

# DEPARTMENT OF NATURAL RESOURCES:

---

Blufflands/Rochester Plateau  
Subsection Forest Resource Management Planning

---

## **ADDENDUM**

High Biodiversity Area Management Plan

### **Pine-Hemingway Creek**

Final

October 2009



Division of Forestry Planning Document  
Printed October 2009

©Copyright 2009, Department of Natural Resources

This document is on the Internet at <http://www.dnr.state.mn.us/forestry/subsection>. Information about the Division of Forestry Subsection Resource Management Plan (SFRMP) process can be found at the same web address. This information is available in an alternative format upon request.

# Table of Contents

<b>Introduction .....</b>	<b>3</b>
<b>Site Description.....</b>	<b>3</b>
<b>Background History .....</b>	<b>4</b>
<b>Long Range Vegetation Management Goals.....</b>	<b>5</b>
<b>Implementation.....</b>	<b>5</b>
Maple-Basswood Forest (Southeast Section) .....	6
Lowland Hardwood Forest .....	6
Mesic Oak Forest.....	7
Dry Oak Forest .....	8
Disturbed Woods .....	9
Algific Talus Slope .....	9
<b>Additional Management Goals.....</b>	<b>10</b>
Enhance Wildlife Habitat.....	10
Recreation .....	10
Improve Forest Inventory Data and Management Practices.....	10
Acquisition of Private Lands .....	11
<b>Appendix 1: Pine-Hemingway Creek Area Location.....</b>	<b>A1</b>
<b>Appendix 2: FIM types in the Pine-Hemingway Creek Area .....</b>	<b>A2</b>
<b>Appendix 3: Native Plant Communities &amp; Rare Elements .....</b>	<b>A3</b>
<b>Appendix 4: MCBS Evaluation of _____ .....</b>	<b>A4</b>
<b>Appendix 5: Additional Management Guidance .....</b>	<b>A16</b>
<b>Appendix 6: Commissioner’s Office Memo July 20, 2006.....</b>	<b>A18</b>
<b>Appendix 7. Areas of Significant Biodiversity in the Paleozoic Plateau .....</b>	<b>A22</b>
<b>Appendix 8: FIM Key for Pine-Hemingway Creek .....</b>	<b>A23</b>

## Introduction

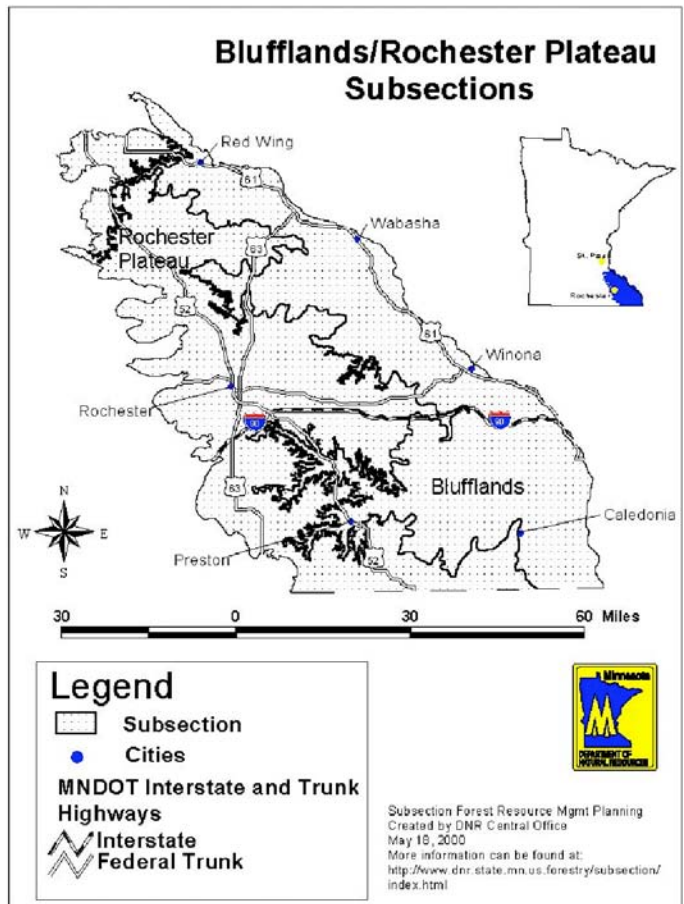
This plan will guide management decisions and practices on state-owned land in the Pine-Hemingway Creek area (Appendix 1). This is an area within the Pine and Hemingway creek watersheds in Winona and Fillmore counties that was identified by the Minnesota County Biological Survey (MCBS) as one of 13 MCBS sites of outstanding biodiversity on lands administered by the DNR Division of Forestry or the Division of Fish and Wildlife in southeastern Minnesota. This plan is intended to be used in conjunction with the Blufflands/Rochester Plateau Subsection Forest Resource Management Plan (SFRMP) that was completed by the DNR in 2002, and will be revisited every seven-years as part of an adaptive management process. The plan is for state-owned property only, however, some management recommendations in the plan may be appropriate for adjacent private lands as well

The Blufflands/Rochester Plateau SFRMP addressed management of vegetation on State Forest and Wildlife lands. There were 13 “priority areas of significant biodiversity” identified during the process as areas requiring detailed plans that would address vegetation management and biodiversity protection needs. Most of these priority areas consist of more than one MCBS site, and in many cases these areas straddle more than one county. Of the 745 sites of biodiversity significance in the two subsections, 62 sites are contained within these thirteen priority areas. Ecological evaluations that mapped and described rare natural features were prepared by MCBS ecologists for these thirteen sites in the years 2000 through 2001. The thirteen priority areas and associated information about them are listed in Appendix 7.

Division directors for the DNR Divisions of Fish and Wildlife, Forestry, and Ecological Resources determined that long-term management plans would be developed for the 13 identified high biodiversity areas. The division directors also provided that management of these sites should focus on the site as a whole, employ practices that perpetuate endangered, threatened, and special concern species and native plant communities while following the mandates of forestry or wildlife administered lands.

## Site Description

The Pine-Hemingway Creek Area is approximately 14 miles south of Lewiston, MN. It lies within the Blufflands subsection ecological landscape area. It is made up of a unit of State Forest land within the Richard J. Dorer Memorial Hardwood Forest (RJD MHF) as well as a larger amount of privately owned property. Pine Creek is the major watershed with Hemingway and Coolridge Creeks being tributaries to it. The DNR Division of Fish and Wildlife has evaluated all three streams as trout habitat and has selected portions of them to be designated trout streams. Trout habitat improvement work has also been done on portions of Pine creek.



Following the completion of the MCBS fieldwork in 1996, the Pine-Hemingway Creek Area was noted in "An Evaluation of the Ecological Significance of the Pine-Hemingway Creek Area" as being one of 13 sites in southeast Minnesota with significantly high biodiversity. The MCBS delineated two boundaries for this property. The broader boundary encompasses what is referred to as a Project Area. The other boundary is identified as the Critical Habitat Zone, and contains the core area of rare natural feature locations. The Pine-Hemingway Creek Critical Habitat Zone is made up of 2,452 acres, of which 871 acres, or 35%, are State Forest land. The majority of the acreage within the Zone is private land. This plan is primarily intended for use within the Critical Habitat Zone.

The concentration of rare features in the Pine- Hemmingway Area makes it one of the more biologically significant sites in southeastern Minnesota. There are several areas of high quality forest. In addition there are two algific talus slopes and a moderate cliff that provide habitat for a rare snail species. Five species of rare birds occupy portions of the site, making it, according to the MCBS Ornithologist, a top ten site for rare birds in this region. Two caves in the area provide potential bat habitat. One of them provides a winter hibernaculum for the eastern pipistrelle, a state Species of Special Concern. Populations of 15 state listed plant species occur in the area: goldenseal, nodding onion, Short's aster, James' sedge, smooth-sheathed sedge, spreading sedge, moschatel, Wood's sedge, stemless tick-trefoil, squirrel corn, Goldie's fern, false mermaid, ginseng, black snakeroot, and cliff goldenrod. Multiple locations for many of these species have been documented in the area. Current threats to the existing biodiversity of the area are, in order of importance, land conversion to agriculture or residential uses, livestock grazing, invasive species such as reed canary grass or buckthorn, and logging which results in excessive site disturbance.

## **Background History**

The State Forest land in this area was purchased from a number of different landowners in eighteen separate parcels during the period from 1964 to 1991. Due to this dispersed acquisition and a lack of acquisition funding the ownership is not contiguous and the access to portions of the area is limited. Since much of this land was acquired during the tenure of local area forester who wrote this section, it reflects personal experience concerning the land's condition at or before the time of purchase. Almost without exception these lands were grazed when the state bought them. On some of the parcels such as the Dau tract in Sec 25 and the Johnson tract in Sec 27 this grazing was quite heavy and extended across the entire parcel.

All of these properties also had histories of varying degrees of logging. The presence of old logging roads, stumps, and tops was noted during the appraisal for acquisition or the first forest inventory following purchase. Other notable land treatments resulting from previous private ownership were the construction of private trout ponds in Type 60, Sec 23, 26 and the establishment of an informal dump in Type 38, Sec 25. Lastly there were building sites in Type 96, Sec 35 and Type 35, Sec 27.

Since the Division of Forestry started purchasing property for the RJD MHF in this area there has been extensive land management activities. Some of these include the clean up of two old building sites, the closure of one well, the removal of miles of internal and former boundary fences, and the removal or burial of tons of garbage. In addition, miles of new boundary fences have been constructed between the state and adjacent private land to prevent livestock grazing. Three erosion control structures were built to reduce soil erosion and provide wildlife habitat. An old field in the SWSW, Sec 25 and the SESE, Sec 26 was sold to a private landowner in accordance of Minnesota Statute 89.022. This statute relates to the RJD MHF and requires the sale of tillable land purchased after 1979 that meets certain requirements.

Forest management activities that have been done in the area include the following. There have been five state timber sales between 1981 and 1997. They covered 54 acres and harvested 125 thousand board feet

(mbf) of primarily oak and northern hardwoods. In addition there were a number of fuelwood sales to individuals of accessible tops, slash, diseased trees and wood of low quality. The commercial sales include both clearcuts and partial cuts. The first forest inventory by the Division of Forestry, a Cooperative Stand Assessment (CSA), was completed in 1993. Updates and additions of newly acquired lands have been done as needed. In 2003 CSA was replaced by the Forest inventory module (FIM). All DNR Forestry stands in this document are identified by their FIM numbers.

Another forest management activity is tree planting on 147 acres with approximately 82,000 trees. The species planted include white pine, white spruce, walnut, red oak, white oak, bur oak, white ash, sugar maple, silver maple, and cottonwood. This planting has resulted in the conversion of 33 acres of fields and pasture to conifer and hardwood plantations. The rest of the planting has been done in natural stands with inadequate natural regeneration of species such as oak, northern hardwoods, and white pine.

Work in natural stands and plantations which falls under the heading of timber stand improvement (TSI) has been completed on 253 acres. This involves a variety of practices such as seedling release from grass and annual weeds or release of desirable tree species from competing less desirable ones. In some stands this type of weeding has been done to promote regeneration of northern hardwoods and oak versus boxelder, elm, and ironwood. This was usually done on recently acquired property to address the lack of desired regeneration due to grazing. Additionally there has been some pruning to prevent white pine blister rust disease and to improve stem quality for timber in white pine and walnut.

Much of the work mentioned above was done in the area identified as the Critical Habitat zone. Earlier in the 1990's, several stands in the area had been nominated for Old Growth designation. As part of this process an interdisciplinary team examined all the candidate stands and released those that they felt did not meet the required criteria. Subsequently two oak types and one white pine type, which did qualify, have been designated and reserved as Old Growth. In the spring of 2004 the boundaries of these types were corrected.

## **Long Range Vegetation Management Goals**

The long-range management goal for the area is to manage and enhance native plant communities and the plant and animal species that reside in this area using processes that mimic the disturbances processes that helped to establish and maintain these communities. The goals of biodiversity protection, timber management, understory species management, recreation, game and non-game wildlife species management and trout stream management will all be considered when making management decisions for this property. Management goals and recommendations will be based on current management knowledge and be directed by Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines. These recommendations may change as more information from research and monitoring becomes available.

## **Implementation**

This section is organized into the major plant communities that occur within the Pine-Hemingway Creek area. Management goals have been shown only for state-owned land. Following a description of the plant community a short-term management directive is also provided that describes vegetation management activities that are prescribed over the next seven years to help achieve the long term management goal. It should be noted that MCBS native plant community definitions and Forest Inventory Module (FIM) types are different. Consequently a stand may be called something different depending on the definition being used. Also, the mapped boundaries of these two vegetative description systems do not always coincide. When determining which plant community a particular FIM stand fell within, the majority plant community was chosen.

## Maple-Basswood Forest (Southeast Section)

**Description** - Maple-basswood forests are typically mesic to wet-mesic on steep north-to east-facing slopes. Sugar maple, basswood, and red oak are the dominant canopy trees. The maple-basswood forests in the Pine-Hemingway creek area have a well-established array of spring ephemerals in the herbaceous layer and support populations of twelve rare plant species.

**Long-term objective** - The goal for this native plant community is to maintain the maple-basswood forest native plant community while retaining a diverse shrub layer and maintaining or increasing the diversity of native plants in the herbaceous layer. This will help maintain or improve habitat for the 12 state-listed rare plant species and the three state-listed rare bird species that occur in these forests in this site.

**Short-term plan** - All or portions of ten FIM stands in the project area make up the maple-basswood plant community designated by the MCBS. They are as follows:

Stand #	FIM Type
70	O52
78	CH52
42	O52
90	O62
91	A23
56	NH62
100	O63
54	NH63
18	O55
59	O63

Stands number 54 and 59 are designated DNR old growth stands. No management activities are planned for these stands. FIM stands 90 and 100 have met the stand selection criteria for harvest but will be deferred for this planning period as directed by the 7/20/2006 Commissioner's Office memo (see Appendix 6). The long term management objective of the maple basswood plant community, as stated above, provide the overall management goals for timber harvests in portions of the stands that are maple-basswood. Where rare elements are found in stands scheduled for harvest some or all of the following actions will be taken to remediate the proposed action. Buffering and avoiding heavy cutting or skidding in the vicinity of the known locations of rare plants will be the main methods. In addition, timber sales preparation and specifications, monitoring, and evaluation will be guided by additional direction provided by the division /section directors of DNR Forestry, Wildlife, and Ecological Services (see Appendix 5). The remaining stands listed above do not meet the harvesting criteria and no management activities are planned for them at this time.

## Lowland Hardwood Forest

**Description** - Lowland hardwood forests are typically wet-mesic lowland forests on alluvial soils above the normal flood level in small valleys. Some areas of the lowland hardwood forest in the Pine-Hemingway Creek area have groundwater seepage areas that occur where the side slopes meet the valley bottom. The herbaceous layer in these areas is dominated by marsh marigolds. The canopy has frequent gaps, dead falls, and occasional standing dead snags. Early in the year, the lowland forests of higher quality have an understory that is a diverse and continuous array of spring ephemerals. There are five

plant communities of this type in the Pine-Hemingway Creek area. The lowland hardwood forest community is classified as lowland hardwoods in the FIM database also.

**Long-term management objective** - The goal for this plant community is to maintain a quality lowland hardwood community while protecting the groundwater seepage springs and herbaceous ground cover. The management focus in this area will be protection of ETS species locations, including the three special concern bird species, pickerel frogs, and the four state-listed rare plant species; protection of springs, and adherence to riparian management zone guidelines. Any timber harvesting that is done should protect the plant community and remove non-natives.

**Short-term plan** - All or portions of six FIM stands in the project area make up the lowland hardwood forest community designated by MCBS. They are as follows:

<b>Stand #</b>	<b>FIM Type</b>
39	LH63
43	LH64
45	LH64
60	LH52
76	UG
97	UB

Stands 39, 45, and 60 have met the stand selection criteria for harvest as established by the subsection forest management plan. However, due to concerns about potential logging impacts to rare species and the spread of reed canary grass and other invasive species, no management activities are planned for these stands during the current planning period. Stands 76 and 97 are classified nonforest by FIM standards and no management activities are planned for them. Stand 43 did not meet the harvesting criteria and no management activities are planned for this type during the current planning period.

## **Mesic Oak Forest**

**Description** - Oak forests (mesic subtype) are typically dry-mesic to mesic forests, often on gradual west and east-facing slope and broad ridge crests. Dominant canopy trees can include red oak and white oak. In the Pine-Hemingway creek area these communities grade to maple-basswood on east and north –facing slopes and to dry-mesic oak forest where sugar maple completely drops out and the herbaceous flora changes.

**Long-term management objective** - As mesic oak forest is designated as an S2 native plant community, it should be actively managed to ensure its perpetuation as well as the rare species that occur in them. Management practices where possible, should be used to retain these as oak types. In areas where maple basswood succession is inevitable, the stands will be allowed to succeed to maple-basswood.

**Short-term plan** - All or portions of nine FIM stands in the Pine-Hemingway creek area make up the Mesic Oak Forest plant community designated by the MCBS. They are as follows:

<b>Stand #</b>	<b>FIM Type</b>
17	O53
31	O53
35	CH19



42	O52
65	O63
72	OX43
73	O63
78	CH52
87	O63

Stand 17 lies in Township 104 - Range 9 in Fillmore County. The remaining stands are in Township 105 – Range 9 in Winona County.

Stand 65 has met the stand selection criteria for harvest. This stand will be harvested during the current planning period. Stands 17 and 87 will be deferred for this planning period as directed by the Commissioner’s Office memo of 7/20/2006 (see Appendix 6). In addition, the sale preparation, specifications, evaluation, and post sale treatments will be guided by additional direction provided by the division /section directors of DNR Forestry, Wildlife, and Ecological Services (see Appendix 5).

Stands 31, 35, 42, 72, 73, 87 have not met the harvest criteria and no management activities are planned for them at this time.

### **Dry Oak Forest**

**Description** - Oak forest (dry subtype) often occurs on south to west-facing slopes with a canopy dominated by northern pin oak and/or bur oak. Generally, these dry oak forests occur on areas where succession has led to a relatively closed canopy.

**Long-term management objective** - The goal in dry oak forest management is to encourage regeneration of the oak community through controlled burning and carefully planned logging to open up the community. Eliminating non-native species is also a high priority.

**Short-term plan** - In the Pine-Hemingway Creek area the Dry Oak Forest plant community designated by MCBS is found in all or portions of three FIM stands. They are as follows:

<b>Stand #</b>	<b>FIM Type</b>
59	O63
93	OX41
98	OX41

No management is planned in stand 59 since it is designated DNR old growth. Stand 98 did not meet the harvest criteria. Only stand 93 met the harvest criteria and will be examined for harvest during the current planning period and with the long-term objective for the plant community as a guide. Steep slopes, poor access, and low timber value may limit the extent of prescribed burning and harvest management activities.

### **Northern Hardwood – Conifer and White Pine-Hardwood Forest**

**Description** - Northern hardwood –conifer forests, rare in southeast Minnesota, occur on cool, steep north-facing slopes and include several plant species generally found much further north: white pine, yellow birch, Canada yew, mountain maple, and twisted stalk. White pine-hardwood forests are found on moist to dry steep slopes, often associated with cliffs and bedrock outcrops. White pines dominate the canopy of these areas with deciduous trees in the sub-canopy.

**Long-term management objective** - Management should ensure the perpetuation of these natural communities and associated rare species.

**Short-term plan** - Stand 101 (WP66) is the only representative of this type on state forest land in the Pine-Hemingway Creek area. This stand has been designated as DNR old growth. As such, no management activities are planned for this stand.

## **Disturbed Woods**

**Description** - This type was not specifically addressed in the Pine-Hemingway creek area MCBS evaluation. It is characterized by a history of heavy grazing and logging, and an understory of armed shrubs. Some of these areas were previously cleared for agriculture and have been planted to trees since their acquisition by the DNR.

**Long-term management objective** – Stands that comprise this type will be managed for the tree species to which they have been planted.

**Short-term plan** - Manage stands in this type for timber production and wildlife habitat. This will allow them to act as buffers between the adjacent private agricultural land and the more sensitive portions of the Pine-Hemingway Creek area. The following stands meet the criteria for harvest during this planning period:

<b>Stand #</b>	<b>FIM Type</b>
15	CH51
16	NH72
37	WP53
44	O54
55	WAL31
68	NH52
94	O63
95	WP33
96	O63
99	WP33

A portion of stand 15 is proposed to clear-cut harvested and regenerated to aspen-birch. The remainder of stand 15 is proposed to be partial cut. Under planting for advanced regeneration has already been done on the latter portion of this stand. Stands 68, 16, 37, 55, 94, 44, 95, 99 and 96 are all to be partial cut to adjust stocking levels. Market considerations will have an important impact on the timing of this work.

## **Algific Talus Slope**

**Description** - Algific talus slopes are typically wet-mesic communities on dolomitic talus on steep north-facing slopes and are restricted to areas continuously cooled by air draining through caves and fissures. The algific talus slope communities are shaded by the canopy of the surrounding forest.

**Long-term management objective** – The goal is to maintain these unique communities in an undisturbed condition and provide habitat for the rare plants and animals that occur in them.

**Short-term plan** - Prior to any activity in adjacent forest types, the regional plant ecologist will be consulted to clearly define these areas. No activities are planned for the life of this plan.

## **Additional Management Goals**

### **Enhance Wildlife Habitat**

**Narrative** - DNR wildlife and fisheries managers have been consulted in the past with regard to improving habitat in the Pine-Hemingway Creek Area. As part of their wildlife habitat activities the Lewiston Area has carried out one aspen recycling project, two prescribed burns for grassland habitat, and built three erosion control structures which provide added water bird habitat. The Division of Fisheries has carried out extensive habitat improvement work along Pine creek going west from the township road in Sec 25. Additional fisheries work is presently under consideration by the Lanesboro Area Fisheries Office.

**Short Term Plan** – Any planned work in riparian types will be done after consultation with the Area Fisheries staff. Input from the Area Wildlife will be obtained relative to the design of timber sales and forest management activities.

### **Recreation**

**Narrative** - Hunting, fishing, and snowmobiling are the main recreational activities that occur in the Pine-Hemingway Creek Area. All of the forest roads have been gated to stop truck and car traffic. However, four-wheelers do bypass these barriers and travel on the roads and trails found in the area. Most of this is local people attempting to reach portions of the streams that are not accessed by public roads.

Three “hunter parking lots” have been built at main entry points by Area Forestry staff. These are heavily used during spring and fall hunting seasons and when the stream trout season is open. The parking lot where Pine creek meets the Fremont township road in Section 26 receives particularly heavy use. The township recently replaced the bridge there and the parking lot was rebuilt to accommodate this change in access. A Grant in Aid snowmobile trail traverses stands 38, 70, and 80. This trail goes over an existing forest road. A good working relationship is in place with the snowmobile club that maintains this trail.

**Short Term Plan** – Signing and fencing to prevent trespassing onto adjacent private land is an ongoing activity. Additional enforcement activity will be needed to get better compliance with OHV regulations.

### **Improve Forest Inventory Data and Management Practices**

**Narrative**- Timber harvests and other management activities will bring further refinements to the FIM inventory data as stand boundaries are adjusted in pre- and post-sale visits. Additional data on species will also be collected during this process. As new information and management techniques become available, practices may be tested or implemented after consultation with silviculturalists, ecologists, wildlife managers, and fisheries managers.

**Short Term Plan** – Inventory alterations will be completed as management activities are completed, after regeneration checks, and at intervals as the stands age and their information needs updating.

## **Acquisition of Private Lands**

**Narrative-** There is a large amount of private land within the Critical Habitat Zone including some that abuts all three of the designated old growth stands. This private land is often the location of land uses which conflict with the goal of maintaining or increasing the uncommon species and the native plant communities, which support them. Land clearing, agricultural management practices, cattle grazing, unmanaged logging, and road and housing construction are examples of practices, which may conflict with this goal. That these activities are occurring with greater frequency recently is evidenced by the recent construction of three houses within the Critical Habitat Zone.

In addition to incompatible land uses the presence of so much intermingled private land leads to conflicts over trespassing and makes management of the state forest ownership difficult. The combined effect of the mixed ownership pattern and steep terrain create a situation where it may not be possible to carry out needed management activities due to problems with access.

**Short Term Plan** – Land acquisition that consolidates blocks of this unit or which buffer rare features or old growth stands or riparian areas or which improve public or management access should be a high priority. Other means of protection or of improving access such as conservation or access easements should be considered where fee title acquisition is not possible. Partnering in acquisition efforts with other DNR divisions, other government agencies, and private organizations may be necessary.

# Appendix 1: Pine-Hemingway Creek Area Location



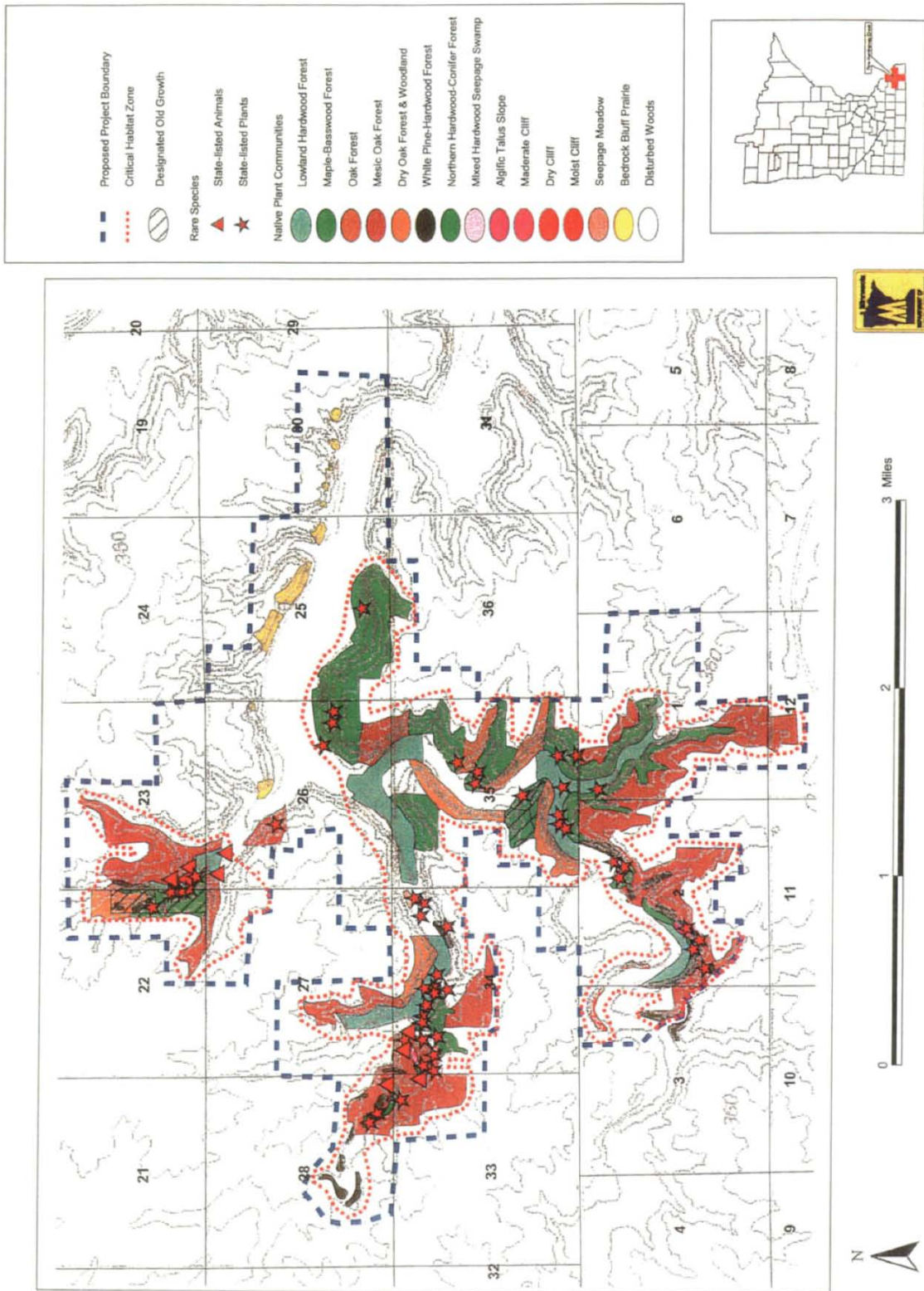
Pine-Hemingway Creek Area



# Appendix 3: Native Plant Communities & Rare Elements

e - Hemingway Creek (Twps 105 & 106, Rng 9W) Winona & Fillmore Counties, Minnesota  
 Minnesota County Biological Survey - Map Version June 2000

Figure 1. Native Plant Communities and Rare Species of the Project Area



# Appendix 4: MCBS Evaluation of the Pine-Hemingway Creek Area

An Evaluation of the Ecological Significance of

## **THE PINE-HEMINGWAY CREEK AREA**

Paleozoic Plateau ECS Section; Blufflands Subsection  
Winona and Fillmore Counties, Minnesota  
DNR Quad Codes: W22a,b,c,d

T104N R09W: portions of sections 1, 2, 3, 12;  
T105N R08W: portion of section 30;  
T105N R09W: portions of sections 22, 23, 25, 26, 27, 28, 33, 34, 35, 36

### Approximate Acreage

Proposed Project Boundary: 5,271 acres (state land: 1,000 acres)  
Critical Habitat Zone: 2,452 acres (state land: 871 acres)

Prepared by: Hannah Dunevitz  
Natural Heritage and Nongame Research Program  
Section of Ecological Services  
Minnesota Department of Natural Resources  
1200 Warner Road  
St. Paul, Minnesota 55106

Draft Date: 30 May 2000  
Final Version: 18 June 2001



## **Project Evaluation—Pine Hemingway**

### **Summary of the meeting with Dave Svien to discuss the Pine Hemingway Project evaluation:**

**12/12/00**

Dave stated that he would not want to see this area become a Scientific and Natural Area. He felt that the biodiversity concerns could be addressed while maintaining this area in Forestry management. Dave is concerned that the department is focusing all efforts on the biodiversity of public lands and hopes that the private lands with high biodiversity will also be addressed. Dave stated that public lands are already protected in many ways including no housing development and no grazing. Dave felt that the statement “Much of the land in the site is owned and managed by the DNR’s Division of Forestry” in the second paragraph of the Pine-Hemingway Project Evaluation was misleading since only 19% of the project boundary is owned by the state and only 35% of the Critical Habitat Zone is owned by the state. The state owned land is not contiguous, there are many private in holdings and there is a lack of an upland buffer. Dave’s priority for this area would be to purchase buffer lands.

Dave does not plan on doing much in the western portion of Pine-Hemingway but might want to pull out some individuals and do some selective cutting of the oak stands. Dave also stated that there may be need to conduct a light timber sale to open up the white pine forest and scarification of the soil if the white pine is not regenerating. Dave stated that he would want to retain the ability to perform partial cuts in the lowland-forested areas. Because of the disconnected nature of this site and the many private in-holdings, Dave has limited access to the land. Dave stated that he would be willing to conduct alternative management techniques if he could get some help with the issue of this area that concern him. Dave’s concerns about this site include the management on private

lands and the lack of enforcement of the fisheries easements. Dave stated that mainly hunters and fishermen use this area.

## ECOLOGICAL SIGNIFICANCE:

### Overview

The large concentration of rare features in Pine-Hemingway Creek makes it one of the most biologically significant sites in southeastern Minnesota. The site contains several areas of mature, high quality forest, including maple-basswood, mesic oak, dry oak, northern hardwood-conifer, and white pine-hardwood forest (Figure 1). Three forest stands have been designated old growth. In addition, extensive areas of lowland hardwood forest and younger but still high-quality tracts of the other forest types link the older stands and provide important rare species habitat. There are two algific talus slopes and a moderate cliff that provide habitat for a rare snail species that is a Pleistocene relic. Five species of rare birds occupy portions of the site, making it one of the ten top sites for rare forest birds in southeast Minnesota. Two caves in the site provide potential bat habitat; one of these is an important winter hibernaculum for the eastern pipistrelle (*Pipistrellus subflavus*), a special concern species. Populations of 15 state-listed plants occur in the site: goldenseal (*Hydrastis canadensis*), nodding wild onion (*Allium cernuum*), Short's aster (*Aster shortii*), James' sedge (*Carex jamesii*), smooth-sheathed sedge (*Carex laevivaginata*), spreading sedge (*Carex laxiculmis*), moschatel (*Adoxa moschatellina*), Wood's sedge (*Carex woodii*), stemless tick-trefoil (*Desmodium nudiflorum*), squirrel corn (*Dicentra canadensis*), Goldie's fern (*Dryopteris goldiana*), false mermaid (*Floerkea proserpinacoides*), ginseng (*Panax quinquefolius*), black snakeroot (*Sanicula trifoliata*), and cliff goldenrod (*Solidago sciaphila*). Multiple locations of many of these species have been documented in the site.

Pine-Hemingway Creek is in the Red Wing-LaCrescent Uplands Geomorphic Region, a highly dissected portion of the Paleozoic Plateau in southeastern Minnesota characterized by steep bluffs, loess-covered uplands, and lowlands ranging from broad floodplains to narrow river valleys. It is part of the extensive Root River Watershed. The site consists of steep bluffs and floodplains along portions of three designated trout streams: Pine Creek, Hemingway Creek, and Coolridge Creek. About 1000 acres in this site is owned and managed by DNR's Division of Forestry (Figures 2 and 3).

### Geologic Features

The site is geologically significant for its exposed Paleozoic bedrock strata and its north-facing cold air slopes. Cliffs and bedrock outcrops on the bluffs expose layers of 5 formations: the Shakopee, Oneota Dolomite, Jordan Sandstone, St. Lawrence, and Franconia Formations (from top to bottom). In two portions of the site, cold air trapped in fissures in the Oneota Dolomite layer create suitable conditions for algific talus slope and moderate cliff communities and rare snail species. These systems include sinkhole features on the uplands, generally within 1/4 mile of the slopes, necessary for air circulation into the fissures. These communities and snails are glacial relicts, found nowhere else in the world except on cold air slopes in the Paleozoic Plateau. In addition, caves occur beneath the ground's surface, including two that have been explored. Hermanson's Cave is located in the zone of contact between the Shakopee and Oneota Dolomite Formations and has several openings. This cave is too exposed to be suitable as a bat hibernaculum. Pine Valley Cave, a locally important bat hibernaculum, is in the Oneota Dolomite formation and is entered through a sinkhole and 5-meter chimney.

### Native Plant Communities

Figure 1 shows the locations of native plant communities in this site. Flat to gently sloping valley floors along the creeks support lowland hardwood forest, ranked BC to CD, dominated by various combinations of bur oak (*Quercus macrocarpa*), black ash (*Fraxinus nigra*), sugar maple (*Acer saccharum*), basswood (*Tilia americana*), black walnut (*Juglans nigra*), box elder (*Acer negundo*), rock elm (*Ulmus Thomasi*), red elm (*Ulmus rubra*), and hackberry (*Celtis occidentalis*). Lowland hardwood forests are rare in southeast Minnesota, as many of them have been converted to croplands and pastures. In this site, the ground flora is a mix of species found in floodplains and those found in upland forests. Most areas have been disturbed in the past by grazing, foot-trails, or logging but are still intact natural communities. In many places, seepage streams run through these forests, creating special habitat for several rare plant species. Where the seeps are extensive and run through open, sedge-dominated areas, they are classified as seepage meadow communities. Where seeps run through forested swamps, they are classified as mixed hardwood seepage swamps. These areas of lowland hardwood forests, swamp forests, streams, and seeps provide critical habitat for the rare birds found in this site.

The steepest (70 to 80 percent) slopes in the site support northern hardwood-conifer forests and white pine-hardwood forests. Northern hardwood-conifer forests, extremely rare in southeast Minnesota, occur on cool, steep north-facing slopes and include several plant species generally found much further north: white pine (*Pinus strobus*), yellow birch (*Betula allegheniensis*), Canada yew (*Taxus canadensis*), mountain maple (*Acer spicatum*), and twisted stalk (*Streptopus roseus*). The northern hardwood-conifer forests in this site are mature, A to AB rank, excellent quality stands supporting several rare plant species. One (in sections 28 and 33) is designated old growth. White pine-hardwood forests are found on moist to dry steep slopes and include species characteristic of oak and maple-basswood forests along with white pine. Those visited were mature, AB to BC rank communities.

The four algal talus slopes and the moderate cliff are extremely rare and fragile natural communities. Their continued health is based on intact geologic and hydrologic systems that allow ice to accumulate in caves and air passages in the bedrock and allow cold air to reach the surface. The rare Pleistocene snails on these slopes rely on continual cold air and the absence of foot traffic or logging, which could disturb the fragile talus slopes.

Less steep slopes support maple-basswood forest and mesic oak forest on north to east-facing slopes and dry oak forest and oak woodland-brushland on south to west-facing slopes and ridgetops. There are at least eight stands of A to BC rank maple-basswood forest, all mature, including two designated old growth. Twelve of the rare plant species in the site occur in maple-basswood forests.

Ridge tops and drier slopes support oak forest, including both dry and mesic subtypes. Three stands of AB to B rank occur in the Winona County portion of the site: two are 20 acres, one 40 acres, and all three have populations of the threatened plant species stemless tick trefoil (*Desmodium nudiflorum*). The remainder of the oak forest communities in the site that were surveyed by the Minnesota County Biological Survey (MCBS) have been logged, grazed, or both, though many are still intact natural communities (BC to CD rank) and will recover in time.

Many steep south and west-facing slopes are occupied by oak woodland-brushland that has been kept open primarily through grazing, and possibly by fire as well. Those woodlands not currently being grazed or burned are beginning to develop a forested character, with armed shrubs (indicative of past grazing) common. These areas would benefit from prescribed burning. Several of these slopes support bedrock bluff prairies not evaluated by MCBS.

### Rare Plants

Each of the forested natural communities in this site provides rare species habitat. The moist north to east-facing slopes and lowland hardwood forests have the greatest concentrations of rare plants, though drier slopes and ridgetops also contain rare species. The most significant species in the site are described briefly below and their locations shown in Figure 1.

A number of rare plants in this site have been found nowhere else in the state except in mature rich maple-basswood forests in the Paleozoic Plateau. They generally occur on loam in relatively flat areas and at the base of north-facing slopes. One of these species, goldenseal, is state-endangered and has only been documented in nine other sites in Minnesota. Though it has always been rare in the state because it is on the northwest edge of its range, it has become even rarer because of intensive gathering for medicinal use. Two populations were found in this site in mature maple-basswood forests. Other rare species in these rich maple-basswood forests include one threatened species: Short's aster (*Aster shortii*); three special concern species: Wood's sedge (*Carex woodii*), Goldie's fern (*Dryopteris goldiana*), and moschatel (*Adoxa moschatellina*); and one species unlisted but tracked by the Natural Heritage Information System (NHIS): silvery spleenwort (*Athyrium thelypteroides*).

Steeper north-facing slopes and portions of the lowland hardwood forests below them provide habitat for the state-threatened species nodding wild onion (*Allium cernuum*), found in nine places in this site. It was associated with algalic talus slopes, moderate cliffs, maple-basswood forests, and northern hardwood-conifer forests. The only other place this species has been found in Winona County is in similar forests along the South Branch of the Whitewater River. Two of these cool north-facing slopes also support populations of the special concern species squirrel corn (*Dicentra canadensis*).

Stemless tick-trefoil (*Desmodium nudiflorum*) is a state-threatened species that occurs in the site in dry to dry-mesic oak forests. It has been found in oak forests in the St. Croix River Valley as well as the Paleozoic Plateau. Only 19 other occurrences are known in the state; this is the only known population in Winona County.

Several rare species occur in both maple-basswood and oak forests in this site. These include two special concern species: ginseng (*Panax quinquefolius*) and beaked snakeroot (*Sanicula trifoliata*), and one species that is unlisted but tracked in the NHIS: white baneberry (*Actaea pachypoda*).

Cliff goldenrod (*Solidago sciaphila*), found on several cliffs in the Pine-Hemingway Creek Area, is a state special concern species that grows primarily on cliffs in the Paleozoic Plateau.

Lowland hardwood forests and the seepage streams that wind through them in the Pine-Hemingway Creek Area provide important habitat for a number of rare plant species. Seepage streams form essential habitat for false mermaid (*Floerkea proserpinacoides*), a state-threatened annual species found in only seven other sites in the state. Smooth-sheathed sedge (*Carex laevivaginata*) is another state-threatened species associated with seepage areas in this site. State-threatened species in lowland hardwood forests in this site that are not directly associated with seeps include James' sedge (*Carex jamesii*) and spreading sedge (*Carex laxiculmis*).

### Rare Animals

Surveys for small mammals have not been conducted in Pine-Hemingway Creek. There is potential habitat for woodland voles (*Microtus pinetorum*), which are limited to southeast Minnesota where they are extremely rare and on the edge of their range. In the region, this species, which uses both below-ground and above-ground habitat, is found in mature maple-basswood forest with a thick, uncompacted litter layer. Pine Valley Cave, one of two caves on the site, is an important hibernaculum for eastern pipistrelle (*Pipistrellus subflavus*), a special concern bat species. The species little brown myotis (*Myotis lucifugus*), a more common bat species, has been observed foraging over the stream in large numbers during summer, suggesting a maternity colony may be located in the vicinity. These colonies frequently occur in hollow tree trunks along stream edges.

Five rare bird species were documented in Pine-Hemingway Creek during the breeding season. This is one of the the top ten sites for rare forest birds in southeast Minnesota. The most important habitat features in the site for these species are the large relatively unfragmented nature of the forest, the intact lowland hardwood forest in the valleys, and the presence of clear, fast-moving streams. Five occurrences of Louisiana waterthrushes (*Seiurus motacilla*), ranked special concern in the state, were found in the northern and western portions of the site along streams in lowland hardwood forests and maple-basswood forests. The birds require clear, flowing streams, steep-sided valleys, and adjacent mature deciduous forest, including a relatively closed canopy over the streams for breeding habitat. Acadian flycatchers (*Empidonax vireescens*) and cerulean warblers (*Dendroica cerulea*), both special concern species, were documented in similar habitat in the site. The cerulean warbler is also a federal candidate species. These two species are both associated with mature forests and are often found near streams. Veerys (*Catharus fuscescens*) and least flycatchers (*Empidonax minimus*) were found closely associated with the previous three species. These birds, common in northern Minnesota but rare in southeast Minnesota, are typically found in lowland forests. In Houston and Winona counties, veerys were found by MCBS in just four other sites, and least flycatchers in six other sites.

Healthy populations of pickerel frogs (*Rana palustris*) were found in lowland hardwood forests in this site. This species is on the edge of its range in southeast Minnesota, and requires good forest cover adjacent to clear, cool, flowing streams. It also uses areas of open vegetation such as wet meadows. Though this species is stable in the site at present, extensive logging of lowland hardwood forests could disrupt the population. Upland forests and bluff prairies provide potential rare snake habitat, but there have not yet been surveys of these areas for herpetofauna.

One rare snail species occurs on algific talus slopes and moderate cliffs in the site. This species is extremely small and is limited in Minnesota to these highly specialized sites. The variable

Pleistocene vertigo (*Vertigo hubrichi variabilis* n. subsp.) was found on the moderate cliff in section 34. Its shell is about 2 mm long. It is most common on cold undisturbed and well-forested sites in or immediately in front of open cold air vents in small patches of decaying deciduous tree leaves. It is found nowhere else in the world except the Paleozoic Plateau. This species is a candidate for federal listing as threatened and is listed as state threatened.

## RECOMMENDATIONS:

The diverse combination of cold air slopes, forested lowlands, and the relatively large tract of uplands with mature forest creates ideal conditions for the native plant communities and rare species in this site. Some of the private land in the site was logged during a wet portion of the active growing season in recent years, resulting in soil erosion, the invasion of many annual weeds, and siltation in Hemingway Creek. Most of the site is in good condition, however, and if this kind of activity is limited in the future, the site as a whole should retain its value as a natural area and maintain habitat for rare species. The rare animals and many of the rare plants in this site depend on good canopy cover, thick leaf litter layers, and relatively undisturbed forested sites. The cold air flow that supports the algalic slopes and moderate cliffs would best be protected with a buffer of at least 1/4 mile on the top of the slopes in which air is allowed to flow freely. At present, there are three forest stands designated as old growth. The remainder of the forest stands in this site are at present managed by private and state owners primarily for timber. The needs of the rare features in the site should be integrated into a comprehensive protection and management plan.

The Critical Habitat Zone (Figure 1) is the highest priority for biodiversity protection. The area within the Critical Habitat Zone would qualify as a candidate for a Scientific and Natural Area.

Those areas outside the Critical Habitat Zone and within the Proposed Project Boundary (Figure 1) provide additional important habitat and buffering. Protection of agricultural lands could include set aside programs that help landowners plant permanent native cover. Combinations of other protection strategies for these lands, such as conservation easements, registry agreements, and/or management agreements for private lands and Natural Heritage Registry agreements for state forest lands could be pursued to accomplish protection of biological objectives.

**INFORMATION SOURCES:** Minnesota County Biological Survey: Hannah Dunevitz, Plant Ecologist: Steve Stucker, Ornithologist: Carol Hall, Herpetologist: Gerda Nordquist, Mammalogist, Forestry Division: Dave Svien, Area Forester

**Pine-Hemingway Creek  
ELEMENT SUMMARY:**

	<u>*Status</u>	<u>**Rank</u>	<u>Statewide Eos</u>	<u>Paleozoic Plateau Eos</u>
<b>Native Plant Communities</b>				
Talus slope (algific subtype)	S2	BC,C	80	79
Moist cliff (southeast section) moderate subtype	S3	B	18	18
Moist cliff (southeast section)	S3	B	28	23
Dry prairie (southeast section) bedrock bluff subtype	S3	-	291	244
Northern hardwood-conifer forest (southeast section)	S2	A	5	5
White pine-hardwood forest (southeast section) dry subtype	S2	AB	7	4
White pine-hardwood forest (southeast section) mesic subtype	S2	B, BC	26	25
Maple-basswood forest (southeast section)	S2	AB,B, BC	186	179
Oak forest (southeast section) dry subtype	S2	AB	50	46
Oak forest (southeast section) mesic subtype	S2	B, C, CD	298	258
Oak woodland-brushland (southeast section)	S4	BC	53	42
Lowland hardwood forest	S4	BC, CD	91	33
Seepage meadow	S3	CD	22	15
<b>Birds</b>				
Louisiana waterthrush ( <i>Seiurus motacilla</i> )	SC		100	46
Acadian flycatcher ( <i>Empidonax virescens</i> )	SC		58	35
Cerulean warbler ( <i>Dendroica cerulea</i> )	SC		140	56
<b>Amphibians and Reptiles</b>				
pickerel frog ( <i>Rana palustris</i> )	NON		57	57
<b>Mammals</b>				
eastern pipistrelle ( <i>Pipistrellus subflavus</i> )	SC		20	14
<b>Snails</b>				
variable Pleistocene vertigo ( <i>Vertigo hubrichti variabilis n. subsp.</i> )	T		6	6



**Pine-Hemingway Creek  
ELEMENT SUMMARY (continued):**

		<u>Status</u>	<u>Statewide Eos</u>	<u>Paleozoic Plateau Eos</u>
<b>Plants</b>				
<i>Actaea pachypoda</i>	white baneberry	NON	71	33
<i>Adoxa moschatellina</i>	moschatel	SC	103	74
<i>Allium cernuum</i>	nodding wild onion	T	72	71
<i>Arabis laevigata</i>	smooth rock cress	NON	20	20
<i>Aster shortii</i>	Short's aster	T	27	27
<i>Athyrium thelypteroides</i>	silvery spleenwort	NON	41	41
<i>Carex jamesii</i>	James' sedge	T	14	14
<i>Carex laevivaginata</i>	smooth-sheathed sedge	T	25	24
<i>Carex laxiculmis</i>	spreading sedge	T	19	19
<i>Carex woodii</i>	Wood's sedge	SC	91	64
<i>Desmodium nudiflorum</i>	stemless tick-trefoil	SC	20	16
<i>Dicentra canadensis</i>	squirrel corn	SC	44	43
<i>Dryopteris goldiana</i>	Goldie's fern	SC	48	37
<i>Floerkea proserpinacoides</i>	false mermaid	T	12	10
<i>Hydrastis canadensis</i>	goldenseal	E	15	15
<i>Panax quinquefolius</i>	ginseng	SC	225	115
<i>Sanicula trifoliata</i>	black snakeroot	SC	41	38
<i>Solidago sciaphila</i>	cliff goldenrod	SC	85	84

**\*Status:**

For Rare Species

E = endangered  
T = threatened  
SC = special concern  
NON = no legal status but  
tracked in the Natural Heritage  
Information System

For Natural Communities

(program-defined; no legal status)  
S1=critically endangered  
S2=endangered  
S3=threatened  
S4=special concern  
S5 = demonstrably secure

**\*\*Ecological quality rank where A = highest quality and D =lowest quality (multiple ranks indicate multiple occurrences)**

Figure 2. CSA Phase II Stand Cover Types for State Owned Land in the Project Area

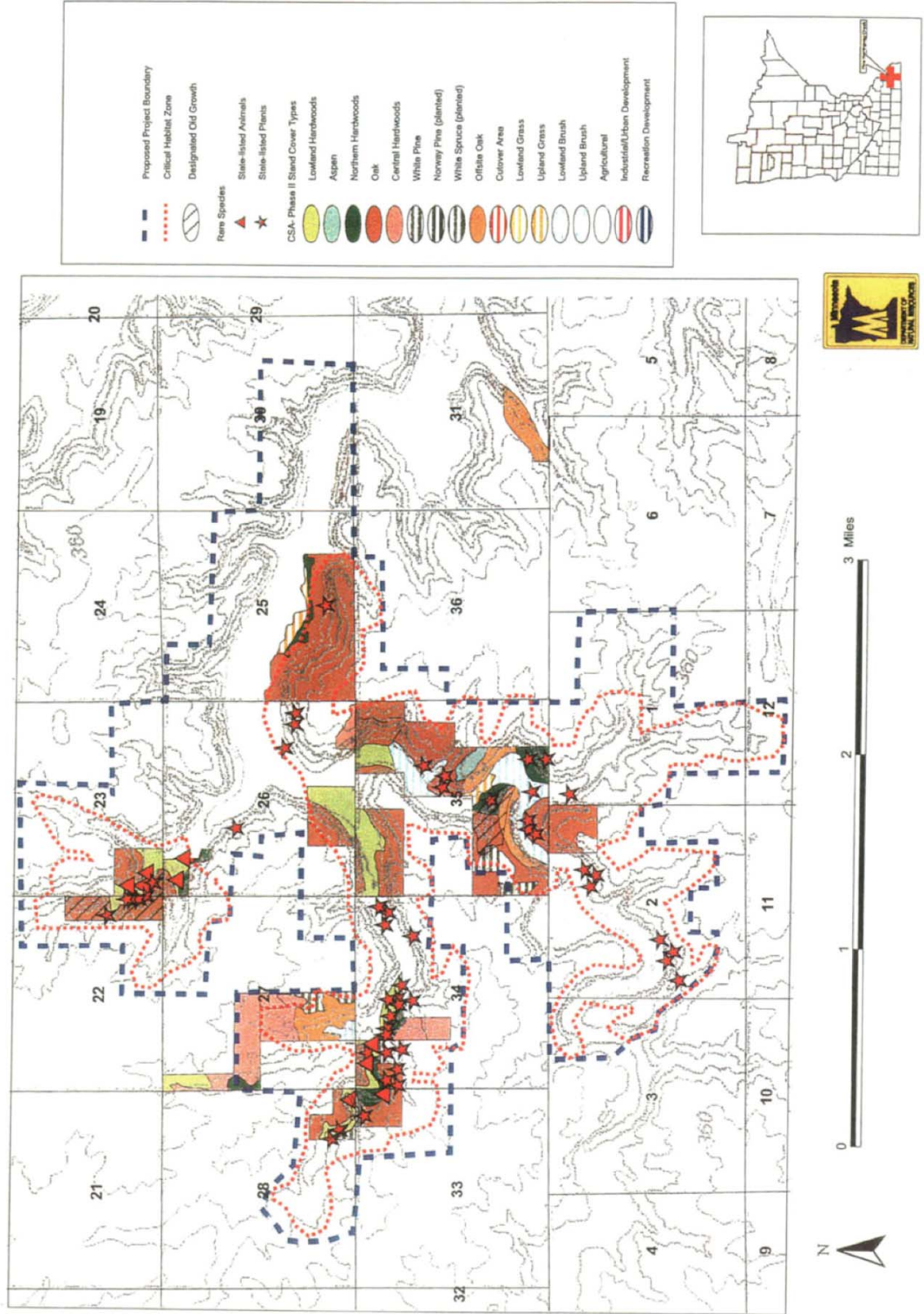
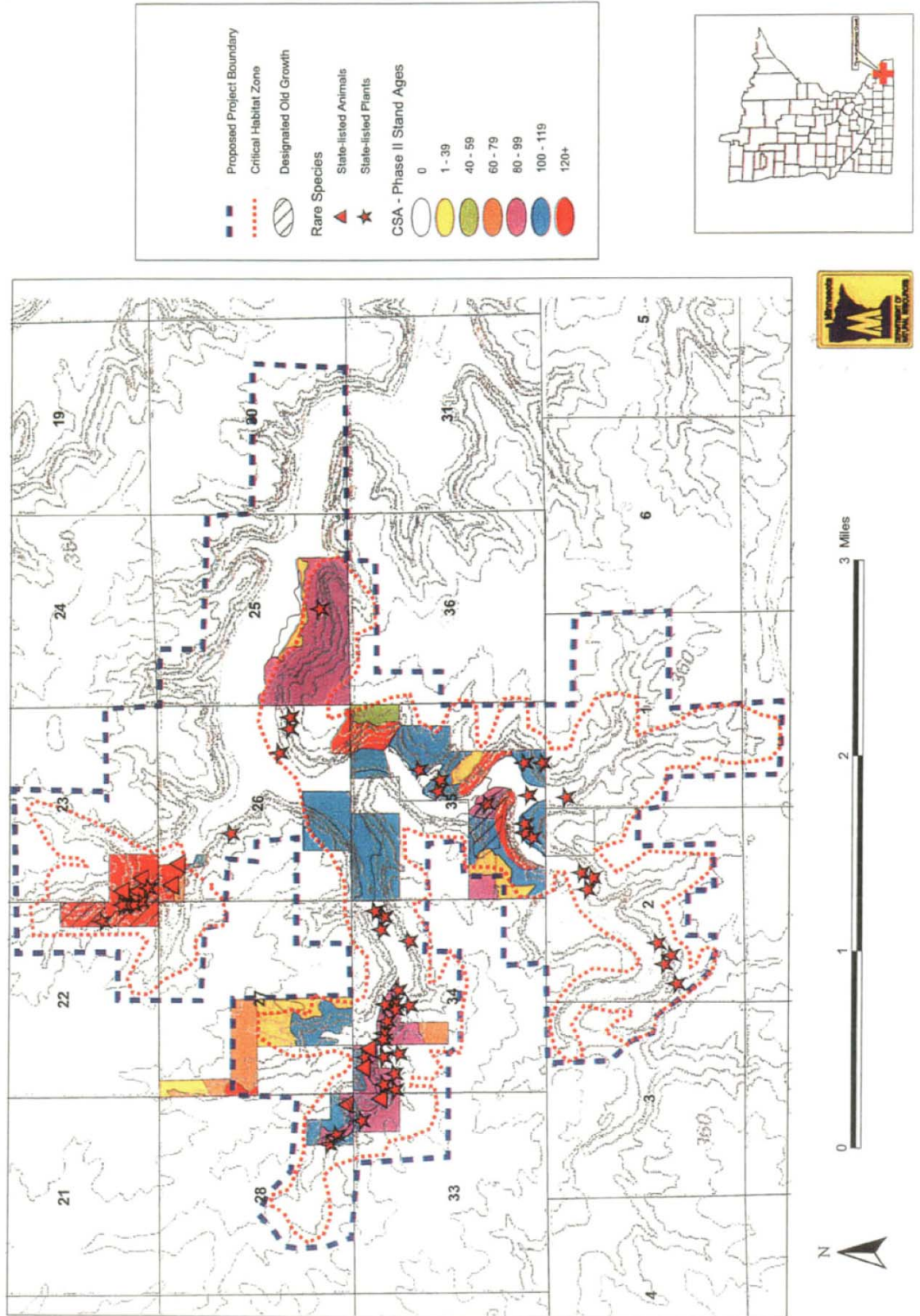


Figure 3. CSA Phase II Stand Ages for State Owned Land in the Project Area



## Appendix 5: Additional Management Guidance

### Harvest of high quality maple-basswood communities

Selective harvest will be allowed if site teams jointly develop detailed plans that include joint on-site visits. The following conditions will apply:

- Oak resources can be salvaged as these sites are converted to purer maple basswood communities. This should be done by selective, individual or small group marking and removals.
- Harvest activity should limit canopy gap creation wherever possible and account for fill in by remaining crowns.
- Seasonal and equipment restrictions should be used to limit soil disturbance; horse logging on frozen ground should be done where appropriate in the most sensitive sites).
- Trees should be jointly marked as well as the layout for access and skid trails to minimize any additional permanent fragmentation.
- Portions of stands that support unique or rare resources (such as a rare species or a rich spring ephemeral flora) may be delineated for no harvest.
- A pre and post treatment monitoring and evaluation protocol for species and communities of concern (both native and exotic) should be developed and implemented in each stand. Harvest plans should also take into account whether or not invasive exotic species occur in stands immediately adjacent to those being harvested.

With respect to the last bullet, Ecological Services staff will continue discussions with USDA Forest Service staff to further explore the opportunities to collect pre-treatment data during the 2004 field season.

### Mesic oak communities and oak regeneration

The mesic oak communities should be managed. The benefits of an oak component to wildlife species, particularly game species, are important. These stand types should be individually examined, selecting those with the greatest chance to regenerate oak to actively manage through timber harvest and other silviculture techniques. Those with advanced maple-basswood regeneration should be allowed to succeed to more shade tolerant northern hardwoods. Subsection timber management plans should consider small, medium, and large-scale harvests in these types to provide habitat for game and non-game species, including forest interior birds.

A variety of types of harvests and other silvicultural practices should be practiced as well. Clear-cuts are the norm to regenerate oak in southeastern Minnesota, but efforts to apply group selection and shelterwood cuts should be applied where appropriate. Group selection creates a feathered edge effect that is far different than that created by cutting next to an open agricultural field and mimics those natural blowdowns that occurred in 1998 in the southeast. To promote natural regeneration and protect soil productivity, look for opportunities to clear-cut the forested type on more level terrain following pre-sale soil scarification. Harvesting on steeper slopes, where appropriate, would be restricted to shelterwood, group selection, or variations of these harvest methods without soil scarification

Prescribed fire should also promote oak regeneration, either prior to or after a sale in an attempt to reduce shade tolerant competition. Through the use of this tool, we may be able to reduce our pre- and post-sale chemical treatments. The highest quality biodiversity sites for recreation will receive the highest priority for prescribed fire funding. Wildlife will work with the Divisions of Ecological Services and Forestry to ensure that these sites are regenerated through the application of fire.

## Aspen and white pine pockets

The cover type goal as listed in the Blufflands/Rochester Plateau Subsection Forest Resource Management Plan is to maintain or moderately increase the white pine acreage and increase the aspen acreage for various wildlife and non-game species. As stated in the plan, there are relatively few stands of aspen larger than five-acres in size in southeastern Minnesota.

Native white pine stands are limited in number, but provide multiple benefits to numerous game and non-game species from roosting sites for wild turkeys to perches and roost areas for bald eagles. The department believes it is necessary to access some of the sites for management to ensure natural regeneration occurs.

Options to minimize any intrusion through the maple-basswood communities should include the following:

- A search for any pre-existing old homestead roads or trails that could be used for access and whether exotic species are present in the area which might be introduced along such a corridor if made active again;
- List alternate means to access the white pine such as through private land, through other disturbed communities, etc; and
- Timing of access whereby any mechanical scarification would take place during fall or early winter, reducing the “footprint” upon the trail used to access such stands. The department believes such efforts to maintain or increase the native white pine acreage in this landscape outweigh the minor impacts to surrounding northern hardwood communities.

Small aspen clones in high quality sites should only be harvested when a harvest is already planned and approved by the team, at the same time, within the immediately surrounding stand in which the clone is embedded. Other conditions mentioned under the high quality maple-basswood communities section above should also be addressed. If harvest in the stand in which the aspen is embedded is not planned, then a special effort to cut the aspen should not be made.


# Appendix 6: Commissioner's Office Memo July 20, 2006

Department of Natural Resources

State of Minnesota

COMMISSIONER'S OFFICE, Box 09

## Office Memorandum

**Date:** July 20, 2006  
**To:** Dave Epperly, Lee Pfanmuller, Dave Schad, Cheryl Heide, Joe Kurcinka, Jon Nelson, Keith Wendt  
**From:** Brad Moore, Assistant Commissioner   
**Subject:** Decision on management of three disputed stands in the Pine-Hemingway Creek Area

**THE POLICY ISSUE:** In 2000 the Minnesota County Biological Survey (MCBS) identified 13 predominantly DNR-administered land areas of high biodiversity significance in southeastern Minnesota. Since then, DNR staff have worked in an interdisciplinary process to ensure that these areas are managed to sustain their rare species and high quality native plant communities (see Timeline). However, staff have debated and left unresolved the status of three stands in the Pine-Hemingway Creek Area, specifically the question of whether silvicultural (harvest) or reserve management is the best strategy to maintain and enhance these stands. The debate has been respectful and constructive, generating multiple perspectives and management alternatives. Now it is time to make a decision on these stands so we can move forward on other important issues.

To that end, I recently visited the stands with two division directors, the southern regional director, and other staff to discuss management options and gather information needed to determine the best course of action.

**THE DECISION:** The three disputed stands in the Pine-Hemingway Creek Area will be placed in reserve status and be managed to maintain and enhance the high quality native plant communities and species within them. The stands (a total of 126 acres) are: 1) Type 87, Sec 33, T105N – R9W; 2) Type 90, Sec 35, T105N – R9W; and 3) 2 adjacent stands managed as one: Type 100, Sec 35 T105N – R9W; Type 17, Sec 2, T104N – R9W. These stands of outstanding biodiversity significance will serve as ecological benchmarks. On sites of moderate biodiversity significance we will use and evaluate silvicultural prescriptions to maintain conservation values and meet harvest goals.

**RATIONALE:** My rationale for this decision involves several key points (see Discussion Section):

- 1) **Policy:** A range of policies and standards – from the *Conservation Agenda* and forest laws to Forest Certification standards – mandate the protection of uncommon and rare habitats and species.
- 2) **Outstanding nature of the sites:** These sites are the “best of the best” forest biodiversity sites in southeastern Minnesota based on a comprehensive regional survey.
- 3) **Range of tools:** We will use a range of tools to protect uncommon and rare habitats, from silviculture to reserving no-harvest areas.
- 4) **Need for benchmark stands:** Unharvested benchmark stands are critical for understanding the effects of silvicultural management. They are one tool for meeting DNR forest policy and demonstrating accountability to Forest Certification standards.

## **DISCUSSION:**

### *Policy*

The *Conservation Agenda* states that Minnesota's forests will be managed for a full range of forest values, from providing timber and wildlife habitat to protecting and restoring uncommon and rare habitats. This directive is firmly established: The 1933 enabling act for state forests specifies "...the preservation and development of rare and distinctive species of flora native to such areas." The 2002 Sustainable Forests Resources Act underscores this commitment in its definition of forest resources as inclusive of "timber, biodiversity, and rare and distinctive flora and fauna." Furthermore, DNR's Forest Certification requires on-going documentation of our work to maintain rare and distinctive features by achieving a system of protected, representative samples of existing ecosystems within the landscape (FSC Principle 6.4) and ensuring appropriate management of high conservation value forests (FSC Principle 9). DNR is committed to continually improving its management by using both reserve prescription and silvicultural management to maintain and enhance high conservation values.

### *Outstanding Nature Of The Sites*

Based on the MCBS and its systematic evaluation of biodiversity significance in the Blufflands/Rochester Plateau Subsection, it is clear that the three stands have high conservation value. They are forest sites of outstanding biodiversity significance within the Pine-Hemingway Creek Area and are among the highest value sites within the subsection. The critical question is how to manage them to sustain and enhance their future.

### *A Range Of Tools For A Full Range Of Values*

A basic tenet of sustainable forestry is managing the whole forest system in integrated ways so all forest values are maintained. This means using both reserves and a variety of silvicultural treatments, i.e. the prudent use of the full diversity of management tools across the landscape. While I decided to reserve the three stands in question, silviculture that strives to maintain and enhance rare and distinctive species and other conservation values is appropriate in many sites, especially in sites of moderate biodiversity significance. As part of our adaptive management approach we need to maximize our opportunities to understand the effects of well-designed silvicultural prescriptions on rare and distinctive flora and fauna. For example, the Caledonia Oaks Regeneration Project includes moderate biodiversity sites and is designed to help us measure the effects of different silvicultural treatments on oak regeneration and biodiversity significance. Another example is the silviculture project occurring on a site of moderate biodiversity significance in the Manitou Forest Landscape in the North Shore Highlands Subsection.

### *Need For Benchmark Stands*

Reserves protect some forest elements that cannot be reliably maintained in stands managed with timber harvest. They also provide important benchmarks of forest conditions to which harvested stands can be compared. As we strive to better manage our forests for a range of values, unharvested benchmark stands representing different ecosystem conditions across the landscape are essential for measuring the success of our management for multiple forest purposes. Reserving the three stands at Pine-Hemingway will provide important benchmarks for evaluating stands managed with silvicultural prescriptions.

As part of our commitment to Forest Certification, we will complete a GAP analysis (CAR 2005.6) to determine how well DNR has “protected representative samples of existing ecosystems within the landscape.” Until this GAP analysis is completed (by the 2007 surveillance audit), we must maintain our options to adequately represent native plant communities and rare species. The sites of outstanding biodiversity significance identified by the MCBS are critical resources for doing this.

**PRINCIPLES:**

As we test and improve ways to manage for rare species/high conservation value forests, please use the following principles as starting points for further refinements.

- Manage for a full range of values using a diversity of tools including silviculture and reserves.
- Silviculture is an important tool for maintaining and enhancing forest biodiversity values on specific sites, particularly sites of moderate biodiversity significance.
- Unharvested reserves are important tools for maintaining and enhancing forest biodiversity values on specific sites, particularly sites of outstanding biodiversity significance.
- On all sites, ECS is our integrative tool to understand site and landscape potential for a full range of forest values and to explore the appropriate management prescriptions to meet specific purposes.
- Use interdisciplinary cooperation to evaluate options and make decisions.
- Use “Options Forestry” to test different approaches for maintaining biodiversity and forest productivity (see attached paper for details—options forestry is a simplified approach to adaptive management; recognizing uncertainty, testing and comparing different prescriptions).

As we continue our work to manage the public’s forest for multiple purposes, please work together to refine and put these principles into operation. I appreciate the complexity of the task, the uncertainties involved, and most of all your ability to respect each other’s points of view and work together as a team. Your work is vital to developing and implementing sound forest policy.



### Timeline

- Between 1990 and 1996 the Minnesota County Biological Survey (MCBS) systematically surveyed 917 sites to collect and interpret data on rare species and native plant communities on public and private land in six counties of southeastern Minnesota (the Blufflands/Rochester Plateau Subsection).
- Based on these data MCBS classified 69 sites (7.5% of all sites surveyed) as having outstanding biodiversity significance. The Pine-Hemingway Creek Area includes 3 of these 69 sites and is one of 13 high biodiversity areas on lands predominantly administered by the divisions of Forestry and Fish & Wildlife.
- In August 2001 (8/3/01 memo) division directors for Wildlife, Forestry, and Ecological Services decided that a site team would cooperatively develop long-term management plans for each of the 13 high biodiversity areas.
- In December 2003 (12/22/2003 memo) the three division directors communicated guidelines to help resolve disagreement on the appropriate management of forest types within the 13 high biodiversity areas.
- In October 2004 Ecological Services staff expressed concerns over the draft management plan for the Pine-Hemingway Creek Area. An October 2005 field trip by an interdisciplinary team resulted in agreement on four stands in question within the Pine-Hemingway Creek Area, but failed to reach agreement on three stands totaling 126 acres (Type 87, Sec 33, T105N – R9W; Type 90, Sec 35, T105N – R9W; and 2 adjacent stands managed as one: Type 100, Sec 35, T105N – R9W; Type 17, Sec 2, T104N – R9W). These stands are classified as oak in the FIM database; and MCBS classified them as a mixture of mesic oak, maple-basswood, and lowland hardwood forest. Forestry staff recommended timber harvest, citing opportunities to regenerate oak and their confidence in the ability to work around concentrations of rare plants. Ecological Services staff recommended no timber harvest, citing the number and diversity of listed and non-listed native species, the lack of non-native invasive species, and concern that timber harvest could reduce native species diversity and facilitate invasion by non-native species.
- On July 7, 2006 Assistant Commissioner Brad Moore visited the Pine-Hemingway Creek Area with Lee Pfannmuller, Dave Epperly, Cheryl Heide, Jon Nelson, Keith Wendt, and field staff from Ecological Services, Forestry, and Fish & Wildlife to better understand management options for this site and gather information needed to decide the best course of action.
- On July 20, 2006 Assistant Commissioner Brad Moore directed staff to place the three disputed stands (126 acres) in the Pine-Hemingway Creek Area into reserve status. The stands will serve as ecological benchmarks and be managed to maintain and enhance the high quality native plant communities and species within them. On sites of moderate biodiversity significance we will use and evaluate silvicultural prescriptions to maintain conservation values and meet harvest goals.

## Appendix 7. Areas of Significant Biodiversity in the Paleozoic Plateau

The Minnesota County Biological Survey identified 745 sites of biodiversity significance in the Paleozoic Plateau Ecological Section (Blufflands and Rochester Plateau Subsections). The breakdown of sites, their biodiversity significance rankings, and the number of sites of each ranking that contain state lands administered by various DNR divisions is summarized in the following table:

Table 1. MCBS Sites in the Paleozoic Plateau

<b>Biodiversity Significance</b>	<b>Total Number of MCBS Sites</b>	<b>Percent of Total</b>	<b>Number of MCBS Sites Containing State Lands</b>	<b>Number of MCBS Sites Containing State Forest Lands</b>	<b>Number of MCBS Sites Containing State Wildlife Lands</b>	<b>Number of MCBS Sites Containing State Park Lands</b>	<b>Number of MCBS Sites Containing SNA Lands</b>
Outstanding	121	16	65	40	22	8	11
High	187	25	91	51	21	8	14
Moderate	437	59	159	95	23	8	2
<b>Total</b>	<b>745</b>	<b>100</b>	<b>315</b>	<b>186</b>	<b>66</b>	<b>24</b>	<b>27</b>

For DNR managed state lands in Minnesota, strategies for managing sites of biodiversity significance differ according to the degree of biodiversity significance, statutory restrictions on land designations, and conservation needs of species and communities within the sites. In Scientific and Natural Areas (SNAs), management is done with rare natural features protection as the highest priority. For State Parks, comprehensive planning processes address protection of biodiversity, and in some cases SNAs or Natural Areas Registry sites are designated within park boundaries. [Natural Areas Registry sites are areas of biodiversity significance on public lands, for which a memorandum of understanding (MOU) has been signed by the agency or DNR division that manages the site and by the SNA Program supervisor. This MOU contains information about the management and protection needs of the rare features in the site.] For Wildlife Management Areas (WMAs), state statutes prohibit SNA designation within WMAs. Management is addressed as part of the Subsection Forest Resource Management Planning (SFRMP) process, and in some cases Natural Areas Registry sites are designated within WMA boundaries. For State Forests, management is addressed as part of the SFRMP process, and in some cases SNAs or Natural Areas Registry sites are designated within State Forest boundaries.

The SFRMP process for the Paleozoic Plateau addressed management of vegetation on State Forest and Wildlife lands. There were 13 “priority areas of significant biodiversity” identified during the process as areas requiring detailed plans that would address vegetation management and biodiversity protection needs. Most of these priority areas consist of more than one MCBS site, and in many cases these areas straddle more than one county.

## Appendix 8: FIM Key for Pine-Hemingway Creek

FIM cover types on maps and in the plan are identified with a code (e.g., NH57) comprised of three components:

- Main cover type code. This identifies the main type, based on predominant cover or tree species, indicated by a series of letters or abbreviations (e.g., **NH**57).
- Main cover type size class, based on predominant diameter of main species. This is the first numeric digit in the code (e.g., NH**5**7).
- Main cover type density, based on the number of stems, cords or board feet per acre. This is the second numeric digit in the code (e.g., NH5**7**).

### Main Cover Type Code

Symbol	Type	Description
Ash	Ash	A bottomland type composed of ash.
LH	Lowland hardwoods	Bottomland hardwoods (ash, elm , Balm of Gilead, silver maple, etc.)
NH	Northern hardwoods	Northern or upland hardwood species
Wal	Walnut	Walnut predominating
O	Oak	Oak species predominating
CH	Central Hardwoods	Dense hardwoods with oak , hickory, cherry, butternut
OX	Offsite oak	Scrubby oak type below site index 40.
UG	Upland grass	An upland grass or weed area less than 10% stocked with a commercial tree species
Agr	Agricultural	Land being actively used for agricultural purposed – cropland, orchard, pasture, etc.

### Main Cover Type Size Class (Diameter)

Code	Description	Corresponding Density Units
0	Not applicable for the type	
1	0 to .9 inches	Stems per acre
2	1 to 2.9 inches	Stems per acre
3	3 to 4.9 inches	Stems per acre
4	5 to 8.9 inches	Cords per acre
5	9 to 14.9 inches	Cords per acre
6	15 to 19.9 inches	Board feet per acre
7	20 to 24.9 inches	Board feet per acre
8	25+ inches	Board feet per acre

### Main Cover Type Density

Code	Stems/Acre	Cords/Acre	Bd. Ft./Acre
0	0-250	0.0-2.9	0-1,250
1	251-750	3.0-7.5	1,251-3,750
2	751-1,250	7.6-12.5	3,751-6,250
3	1,251-1,750	12.6-17.5	6,251-8,750
4	1,751-2,250	17.6-22.5	8,751-11,250
5	2,251-2,750	22.6-27.5	11,251-13,750
6	2,751-3,250	27.6-32.5	13,751-16,250
7	3,251-3,750	32.6-37.5	16,251-18,750
8	3,751-4,250	37.6-42.5	18,751-21,250
9	4,251 and up	42.6 and up	21,251 and up