

[52] The BIG included representatives from: the department, GSA, U.S. Army, DFRC, Ho-Chunk Nation, Governor's Office, DOA, Sauk County, and the Towns of Sumpter and Merrimac.

3. LONG TERM USE AND MAINTENANCE OF THE ADMINISTRATIVE BUILDING (BUILDING 207)

Alternative: Building 207, near the main entrance gate, is neither a particularly notable example of BAAP construction nor in good condition. Yet, it is one of the few buildings remaining from the plant complex and as such is one of the last links to the BAAP and could be part of "telling the story" of the property. The department evaluated options for maintaining the building for long-term use by staff, as a visitor center, or for the Badger History Group.

Discussion: The cost of addressing the near-term repairs needed to prevent further deterioration of the building and to bring the building into ADA compliance is estimated to total approximately $100,000. The cost to restore the building and bring it to an acceptable standard for long-term use by staff or the public is far greater and exceeds currently available funds.

The department consulted with the Badger History Group about their potential long-term use of the existing administrative building. The group does not have the fiscal resources to take on repair and maintenance costs to upgrade the building for long-term use. Both the department and BHG reached concurrence that the building does not meet either party's long-term needs and it was appropriate to look to other solutions.

Decision: The department concluded that it is appropriate to make necessary repairs to Building 207 as described on page 95, to ensure short-term use but that the structure should ultimately be removed.

4. LAND MANAGEMENT CLASSIFICATIONS

Alternative: Four of the seven land management classifications described in Administrative Code are proposed at SPSRA. SPSRA could be classified entirely as a recreation management area, entirely as a habitat management area, or could have more or less native community management area. Or, a different combination of recreation management area, habitat management area, special management area, and native community management area could be implemented than what is proposed. Alternatively, other land management classifications (forest production area, scenic resources management area, wild resources management area) could be assigned, although these classifications do not appear to be appropriate fits for the property.

Discussion: As stated earlier, many recreation and habitat outcomes are authorized and possible under all land management classifications. From a practical standpoint, what is far more relevant than the land management classification is the suite of recreation facilities and habitat management actions that are proposed in the master plan. That is, since a variety of habitat and recreation outcomes are possible under land management classifications, the title of the classification is less critical than the content of the actions proposed.

Decision: Although the department considered classifying the entire property either recreation management area or a habitat management area, it concluded that a combination of classifications tailored to the property's different goals and objectives was most appropriate. The department strongly emphasizes that restoring and managing high quality grassland and savanna habitats throughout SPSRA and the development and operation of recreation facilities to provide high quality recreation experiences throughout SPSRA are concurrent and compatible goals.

5. ADDITIONAL VEHICLE ACCESS DURING THE NINE-DAY DEER GUN SEASON

Alternative: The department considered opening the service road running along the southern boundary of the Central Grassland to vehicles during the nine-day deer gun season to make it easier for hunters to retrieve deer.

Discussion: Temporarily opening these routes would result in all areas of SPSRA being within about a 600 yard (3/8th of a mile) walk of a vehicle.

Opening the service road and trail to cars and trucks for the nine-day deer gun season could impact other visitors who wish to hunt in more remote settings. It may also impact other visitors to SPSRA that are using the trail for hiking, biking or horseback riding. Adjusting the management of the property to accommodate a particular user group (in this case deer hunters) could also result in other user groups requesting similar treatment.

Decision: At over 3,400 acres SPSRA is a relatively large property for southern Wisconsin. However, its configuration combined with the proposed road network results in the most remote part of the property being slightly less than three-quarters of a mile from the nearest road. This distance is in line with other large department properties in the southern part of the state. The department concluded there were not adequate benefits or justifications to temporarily providing more vehicle access to the property during the nine-day deer gun season.

6. MAINTAIN THE EAST RESERVOIR

Alternative: The department considered leaving the east reservoir in its current condition (and the six foot chain link fence encircling the reservoir) and leaving the neotenic salamanders in place.

Discussion: Leaving the east reservoir as is would allow the opportunity to potentially view the neotenic salamanders to those visitors with guided access inside the chain link fence. The department's ability to facilitate this access would be limited. Leaving the east reservoir as is would also allow visitors to see a remaining piece of infrastructure from the days of the BAAP operation. This would likely add to many visitors' overall experiences and levels of satisfaction with their trip. Leaving the east reservoir would also maintain the population of neotenic salamanders, as well as other life forms in the water, for some period of time.

However, it is unknown how long the reservoir will continue to hold water. The west reservoir has apparently developed cracks that limit its depth to about three feet; it is likely that the east reservoir will also develop cracks over time.

The reservoir has steep-sloped sides that, should someone accidently fall in, are very difficult to scale. As a consequence, it poses a substantial drowning hazard. The department could attach ladders along the sides, position life rings around, and install other safety devices. These improvements would likely require only a modest investment. More importantly, the department does not have the resources to monitor and prevent visitors from inadvertently or intentionally harming the population of neotenic salamanders. The overlook site here is likely to be the most popular spot at the property and it is probable that the reservoir would also end up collecting a substantial amount of trash over time. Maintaining the east reservoir would also limit the department's ability to restore the site and convert it to a focal point for visitors.

Decision: The department supports efforts to maintain neotenic salamanders for research and educational purposes and has funded research on issues related to transporting the animals, metamorphosis, and

husbandry. However, the department believes the reservoirs are not an effective or appropriate place to maintain these animals over the long-term. As a result, after all the institutions have received the desired number of neotenic salamanders and funding is available, the department proposes to drain the reservoirs, crack the bottoms, fill them with material and then develop and restore the site as a day use area with an overlook, picnic area, small amphitheater, and parking lot.

Figure 20: Looking north from the Gateway Corridor across the Ho-Chunk Nation Land.

Thomas Meyer, 2015

D. Recreational use and opportunity alternatives

The department considered a variety of different options related to the recreational use of the property. Some alternatives centered on which activities to include in the collection of recreation activities proposed, others on finding appropriate places for specific activities. Some alternatives focused on different approaches to providing high quality recreation experiences for these activities (e.g., different lengths of trails, locations of facilities, and orientation of different activities).

An example is the proposed rocketry site. Characteristics of a suitable launch site include an area that is largely treeless within about 1,500', where the prevailing winds would likely drift rockets over department land, relatively easy to access (especially in the winter when launches are likely), and a site that would be relatively easy to keep clear of vegetation. In trying to find potential sites that would minimize conflicts, the department also looked at other recreation activities proposed at SPSRA, their potential locations, and the anticipated levels of use. Needless to say, there are numerous possibilities and permutations that the department considered.

The following section describes the more substantive alternatives related to recreation that were considered during the development of the draft master plan but not included.

1. DOG TRAINING AND TRIALING

Alternative: The department received requests to consider incorporating a Class 1 dog training and/or dog trialing area at SPSRA. The department also considered prohibiting all other recreational uses in a Class 1 or 2 site (which can be done at state recreation areas, but not state wildlife areas).

Discussion: Class 1 training and trialing sites are open all year to anyone holding a dog training/ trialing license. Releasing captive animals and shooting are authorized year-round. Two of the five designated Class 1 training and trialing sites in the state are within 15 miles of SPSRA (Pine Island Wildlife Area and the Mazomanie Unit of the Lower Wisconsin Riverway). Class 1 training and trialing grounds are typically hundreds of acres in size.

Previously, there had been a bigger difference in the operation and function between Class 1 and Class 2 dog training grounds. Now, through a streamlining effort by the department, there is less distinction between these sites. Under the new system, anyone holding a dog training license can access any Class 2 dog training ground (license holders no longer need to seek approval to use individual sites). The department is also undertaking an effort to expand the number of Class 2 training grounds throughout the state.

Decision: Dog trialing events are proposed to be allowed at SPSRA under a special event permit. The master plan proposes that the Magazine Area be used to host a limited number of special events and the area appears well-suited to host a dog trailing event. The establishment of the proposed 72-acre Class 2 site will accommodate dog training all year and will function like a small Class 1 training site. Thus, the department concluded that a designated Class 1 dog training or trailing ground was not warranted at SPSRA since the goals of providing dog training and trialing will be accomplished by the proposed master plan.

2. LARGER AND MORE ELABORATE VISITOR CENTER

Alternative: The Badger History Group has many more items and documents related to the construction and operation of the BAAP than can be displayed in the current museum space in the administrative building (Building 207). The BHG would like to display its materials in a larger space than is being planned in the proposed visitor center.

Discussion: A larger visitor and interpretive center, while potentially attracting a larger number of visitors, could require considerably more funding. A larger center and associated visitation could also lead to increased impacts to habitats and species.

Decision: State funding for a visitor center, regardless of size, is likely to be limited for several years and any new facility would also compete against other capital development projects throughout the state. The department is likely to prioritize a visitor center at Devil's Lake State Park (in collaboration with the National and State Ice Age Trail) ahead of a facility at SPSRA.

The department believes a modest visitor center would compete favorably for state funds, but will likely take 8 to 10 years to work though the capital development process. If private funds for a more elaborate visitor center at SPSRA can be collected to supplement state funds, the department could evaluate how to best leverage these funds.

3. DEDICATED MOTORIZED RECREATION AREA

Alternative: The department evaluated the possibility of designating part of SPSRA as a motorized recreation area for ATV, UTV, motorcycle, and/or four-wheel drive truck use. In addition, the department evaluated combining a designated motorized recreation area with a longer motorized use trail, generally around the perimeter of SPSRA.

Discussion: Including a motorized recreation area (MRA) at the property would likely generate use and potentially increase overall visitation to SPSRA. This could increase the economic impact of the property.

The increased noise and dust associated with motorized use could adversely affect other visitors to the property, as well as impact nearby residents. The department listed motorized activities as a potential use in the Magazine Area in one of the three conceptual alternatives presented to the public in 2013. The public was overwhelmingly in opposition to including a dedicated area for motorized use at SPSRA.

The use of part of SPSRA for a motorized recreation area would also impact wildlife in the immediate and surrounding area. The noise and dust generated could result in displacement of desired species, including rare and declining grassland birds.

The department recognizes there is growing demand for motorized recreation opportunities in southern Wisconsin. While SPSRA meets some of the NRB-approved criteria for locating a motorized recreation area, in addition to the site's ecological values, there was strong local opposition to siting a MRA here. Opposition was also voiced from the department's primary neighbors here, the Ho-Chunk Nation and the Dairy Forage Research Center.

Decision:

The department concluded that SPSRA is not well suited to host a concentrated motorized recreation area but rather could host a limited number of special events for motorized recreation. In evaluating demand for different types of motorized recreation and existing opportunities throughout the region and state, the department concluded that an acceptable use of SPSRA would be to allow dual-sport motorcycles up to six days a year on a subset of roads and biking and horseback riding trails.

4. ESTABLISH A YEAR-ROUND DOG PARK

Alternative: The department considered the possibility of designating an area for visitors to have their dogs off-leash year-round. Two areas were considered: (1) about 50 acres in the northeast part of the Magazine Area, and (2) a portion of the Southern Link unit east of STH 78.

Discussion: In state parks, dogs are required to be on a leash not more than eight feet long at all times. On most other state properties except State Natural Areas, dogs are allowed off-leash (outside of designated use areas) except from April 15 to July 31 (to protect ground nesting animals).

Allowing dogs to be off-leash year-round in an area would displace mammals and birds from the area and could reduce the reproductive success of animals that nest on or near the ground in the site.

The department, and in particular the Parks & Recreation program, receives many requests throughout the year from people looking for places to have their dogs off-leash. A common request from visitors to Devil's Lake State Park is for a place their dogs to run off-leash (since they are not allowed to do so within the park). The closest public dog park is in the City of Baraboo. It is likely that a designated area in SPSRA for dogs to be off-leash year-round would be popular and used by many people.

Although many dog parks in cities are fenced, not all are. Unfenced dog parks can have issues with dogs and their owners leaving the designated boundaries. Fencing can be expensive, especially for a larger park. In addition, staff costs to monitor and address issues at dog parks can be sizeable.

Decision: The department concluded that although there is likely adequate demand to justify a fenced dog park in SPSRA, establishing one is not feasible because financial and staff resources are not currently available. As such, the department dropped consideration of designating a year-round dog park at the property. Instead, the department will designate a portion of the Magazine Area (parcels MA2, MA4, and MA5) for dogs to be off-leash from August 1 to April 14.

5. LIMIT THE RECREATION OPPORTUNITIES PROVIDED AT SPSRA TO ONLY ACTIVITIES THAT WERE UNCONTROVERSIAL

Alternative: The department considered the option of not including opportunities for the recreation activities that generated opposition during the public review period of the initial draft master plan. The activities that produced the most controversy were: (1) permitting dual-sport motorcycles up to six days per year on a subset of biking and equestrian trails, and (2) the launching of model rockets up to ten days per year. Other activities that were opposed included mountain biking, horseback riding, snowmobiling, hunting, dog training, and trapping.

Discussion: The department's application to receive the land through the NPS' Federal Lands to Parks program stated the intent to manage the property for low impact recreation and listed some activities as examples of recreation opportunities that the department expected might be provided. The application clearly stated that the activities ultimately allowed on the property would be determined as the department went through the property planning process described in NR 44, Wis. Adm. Code.

Of course, each property is unique in terms of ecological, social, institutional, or economic attributes; together, these influence the recreational demands and habitat needs that the property may be well suited to provide. The department recognizes that a few of the proposed recreational uses at SPSRA are opposed by people who commented on the draft plan, but the agency's goal and responsibility is to provide the full range of outdoor experiences on our portfolio of properties.

Similarly, the department does not seek to maximize the number of people on a property in general and certainly not each day. The department has long held that it is acceptable to include activities at properties (permanently or temporarily) even if they may displace other visitors. Some department properties have more intensive uses (year-round or occasionally) while others only provide for less intensive uses. The department owns more land and public access easements in Sauk County than any other county in southern

Wisconsin (over 30,000 acres); the vast majority of these lands only provide opportunities for low intensity activities. There is not a shortage of opportunities in Sauk County for people to enjoy low intensity, quiet, or remote experiences on lands open to the public.

Decision: The department concluded that the SPSRA property was an appropriate location to meet a diverse set of recreational activities, including a few atypical uses that generate impacts that some people may find unacceptable and cause them to not visit the property.

6. ALLOW HIGH-POWERED ROCKETS TO BE LAUNCHED ONE DAY PER YEAR.

Alternative: The department proposed allowing high-powered rockets to be launched one day each year, but not within the April 15 to July 31 period. These rockets can reach heights over 2,000 feet and are powered by motors that can only be purchased by certified individuals. These motors generate considerably more sound than those used to launch model rockets.

Discussion: The department's intent with the proposal to allow high-powered rockets one day each year was to provide an opportunity for a club to sponsor a larger event that could draw many participants throughout the region. Such events are periodically held at Bong State Recreation Area and are opportunities for participants to showcase different designs and technical aspects. These events can also be opportunities for clubs to generate revenue to help offset costs.

The Natural Resources Board discussed this proposal at the December 2016 meeting and passed a resolution removing authorization to launch high-powered rockets at the property.

Decision: The department removed the authorization for launching high-powered rockets at SPSRA from the master plan and the associated language related to management and impacts.

E. Habitat, species and land management alternatives

1. DESIGNATION OF STATE NATURAL AREAS AT SPSRA

Alternative: Designation or dedication of lands within SPSRA as State Natural Areas.

Discussion: Two areas in SPSRA were identified as Primary Sites in the Rapid Ecological Assessment. The information in the REA is meant to be considered along with other information when identifying opportunities for various management designations during the master planning process. The Primary Sites in SPSRA were delineated because they generally encompass the best examples of: (1) rare or representative natural communities, (2) documented occurrences of rare species populations, and/or (3) opportunities for ecological restoration or connections. These sites warrant strong consideration during the development of the property master plan for protection or restoration. In some cases, areas identified as Primary Sites that are not already State Natural Areas are designated as SNAs in the master planning process.

The REA also identified two areas as high priority grassland areas and one area as a high priority shrubland area. A sizeable portion of one of the high priority grassland blocks occurs on land that is owned by the Ho-Chunk Nation. These high-priority areas were identified because they currently provide high quality surrogate habitats that support diverse and large populations of grassland and shrubland birds. In terms of habitat quality, these areas do not rise to the level of being a Primary Site because they are ecologically degraded or in some cases planted. However, these sites do offer important management and restoration opportunities for maintaining and enhancing viable populations of grassland and shrubland birds.

The SNA program follows well established criteria in determining whether sites should be designated or dedicated as State Natural Areas.[53] In evaluating SPSRA, staff from the SNA program concluded that neither the Primary Sites nor the high priority grassland and shrubland areas met the criteria for inclusion into the SNA program. Thus, staff did not include a proposal to designate these parcels as State Natural Areas as part of this master plan.

Not following the criteria for SPSRA would set a precedent of including areas in the SNA program that do not meet established ecological values. The department believes that this would de-value future SNA designations and the SNA program as a whole.

Decision: The department concluded that it was most appropriate not to designate any areas within SPSRA as State Natural Areas. The highest quality portion of the Prairie and Savanna Primary Site (the portion that includes the Hillside Prairie) is proposed to be classified as a native community management area.

2. MAINTAINING MORE LAND IN FOREST COVER

Alternative: The proposed management plan calls for much of the early to mid-succession forest that has grown up since the BAAP was established in 1942 to be harvested (with oaks and some other savanna tree species such as hickory to remain) and converted to oak opening habitat. In addition, the forest along the south bluff of the Baraboo Hills is proposed to be thinned to convert it to an oak woodland habitat over time. Both the proposed oak woodland and oak opening habitats are what occurred on these areas prior to

[53] See http://dnr.wi.gov/topic/Lands/naturalareas/documents/EstablishCriteria.pdf

Euro-American settlement. An alternative considered was to manage these areas, or portions of them, as forest blocks following conventional forest management practices.

Similarly, the existing conifer plantations are proposed to be removed, some before they reach full maturity. An alternative considered was to maintain all the plantations to full stocking capacity.

Discussion: Managing blocks of the property as forest is feasible, but inconsistent with the department's goal for the property and would not take advantage of the unique opportunity here to manage a large block of land for an ecological transition. Further, managing blocks of the property for forest resources would miss the opportunity to manage for a native community type, oak opening, that is among the rarest in the state and country.

Deferring the harvest of all the conifer plantations and their transition to oak savanna and grassland habitats until they reach full stocking capacity is likely to delay important habitat restoration efforts.

Decision: The department concluded that it was most appropriate to manage SPSRA for the community types native to the property and to take advantage of the unique opportunity here to manage a transition of habitat types from forest (in DLSP) to oak woodland to oak opening to grassland. Although the harvest and restoration of some plantations may be deferred due to the timing of management actions on the property, other harvests will be conducted despite the fact that the trees may not have reached their highest economic value.

3. ESTABLISHING A BISON HERD

Alternative: There is a desire to return much of the SPSRA property to the conditions and ecological processes that existed before Euro-American settlement. As such, consideration was given to including a resident bison herd on SPSRA.

Discussion: Incorporating bison on the property would likely be a draw for visitors and would provide a unique opportunity on public property in Wisconsin to showcase and educate the public about bison and their impact on natural and human history. Bison herds on private and public conservation lands elsewhere in the Midwest are popular attractions, serve important management roles, and can provide some economic return. As large grazers, bison can also play a key role in habitat management.

Depending on the number of bison and where they were located on the property, their presence could restrict or alter recreational use. One potential option would be to confine a herd to a portion of SPSRA (enclosed by a substantial fence) and only provide vehicle access to the area (i.e., visitors would have to stay within their car or truck as they drove through) or provide viewing opportunities around the perimeter of the area (for example a viewing tower outside the fence). A second option would be to fence a larger area and allow visitors to walk, bike, horseback ride, cross country ski and snowshoe on trails through the area. This would be potentially feasible if the herd size and the visitor numbers were small enough to reasonably avoid public safety issues. Hunting deer, turkeys, and other game species could potentially be compatible with the second approach but would likely not be compatible with the first.

The areas where bison were located would need to have adequate fencing, which is typically 6-8' in height and designed for strength, as well as access to water and appropriate loading facilities.

Decision: The department concluded that bison may be appropriate to incorporate into the use and management of the property later, but the funds required to build and maintain the facilities that would be needed are not currently available. Further, the department wishes to evaluate visitor use patterns before making decisions that would affect the recreational opportunities at the property. Also, it may be most appropriate to evaluate options to manage a bison herd on the property in partnership with the DFRC and

the HCN. As such, the department will defer decisions regarding establishing a bison herd until the pattern of recreational use and partner interest is better understood.

4. PERMANENTLY CONVERTING LAND TO ROW CROPS

Alternative: The soil in several portions of SPSRA has not been extensively altered. If the brush and early successional trees that currently grow on many of these areas were cleared, these sites could likely support row cropping and other forms of active agriculture.

Discussion: Permanently converting portions of SPSRA to conventional row crops such as corn and soybeans, pastures, or other farming practices could provide some ongoing income to the department, which it could use to fund habitat restoration and management of other SPSRA lands. However, cropland does not provide the habitat benefits of restored grassland and oak openings and would restrict recreational use during the growing season. As such, permanent cropland is not consistent with the intent or purpose of the SPSRA property. It is also restricted by conditions of the transfer of land from the National Park Service.

A benefit of row cropping is that, when different crops are grown over a series of years, weed species are dramatically reduced. This can improve the success of grassland restorations when native grasses and forbs are subsequently planted.

Decision: As described in Chapter II, the department may temporarily convert lands with appropriate soils to row crops as a means to reduce weed growth and prepare soils for replanting to native species, but is not proposing to convert land to permanent row crop use.

5. MANAGEMENT OF NEOTENIC SALAMANDER POPULATION

Alternatives: The department evaluated options for the future of the neotenic salamanders in the reservoirs. One option would be to simply leave the salamanders in the reservoir until the structure develops cracks, leaks, or for other reasons no longer held water or the salamanders are no longer in the reservoir. Another alternative, which the department initially planned to follow, would be to release the salamanders into various ponds and wetlands in the local area to allow them to carry out their natural life histories.

Discussion: As noted in the above discussion related to maintaining the east reservoir (page 172), the structure presents a serious safety and long-term management issue and there are not practical alternatives to maintaining either of the reservoirs.

The plan to release the salamanders back into the local population was removed from consideration when a health analysis determined the animals in the east reservoir harbored diseases not known to occur in the local population. If subsequent studies indicate that the diseases present in the salamander population in the east reservoir are also present in the local wild population, then the animals in the reservoirs may be released locally.

Decision: As described on page 47, the department recognizes the research and educational value of these salamanders. The department is identifying institutions (e.g., museums, aquaria, zoos, schools, and research organizations) that are interested in receiving neotenic salamanders for research, education, or display purposes. The department plans to capture and distribute the requested number of salamanders to these institutions.

Figure 21: View looking east of the main entrance gate. The Baraboo Hills are on the left and the Central Grassland is seen on the right. Much of the land in the central part of the photo is now owned by the Ho-Chunk Nation.

Badger History Group archives

CHAPTER VI: SUMMARY of PUBLIC INVOLVEMENT and INPUT

Although the public has been actively engaged for well over a decade in helping determine the future plans for the BAAP property as a whole and SPSRA in particular, this summary of public involvement pertains to the actual development of the master plan and as such captures the time period from January 2012 to now. The department recognizes and is grateful for the ongoing and the extensive effort the public and their elected officials have invested to move SPSRA from being part of the largest propellant plant in the country to what the department hopes becomes a unique, popular and important destination for visitors.

The department maintained a list of over 1,700 people interested in receiving updates about the property and the planning process. Periodic emails were sent to this distribution list. In addition, documents related to different aspects of the planning process were posted on the department website.

The department sought public input at several stages in the planning process. In July 2012 the department hosted an initial public open house at UW-Baraboo/Sauk County to kick-off the master planning effort and present the draft Regional & Property Analysis. One hundred twenty people signed in at the open house and a total of 388 comments were received via the comment form, emails, letters, and voice messages. In July 2013 the department hosted an open house meeting in Prairie du Sac to present the draft vision, goals, and conceptual alternatives. Over 250 people attended and thousands of comments were received. The department posted all comments received during both public comment periods as well as summaries of the input received on the department website.

The commissioners and stakeholders that form the Badger Oversight and Management Commission (BOMC) maintained an active interest in the development of the master plan. The department provided updates to the BOMC at their regular meetings regarding issues related to the management of the property and the master planning process.

A. Summary of comments received on the initial draft master plan.

The public comment period for the initial draft master plan for the Sauk Prairie State Recreation Area ran from August 11 to September 25, 2015. The department hosted an open house meeting and formal public hearing in Prairie du Sac on September 10. Public input on the draft master plan was received in many formats including emails, letters, postcards, an online and paper survey, and oral testimony at the public hearing. A breakdown of the input received during the comment period is as follows:

Letters from individuals – 24
Postcards from individuals – 298
Letters from organizations – 21
Letters from governments and elected officials – 3
Emails – 55
"Action alert" emails – 1,125
Online surveys – 410
Paper surveys – 54
People presenting oral testimony at public hearing – 38

The department received a small number of comments on the draft plan after the end of the formal comment period. These comments were generally in line with the comments received during the comment period.

The following summary organizes the comments received by general topic. An explanation for how this revised draft master plan and environmental impact statement was or wasn't modified based on these suggestions or comments is also included.

1. OVERALL CONTENT OF THE MASTER PLAN

In general, respondents felt that the initial draft master plan appropriately balanced recreation and conservation goals. Some people stated that the plan placed somewhat too much emphasis on either recreation or conservation, with more people stating that the plan over emphasized recreation.

A range of comments were received about the overall plan. Some people believed that the department did not adequately honor the former work of the Badger Reuse Committee. Some people also stated that they didn't believe the initial draft master plan followed the nine values that were identified by the committee in 2001.

Some people recognized the difficulty of developing a management plan for a controversial property. Some people believed that the proposed plan was an appropriate compromise among many conflicting demands. Of the people that commented about the organization or content of the document, few believed it was confusing or unclear.

Department response: The department recognizes that some people are opposed to some of the proposed uses at SPSRA and believe that these uses would not have been included in the plan if the department had followed the Badger Reuse Plan. The department used the BRP as its starting point in following the master planning process. In developing the draft master plan, the department applied the nine values described in the BRP as part of constructing the goals and strategies for the property. No change to the draft master plan was made due to these comments.

2. HABITAT MANAGEMENT

Nearly all of the input received agreed with the mix of habitats proposed and the various techniques the department anticipates using to achieve ecological outcomes. There were a few requests to place more management emphasis on grassland (rather than oak opening) habitats and grassland birds. Many people commented in support of restoring the ecological transition from forest to savanna to grassland. Similarly, most people were pleased that so much land would eventually be restored to native conditions.

Several respondents encouraged the department to coordinate habitat management objectives and actions with the Ho-Chunk Nation and Dairy Forage Research Center.

Other concerns related to habitat and species management that were raised:

- Neotenic salamanders. Several respondents noted the unique adaptation of the population of neotenic salamanders that live in the east reservoir and believed that the department should keep the reservoir in order to save this population. In addition, several noted the potential scientific value of the neotenic salamanders as well as the educational value for visitors.
- Birds and other wildlife. Some respondents noted the current declines in rare grassland and savanna bird populations and believed the property's focus should be just on managing habitats for these and other wildlife species.

Department response: Although named after the great Sauk Prairie that covered over 14,000 acres of the glacier's outwash plain in the area, the department's ownership actually only includes a modest portion of what was historically open grassland. The majority of the department's land here sits on the glacial moraine, which is much more rolling than the flat outwash plain and was primarily oak savanna at the time of settlement. Thus, the department believes it is appropriate to restore substantial portions of SPSRA to oak savanna. No change was made to the amount of oak savanna or grassland to be restored at SPSRA.

The department has, and will continue to, coordinate and cooperate with the Ho-Chunk Nation and Dairy Forage Research Center on habitat management objectives and actions. A section was added to Chapter I to emphasize the collaborative efforts of the landowners of the former BAAP. See page 13.

The department recognizes that the population of tiger salamanders is an interesting consequence of the propellant plant and has research and educational value. The department is identifying institutions (including museums, aquaria, zoos, schools, and research organizations) that are interested in receiving neotenic salamanders for research, education, or display purposes. Potentially beginning in 2016 the department plans to capture and distribute the requested number of salamanders to these institutions. For health reasons, organizations receiving these animals will be required to maintain them in captivity for their entire lives.

The department also recognizes that these salamanders are potentially an appealing draw for the public to visit the property. However, given their steep sides, the reservoirs pose an important public safety hazard, even with the existing chain link fences that surround them, and must be removed. More information about the salamanders can be found on page 47. No change was made to the long-term plans for the reservoirs.

Although some people wanted the department to focus the property goals on habitat restoration and include fewer opportunities for fewer recreation activities, other people requested more opportunities for a broader range of outdoor activities. The department believes this revised master plan provides an appropriate balance of recreation experiences and habitat management.

3. RECREATION MANAGEMENT

Some people commented that allowing some of the proposed recreation activities was not consistent with either the department's earlier statements to use the property for low-impact recreation or the department's application to the National Park Service to receive the property through the Federal Lands to Parks program. A few people commented that rocketry and motorcycle uses had not been considered previously and were opposed to activities considered late in the property planning process.

Department response: The department applied to receive lands that comprise SPSRA through the National Park Service's Federal Lands to Parks (FLP) program. A required element of the FLP application, referred to as the Program of Utilization (POU), is used to describe the initial goals and objectives for the property and lay out a general framework for how the new owner anticipates managing the property.

At the time it submitted the application in 2004 it was not clear which lands the department, the Ho-Chunk Nation, Dairy Forage Research Center, and potentially others would ultimately be granted. The department stated in its application that the future uses of the property would be determined during the planning process leading to the development of a master plan. It stated a general intention to manage the property primarily for grasslands and oak savannas and low impact uses, and noted some examples of activities that it expected might come out of the planning process. These examples included hiking, picnicking, primitive camping, Lake Wisconsin access, and education and interpretation opportunities. ***The department deferred decisions related to determining which specific suite of recreation activities would be permitted on the property, where they would be located, what times of the year they would be allowed, and other parameters associated with their use to the development of the master plan.***

The department believes that the collection of recreation opportunities proposed for SPSRA, and the parameters by which they can occur, meets the objective of using the property for low impact recreation. In addition, habitat restoration and management will focus on grasslands and oak savannas. Thus, the core property goals of the original POU remain unchanged and the proposed master plan is consistent with the

department's application to receive the property through the Federal Lands to Parks program. The master plan was revised to add clarifying language related to its application to receive land. See page 9 for more information.

Both rocketry and motorcycle riding were brought up by the public during the initial stages of the planning process as recreation opportunities that the department should consider providing at SPSRA.

Some people recognized a need for the department to provide opportunities for activities that generated more impacts, but asserted that there were ample or better opportunities elsewhere in the state for these activities. Typically, people who commented in this regard did not name a property that would be better suited to provide the recreational opportunities.

Department response: The department recognizes that a few of the proposed recreational uses are opposed by people who commented on the draft plan, but the department's goal and responsibility is to provide the full range of outdoor experiences on our portfolio of properties. Each property is unique in terms of ecological, social, institutional, or economic attributes; together, these influence the recreational demands and habitat needs that the property may be well suited to provide. Given the property's condition, habitat restoration potential, geographic location, ecological importance, and recreation potential, the department believes the collection of recreation uses proposed here are good fits for the property.

The department has long held that it is acceptable to include activities at properties (permanently or temporarily) even if they may displace other visitors.

Many of the comments received stated a concern that some activities would have sizeable adverse impacts on both wildlife and other visitors to SPSRA. Horseback riding, mountain biking, rocketry, dual sport-motorcycles, hunting, trapping and snowmobile riding were all noted in this regard. What follows is a summary of comments received related to specific recreation activities.

a. Equestrian use

Generally, there was appreciation for the proposed 12 miles of equestrian trails. Some riders hoped that more miles could be added, including the possibility of allowing horseback riding on the snowmobile trail (during non-winter months) if that trail was located in the eastern perimeter corridor. Several people commented that the parking lot at the equestrian trailhead needed to be bigger than what is proposed (10 large trailer rigs and 6 cars). There was support to link trails in SPSRA to potential equestrian trails in Devil's Lake State Park.

Some respondents supported allowing horse-drawn carts on some or all of the equestrian trails year-round (the draft plan proposes to limit horse-drawn carts to two weekends/year), citing the lack of conflicts between horse-drawn carts and horseback riders. Some people were opposed to providing equestrian trails because they believed such use would have too high an impact, would cause erosion, and would lead to an increasing invasive plant problem.

Department response: The master plan was changed to increase the size of the parking area for equestrian use from 10 to 30 trailer rigs, along with parking for 6 cars. Language was added to the master plan reflecting the opportunity to add horseback riding (not during the winter) to the snowmobile trail, depending on its location. The master plan was also changed to allow horse-drawn carts on all of the equestrian trails year-round. See page 25.

b. Snowmobile use

Currently there is a snowmobile trail on SPSRA and land owned by DFRC in the southeastern portion of the former BAAP, but the trail is located outside the perimeter fence along the eastern and northeastern portions of the SPSRA. The initial draft master plan called for a snowmobile trail to be located either on or immediately adjacent to the Great Sauk Trail or along the eastern side of SPSRA, inside the perimeter fence.

Regardless of its eventual location, several people commented that the maps and the language in the draft master plan needed to be clarified and consistent. Most people advocated for locating a snowmobile trail along the eastern side of the property, but within the boundary of the SPSRA and land owned by DFRC. From some snowmobilers' perspective, the proposed route along the eastern side of the property was more desirable both because it was a more interesting ride than the GST and because, in addition to providing a north-south linkage between the southern SPSRA boundary and Burma Road (which leads into Devil's Lake State Park), it would also enable riders to link to the trail that heads east to Merrimac. Several other people also noted their support for locating the snowmobile trail on the eastern side of the property to minimize the noise impact to the rest of the property.

A small number of respondents were opposed to any snowmobile trail on the property citing noise, pollution, and impacts to other visitors to the property.

Department response: The master plan was changed to eliminate the snowmobile use of the Great Sauk Trail alignment. The snowmobile route (generally on the existing trail's alignment) along the southern, eastern, and northern borders of the SPSRA was selected. See page 23.

c. Rocketry

People in support of launching rockets at SPSRA noted the need for safe sites in which to operate. These respondents also stated the value that the activity has in generating interest, particularly in high school, in the fields of science and engineering. People in support of rocketry also noted that there are no other legal launch sites on public properties in the region and that the closest public site is at the department's Richard Bong Recreation Area in Kenosha County.

Many respondents were opposed to allowing the launching of model and high powered rockets, citing a concern that the noise would have a negative impact on wildlife and other visitors' enjoyment of the property. Many people believed that rocketry was inconsistent with the department's original intentions for the property. Some people believed that launching rockets would lead to contamination, pollution, or could cause wildfires in surrounding grasslands.

Some horseback riders expressed concern that the proposed rocket launching site was too close to some equestrian trails; others suggested that they wouldn't visit the property when rockets were being launched because their horse would be too unsettled by the noise. The Dairy Forage Research Center expressed concern that the proposed location for rocket launching may result in rockets inadvertently landing on their lands and that in retrieving them, people may damage crops or research projects. In addition, the DFRC expressed concern for potential crop loss due to fires resulting from wayward rockets and the potential for rockets to damage their silage storage bags.

Department response: The master plan was changed to restrict the number of days that rockets could be launched in the April 15 to July 31 period to two days and limited the number of rockets that may be launch during these two days to 50/day. The distance that rockets could travel from the launch site was also limited by capping the launch height. See pages 31.

d. Hunting and trapping

A few people voiced opposition to hunting and trapping on the property. Some people recommended shortening the allowable time period for hunting to mid-November to May 1 to minimize conflicts with the anticipated large number of visitors pursuing other activities (such as biking, hiking, bird watching and horseback riding) in the fall and spring. This time period would correspond with the hunting seasons permitted in most state parks.

Department response: The master plan was changed to allow turkey hunting during the first three week-long periods only. The beginning of the hunting period at SPSRA was kept at mid-October to take advantage of pheasant hunting opportunities in the large grasslands. See page 28.

e. Dual-sport motorcycle use

People in support of repurposing trails and roads for motorcycles commented that there is very high demand for off-road riding opportunities that is currently underserved. Some advocates for off-road motorcycling were disappointed that a dedicated trail for motorcycles open throughout the year was not included in the draft master plan. Generally, it appeared that people who participate in dual-sport motorcycling wish there would have been more opportunities at SPSRA but were pleased to be included, albeit on a limited basis.

Some people in support of dual-sport motorcycling also noted that there are numerous opportunities for people to pursue quieter activities throughout the region.

Many people expressed concerns about the impacts that dual-sport motorcycles would have on wildlife. The most common concern was that the vehicles would disturb or displace animals, particularly birds, at the property. Many people were also concerned that the noise from dual-sport motorcycles would adversely impact other visitors and their enjoyment of the property. Some people stated that even the temporary use of motorcycles on the biking and equestrian trails would cause extensive damage to the trails leaving them unusable for their primary uses.

For safety reasons, the draft master plan proposes that the roads and trails temporarily (six days/year) repurposed for use by dual-sport motorcycles would be closed to other users. Some people opposed the temporary closure of these roads and trails and questioned what visitors interested in biking or horseback riding would do if they arrived at the property to find that many of the trails and roads were closed.

Dairy Forage Research Center requested that dual-sport motorcycle events be limited to weekends or holidays to minimize conflicts with the movement of farm vehicles and that the roads needed for their farm vehicles (see Map F, DFRC Accessway) not be repurposed for use by motorcycles.

Department response: The master plan was modified to provide clearer parameters for dual-sport motorcycle use of the property. The plan still calls for biking and equestrian trails to be repurposed for use by dual-sport motorcycles up to six days a year and that this use can only occur as part of a special event permitted by the department. To ensure that bikers and horseback riders visiting the property have opportunities at SPSRA, the master plan now clarifies that up to 50% of the biking and equestrian trails may be repurposed for motorcycle use and at least 50% would remain open for biking and equestrian use. The trails repurposed for dual-sport motorcycle use will be closed to all other uses during the six days.

Language was added clarifying that all riding must occur on trails or roads – no off-trail riding will be allowed – and that all motorcycles must be sound tested prior to being allowed on the trails. In addition, the days when the biking and equestrian trails will be repurposed will be limited to January 1 through mid-

October with only two of these days allowed within the spring nesting period (April 15 to July 31). Finally, the number of dual-sport motorcycles that may use the trails is now limited to 100 riders per day and riding hours are limited to 9:00 a.m. to 4:00 p.m. on the trails. See page 21.

The department will work with DFRC on the timing of special events for dual-sport motorcycles and the roads and trails that will be used to ensure that DFRC operations are minimally affected.

f. Mountain biking

People in support of incorporating mountain biking trails noted the demand for opportunities in the region and the current lack of trails. Some also noted the draw that mountain bike riding has with today's youth.

Several supported the potential to link to potential trails in Devil's Lake State Park, although some noted that trails should be constructed at SPSRA without waiting for connecting trails to be authorized at DLSP. Some people suggested adding more miles of trails in SPSRA to provide a better experience.

Some people voiced opposition to mountain biking trails because their use would lead to erosion and was generally inconsistent with managing the SPSRA for low impact uses.

Department response: The master plan was modified to increase the number of authorized mountain biking trails from five to ten miles. In addition, the plan now authorizes the construction of trails at SPSRA without having to wait for approval of connecting trails to DLSP. See page 25.

g. Hiking and walking

Several people requested additional hiking opportunities be developed, including long distance trails from both Lake Wisconsin and the Hillside Prairie north to the proposed visitor center and on up to the reservoir site. As can be seen below in the input on what people expected they would do at the property, hiking and walking were the top uses.

Department response: The master plan was modified to increase the number of authorized longer distance trails from five to twelve miles to be able to provide connections between the visitor center, Bluff Vista overlook, Lake Wisconsin overlook, and the Hillside Prairie in the Magazine Area. In addition, the plan was revised to authorize three miles of walking trails in the section of the Magazine Area (sub-units MA 2, MA4, and MA5) where dogs will be allowed off-leash. Five miles of shorter hiking "loop" trails remain in the master plan. See page 24.

h. Dog training, dog trialing, and off-leash dog use

Some people commented that there is an ongoing unmet need for Class 1 dog trialing grounds and that the 600-acre Magazine Area should be designated as such.

Some concern was raised that the proposed site for the Class 2 training ground is too brushy and wooded for practical training use. Other people were opposed to any dog training site on SPSRA and were specifically concerned that shooting firearms as part of training exercises (as occurs at other Class 1 and 2 dog training sites around the state and as would be allowed at SPSRA) would have an adverse impact on other visitors to the property, wildlife (particularly birds), and neighboring landowners.

There was a request to allow judges and/or marshals to be on horseback during dog trialing events.

Some people expressed concerns that off-leash dogs in the Magazine Area, where biking trails are proposed, would lead to conflicts (primarily dogs chasing bikers). Other people noted concern that off-leash dogs would

negatively impact nesting birds and other wildlife. Finally, Dairy Forage Research Center (which owns land surrounding the Magazine Area) expressed concern that dogs might leave the east side of the Magazine Area and disrupt grazing research taking place on their land east of parcel MA3. DFRC requested that dogs be on-leash from April 1 to October 31 in the Magazine Area to reduce conflicts.

Department response: The master plan was modified to allow horseback riding by judges and marshals during dog trials and to restrict the off-leash area to just MA2, MA4, and MA5 to provide a wide buffer to DFRC's research cows. The department will continue working with DFRC to monitor any issues with dogs.

Clarifying language was added to the master plan that the department intends to remove brush and trees from the dog training ground (MA5) to improve the quality of training experiences here. No change was made to the plan preventing the discharge of firearms in the course of training dogs. See page 29.

i. Special events

Some people expressed concern that special events, depending on their nature, had the potential to impact visitors to the property and wildlife. Some respondents thought there should be more definition of what events would be allowed, number of participants, timing, and location.

DFRC expressed concern about the potential nature of these events and requested that any special events permitted be non-invasive, conducted on weekends or holidays, not result in people coming and going all day, and that the numbers of people participating not exceed available parking capacity.

Department response: The section of the master was modified to better explain the conditions under which special events will and will not be authorized. Clarifying language was added regarding where on the property special events may be authorized. See page 32.

j. Shooting range

Although a shooting range is not proposed in the draft master plan, the department recognizes the demand for additional publicly-available target shooting opportunities in controlled settings. As such, shortly after the master plan for SPSRA is finalized, the department intends to initiate an evaluation of its properties in Sauk County to identify a potential site for a shooting range. Sauk Prairie State Recreation Area will be included in this evaluation.

Nearly all of the people who commented on a potential shooting range voiced strong opposition. Some expressed frustration that the department had already received overwhelming feedback against locating a shooting range at SPSRA and that the department still appeared to leave it as an option for the future. Most of the opposition to a shooting range was focused on the noise it would generate and the adverse impact this would have on wildlife, other visitors to the property, and neighbors.

The National Park Service requested that if the department anticipated including a shooting range at SPSRA in the next 15 years that the potential impacts associated with this use be evaluated as part of the master plan.

Department response: The master plan was modified based on the department's recent proposal to potentially construct a public shooting range at one of three possible sites within the Lower Wisconsin Riverway. Clarifying language was added to the master plan for how the department will proceed depending on the outcome of the proposal to construct a range at the Riverway. See page 34.

4. CULTURAL AND HISTORIC RESOURCE MANAGEMENT AND INTERPRETATION

Only limited comments were received regarding the proposed management and interpretation of cultural and historic features. There was support for the proposed incorporation of various aspects of the property's history into visitor experiences.

Department response: No changes were made to the master plan based on public comments.

5. GENERAL, ADMINISTRATIVE, OR PROPERTY-WIDE ISSUES

Some respondents, including the Town of Merrimac, requested that access to the property be made available from STH 78. As was noted by some people, visitors arriving from the east side of the property would have to drive an additional 10 miles around to the entrance on USH 12, which some people thought was wasteful.

Several respondents encouraged the department to more clearly state its intent to manage SPSRA in collaboration and cooperation with the other owners of the former Badger Army Ammunition Plant property. Some suggested adding a section to the master plan that describes examples of how the landowners could work together on various projects.

Respondents noted the need for the department to monitor impacts of management actions and recreational uses of the property. Examples potentially include restoration of habitats and changes to populations of rare species, changes in the distribution of invasive species due to different types of recreation, impacts to wildlife from different types of recreation, and interactions among recreationists. Some people, as well as the National Park Service, noted the department's limited staffing and expressed concern about the agency's ability to adequately monitor visitors and enforce rules and regulations.

Some respondents stated that the land management classifications proposed were too skewed towards recreation and should be changed to reflect a greater emphasis of habitat management. In a similar vein, some people suggested changing the name of the property from the Sauk Prairie State Recreation Area to the Sauk Prairie Conservation Area or the Sauk Prairie Restoration Area to better reflect the goals of the property.

Dairy Forage Research Center expressed concerns related to the proposed uses of the Magazine Area. One concern was that the roads that the department proposes to allow the Center to drive farm equipment on did not appear adequately on the maps. A second concern was the potential for accidents if there is considerable traffic on the roads leading to and in the Magazine Area. A third concern was the potential for the public to trespass on DFRC land and disturb crops or research projects.

Several people noted the need to provide quiet places for people to relax, connect with the outdoors and hear natural sounds such as bird calls and the wind. They expressed concern that launching rockets and riding motorcycles, even on a limited basis, would detract from people's ability to experience quiet throughout the property.

An attorney representing the Sauk Prairie Conservation Alliance expressed concern that some of the activities proposed are not consistent with the department's application to the National Park Service (NPS) to receive the property. Specifically, their perspective was that the department does not have the legal authority to allow the launching of rockets, riding motorcycles on repurposed roads and trails, dog training in a Class II training ground, and snowmobile riding on a trail through the middle of the property without approval from the NPS. Further, their perspective was that if the department sought to allow these activities without NPS approval the SPSRA property would revert back to the National Park Service.

Department response: The department currently does not have legal access to SPSRA from STH 78 so is not in a position to provide public access from the east side of the property. The master plan was revised to adjust the project boundary so that the department can potentially acquire legal access from STH 78. Clarifying

language was added that if the department is able to acquire access from STH 78 into the property that this access will be designed to prevent SPSRA from becoming a short-cut for traffic to move between STH 78 and USH 12. See pages 11 and 21.

Additional language was included regarding the department's intent to work closely with the other landowners of the former BAAP on areas of mutual interest. See page 13. Clarifying language was also added regarding monitoring and reporting the outcomes of management and use of the property.

The department shares the concern that existing staffing levels require the department to prioritize workload in ways that may result in some tasks not being addressed to the extent or as timely as desired. This is an issue across many department properties.

The department's goal is to restore and manage high quality habitats throughout the property, regardless of whether an area is classified as a "recreation management area" or "native community management area." The amount or distribution of the land management classifications does not affect this underlying goal. No change was made to the classifications or the proposed name of the property.

Changes were made to Map F to better indicate the access routes that will be provided to DFRC. The department will also continue working with DFRC on trespass and other issues to ensure that the public's use of SPSRA does not unacceptably impact DFRC operations.

Some department properties have more intensive uses (year-round or occasionally) while others only provide for less intensive uses. The department owns more land and public access easements in Sauk County than any other county in southern Wisconsin (over 30,000 acres); the vast majority of these lands only provide opportunities for low intensity activities. There is not a shortage of opportunities in Sauk County for people to enjoy low intensity, quiet, or remote experiences on lands open to the public. The department believes that the collection of recreation opportunities proposed for SPSRA, and the parameters by which they can occur, is consistent with the department's application to the FLP program.

6. FACILITIES

Some people requested that the department leave the east reservoir "as is" and leave the population of neotenic salamanders in the reservoir. Related to this, some people suggested reducing the size of the developed footprint at the reservoir site. It was suggested to move the proposed amphitheater to the visitor center grounds to more centrally locate the facility. Another suggestion was to reduce the size of the parking lot. People questioned why the agency would spend limited funds to raze the reservoirs when higher priority habitat management and restoration work was needed.

Some respondents, including the Town of Merrimac, requested that the entry road from STH 78 to the future Weigand's Bay day use area be moved off of its current alignment to a new alignment to the north, so as to shield it from the houses along Weigand's Bay South Road. In addition, the Town requested more parking be provided at or near the day use area and to eliminate the proposed overflow parking.

<u>Department response</u>: The master plan was modified to reduce the size of the proposed amphitheater at the reservoir site and to add a second one at the proposed visitor center. Clarifying language was added regarding the size of the developed "footprint" at the reservoir site. The need to address the safety concerns that the reservoirs present and their future removal was not changed. See page 27.

The master plan was also modified to authorize the realignment of the access road to Weigand's Bay, to increase the size of the parking lot at the day use area, and to eliminate the overflow parking that was previously proposed. *See page 86.*

7. ANALYSIS OF ENVIRONMENTAL IMPACTS

Several people stated that the descriptions of anticipated impacts from various factors, but most commonly recreation activities such as rocketry, motorcycle riding, dog training, and horseback riding, were not well explained or documented and needed to be expanded and clarified. It was suggested that these activities will have substantial environmental impacts that the department should disclose. The department was also requested to further explain the long-term, cumulative, and precedential impacts, as well as the potential alternatives and their impacts.

It was also suggested that a description of the anticipated impacts from the proposed Wisconsin Army National Guard use of the property be included.

Department response: The master plan was modified to include additional information about potential impacts from proposed habitat management techniques and recreational uses of the property. Information related to recreational uses included more detailed descriptions of potential impacts between people pursuing different recreation activities. In addition, additional information on potential impacts to neighboring landowners was added. Impacts associated with the WIARNG training use of SPSRA were also included. A bibliography of articles, reports, and research papers related to understanding potential impacts of recreation use was included as an appendix. *See Chapter IV starting on page 127 and Appendix 5.*

B. Concerns raised by the National Park Service

The National Park Service sent the department a letter May 3, 2016 listing a series of concerns, which are summarized here:

- The NPS expressed concern that many people were opposed to some forms of recreation that are proposed at SPSRA.
- As also noted by members of the public (described above), the NPS did not think the analysis of impacts in the initial draft EIS was adequately thorough. In particular, the NPS believed that the impacts from visitors engaged in some recreation activities would adversely affect wildlife and other visitors. The NPS also suggested that the EIS should be re-formatted to reduce confusion.
- The NPS stated a desire for the department to develop an alternative management proposal comprised only of the activities and actions included in the department's application and program of utilization.
- The NPS considered a minimalistic "no action" alternative unreasonable because it would likely lead the NPS to consider the property to be in noncompliance with the department's original justification for obtaining the property and would potentially put the SPSRA in jeopardy of reversion to the federal government.
- The NPS expressed concern that the department may not have adequate staffing to address the full range of recreation uses and conflicts that may emerge as well as take on the needed habitat management. They also stated a desire to see a more definitive timeline as to when different facilities would be built and habitat management actions would be undertaken.

- The NPS stated a concern that visitors engaged in some recreation activities (they cited dual-sport motorcycles as an example) would displace others from visiting the property.
- The NPS stated that Wisconsin Army National Guard use of the fenced in area around the main landfill would need to cease unless the U.S. Army modified their assignment (disposal) documents to reserve the right for the Guard to continue to use the site.
- The NPS expressed a desire to see the department either include a shooting range in the proposed master plan (along with an assessment of potential impacts) or to drop consideration of a range during the expected duration of the master plan (15 years).

Department response: Many of the revisions and clarifications that the NPS suggested were similar to those received from the public and have been addressed here.

The department is not able to develop an alternative proposal comprised only of the activities and actions included in the department's application and program of utilization because the POU didn't definitively include any specific suite of uses. Rather, the POU stated that the department would go through its standard property planning process to determine appropriate recreation activities and habitat management strategies.

The "no action" alternative was maintained, not because it is a desirable alternative but rather because it is a reasonable one for the department, the Natural Resources Board, and the public to consider given limited budget and staffing resources. Additional language clarifying that this alternative would likely lead the NPS to consider the property to be in noncompliance with the department's original justification for obtaining the property and would potentially put the SPSRA in jeopardy of reversion to the federal government was included.

In addition, more explanation of the department's approach to determining an appropriate mix of recreational uses at SPSRA (even if it resulted in temporary or permanent displacement of some visitors) was included.

The WIARNG is continuing to work with the NPS, the U.S. Army, and the General Services Administration on issues related to WIARNG training use at parcel V1.

Finally, master plans are not written to preclude the authority of future administrations or the Natural Resources Board from making decisions related to property management and use. The department's policy is to minimize variances and amendments to existing property master plans to the degree feasible, but in instances when conditions, needs, or opportunities change we recognize that modifications to master plans are sometimes necessary. If, in the ensuing 15 years, the department determines that adding or removing uses from the property is warranted, it will go through the process outlined in ch. NR 44, Wis. Adm. Code, to seek a change to the master plan. That process evaluates needs, opportunities, and impacts and includes opportunities for public input.

C. Potential use of the property.

The survey developed to gather feedback on the draft master plan asked about people's future use of the property. Of the 392 people who responded that they anticipated visiting the property, the following activities were likely to be pursued by at least 10% of visitors:

- Hiking or walking (74% of respondents anticipated hiking or walking at the property)
- Bird and other wildlife watching (51%)
- General sightseeing (49%)
- Photography (48%)
- Recreational biking (39%)
- Cross-country skiing and snowshoeing (36%)
- Horseback riding (20%)
- Automobile driving (20%)
- Dual-sport motorcycle riding (18%)
- Snowmobiling (16%)
- Hunting (13%)
- "Fat tire" biking (12%)
- Running or conditioning (12%)

In addition to the recreation activities that are proposed in the draft master plan, some respondents requested additional activities be included at SPSRA. Requests for ATV riding, 4x4 vehicle driving, and a shooting range were requested.

Department response: No changes were made to the draft master plan based on this information.

Figure 22: The Fred & Cora Steuber farm where East Rocket was built.

Badger History Group archives

Appendix 1:
Acronyms and definitions

Acronyms

BAAP ..... Badger Army Ammunition Plant[54]

BHG ..... Badger History Group

BIG ..... Badger Intergovernmental Group

BOMC ..... Badger Oversight and Management Commission

BOW ..... Badger Ordnance Works, the original name of the complex

BRC ..... Badger Reuse Committee

BVSD ..... Bluffview Sanitary District

DATCP ..... Wisconsin Department of Agriculture, Trade, and Consumer Protection

DFRC ..... Dairy Forage Research Center

DLSP ..... Devil's Lake State Park

DOA ..... Wisconsin Department of Administration

DOT..... Wisconsin Department of Transportation

DNR ..... Wisconsin Department of Natural Resources

FLP ..... Federal Lands to Parks program

GSA ..... General Services Administration

GST ..... Great Sauk Trail

HCN ..... Ho-Chunk Nation

NPS ..... National Park Service

NRB ..... Natural Resources Board

PDMD ..... Power driven mobility devices

POU ..... Program of Utilization

RPA ..... Regional and Property Analysis

SCORP ..... Statewide Comprehensive Outdoor Recreation Plan

SPSRA ..... Sauk Prairie State Recreation Area

USDA ..... United States Department of Agriculture

USH, STH, CTH ..... United States Highway, State Highway, County Highway

WAP ..... Wildlife Action Plan

WIARNG..... Wisconsin Army National Guard

[54] Badger Army Ammunition Plant is sometimes referenced as BAAAP, which follows U.S. Army protocol of using the first two letters of a place's first word in acronyms.

Definitions of terms used in this master plan

Native, surrogate, and degraded

The existing habitats at SPSRA are in a wide variety of conditions. Although the term "surrogate" is most often associated with grasslands, in this master plan the terms "native," "surrogate," and "degraded" apply to all habitat types and are defined as follows:

Native

Native habitats are those dominated by native plant species and that are able to maintain functioning ecological processes (e.g., fire, nutrient cycling, species interactions). These can be either areas of remnant, unplowed sod or restorations using local genotypes of a reasonably wide diversity of native grasses, forbs, and (for savannas and forests) shrubs and trees. When in large tracts, native lands typically provide important habitat for native vertebrates. Remnant and unplowed areas, even if only small sites, often harbor a diversity of native invertebrates. An example of a native habitat at SPSRA is the Hillside Prairie.

Surrogate

Surrogate habitats are those dominated by non-native plant species or a mix of native and non-native plants that meet some life history needs of native animals. These areas may be of limited ecological value as native communities, but when in large blocks (e.g., for grasslands about 80 acres, or smaller if contiguous with other open habitats) they typically provide habitat structure that supports many native animals (notably birds), including several with high conservation need. Converting these lands to native habitats often requires planting and other intensive management techniques. Examples of surrogate habitat at SPSRA are: (1) the grasslands in the Central Grassland, (2) the former pasture in the Magazine Area with non-native grasses and scattered cottonwood trees that mimic native savanna and (3) the former agricultural lands in the Northeast Moraine that have succeeded to dense stands of early successional trees and exotic shrubs.

Degraded

Degraded habitats are those that retain some of the species or characteristics of native habitats, but which may have an altered species composition (including invasive species) or structure, or have reduced ecological function. They may or may not support most native animals based on their condition. Restoration of these areas depends greatly on the habitat and type of degradation; a degraded oak savanna with good structure might require management actions such as fire or thinning, while an extensive thicket of invasive shrubs might need more intensive techniques like clearing and replanting. Degraded sites must each be evaluated independently for the type of management needed to restore them to a more desirable condition. An example of a degraded habitat at SPSRA is an overgrown oak opening in the Magazine Area that has many large, open-grown oak trees in a forest of younger trees.

Forest to grassland continuum

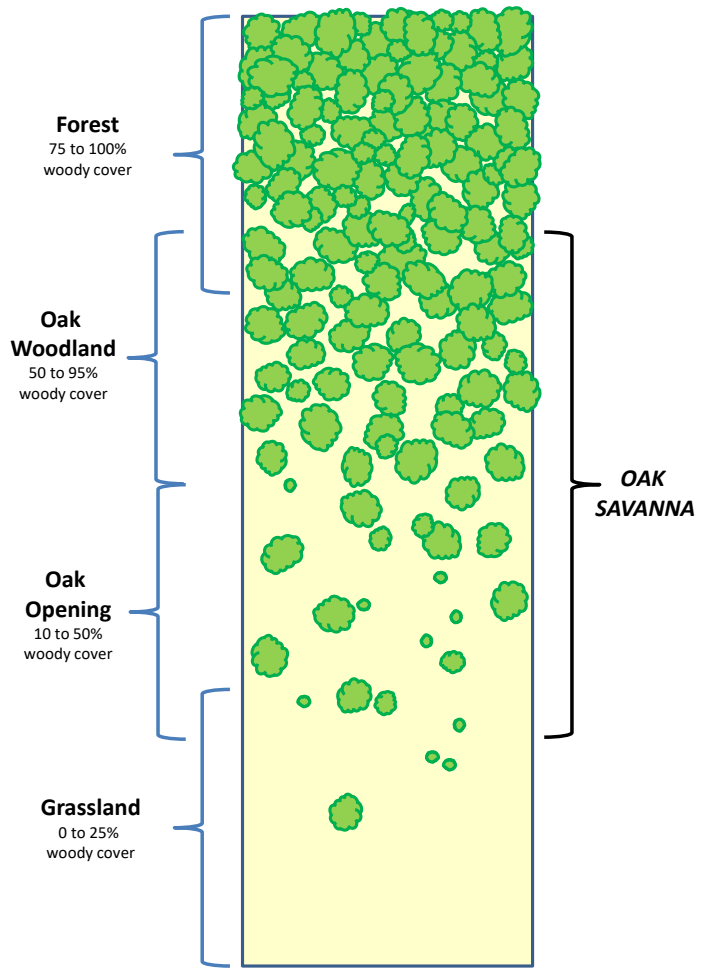
Since naturalists first started exploring the state, different terms have been used to characterize Wisconsin's landscape. The following terms are defined here to clarify the continuum of habitats found at SPSRA.

Forest

In this master plan, forests are defined as areas with 75 to 100% tree cover. At SPSRA, forests are mostly early to mid-successional in nature and most originated after 1942. Dominant trees include oaks, elms, cherry, box elder, cottonwood, and maples.

Oak savanna, oak opening, and oak woodland
The term "savanna" has never been well defined. In the Midwest, savanna is generally used to describe an ecosystem that was historically part of a larger complex bordered by the prairies of the west and the deciduous forests of the east. The savanna complex was a mosaic of plant community types that represented a continuum from prairie to forest. Savannas were the communities in the middle of this continuum. The mosaic was maintained by frequent fires and possibly by large ungulates such as elk.[55] Oaks were the dominant trees, hence the oft-used term "oak savanna" to describe this general habitat type.

Figure 23: A visual representation of the forest to grassland structural continuum.



Because savannas grade into both prairie and forest, there are no clear dividing lines between it and these two communities. The department includes three habitats (native plant communities) under the "oak savanna" umbrella, two of which occur at SPSRA: oak openings and oak woodlands. Oak barrens, which occur on sand soils, are a third type of oak savanna, but historically did not occur on SPSRA.

In this master plan, oak woodlands are defined as areas with more than 50% tree canopy but less than 95%. As with oak openings, there is often a diversity of tree density – small patches of open areas and dense groves of trees may be scattered through oak woodlands. In high quality examples, dominant trees included white, bur, and black oaks, sometimes mixed with red oak and shagbark hickory. Under a characteristic fire regime, shrub and sapling representation in oak woodlands would be minimal. The herb layer is potentially diverse, including some members of the prairie, oak opening, and oak forest communities, but also featuring grasses, legumes, composites and other forbs that are best adapted to light conditions of high filtered shade.

Oak openings are defined as areas with scattered trees mixed with patches of grassland openings as well as small groves of more densely growing trees. Overall, between 10 and 50% tree canopy exists. In high quality examples, bur, white, and black oaks are dominant in mature stands as large, open-grown trees with distinctive widespread limb architecture. Shagbark hickory is sometimes present. American hazelnut is a common native shrub. The herb layer is typically a mix of those found in oak forests and prairies along with several savanna specialists.

[55] American Bison occurred in the area prior to Euro-American settlement, but were not present in the large herds common in the Plains.

Grasslands

In this master plan, grasslands are defined as open areas largely without trees and dominated by a wide range of grasses and forbs. Although grasslands have an open aspect, portions may have up to 25% shrub or woody cover. Many of the grasslands at SPSRA have been highly disturbed and have a sizeable invasive species component. Indeed, in many portions of SPSRA there are few, if any, native grasses and forbs present.

Figure 2 shows a generalized representation of the continuum from grasslands to oak openings to oak woodlands to forests and the structural overlap that occurs across these habitats.

Species of Greatest Conservation Need

Species of Greatest Conservation Need (SGCN) have low and/or declining populations that are in need of conservation action. They include various birds, fish, mammals, reptiles, amphibians and invertebrates (e.g., dragonflies, butterflies and freshwater mussels) that are:

- already listed as threatened or endangered;
- at risk because of threats to their life history needs or their habitats;
- stable in number in Wisconsin, but declining in adjacent states or nationally; or
- of unknown status in Wisconsin and suspected to be vulnerable.

SGCNs are identified in Wisconsin's Wildlife Action Plan (WAP), a strategic approach to wildlife conservation that outlines priority conservation actions to protect species and their habitats. The plan encourages the involvement of all agencies, organizations, and private individuals in taking action to prevent wildlife from becoming endangered and offers a proactive way to conserve wildlife and natural places for future generations.

Facilities

In this document, the term “facilities” encompasses the broad range of structures and man-made features on the property. These include such things as buildings, picnic areas, roads, trails, parking lots, kiosks, and shelters.

Mountain bicycling, recreational bicycling, off-road bicycling trails

Different types of biking opportunities are proposed at SPSRA. These are defined as:

Mountain bicycling = bicycling on narrow, often curving “single-track” trails that generally use native soils and incorporate naturally occurring materials (rocks, logs) into their design. Mountain bicycling can be physically challenging and requires bikes specifically built for such use (e.g., wider tires, sturdy frames, short turning radius). Generally speaking, riders cover up to 10 miles in a half-day outing.

Recreational bicycling = bicycling on trails surfaced with compacted aggregate or asphalt. Recreational bicycling, sometimes referred to as “family friendly” bicycling, can be done using a wide range of bicycles. Recreational bike trails are generally designed to be ridden by people with a wide range of abilities, including children. Depending on the surface, adult riders generally cover about 15 to 25 miles in a half-day outing.

Off-road bicycling trails = bike trails that are not shared by motor vehicles. All mountain biking trails are “off-road” trails.

Parts of the property

SPSRA is primarily comprised of two large contiguous blocks of land. In this document, the phrase “main part of the property” refers to all of SPSRA except for the Magazine Area and the small Weigand’s Bay site.

Appendix 2:
Reference list of documents related to SPSRA, BAAP, and the general area.

The following documents relate to the past, present, and future of the Badger Army Ammunition Plant and may be of interest for those seeking more information about the property and the surrounding area.

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Appendix 3:

Estimated costs of proposed facilities at SPSRA.

Roads and trail estimated costs:

	Total Miles	Cost per mile	Estimated Cost
Roads (miles)			
Asphalt (moderately developed)	**14.6**	$80,000	$1,168,000
Gravel (lightly, moderately developed)	**7.6**	$35,000	$266,000
Total Roads	***22.2***		*$1,434,000*
Trails (miles)			
Hiking, longer distance trail (primitive)	**12**	$19,000	$228,000
Hiking, short loop trails (primitive to moderately developed)	**8**	$19,000	$152,000
Biking (moderately developed)	**15**	$22,000	$330,000
Mt. Biking, single track (primitive)	**10**	$19,000	$190,000
Equestrian (lightly developed)	**12**	$25,000	$300,000
Snowmobile	**7**	-	$0
Great Sauk Trail	**5.5**	$29,000	$159,500
Total Trails	**63**		*$1,359,500*
TOTAL			**$2,793,500**

Proposed facilities estimated costs:

Facility	Location	Number of units	Unit Cost	Estimated Cost
Visitor center	to be determined	1	$575,000	$575,000
Entrance sign	Gateway Corridor	1	$8,500	$8,500
Interpretive signs	Property-wide	15	$1,000	$15,000
Viewing deck	Bluff Vista	1	$45,000	$45,000
Amphitheater	Bluff Vista	1	$50,000	$50,000
Amphitheater	NE Moraine or Gateway Corridor	1	$100,000	$100,000
Corral, hitching posts	NE moraine horse DUA	1	$8,000	$8,000
Vault toilets	Reservoir DUA NE moraine horse DUA Lake WI overlook DUA Magazine area special events DUA Weigand's Bay DUA	5	$65,000	$325,000
Picnic tables, grills	Reservoir DUA NE moraine horse DUA Lake WI overlook DUA Magazine area special events DUA Weigand's Bay DUA	5	$2,500	$12,500
Fishing platform/pier*	Weigand's Bay	1	$606,000	$606,000
Gates	Property-wide	15	$1,500	$22,500
Shop /maintenance building	Gateway Corridor	1	$200,000	$200,000

Parking lots	Location	Number of units	Unit Cost	Estimated Cost
6 car (paved)	Entrance lot	1	$18,000	$18,000
10 car (gravel)	NE moraine Rocketry site DUA Lake WI overlook DUA Hillside prairie Thoelke cemetery	5	$8,000	$40,000
30 horse trailer & 6 car (gravel)	NE moraine horse DUA	1	$20,000	$20,000
15 car (paved)	Visitor center	1	$40,000	$40,000
20 car (gravel)	Weigand's Bay DUA Special event staging area	2	$16,000	$32,000
50 car (paved)	Reservoir DUA	1	$85,000	$85,000

Shelters	Location	Number of units	Unit Cost	Est. Cost
20'x30'	Reservoir DUA	1	$45,000	$45,000
20'x20'	NE moraine horse DUA Magazine area special events DUA	2	$35,000	$70,000
16'x16'	Lake WI overlook DUA Weigand's Bay DUA	2	$25,000	$50,000
TOTAL				**$2,367,500**

DUA = Designated Use Area

*The estimated cost for the fishing platform/pier includes addressing the underwater portion of the former pump house and removing the upper structures.

Appendix 4:

Rare species recorded at Sauk Prairie State Recreation Area.

Species name	Common name	Taxa	Current Legal Status	SGCN*		Species status at SPSRA**	Current population trend	Anticipated effect of proposed management on population trend
				2005 WAP	2015 WAP			
Ammodramus henslowii	Henslow's sparrow	Bird	State Threatened	Y	Y	Present	decreasing	increase
Ammodramus savannarum	Grasshopper sparrow	Bird	Special Concern – Watch	Y	Y	Present	decreasing	increase
Antrostomus vociferus	Whip-poor-will	Bird	Special Concern	Y	Y	Present	decreasing	increase
Bartramia longicauda	Upland sandpiper	Bird	State Threatened	Y	Y	Likely extirpated	NA	increase
Coccyzus americanus	Yellow-billed cuckoo	Bird	Special Concern – Watch	Y	N	Present	stable	stable
Coccyzus erythropthalmus	Black-billed cuckoo	Bird	Special Concern – Watch	Y	N	Present	increasing	decrease
Colinus virginianus	Northern bobwhite	Bird	Special Concern	Y	Y	Unknown/ uncertain	decreasing	increase
Dolichonyx oryzivorus	Bobolink	Bird	Special Concern – Watch	Y	Y	Present	decreasing	increase
Empidonax minimus	Least flycatcher	Bird	Special Concern – Watch	Y	Y	Present	stable	decrease
Empidonax traillii	Willow flycatcher	Bird	Special Concern – Watch	Y	N	Present	increasing	stable
Hylocichla mustelina	Wood thrush	Bird	Special Concern	Y	N	Present	increasing	decrease
Icteria virens	Yellow-breasted chat	Bird	Special Concern	N	Y	Unknown/ uncertain	unknown	decrease
Melanerpes erythrocephalus	Red-headed Woodpecker	Bird	Special Concern – Watch	Y	Y	Present	decreasing	increase
Pooecetes gramineus	Vesper sparrow	Bird	Special Concern – Watch	Y	Y	Present	decreasing	increase
Scolopax minor	American woodcock	Bird	Special Concern – Watch	Y	Y	Present	stable	increase
Setophaga citrina	Hooded warbler	Bird	State Threatened	Y	Y	Present	increasing	stable
Spiza americana	Dickcissel	Bird	Special Concern – Watch	Y	Y	Present	stable	increase
Spizella pusilla	Field sparrow	Bird	Special Concern – Watch	Y	N	Present	stable	stable

Species name	Common name	Taxa	Current Legal Status	SGCN*		Species status at SPSRA**	Current population trend	Anticipated effect of proposed management on population trend
				2005 WAP	2015 WAP			
Sturnella magna	Eastern meadowlark	Bird	Special Concern – Watch	Y	Y	Present	decreasing	increase
Sturnella neglecta	Western meadowlark	Bird	Special Concern	Y	Y	Likely extirpated	NA	increase
Toxostoma rufum	Brown thrasher	Bird	Special Concern – Watch	Y	N	Present	stable	increase
Vermivora cyanoptera	Blue-winged warbler	Bird	Special Concern	Y	N	Present	increasing	stable
Vireo bellii	Bell's vireo	Bird	State Threatened	Y	Y	Present	increasing	stable
Micotus ochrogaster	Prairie vole	Mammal	Special Concern	Y	Y	Present	decreasing	increase
Lithobates palustris	Pickerel frog	Frog	Special Concern	Y	N	Present	stable	increase
Agabus inscriptus	A predaceous diving beetle	Invert	Special Concern	Y	N	Present	stable	increase
Agabus leptapsis	A predaceous diving beetle	Invert	Special Concern	Y	Y	Present	stable	increase
Laccophilus undatus	A predaceous diving beetle	Invert	Special Concern	Y	Y	Present	stable	increase
Lepidostoma libum	A lepidostomatid caddisfly	Invert	Special Concern	Y	N	Present	unknown	unknown
Sanfilippodytes pseudovilis	A predaceous diving beetle	Invert	Special Concern	Y	N	Present	unknown	increase
Asclepias lanuginosa	Woolly milkweed	Plant	State Threatened	N	N	Likely extirpated	NA	increase
Carex prasina	Drooping sedge	Plant	Special Concern	N	N	Likely extirpated	NA	increase
Lespedeza leptostachya	Prairie bush clover	Plant	State Endangered	N	N	Likely extirpated	NA	increase
Myosotis laxa	Small forget-me-not	Plant	Special Concern	N	N	Likely extirpated	NA	unknown

* SGCN = Species of Greatest Conservation Need
WAP = Wildlife Action Plan

** Status at SPSRA:

Present (recorded in a survey conducted after 2010; habitat still appears suitable).

Unknown/uncertain (recorded in a survey conducted after 1990, but not recorded or re-located in most recent survey; habitat appears potentially suitable).

Likely extirpated (recorded in a survey conducted after 1990, but not recorded or re-located in most recent survey; habitat no longer appears suitable)

Additional rare vertebrates that have not been recorded at SPSRA, but are known to occur nearby in similar habitats and may establish breeding populations in the future at SPSRA as habitats are restored.

Species name	Common name	Taxa	Legal Status	2005 WAP	2015 WAP	Species status at SPSRA	Current population trend	Anticipated effect of proposed management on population trend
Anas discors	Blue-winged teal	Bird	Special Concern – Watch	Y	N	Not recorded	NA	increase
Asio flammeus	Short-eared owl	Bird	Special Concern	Y	Y	Not recorded	NA	increase
Circus cyaneus	Northern harrier	Bird	Special Concern – Watch	Y	N	Not recorded	NA	increase
Haliaeetus leucocephalus	Bald eagle	Bird	Special Concern	Y	N	Nest on DFRC land	NA	stable
Setophaga cerulea	Cerulean warbler	Bird	State Threatened	Y	Y	Not recorded	NA	increase
Crotalus horridus	Timber rattlesnake	Snake	Special Concern	Y	Y	Not recorded	NA	increase
Pantherophis spiloides	Gray ratsnake	Snake	Special Concern	Y	N	Not recorded	NA	increase
Pituophis catenifer	Gophersnake	Snake	Special Concern	Y	Y	Not recorded	NA	increase
Emydoidea blandingii	Blanding's turtle	Turtle	Special Concern	Y	Y	Not recorded	NA	increase

Figure 24: View of the Central Grassland unit looking northwest. The Ho-Chunk Nation land (with many buildings on it) can be seen in the distance. The Baraboo Hills are beyond.

John Olson, 2004

Appendix 5:

References related to environmental impacts associated with human activities.

Bibliography of selected references related to impacts associated with human activities, and particularly outdoor recreation, on wildlife and plants.

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Sauk Prairie State Recreation Area

REGIONAL LOCATOR

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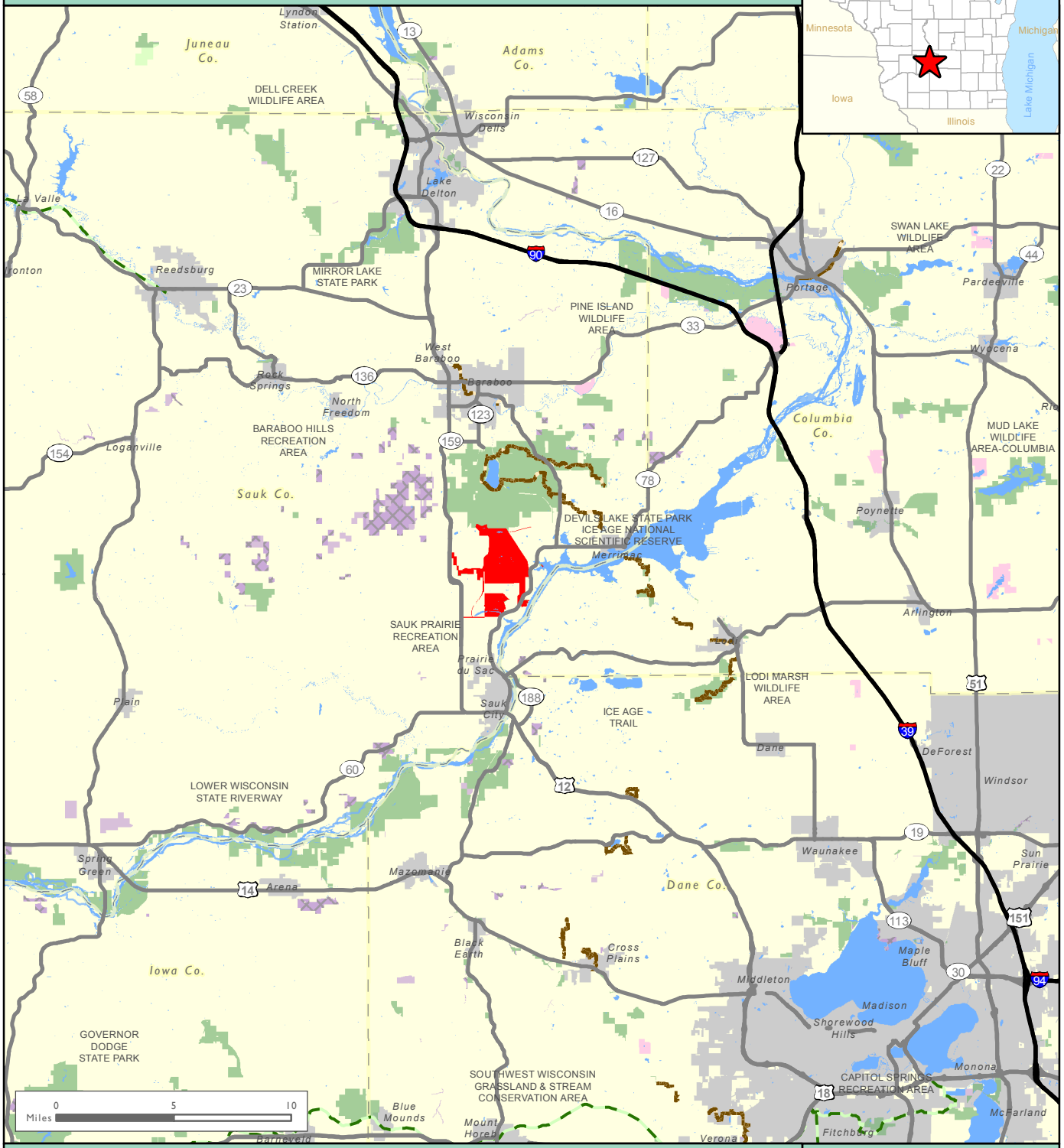

Sauk Prairie Recreation Area

DNR Fee Title

DNR Easement

DNR Lease

DNR Easement Closed to Public Access

Federal Land

County Forest

State Recreation Trail

Ice Age Trail

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WM-SPRA-MP-9493-B kmh

MAP A

Former Badger Army Ammunition Plant (BAAP)

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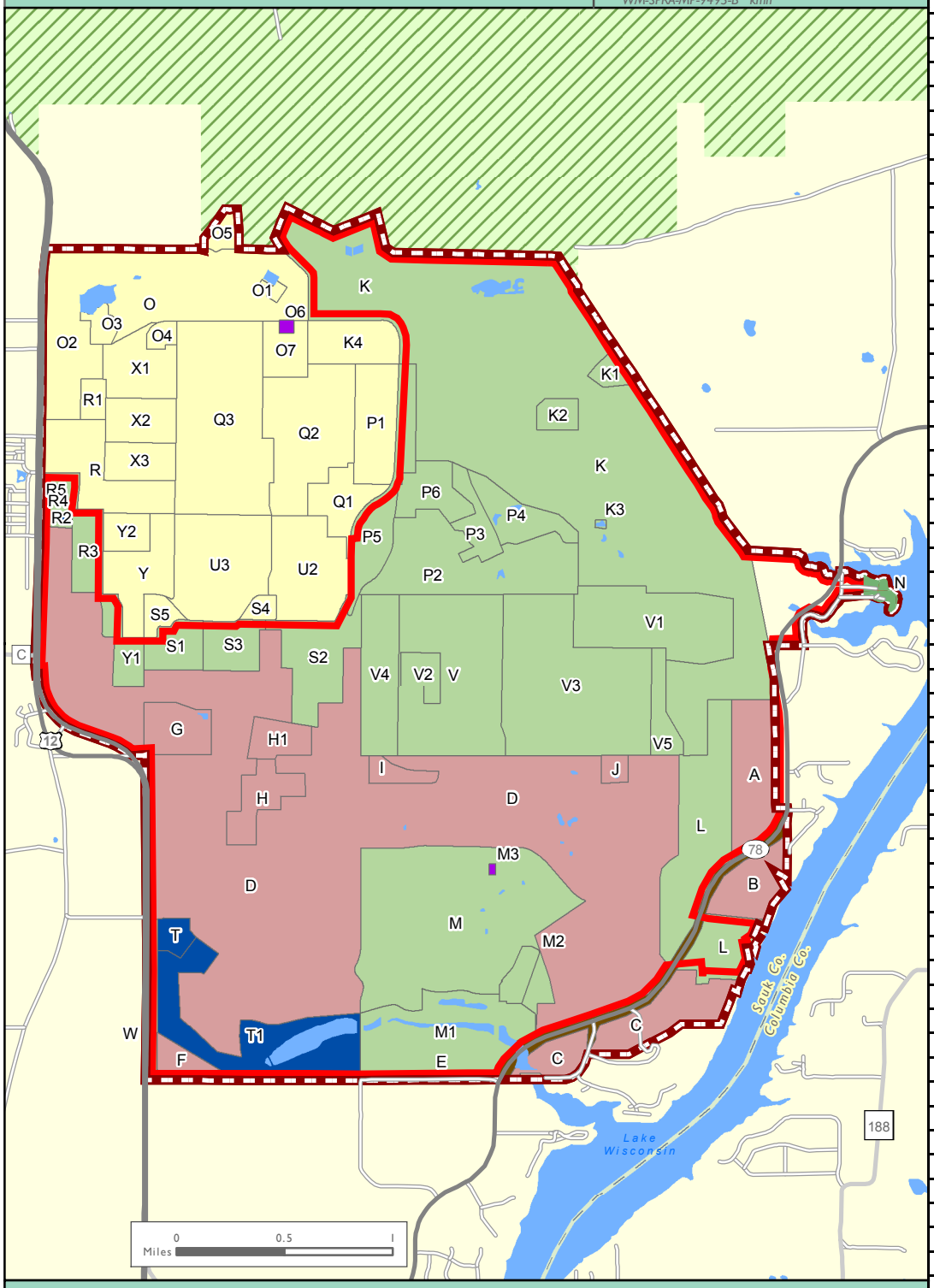
MAP B



Ownership of Former BAAP

- WI DNR
- Ho-Chunk Nation
- Town of Sumpter
- Bluffview Sanitary Dist.
- USDA
- WI DOT
- Other DNR Lands
- Project Boundary
- Proposed Project Boundary

Parcel	Description	Acres
A	North River Corridor Buffer	89
B	South River Corridor Buffer	55
C	Southeast Corner	114
D	North and East Magazines	1,669
E	South Buffer	12
F	Southwest Corner	20
G	Conservation Club Area	45
H	Propellant Burning Ground	45
H1	Gate 16 Change Houses	30
I	Landfill # 2 Area	17
J	Inert Disposal Area	10
K	Northeast Corner	1,168
K1	Landfill #5	12
K2	Deterrent Burning Ground	17
K3	Wood Duck Pond	1
K4	East Ball Powder Pilot Plan	55
L	River Corridor	199
M	North Magazines	385
M1	Settling Ponds/South Magazi	161
M2	Geotube Laydown Area	18
M3	Thoelke Cemetery	1
N	River Pump	5
O	Northwest Corner	332
O1	Filtration Plant	4
O2	Miller Cemetery	0
O3	Ballistics Range	13
O4	Solvent Recovery Still	10
O5	Cannon Range	14
O6	Pioneer Cemetery	3
O7	West Ball Powder Pilot Plan	33
P1	Historic Shops Area	68
P2	Rocket Paste Area	161
P3	Old NG	30
P4	NG Pond Area	47
P5	Railroad Scale Area	78
P6	New Acid & New NG	43
Q1	Box Wash Area	43
Q2	B & C Line Rest Houses	145
Q3	B & C Line Central Area	239
R	Production Support and Labs	94
R1	Old Acid Area	14
R2	Well #1	1
R3	Maintenance & Salvage Area	36
R4	Administration Area	28
R5	Building 200	1
S1	Ball Powder Wet Line	35
S2	Metal Rest Houses	87
S3	Ball Powder Coating Line	40
S4	Ball Powder Dry Houses	10
S5	Ball Powder Rework	16
T	WWTP Area	15
T1	IRM/MIRM/Final Creek/SP1	147
U2	D&E Lines Rest Houses	100
U3	D&E Lines Central Area	131
V	West Rocket Production	209
V1	Landfill #6	137
V2	West Rocket Roll House	22
V3	East Rocket Production	272
V4	West Rocket Press Houses	82
V5	East Rocket Press Houses	29
W	Southwest Corner	47
X1	Open Space	58
X2	B Nitrocellulose Line	42
X3	C Nitrocellulose Line	37
Y	E Nitrocellulose Line	68
Y1	F Line Area	33
Y2	D Nitrocellulose Line	24

Sauk Prairie State Recreation Area

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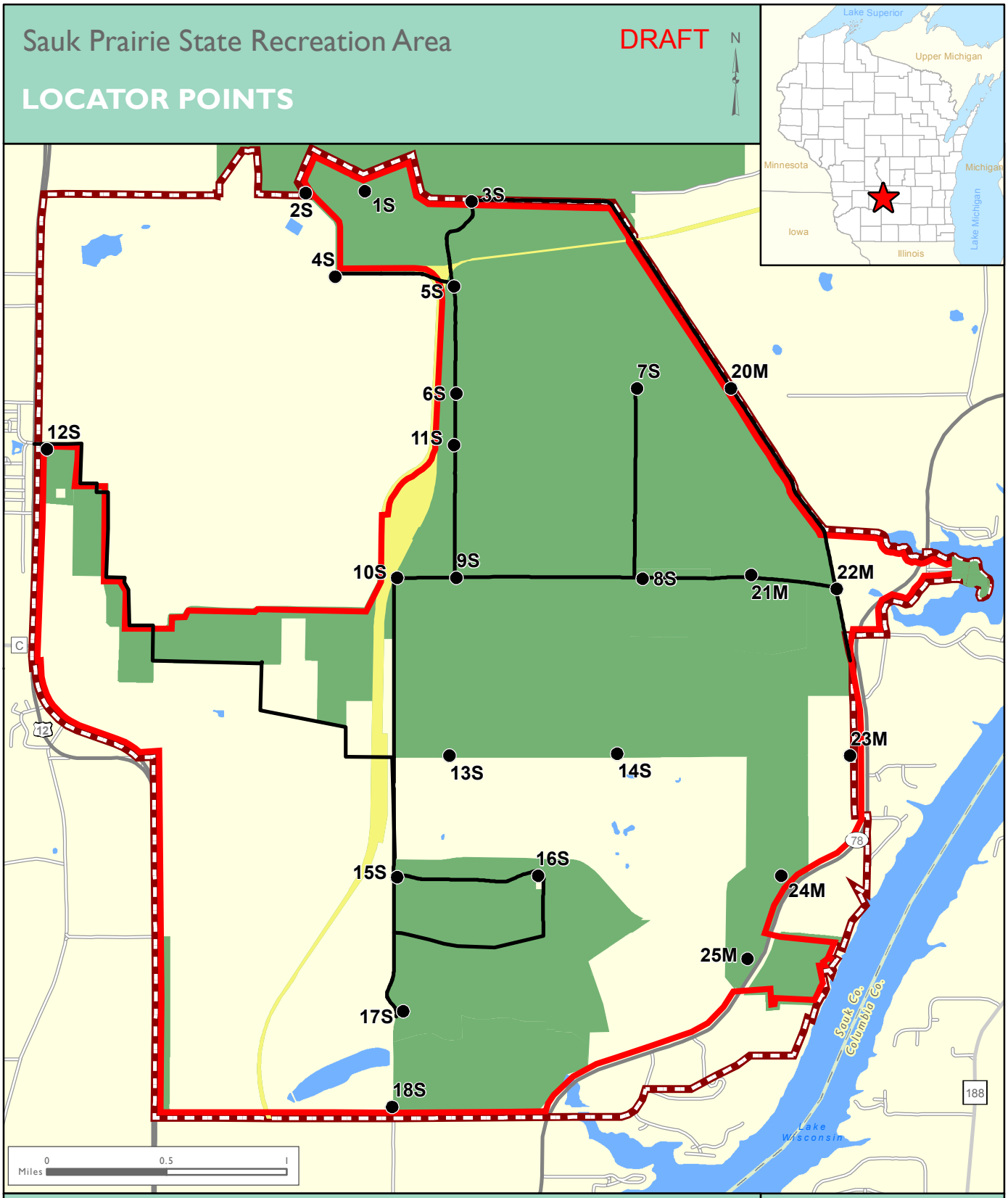
LOCATOR POINTS



- Locator Points
- Project Boundary
- DNR Fee Title
- Proposed Project Boundary
- Roads
- DNR Lease

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MAP C

Sauk Prairie State Recreation Area
PROPOSED MANAGEMENT UNITS AND SUB-UNITS

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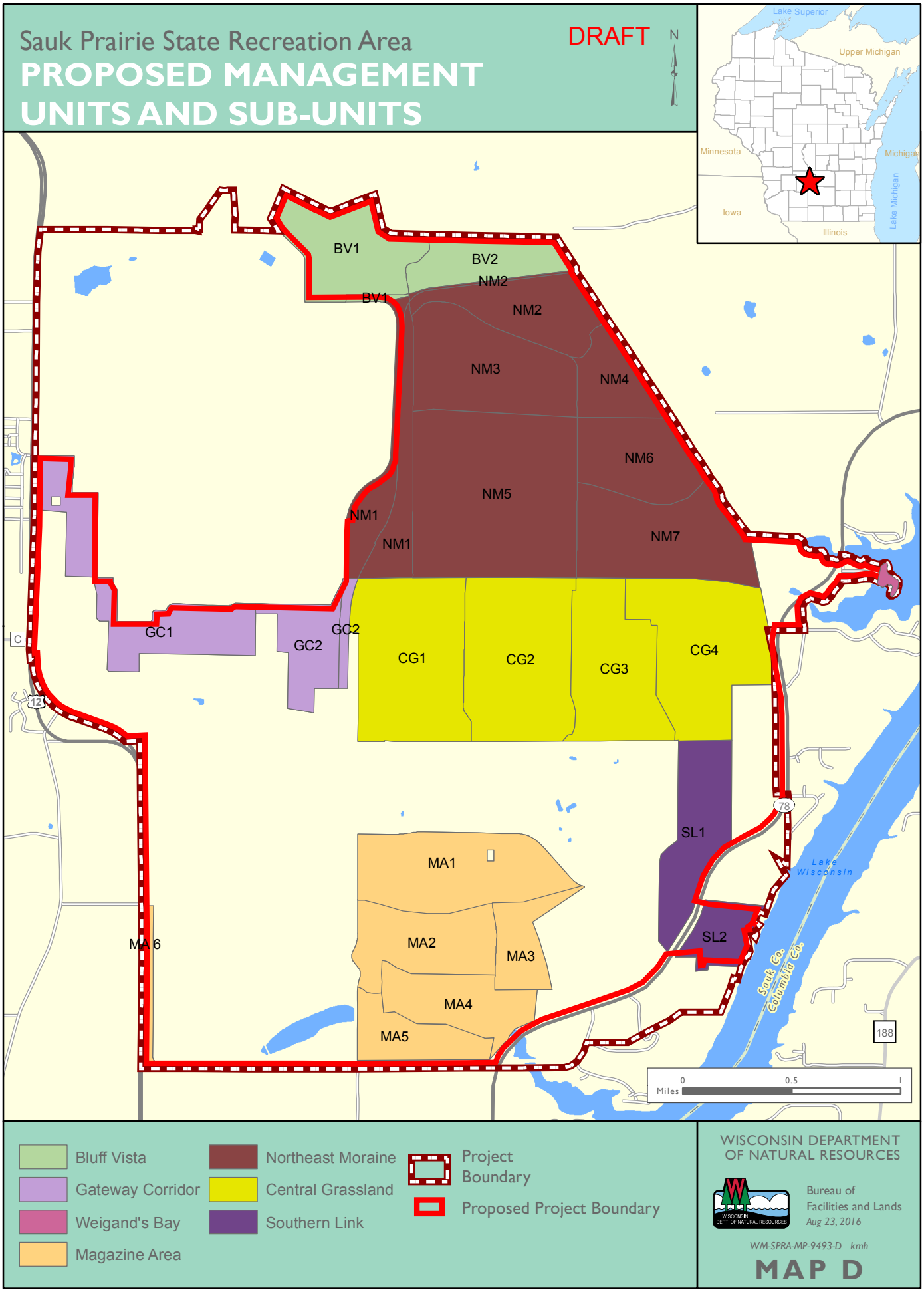

Bluff Vista
Gateway Corridor
Weigand's Bay
Magazine Area
Northeast Moraine
Central Grassland
Southern Link
Project Boundary
Proposed Project Boundary

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MAP D

Sauk Prairie State Recreation Area
PROPOSED LAND MANAGEMENT CLASSIFICATIONS

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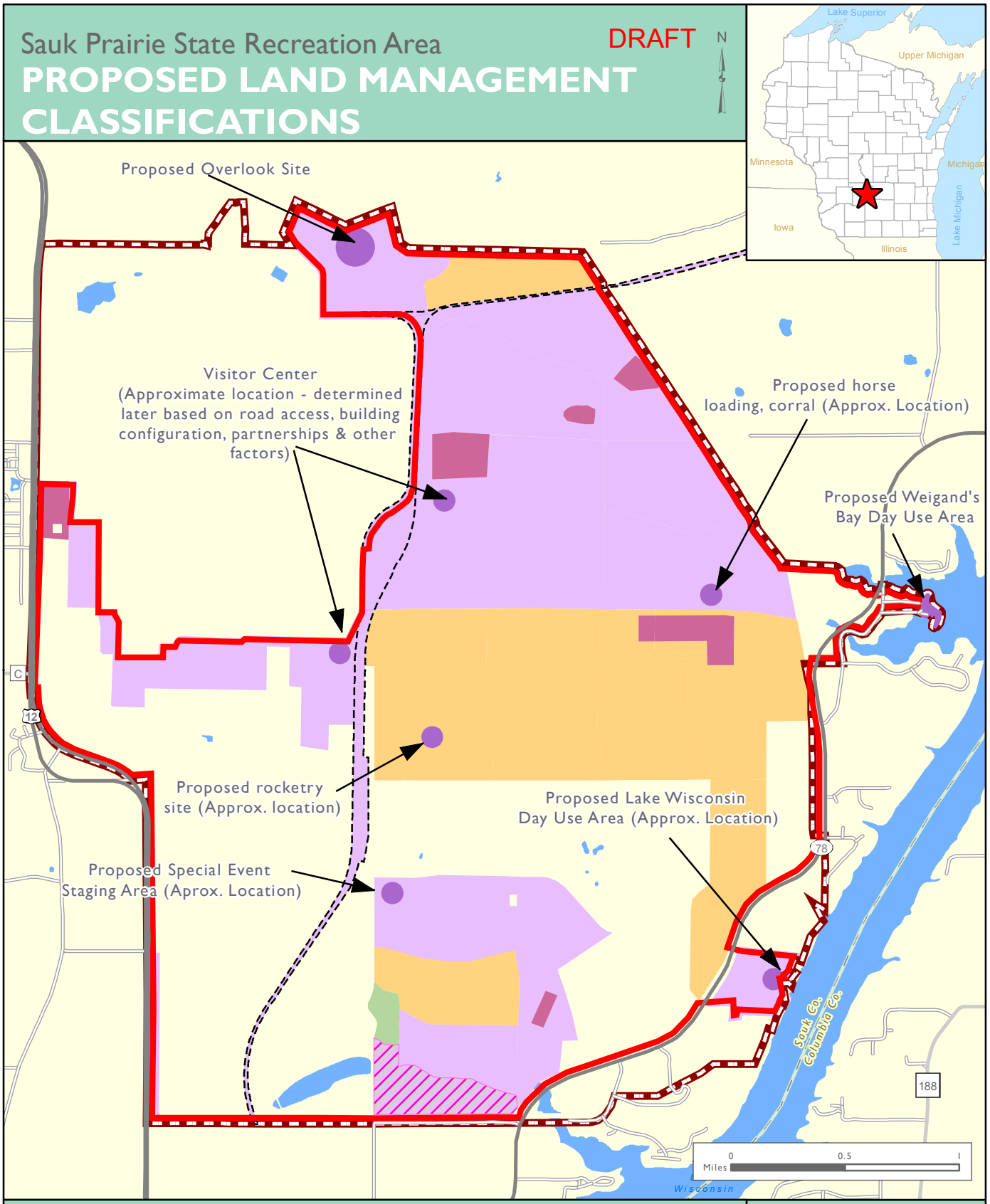

- Habitat Management Area
- Native Community Management Area
- Recreation Management Area - Type 3
- Recreation Management Area - Type 4
- Special Management Area
- Class 2 Dog Training
- Rail-Trail Lease
- Project Boundary
- Proposed Project Boundary

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MAP E

Sauk Prairie State Recreation Area

PROPOSED INFRASTRUCTURE: MOTORIZED ROAD ACCESS

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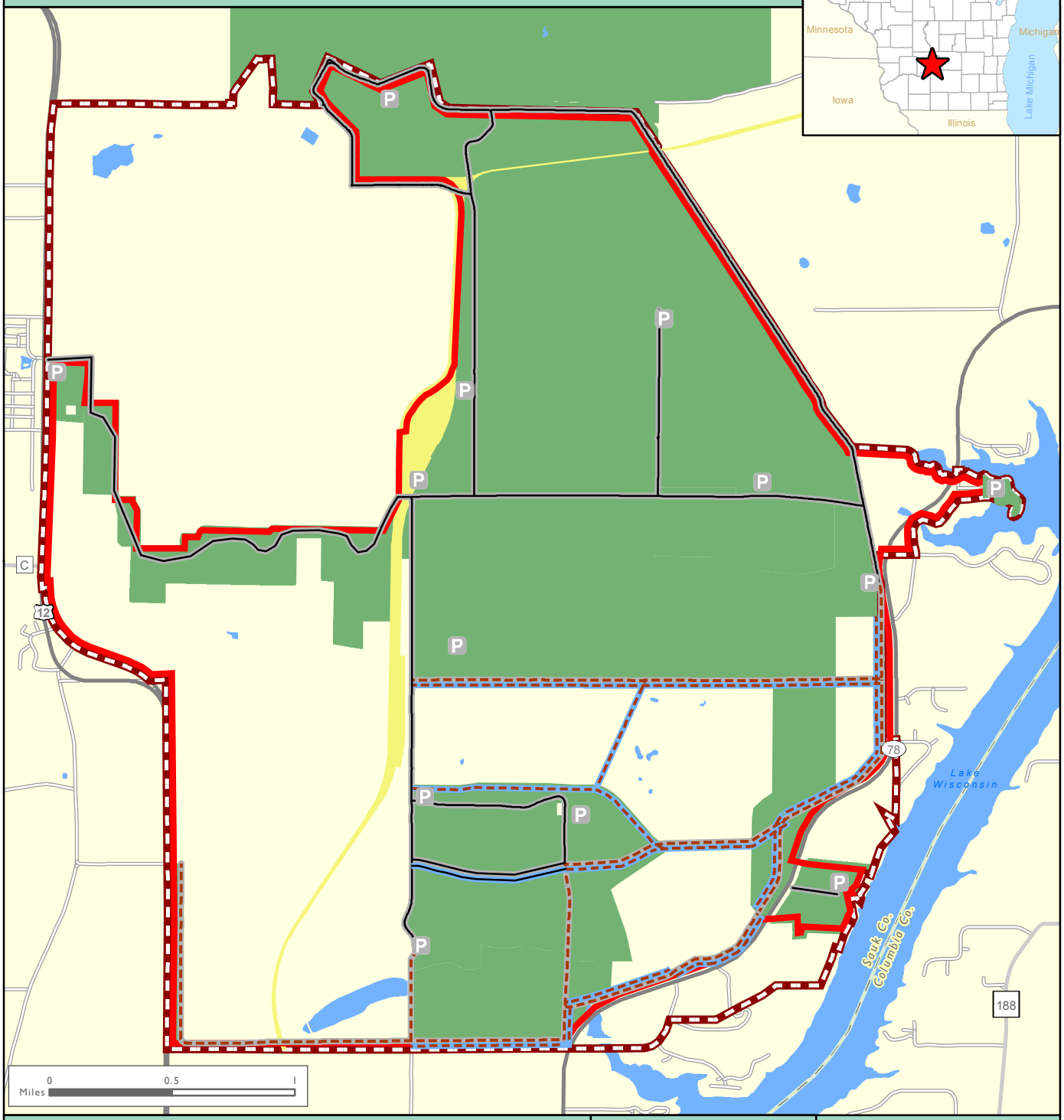

Road Key

NR44 Road Classification

- Moderately Developed
- Lightly Developed

Open = **Black**

Closed = **Cherry**

- Proposed Roads
- DFRC Accessway

- P Proposed Parking
- Project Boundary
- DNR Fee Title
- Proposed Project Boundary
- DNR Lease

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MAP F

Sauk Prairie State Recreation Area

PROPOSED INFRASTRUCTURE: TRAILS (GENERAL LOCATIONS)

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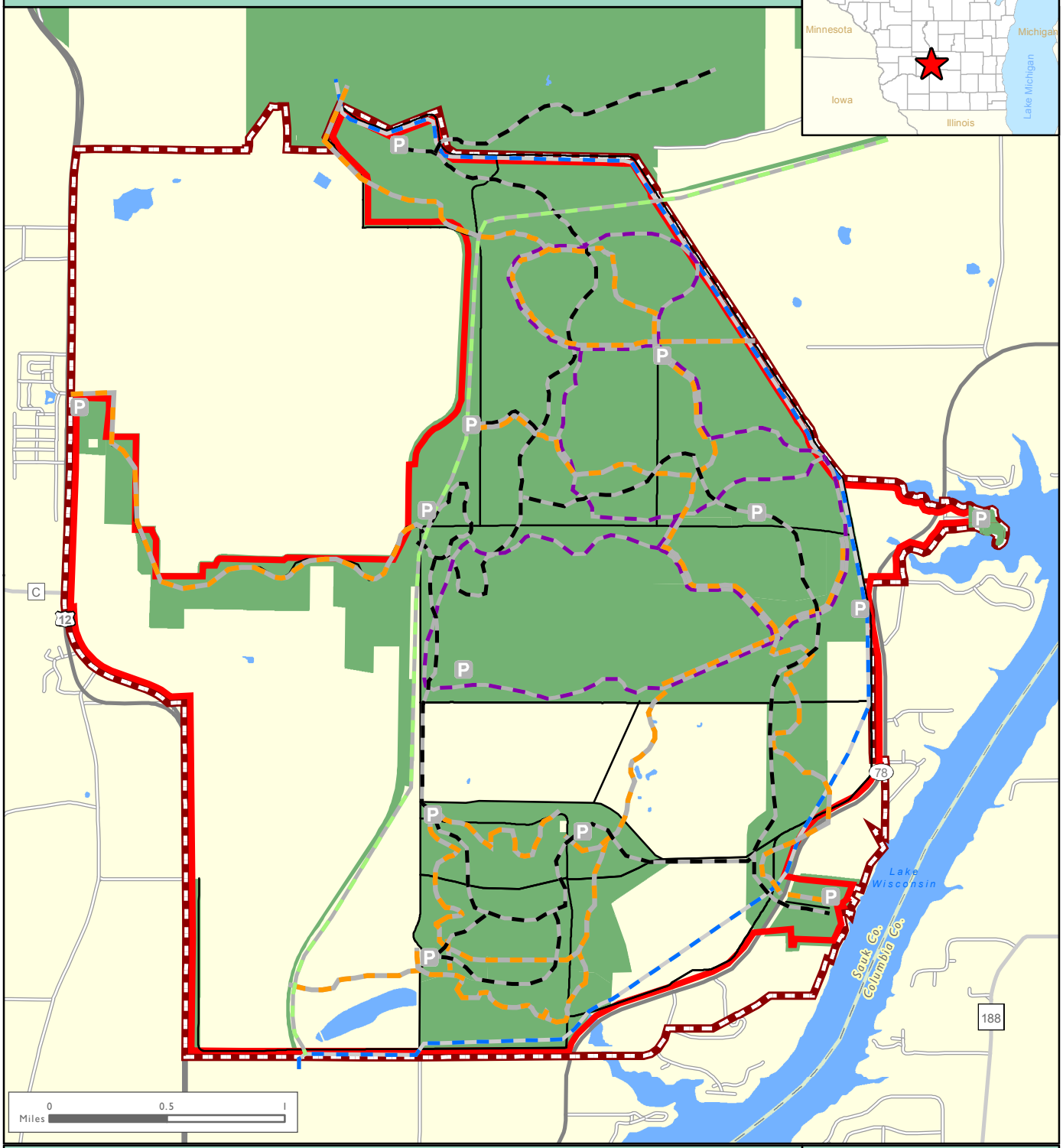

Proposed Trails (General Locations)

- Proposed Biking Trail
- Proposed Great Sauk Trail
- Proposed Hiking Trail
- Proposed Horse Trail
- Proposed Snowmobile Trail

P Proposed Parking

Proposed Roads
*See Road map for open for public uses

DNR Fee Title

Project Boundary

Proposed Project Boundary

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MAP G

Sauk Prairie State Recreation Area

PROPOSED INFRASTRUCTURE

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Day Use Area

Horse Trailer Parking Area

Visitor Center

Day Use Area

Rocketry Area

Day Use Area

Day Use Area

0 0.5 1 Miles

- Proposed Trailhead
- Proposed Interpretive
- Proposed Visitor Center
- Proposed Corral
- Proposed ADA Fishing
- Proposed Vault Toilet
- Proposed Shelter
- Proposed Picnic Tables
- Proposed Overlook
- Proposed Amphitheater
- Proposed Parking
- Proposed Rocketry

Proposed Recreation Facilities Sites (General Locations) & Other Infrastructure

- Site of future visitor center
- Site of future day use areas
- Site of future rocketry area
- Site of future horse trailer parking area
- Interpretive Opportunity
- ProposedTrails
- Closed Area
- Class 2 Dog Training
- Off-leash dog area (August 1 to April 14)
- DNR Fee Title
- Recreation Mgt. Area - Type 4
- Cemetery
- Proposed Roads *See Road map for open for public uses
- Proposed Project Boundary
- Project Boundary

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MAP H

Sauk Prairie State Recreation Area

EXISTING LAND COVER

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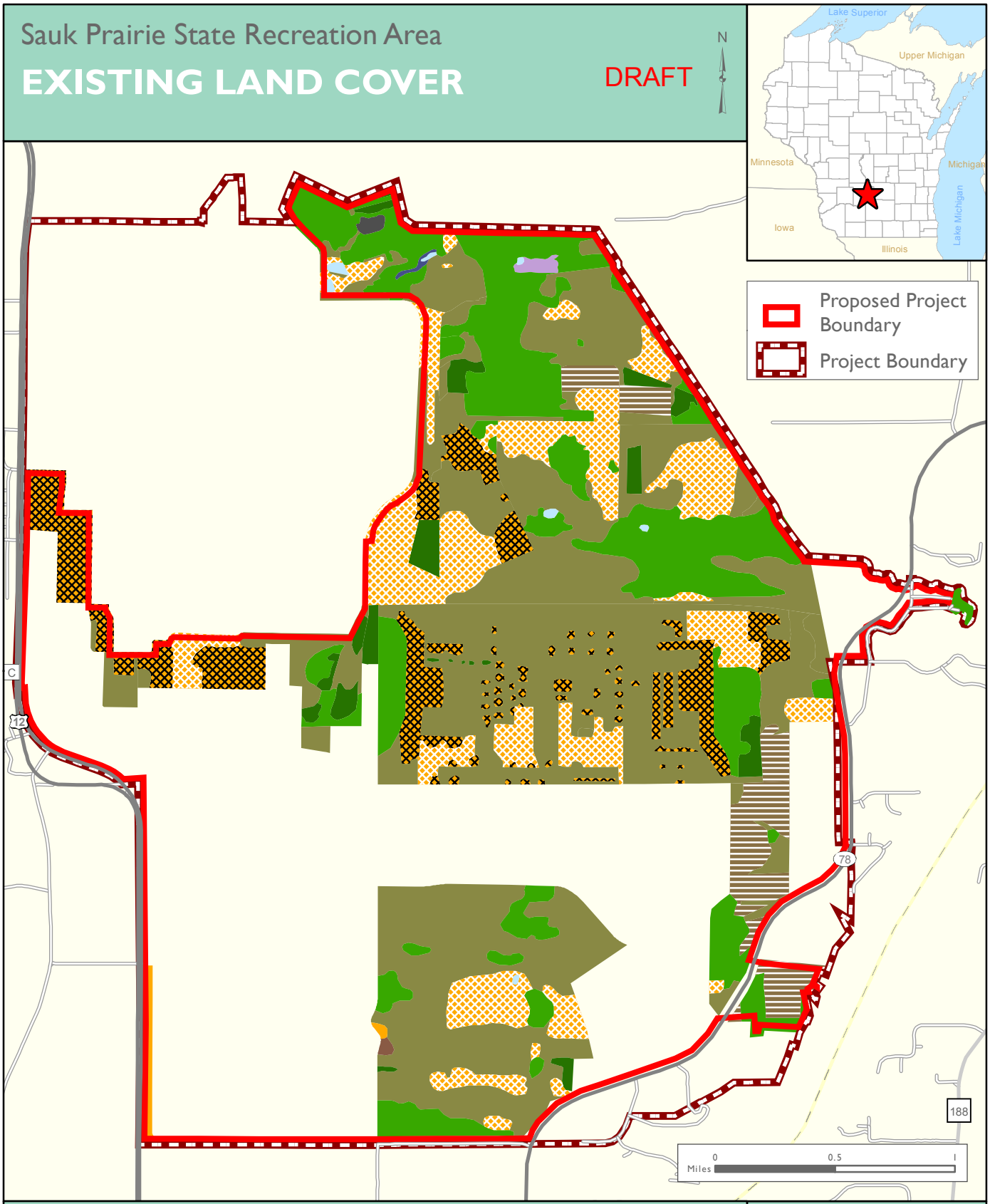

Grassland, Native
Grassland, Surrogate
Grassland, Degraded
Oak Opening, Surrogate
Shrubland
Forest, Hardwood
Forest, Conifer Plantation
Farmland
Lowland Shrub and Forest
Lowland Herbaceous and Emergent
Open Water
Developed

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MAP 1

Sauk Prairie State Recreation Area

PROPOSED LAND COVER - 50 YEARS

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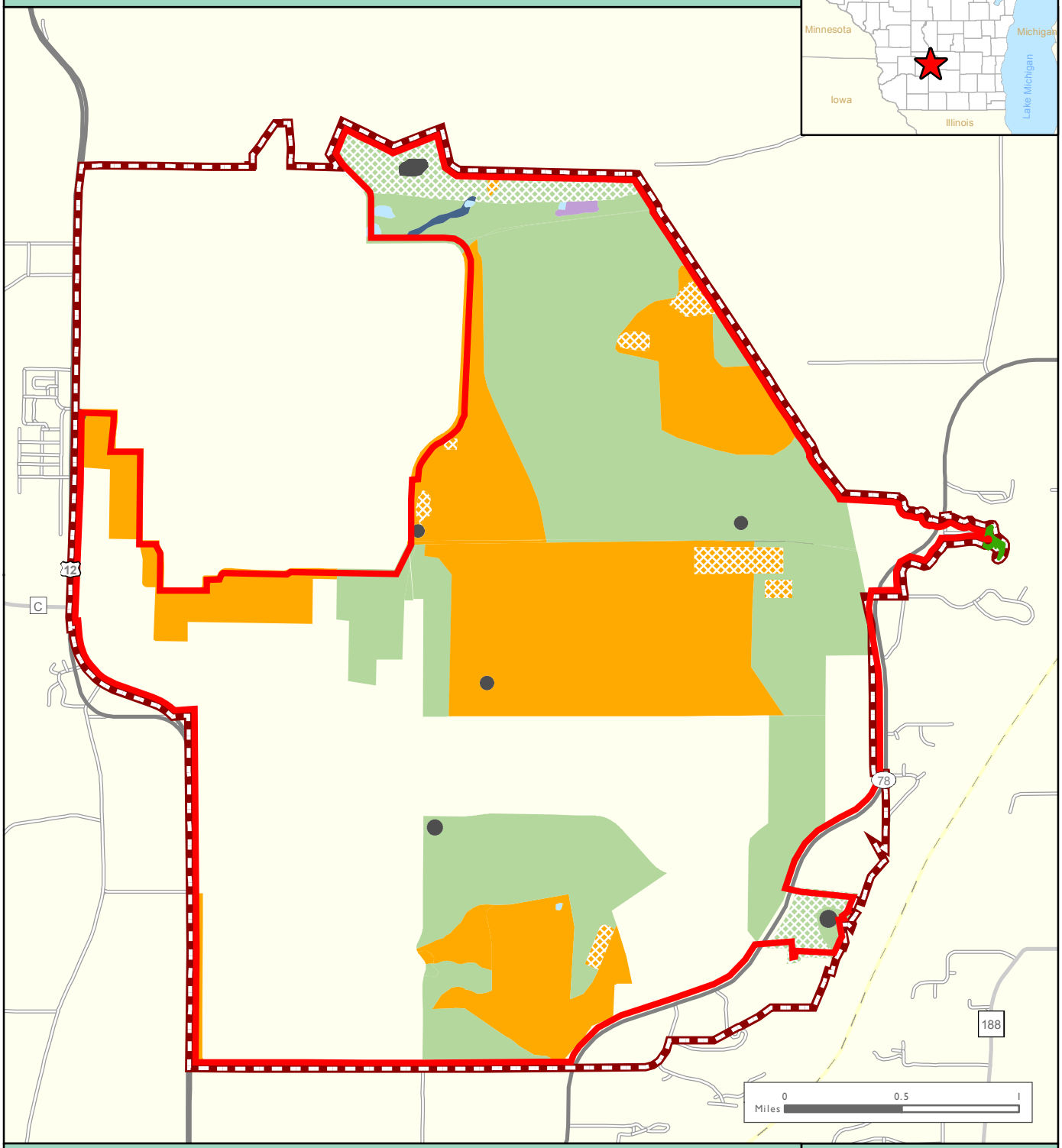

- Grassland, Native
- Grassland, Surrogate
- Oak Opening
- Oak Woodland
- Forest
- Lowland Shrub and Forest
- Lowland Herbaceous and Emergent
- Open Water
- Developed
- Project Boundary
- Proposed Project Boundary

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MAP J

Sauk Prairie State Recreation Area

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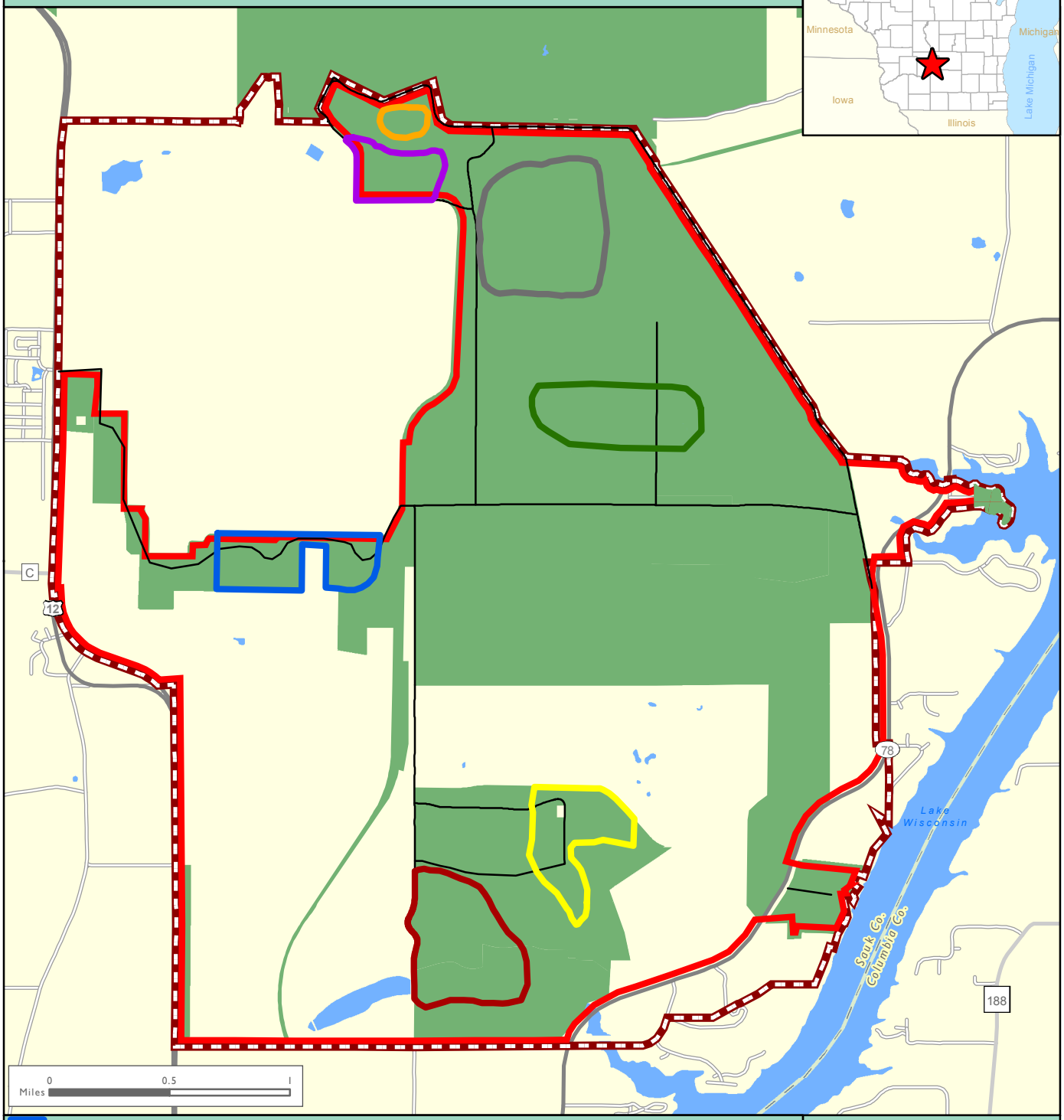
INTERPRETIVE FOCUS AREAS



- Entrance Road/Demonstration Area
- Overlook, Water Reservoirs and Geological Area
- Pioneer Cemetery-Kern Corners Area
- TNT-North Moraine Area
- Nitroglycerine, Bat Bunkers & Moraine Farm Area
- Magazine Pasture, Thoelke Cemetery Community Area
- Hillside Prairie, Magazine Pasture & Final Creek Area
- Roads
- Project Boundary
- DNR Fee Title
- Proposed Project Boundary

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MAP K

Sauk Prairie State Recreation Area

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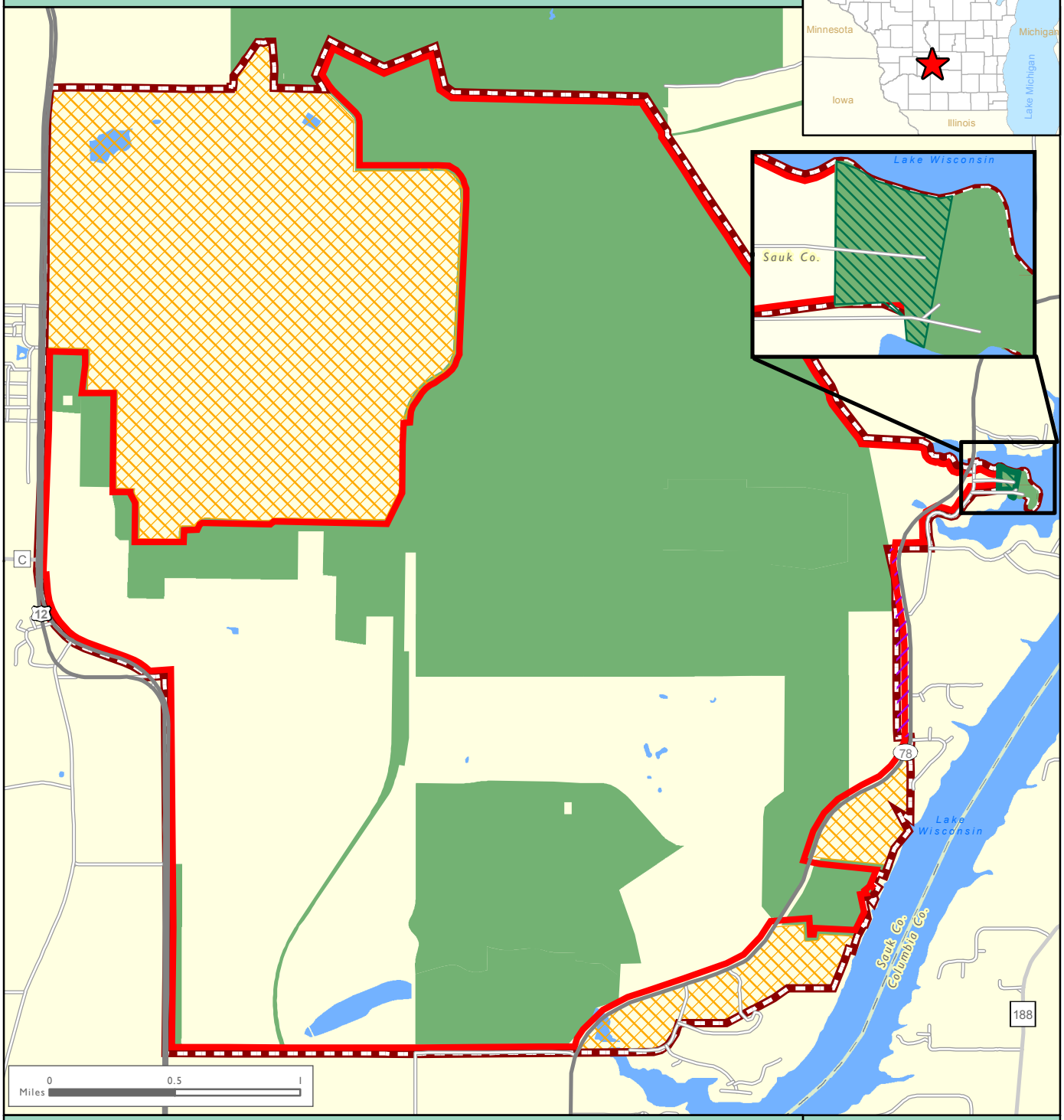
PROPOSED REAL ESTATE ACTION ITEMS



- Project Boundary
- DNR Fee Title (Current & Future)
- Proposed Project Boundary
- Proposed Contraction
- Proposed Expansion
- Proposed parcel redesignation from Statewide Habitat Area to Sauk Prairie Recreaion Area

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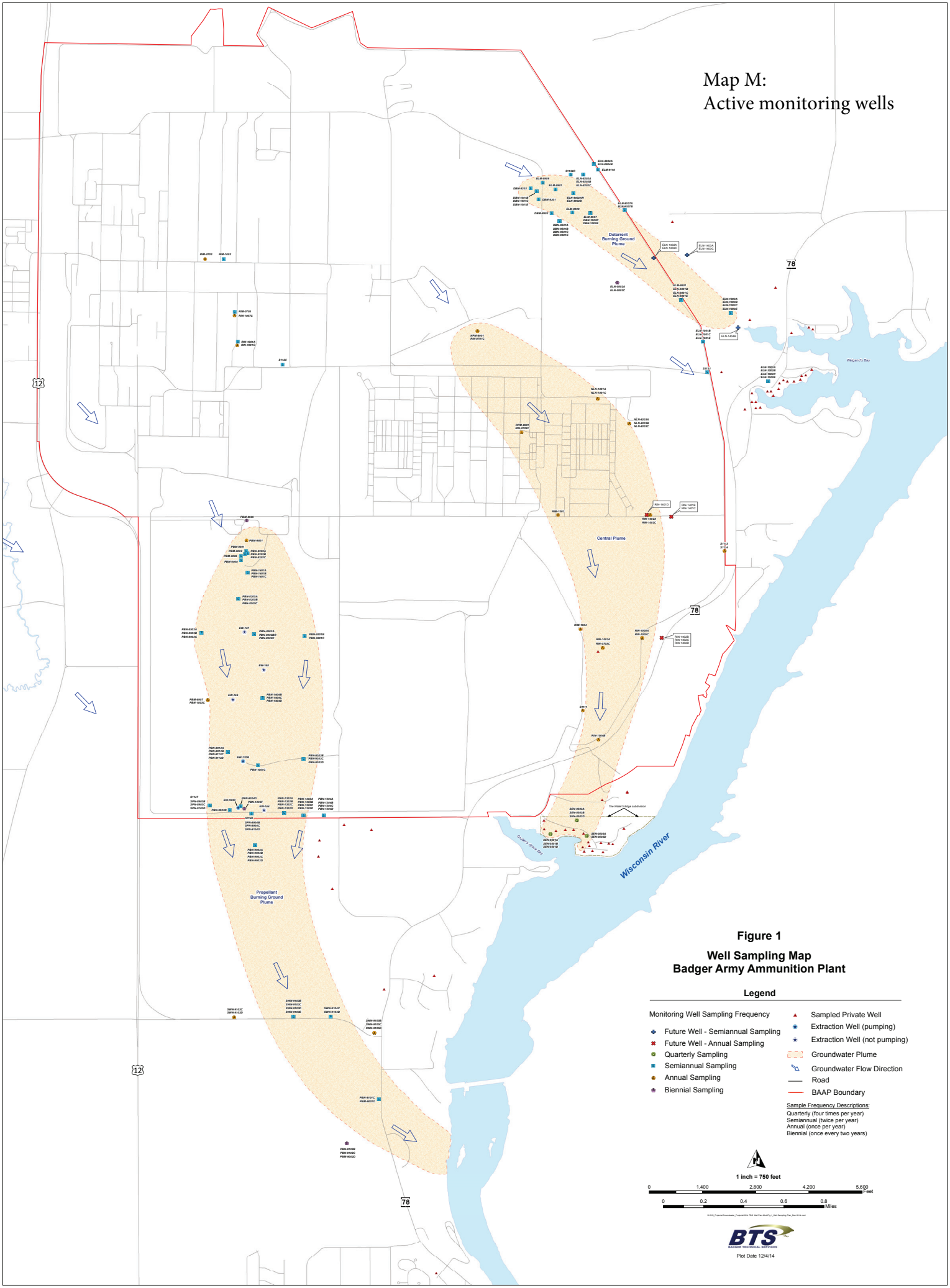
MAP L


Map M:
Active monitoring wells
Deterrent Burning Ground Plume
Central Plume
Propellant Burning Ground Plume
Wisconsin River
Weigand's Bay
Gruber's Grove Bay
The Water's Edge subdivision
12
78
Figure 1
Well Sampling Map
Badger Army Ammunition Plant
Legend
Monitoring Well Sampling Frequency
Future Well - Semiannual Sampling
Future Well - Annual Sampling
Quarterly Sampling
Semiannual Sampling
Annual Sampling
Biennial Sampling
Sampled Private Well
Extraction Well (pumping)
Extraction Well (not pumping)
Groundwater Plume
Groundwater Flow Direction
Road
BAAP Boundary
Sample Frequency Descriptions:
Quarterly (four times per year)
Semiannual (twice per year)
Annual (once per year)
Biennial (once every two years)
1 inch = 750 feet
0 1,400 2,800 4,200 5,600 Feet
0 0.2 0.4 0.6 0.8 Miles
BTS
Plot Date 12/4/14

Sauk Prairie State Recreation Area

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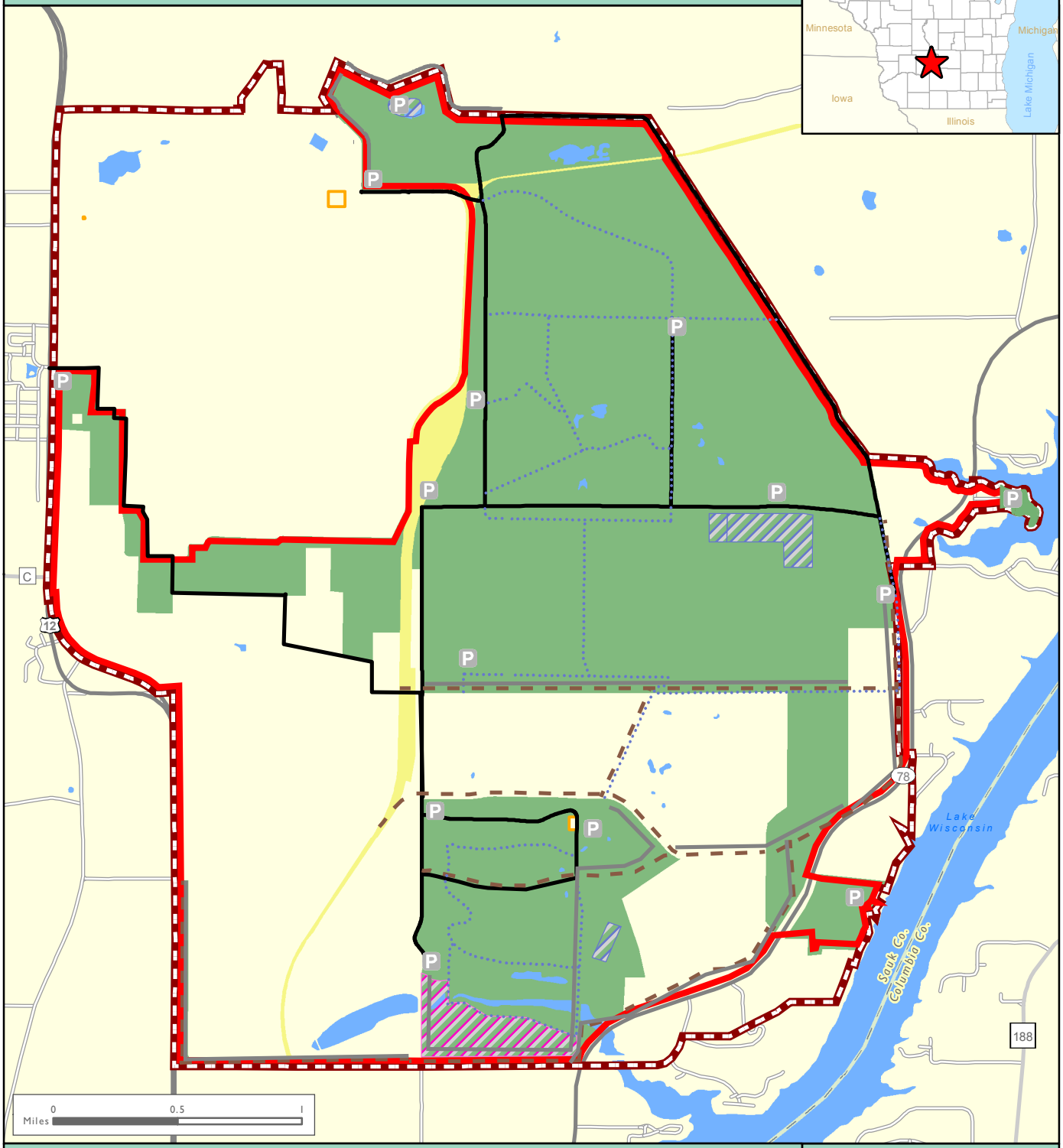
PROPOSED RECREATION FACILITIES AVAILABLE WHEN MASTER PLAN IS APPROVED



- Current & Future DNR Lands
- DNR Lease (for GST)
- Cemetery
- Designated Class 2 Dog Training Ground
- Closed Area
- Open Roads
- DNR Service Road
- DFRC Accessway
- Bike & Equestrian Trails
- P Proposed Parking
- Proposed Project Boundary
- Project Boundary

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MAP N