



Interim Forest Management Plan

Rush Creek State Natural Area

Property Identifiers

Property Name: **Rush Creek State Natural Area**
(multiple, small properties can be grouped):

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

DNR Property Code(s) (DNR Prop Code Number): **9790**

Forestry Property Code(s): **1204**

Property Location - County(ies): **Crawford**

Property Acreage: **2638**

Master Plan Date: **none**
(if property has one)

Property Manager: **Armund Bartz**

Property Assessment

The following should be considered during the property assessment:

A. **Ecological Landscape description and property context:**

Rush Creek State Natural Area (SNA) is located in the Western Coulee and Ridges Ecological Landscape which is typified by highly eroded, unglaciated topography with steep sided valleys and ridges and high gradient streams with dendritic drainage patterns.

The Western Coulee and Ridges Ecological Landscape is a mosaic of forest, cropland, and grassland with wetlands mostly in the river valleys. Primary forest cover is oak and hickory. Maple and basswood forests, dominated by sugar maple, basswood, and red maple, are common in areas that were not burned frequently. Bottomland hardwoods, dominated by silver maple, swamp white oak, river birch, ashes, elms and cottonwood, are common within the floodplains of the larger rivers. Dry



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rocky bluffs may support xeric stands of native white pine, sometimes mixed with red or even jack pine.

Prairies are now restricted to steep south or west facing bluffs, unplowed outwash terraces along the large rivers, and a few other sites. They occupy far less than 1% of the current landscape. Mesic tallgrass prairies are now virtually nonexistent except as very small remnants along rights-of-way or in cemeteries.

Contextually, this SNA is located in an area dominated by forest and is adjacent to the Mississippi River.

B. General property description – management, adjacent land uses, topography, soils, etc.

The outstanding feature of Rush Creek is a two-mile long series of dry lime prairies situated on the steep southwest facing limestone-capped bluffs of the Mississippi River. These “goat prairies”, named for their steep, rocky terrain, are part of the most extensive dry prairie remnants left in the state. While most Wisconsin prairies were lost to the plow or development, Rush Creek’s steepness and dry southwestern exposure are largely responsible for its preservation. Characteristic plants include lead-plant, little blue-stem, side-oats grama, silky aster, blazing-star, wood betony, compass plant, and bird’s-foot violet. The narrow north and east-facing slopes bluff tops are forested with red and white oak and a significant amount of black walnut, hickory, basswood, sugar maple, and aspen. Common shrubs and mid-canopy species include gray and round-leaved dogwood, American hazelnut, sumac, and ironwood with a good diversity of woodland herbs and forbs. The spring-fed Rush Creek is cool and clear and supports a floodplain forest of silver and red maples, elm, cottonwood, river birch, and willow. The extensive nature and diversity of vegetation make Rush Creek important habitat for numerous rare plants and animals. Rare plants include purple milkweed (*Asclepias purpurascens*), hairy meadow-parsnip (*Thaspium barbinode*), broad beech fern (*Phegopteris hexagonoptera*), and Kentucky coffee tree (*Gymnocladus dioica*). Rare animals include wing snaggletooth (*Gastrocopta procera*), Kentucky (*Oporornis formosus*) and cerulean warblers (*Dendroica cerulea*), Acadian flycatcher (*Empidonax virescens*), red-shouldered hawk (*Buteo lineatus*), and the gorgonne checkerspot butterfly (*Chlosyne gorgone*). Rush Creek is owned by the DNR and was designated a State Natural Area in 1981.



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Adjacent land is used for recreation and farming and there are a number of residential developments within a few miles of the property.

The SNA is located on unglaciated topography with steep sided valleys and ridges and includes high gradient streams with dendritic drainage patterns. Soils are loess derived silts of varying thicknesses and the slopes are considered “steep and stony”. Some areas on the steep slopes have sandstone coming to the surface where sandy soils can be found.

C. Current forest types, size classes and successional stages

- Forest cover types total 1,916 acres or 70% of total recon acres.
- Oak (68% of forested acreage) – 1,304 acres; 75% are 100+ years old
- Central Hardwoods (19% of forested acreage) - 363 acres; 70% are between 45-75 years old
- Bottom land hardwoods (6% of forested acreage) – 123 acres; 100% are between 60-65 years old
- Walnut (2% of forested acreage) – 47 acres; 100% are between 30 and 65 years old.
- Aspen (2% of forested acreage) – 29 acres; 50% are at rotation age of 50-70 years old.
- White Pine (1% of forested acreage) – 23 acres; evenly distributed age classes from 20-50 years old.
- Red pine (1% of forested acreage) – 15 acres; evenly distributed age classes from 25-50 years old.
- Non- forested cover types total 520 acres or 30% of total recon acres. 241 acres (46% of non-forest acreage) are currently farmland, 180 acres (34% of non-forest acreage) are a combination of upland grasses, true grasses and herbaceous vegetation.

D. NHI: Endangered, Threatened, Special Concern species, Species of Greatest Conservation Need (SGCN):

- Natural Heritage Inventory screenings will be conducted prior to all management for both rare species and natural community types. Currently there are 4 state endangered, 5 state threatened, and 14 state special concern species known from the general area. Negative impacts to these species will be avoided by following DNR's Incidental Take Protocol for grassland and savanna management:
<http://dnr.wi.gov/topic/ERReview/ItGrasslands.html>
and/or by following DNR's Species Guidance Documents:
<http://dnr.wi.gov/topic/EndangeredResources/guidance.asp>.



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In cases where species guidance documents haven't yet been developed, avoidance to rare species will occur via practices such as time of year restrictions, modified harvest boundaries, and/or consultation with rare species experts.

This property is specifically listed in the Wildlife Action Plan's Implementation document for the Western Coulee and Ridges Ecological Landscape (WCREL)

<http://dnr.wi.gov/topic/WildlifeHabitat/COA.html> . Nine priority natural community types are listed in the document that the property contains; Floodplain Forest, Coldwater Stream, Southern Dry-mesic Forest (typed Oak in forest recon), Southern Mesic Forest (sugar maple dominated), Oak Opening (oak "savanna"), Oak Woodland, Dry-mesic Prairie, Dry Prairie, and Dry Cliffs. The best management opportunities for large block Southern Dry-mesic Forest and Mesic Forest communities are primarily found ½ mile east of the Mississippi River, while the best management opportunities for Oak Woodland, Oak Opening, Prairie and Dry Cliff communities are primarily found within ½ mile of the Mississippi River.

Priority Species of Greatest Conservation Need for the WCREL associated with Southern Dry-mesic Forest, Mesic Forest, Floodplain Forest, and wetland/stream habitat types include; Four-toed Salamander, Pickerel Frog, Wood Turtle, Blanding's Turtle, Acadian Flycatcher, Cerulean Warbler, Hooded Warbler, Kentucky Warbler, Louisiana Water-thrush, Red-shouldered Hawk, Wood Thrush, Worm-eating Warbler, Yellow-billed Cuckoo, Yellow-throated Warbler, Cherrystone drop Snail, Northern Long-eared Bat, Woodland Vole, Hickory Hairstreak, Black Rat Snake, Blue-winged Warbler, Field Sparrow Blue-winged Teal, Whip-poor-will, Willow Flycatcher, Brown Thrasher, Northern Bobwhite Quail, and American Woodcock (Woodcock is the only non-priority species for the WCREL). Although the majority of these species will benefit from large block old forest management, a few (primarily the latter species listed) will benefit from the development of quality "feathered" edge habitat along field edges and other open habitats.

Priority Species of Greatest Conservation Need for the WCREL associated with Oak Opening (oak "savanna"), Oak Woodland, Dry-mesic Prairie, Dry Prairie, and Dry Cliffs include: Red-headed Woodpecker, Prairie racerunner, Prairie Ring-neck snake, Timber rattlesnake, Bullsnake, Prairie vole, Dusted Skipper, Leonard's Skipper, Ottoo Skipper, Whitney's Underwing moth, Abbreviated Underwing moth, Leadplant Flower moth, Wild Indigo Dusky Wing, Columbine Dusky Wing, Wing Snaggletooth snail, Red-tailed Leafhopper, Prairie Leafhopper, and Issid



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planthopper. These species will primarily benefit from prairie and oak opening management.

Additionally, the property is identified in the Wildlife Action Plan's implementation document as containing "unmapped" Features of Continental Significance; bat and herp hibernacula, and springs and spring runs. Species of Greatest Conservation Need associated with these features not already listed above include; Eastern Red Bat, Hoary Bat, and Silver-haired Bat.

E. Wildlife Action Plan Conservation Opportunity Areas (COA):

The property is located within the "Rush Creek" and the "Mississippi River Bluffs and Floodplain" Conservation Opportunity Areas and is of continental significance for its Driftless area features.

<http://dnr.wi.gov/topic/endangeredresources/documents/significantEcoFeatures.pdf>

F. Significant cultural or archeological features:

Archeological features are known from on and near the property. Harvesting and management activities have and will continue to follow Department policy regarding identifying and mitigating any archeological or historic sites found within work areas.

G. Invasive species:

The property contains a number of invasive species including crown vetch, garlic mustard, buckthorn, purple loosestrife, Chinese blackberry lily, wild parsnip, and teasel. Control efforts are focused on this list of species.

H. Existing State Natural Areas (SNA) designations/natural community types limited in the landscape:

The property is a State Natural Area:

<http://dnr.wi.gov/topic/Lands/naturalareas/index.asp?SNA=170>

Community types limited on the landscape include Oak Woodland, Oak Opening (oak "savanna"), Dry-mesic Prairie, Dry Prairie, Dry Cliffs, and Springs and Spring runs.



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I. Primary public uses (recreation):

Hunting, hiking, and fishing are the primary recreation uses of this property however trapping and snowshoeing are also popular. Allowed recreational activities include hiking, fishing, cross country skiing, hunting, trapping, wildlife viewing, and outdoor education. Other activities may be allowed through permits and special rules.

J. Biotic Inventory Status Not complete

K. Deferral/consultation area designations “Consultation”

IFMP components

Management Objectives: (Outline primary forest management objectives):

Site objectives

Manage the site as a reserve for oak woodland, dry prairie reserve, floodplain forest and southern dry-mesic forest, as a significant archaeological site, as an oak savanna and prairie restoration site, as a wetland protection site, and as an ecological reference area. Natural processes will determine the structure of the forests, along with prescribed understory manipulation in the oak woodland and prairie (see below). Another objective is to provide opportunities for research and education on the highest quality native oak woodlands and dry prairies. In the southern dry-mesic forest and floodplain forest, the native species are managed passively, which allows nature to determine the ecological characteristics of the site. The dry-mesic forest will be allowed to convert over time to a more mesic forest condition. Other allowable activities across the entire site include control of invasive plants and animals, maintenance of existing facilities, and access to suppress wildfires. Salvage of trees after a major wind event can occur if the volume of woody material inhibits fire prescriptions.

Management approach



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The ecological characteristics of the prairie and oak woodland/savanna areas will be primarily shaped by an intensive fire management program. The native prairie species are managed actively through tree/shrub control using tree harvest, brushing and especially fire to mimic natural disturbance patterns. Occasional fire-tolerant woody species may be retained at low densities in the prairies (oaks, hickories, and native shrubs such as hazelnut). The native dominant savanna tree species (primarily oaks) are managed passively. However, some thinning of the canopy, understory manipulation and shrub control via harvest, brushing or fire may be needed to mimic natural disturbance patterns. Manage to create overstory conditions that allow enough light to penetrate the canopy and reach the forest floor to stimulate light dependent understory savanna and oak woodland species that are currently suppressed from inadequate light. Additionally, provide early successional forest/shrub habitat in places between the agricultural fields (prairie/savanna reconstruction) and forested areas where oak woodland opportunities do not exist. This will provide a “feathered edge” and a more gradual transition between the forest and the agricultural fields (prairie/savanna reconstruction). The agricultural fields will eventually be converted to prairie, savanna, or forest depending on the context of the specific field(s).

Site-specific considerations

- A Wisconsin DOT scenic easement is in place along Highway 35; the area may be managed sporadically by state.
- Roadside easement area may be managed sporadically by the county and township.
- Although removal of hazardous trees from over and near trails and field roads is an allowed activity, manipulation/removal of vegetation and soil disturbance should be minimized to the extent possible.

Property Prescriptions (Identify specific and pertinent prescriptions by area or forest type, including passive management areas, extended rotation, and other information that will help achieve the objectives)

South, west/east facing slopes and more level wooded areas (or areas with quality understory savanna/woodland species) will be managed through prescribed fire, non-commercial understory manipulation, and timber harvests to convert to oak savanna/oak woodland to be maintained as these types. Timber harvests will focus on removal of central hardwood species (especially walnut as well as other non-oak, non-hickory species), some thinning of suppressed oak where dense patches occur (leaving largest diameter/crowned individuals) or where small crowned individuals are shading open grown, larger crowned trees. Property is continually monitored for invasive plant species and control practices such as prescribed fire, hand pulling, chemical and mechanical control will be



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implemented to eliminate or reduce negative impacts. Note: Property manager/forester must notify District Ecologist to discuss proper timing of commercial harvest and before setting up any sales on the property. Generally, marking of trees should be a cooperative effort to assure goals of harvest are met.

All stands –

- Utilize BMP's for Water Quality to protect streams and wetlands when conducting timber sales.
- Utilize BMP's for Invasive Species to help limit the introduction and spread of invasive species especially when conducting timber sales but also during routine activities
- Retain reserve/legacy/green tree retention trees as groups or individuals throughout the property within harvested stands
- Follow DNR's Species Guidance Documents: <http://dnr.wi.gov/topic/EndangeredResources/guidance.asp.to> protect rare species. In cases where species guidance documents haven't yet been developed, avoidance to rare species will occur via practices such as time of year restrictions, modified harvest boundaries, and/or consultation with rare species experts.

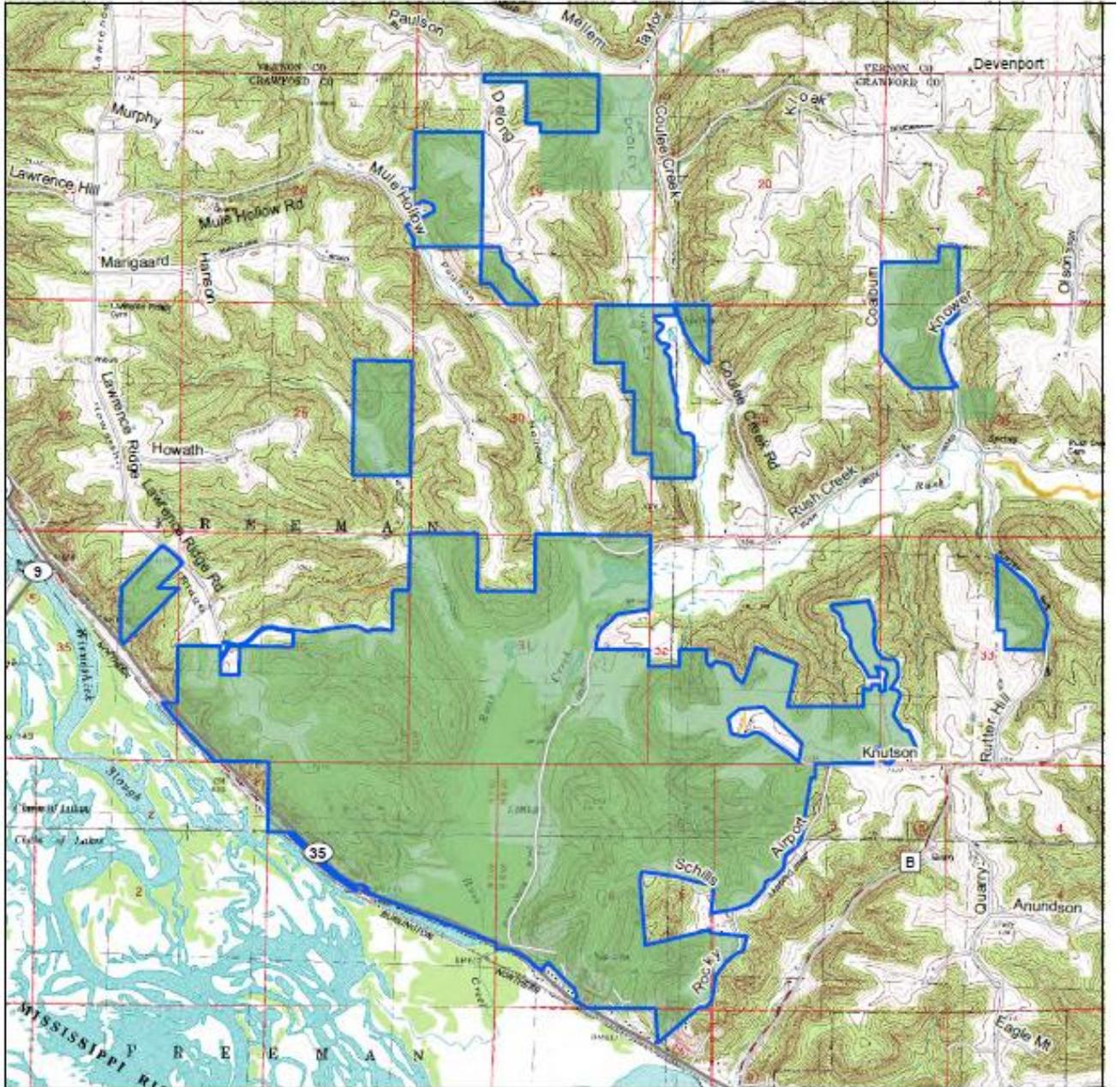
Summary of Public Involvement and Comments Received

Maps (Optional)

- a. Property Boundary and ownership Maps



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Rusk Crk SNA

b. Forest Cover Type Maps

Armond Bartz 3/25/17

PREPARED BY:

Armond D Bartz 5/30/17
Property Manager Date

APPROVED:

[Signature] 5/30/17
Area Program Supervisor Date

REVIEWED BY:

[Signature] 5-23-17
Forester Date

Armond D Bartz 5/30/17
District Ecologist Date