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

<u>Recreation</u>

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.

<u>Ecological management</u>

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		Total
				Type 3	Type 4	
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.

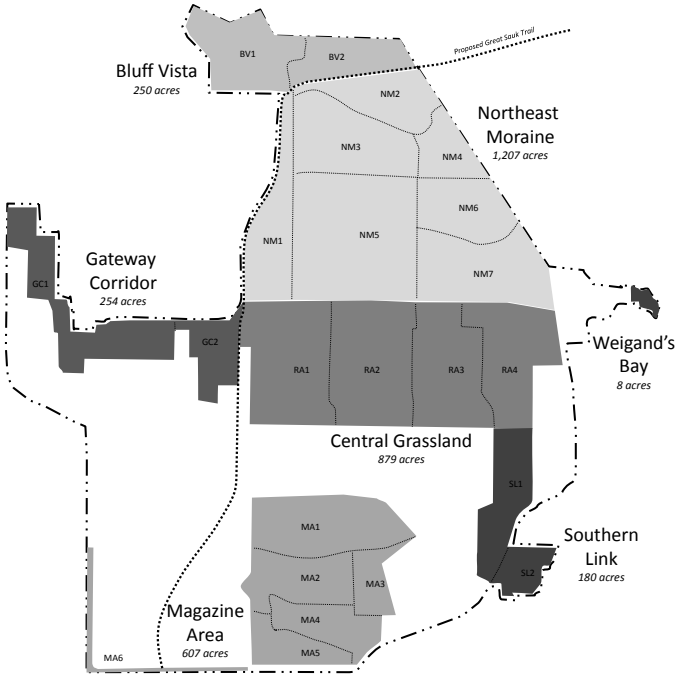


Figure 6: Management units and sub-units of the Sauk Prairie State Recreation Area.

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 nine days per year and to sponsor a larger event one day per year where high power rockets may be launched.

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

[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.

surrounding area, approximately 50' x 50', cleared of vegetation. The site will be in an area with minimal 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. For nine of these ten days, only model rockets may be launched and they may not be launched to a height more than 2,000 feet. One day per year, high power rockets may be launched. Rockets launched to a height greater than 2,000 feet must use a dual-deployment parachute system to reduce their drift distance. The launch date that may allow high power rockets may not be during the spring nesting season from April 15 to July 31. 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

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.

associated with farmsteads were also present.

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 structure preferred by a number of grassland bird species. Typically this level of grazing is equivalent to one

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

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.

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

[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.

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.

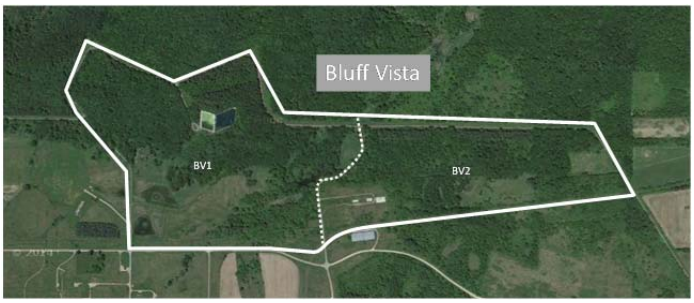
Prior to Euro-American settlement, this unit was characterized by savanna and glade communities—a transition between the grassland (on the outwash plain) and oak opening (on the moraine) below and the oak woodland of the South Bluff of Devil's Lake above. Just prior to construction of the ammunition 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

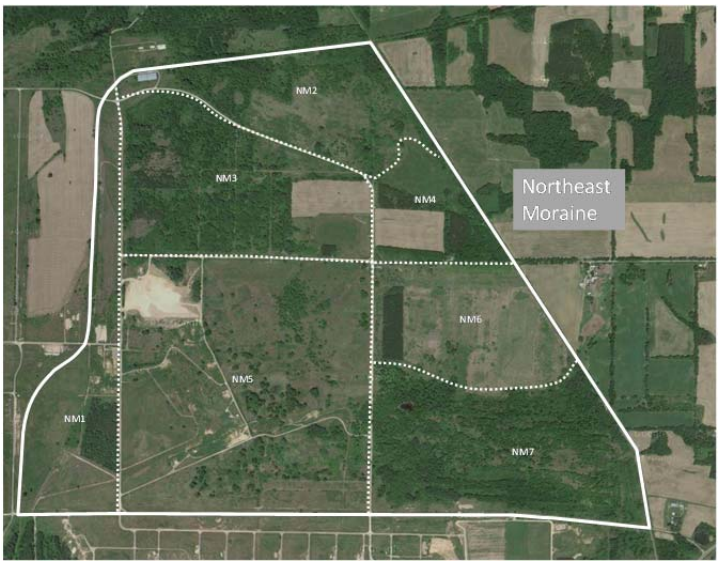
value from a trail perspective), others are narrower and more meandering. The department believes all these roads are wide enough with adequate sight-lines to accommodate both biking and horseback riding concurrently. Surfaces are a combination of gravel (in some cases with rather large aggregate) and 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.
- Parking along road shoulders will be allowed, except as posted. Some parking areas may be designated to alleviate congestion and impacts.

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

- 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