



# Interim Forest Management Plan

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## Property Identifiers

Property Name and Designation: Red Banks Alvar State Natural Area

County: Brown

Property Acreage: 146 (114 DNR Owned)

Forestry Property Code(s): 502

Master Plan Date: (if property has one) none

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## Part 1: Property Assessment (1-2 pages maximum)

The following items should be considered during the property assessment. Not all sections may be relevant for all properties.

### General Property Description

- Landscape and regional context

Red Banks Alvar SNA is located in the NE portion of the Central Lake Michigan Coastal Ecological Landscape of Wisconsin. The natural area supports Wisconsin's best example of an alvar community – a rare community type that occurs on flat limestone or dolomitic bedrock with very shallow soils. An unusual blend of boreal, southern and prairie plant species, relicts of the post-glacial environment and the warmer, dryer period that followed, characterize alvar ecosystems. The largest component of soil at Red Banks is characterized as a shallow silt loam, but another important component is stony and rocky land. The soil types range from poorly drained to well drained.

In many aspects, the thin-soiled, sparsely vegetated landscape resembles a dry oak savanna dominated by open grown bur oak and white oak. However, the trees are not especially large due to the harsh growing conditions, but some of the oaks are very old. The shrub and sapling layer is dense in many areas with red cedar, common juniper and snowberry. Furthermore, Red Banks is the home of several rare plants. On the talus slope below the dolomite escarpment is an old-growth mesic forest dominated by sugar maple, slippery elm and basswood, with an understory characterized by a rich flora of spring ephemerals. Several plant species are at their northeastern range limit in Wisconsin at this site including American bladdernut, glade fern and eastern wahoo.

Red Banks Alvar also contains one of the most diverse snail communities known in the Midwest and is one of the most important areas in Wisconsin for land snails. Colonies of 25 different groups of glacial relict snails can be found from the base to the top of the Niagara Escarpment, which runs along a portion of the western boundary of the property. Of interest are a number of rare and glacial relict snail taxa that are present including the cherrystone drop (*Hendersonia occulta*) and the Midwest Pleistocene vertigo snail (*Vertigo hubrichti*).

- History of land use and past management:

Much of the land was likely managed by Native Americans using prescription burning prior to European settlement. Additionally, Native Americans that occupied oak forest and oak savanna on the East shores of Green Bay used land in and around the Red Banks area for agricultural



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purposes. After European settlement the Red Banks area was again used for agricultural purposes, including grazing.

More recently, cedar removal efforts have been conducted in order to restore the site back to its more open, pre-settlement, oak savanna state. Additionally, buckthorn has become a concern for the site and a significant amount of control work has been conducted to address the issue. Garlic mustard control has also been conducted, but its range has been limited to the escarpment side, west of highway 57. There has also been some work done in the power line corridor on the East side of the highway to address sweet clover and spotted knapweed populations. One prescribed burn totaling 10 acres was conducted in 2012. Additional prescribed burns will be implemented as necessary.

## Site Specifics

- Current forest types, size classes and successional stages:

Forest Type	Stand #'s	Acres	Acres by Age Classes in 2014		
			0-50	50-100	100+
White Cedar	4	22		22	
Miscellaneous Conifers	1, 6, 9	37		37	
Oak	2	20		20	
Central Hardwoods	3, 5	21		5	16
Bottomland Hardwoods	8	2	2		
Swamp Hardwoods	11	1	1		
Non Forest Type	7, 10, 12	11	N/A	N/A	N/A
<b>TOTALS</b>	14 Stands	114 Acres	3 Acres	84 Acres	16 Acres

- State Natural Area designations: Designated in 2001
- High Conservation Value Forests (HCVF) or other resources/natural community types limited in the landscape: Stands 1-11, rare land snail habitat, Niagara escarpment and alvar.
- Biotic Inventory status: No formal recent biological inventories. A recent "Botany Blitz" (June 9, 2007 & May 17, 2008) was conducted by the Botany Club of WI. The subsequent plant lists are available.
- Deferral/consultation area designations: None
- Rare species: 7 plants and 7 invertebrates.
- Invasive species: There are numerous invasive species known to occur on site. The most abundant and problematic is common buckthorn. Other species include Japanese barberry, European honeysuckle, autumn olive, garlic mustard, spotted knapweed, sweet clover, Canada thistle, bull thistle and phragmites.
- Soils: Soils in Brown County were formed from glacial till and lake sediment with mostly clay loam to clay subsoils. The predominant soil, covering approximately 39% of the county is the Kewaunee-Manawa association with clayey subsoils on variable slopes and



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variable drainage. Additional important soils include the Oshkosh-Allendale-Kolberg Association (4% of Brown County) which has deep, variably drained, clayey and sandy subsoil, and the Namur-Summerville-Kolberg Association (3% of Brown County) which has shallow soils with shallow to clayey subsoil over limestone bedrock and makes up the majority of acreage at Red Banks Alvar SNA.

## **Cultural and Recreational Considerations**

Cultural and archeological sites (including tribal sites): Red Banks Alvar contains prehistoric/historic lithic scatter, avoid ground disturbance within the mapped site area/polygon (Mark Dudzik – DNR Archeologist).

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## **Part 2: IFMP Components (1-2 pages maximum)**

**Management Objectives** (Outline primary forest management objectives):

- 1) Oak Forest & Central Hardwood Stands (2, 3)
  - a. Restore the forest to a more open, oak woodland community that historically persisted at this site.
  - b. Retain open grown oak, hickory and white cedar for legacy trees, wildlife, aesthetics and future downed woody debris.
  - c. Long term objective: minimal regeneration, slow conversion to oak savanna
  - d. Restore ground layer composition.
  - e. Minimize introduction and spread of invasive species.
- 2) Miscellaneous Conifer Stands (1, 6, 9)
  - a. Reduce red cedar canopy closure to 25-60% to promote further establishment of adjacent hardwoods.
  - b. Retain open grown oak, hickory and white cedar for seed trees, legacy trees, wildlife, aesthetics and future downed woody debris.
  - c. Reduce red cedar component while increasing oak and hickory component.
  - d. Restore a more open woodland community and improve ground layer composition.
  - e. Minimize introduction and spread of invasive species.
- 3) Swamp Hardwood Stands (11).
  - a. Minimize introduction and spread of invasive species.
  - b. Where possible, promote established regeneration for increased age and structure diversity.
- 4) True Grasses Stand (7)
  - a. Convert to oak forest with a shagbark hickory component
  - b. (Future Management- Thin this stand when it becomes overstocked and merchantable to increase growth and development of large trees along with removing unwanted species.)

**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):

### **Oak Forest & Central Hardwoods Stands**

a. Convert the oak forest to an oak savanna/woodland community type, by maintaining a canopy coverage of 25-60%. Favor dominant tree species of this community type: bur oak, shagbark hickory and white oak.



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- b. Several large vigorous trees, decadent trees, snags, and downed logs will be retained to enhance structural complexity and provide specialized habitat for numerous species.
- c. Restore ground layer composition by removing invasive shrubs and augmenting the ground layer with oak woodland species (legumes, grasses and composites). Occasional fires of low intensity, in conjunction with (goat) browsing, will be crucial in maintaining this community type (limiting regeneration, to prevent succession into an oak forest). Under this fire regime, shrub and sapling representation in oak woodlands would be minimal. The herbaceous layer will convert to legumes, grasses, composites and other forbs that are best adapted to light conditions of high filtered shade.
- d. The oak woodland will be managed to permit individual oak trees and small patches to attain old-growth characteristics. This management will be accomplished by thinning to 50-80% canopy closure, then assessing where young vigorous oaks are regenerating and selectively removing canopy oaks over these patches to permit some regeneration of the oak woodland canopy trees, while still retaining some trees to attain old-growth status. Focus will be to keep existing oak on the landscape for as long as possible. Long term, limited timber production will occur.

## Miscellaneous Conifer Stands

- a. Reduce red cedar component while increasing oak and hickory component and improving the ground layer condition. Accomplish this by reducing canopy coverage to 25-60% to create canopy openings surrounding oak and hickory seed trees to promote the regeneration of these species and development of a native herbaceous layer. Favor dominant tree species of this community type: bur oak, shagbark hickory and white oak.
- b. Monitor for introduction of new invasive species and control known invasive species where needed, feasible, and possible.

## Swamp Hardwoods Stands

- a. Monitor for introduction of new invasive species. Control buckthorn via mechanical and chemical treatment methods (e.g. cut-stump, foliar).
- b. Passively manage this stand.

## True Grasses Stand

- a. Apply for a Forestry afforestation grant to machine plant and fence the new tree plantation.
- b. Complete intermediate thinning following the extended rotation handbook for oak when stand becomes overstocked.

## All Stands

- a. Insect or disease outbreaks may result in the need for management adjustments to adapt to these new circumstances to improve the forest condition.

Approvals:

Joe Henry 2/12/2015  
District Ecologist Date

Steve Kaufman 2/12/2015  
Forester Date

Joe Henry 2/12/2015  
Property Manager Date

Jim Woodford 2/13/2015  
Section Chief Date