DEPARTMENT OF NATURAL RESOURCES:

DIVISION OF FORESTRY

Blufflands/Rochester Plateau
Subsection Forest Resource Management Planning

ADDENDUM

High Biodiversity Area Management Plan

Collischan Bottoms

(VERMILLION BOTTOMS AND LOWER CANNON RIVER AREA)

December 2002

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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.

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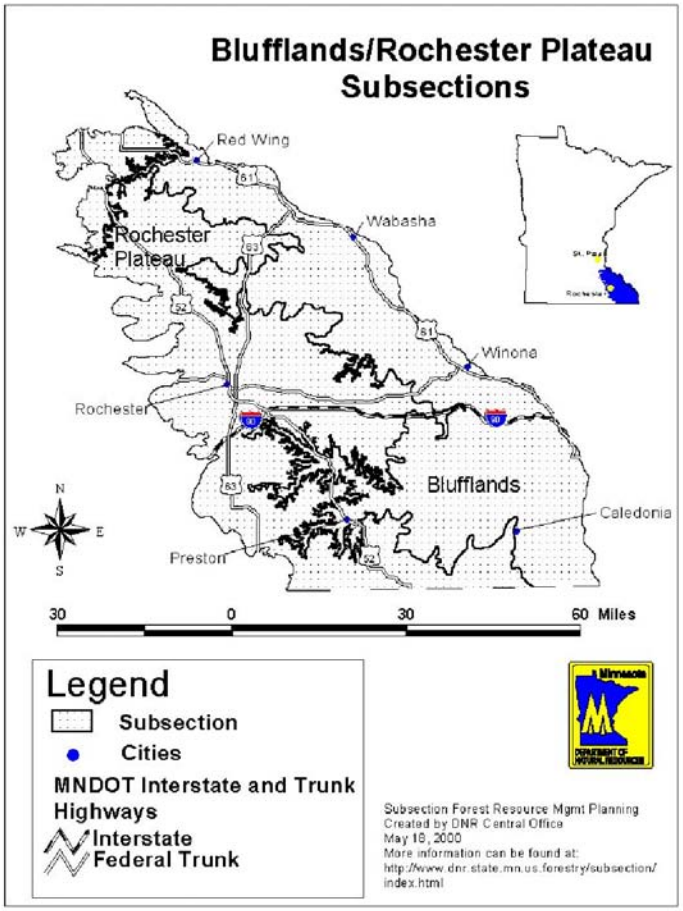
Introduction



This plan will guide management decisions and practices within the Vermillion Bottoms and Lower Cannon River Area, one of 13 areas of high biodiversity identified within the Blufflands and Rochester Plateau subsections, locally know as the Collischan Bottoms.

During the development of the Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan (SFRMP), DNR forest stands within the high biodiversity areas were reserved from treatment pending completion of area-specific management plans. This is the first of such area-specific management plans and is presented as an addendum to Blufflands/Rochester Plateau SFRMP.

SFRMP plans are scheduled for revision every seven years. It is expected that management plans for high biodiversity areas will also be revisited every seven years, or sooner if need be, as part of an adaptive management process.

An Evaluation of the Ecological Significance of The Vermillion Bottoms and Lower Cannon River Area (Dunevitz, 2000) describes an area between Red Wing and Hastings that covers 37,717 acres; parts of six townships, two counties and two DNR Regions. Of that gross acreage, 9,451 are currently in State Ownership and managed by three different DNR divisions.

Of the 9,451 acres, 2,836 are currently under custodial control of the DNR Division of Forestry. While this plan will primarily address management of the Forestry lands, it is recognized that land under the custodial control of other DNR disciplines must be included in the overall planning effort if this area is truly to be managed at a landscape level. This will require sharing of data between regions and completion of the DNR cooperative stand assessment (CSA) forest inventory on all lands.

The project evaluation (Dunevitz, 2000) stresses that this area is one of the three largest flood plain systems in SE Minnesota and that cooperative agreements and partnerships with other individuals and organizations will need to be formed in order to best manage this noteworthy area. For this unique area to truly be managed on a landscape level other landowners will need to become involved in the planning process as soon as possible. Ideas on how to accomplish this are presented in the body of the plan.

Management planning will be done on the State Forest land to retain the quality of the lowland hardwood and floodplain forests and to assure that this management helps to retain populations of the interior bird species that currently call the area home. As there is much still unknown about habitat needs of these species, experimental management techniques will be applied and monitored. The Divisions of Ecological Services and Forestry will work cooperatively to secure funding for the monitoring efforts that cannot be accomplished with existing staff.

The overall goal of this and the plans for the other 12 high biodiversity areas will be to perpetuate the native plant communities that support the unique flora and fauna that make the areas exceptional. Recommendations will only be made for state-owned land at this time. Recommendations listed in this plan, however, will need to remain flexible. This is so that as partners agreeing to work with the DNR in managing this area on a landscape level come on board their lands can be inventoried to determine how they can be used to contribute to the success of the project.

Background

Land was acquired for the Richard J Dorer Memorial Hardwood State Forest beginning in the early 1960's. In the early days of acquisition any available land was acquired when budgets permitted. By the mid 1970's a fairly large block of State land was becoming evident in the Collischan Bottoms area near Red Wing. The Collischan Bottoms received their name from early settlers in the area whose descendents continued to live in the river flood plain at the end of Collischan Road until the early 1980's.

The Collischan's house was torn down by Division of Forestry personnel in 1981 and the rafters were used to build the picnic shelter in the Zumbro Bottoms Main Assembly Area.

Humans have impacted this project area for well over 1000 years. A former Indian Village site has been verified on State Forest Land. The Bryan site near the Anderson Center in Red Wing is one of the premier archeological sites in the State. Plans have been drafted for an archeological interpretive center next to the Anderson Center. Diggings in this area have shown the mound building culture farmed the area and had soil losses that exceeded 100 tons per acre per year in some of the more sandy areas.

The Dakota Indians likewise historically used this area, particularly the Prairie Island locale. The Dakota culture was based on hunting rather than agriculture so they manipulated the natural communities by extensive burning to maintain oak savannahs and prairie grasses in the landscape.

From History of Goodhue County ; page 628 the following excerpts were taken:
"The Forest Products Company" **{**tc "TheForestProductsCompany "**}**

"……..The "bottoms", a maze of winding sloughs, swamp, and tangled woods, frequented only by hunters, wood choppers, and campers are the wide bed of the swollen river when melting snows or heavy rains crowd it over its low banks. …….Here and there are found the rotting houses of settlers who have wasted their best years in striving with ax and fire to clear meadows and tillable fields and who have at length given up the struggle against flood and vigorous timber growth and have left the land stripped of its good timber.

….The lumbermen who swarmed upon the river …… a source of fuel supply for the steamboats which consumed all the most valuable and accessible timber.

….the wonderful productive capacity of this land, adapted to no purpose but to raising timber, the plan was evolved of purchasing the land instead of the stumpage.

….undertaking the enormous task of restocking (reforesting) these abused lands and bringing them up to their normal yield.

…..the company was incorporated in October, 1908.

…..In August the mill started on its first short season's run and is expected to produce from five to ten million feet of lumber in every succeeding year.

….a quarter of a million trees of many varieties and sizes have been planted under various conditions of soil, moisture, and exposure and their growth will be watched with great interest. The native young timber is thinned and culled to increase its growth and the mature timber is removed as fast as it can be handled."

The Forest Products Company worked closely with a University of Minnesota Forestry professor, S.B. Detweiler ."

The complete article is attached as one of the appendices.

It would be interesting to check with the Secretary of State's Office for corporate records of this company and at the U of M for research from Professor Detweiler. This information, if available, could shed light on the history of management in the area and give ideas for future management activities.

In addition to the major logging and tree planting events that occurred nearly 100 years ago, DNR Forestry has done extensive forest management in this area more recently. A detailed listing of management activities is included in Appendix A. Summarized, the management consisted of:

Logging	336 acres	1.2 million board feet (29 sales)
TSI	292 acres	
Planting	136 acres	

Site Description

The following is excerpted from An Evaluation of the Ecological Significance of the Vermillion Bottoms and Lower Cannon River Area.(Dunnevitz 2000)

> "The Vermillion River Bottoms area encompasses the 20 mile stretch of the Vermillion River between Hastings and Red Wing. Most of the area is floodplain along the Vermillion and Mississippi Rivers but it also includes bluffs on the south side of the river and Prairie Island, a six mile long island of outwash-derived sand and gravel. The lower Cannon River area includes a six mile long stretch of the Cannon River and the delta where the Cannon and Vermillion meet and enter the Mississippi River. This area is also primarily floodplain but includes the bluffs on both sides of the river. The Vermillion Bottoms and Lower Cannon River together make up one of the 3 most significant Mississippi River floodplain sites in southeastern Minnesota in terms of biological diversity and expanse of native plant communities. They are considered together in this report because they are linked geographically and support many of the same communities and species.
>
> The combination of communities in this site constitute nearly the full range of Paleozoic Plateau habitats, ranging from upper bluffs to outwash terraces to floodplain and aquatic habitats. This site contains one of the largest areas of floodplain native plant communities in southeast Minnesota. These communities experience an annual hydrologic fluctuation that more closely resembles the historic natural cycle than in many portions of the Mississippi River, resulting in high habitat and native species diversity. Lowland communities in this site include floodplain forest, lowland hardwood forest, mixed emergent marsh, wet meadow, and calcareous seepage fen. Outwash terraces include sand-gravel prairie and sand-gravel oak savannah. The bluffs support bedrock bluff prairie, dry oak forest, mesic oak forest, maple-basswood forest, and oak woodland-brushland communities."

Long Range Goals

The long range management goal for this area will be to maintain and regenerate native plant

communities and the plant and animal species that reside in the area. Over the project area it will be the intent to have timber age classes spatially distributed to provide habitat both now and in the future for flora and fauna that have adapted to survive in this area. Processes that mimic the disturbances that helped to establish and maintain these communities will be used to achieve this goal.

The goals of biodiversity protection, timber management, recreation, and wildlife management will all be included in management decisions to achieve this goal. As new research or management techniques become available, they may be incorporated into management practices prescribed in this plan to achieve the long- range goals.

Implementation

Background Information

Sixty-nine stands were selected during the SFRMP process for treatment over the next 7 years in townships 113-15, 113-16, and 114-16 on Division of Forestry land. In addition, 12 stands were identified on Division of Wildlife administered land for treatment, the majority of them in Dakota County.

The DNR CSA forest inventory data for the Wood Turtle SNA, which was formerly administered by the Division of Forestry, for some reason has been removed from the DNR Lake City Area forest development module (FDM) database. This inventory needs to be located or the stands need to be re-inventoried so DNR managers have a complete picture of lands that will be managed as part of this project. (See project timetable at end of writeup.)

As stated earlier, DNR ownership amounts to only 9,451 acres out of a gross project area of 37,717 acres. Obviously an incredible amount of effort will be required to work with all the other landowners in the area.

To get started on this tremendous undertaking, the first contacts will be made with institutional landowners. It is felt these organizations will be more likely to have interest in a project such as this and will also serve as an example to the non-industrial private landowners.

Organizations which fall into this category are:

- Red Wing Wildlife Protective League
- EXCEL Energy
- Prairie Island Tribal Community
- Lutheran Social Service
- River Region Health Service
- Independent School District 256
- Red Wing Shoe Company
- Red Wing Publishing Company
- Welch Ski Village
- USA- USFWS and Corps of Engineers

After this plan is adopted by the department, DNR managers in the area will meet with representatives of all these organizations to discuss the long-term benefits of coordinating management of the Vermillion Bottoms and Lower Cannon River Area across ownerships. As organizations agree to partner with the DNR in the management of these areas, their lands will be inventoried by a DNR team and a Forest Stewardship plan developed.

One of the key concepts of this plan is having vegetation management done within the entire project area rather than on an ownership by ownership basis. Computer programs such as ArcView will allow managers to look at the entire project area and plan how to manage the area. As new partners to this project come on board inventory data from their ownership will be added to the state lands CSA forest inventory and new maps can be generated.

The sheer size of this high biodiversity area make writing a plan such as was done for the Upper West Indian Creek Area a near impossibility. Just the State Forest ownership within this project area is three times the size of the entire West Indian Creek area.

Because of this, the implementation section of this plan will not be written as it was in the West Indian plan with a long-range goal and short-term directive for each type. What will be done in this plan is to list long-term objectives for management of the major timber types/natural communities on State Forest Land that fall within the project area and suggestions on how to achieve the desired goal. The natural communities represented within the timber types will be described in the narrative portion of the plan that describes prescribed management activities.

Thirteen different native plant communities fall within the Vermillion/Cannon Bottoms Area. There are seven different timber types represented in the stands selected for treatment.

Similar timber types as defined by DNR CSA forest inventory will be combined and natural communities that are associated with these types will be described. Following the description, a management objective for the timber type/natural community will be listed. For the most part, these objectives will be the intended management activities to occur over the next seven years.

The major issue that needs to be addressed is the size of disturbance or harvest that is required to maintain habitat for interior bird species. (See project timetable at end of writeup.)

Sizes of stands selected during the SFRMP process range from three to 114 acres. If, for example, it is determined that habitat requirements for interior forest birds is 100 acres, a management regiment will need to be implemented that creates spatially distributed stands of that size. Achievement of this objective may mean cutting one stand, combining two or more selected stands to obtain the 100 acres, or even combining a selected stand with vegetation management on a non-selected stand to obtain the desired acreage. This stand selection issue will need to be addressed whether the habitat essential to interior birds is five acres, 50 acres, 100 acres or even a larger size.

Timber Types And Associated Native Plant Communities

Lowland Hardwoods; Cottonwood

1. *ASSOCIATED NATIVE PLANT COMMUNITIES:*
   a. LOWLAND HARDWOOD FOREST
   Lowland hardwood forests are typically wet-mesic lowland forests on alluvial soils above the normal flood level in small valleys. The lowland hardwood forests in the Vermillion Bottoms and Lower Cannon River Area are found periodically on river terraces above normal flood levels. Basswood, bur oak, black ash (*Fraxinus nigra),* hackberry (*Celtis occidentalis),* and green ash *(Fraxinus pennsylvanica)* dominate the canopy. The understory is a diverse array of spring ephemeral early in the year and becomes dominated by wood nettle *(Laportea canadensis)* and cleavers (*Galium aparine)* later into the summer. Ecological quality of these

forests ranges from AB to C rank.

b. FLOODPLAIN FOREST-silver maple subtype
These forest occur on seasonally flooded river bottoms. The dominant canopy species is silver maple *(Acer saccharinum)*. Other species such as American elm *(Ulmus americana)* and green ash *(Fraxinus pennsylvanica)* also occur in the canopy. These forests have an open and diverse groundlayer. Ecological quality of these forests ranges from AB to C rank.

c. FLOODPLAIN FOREST-undifferentiated subtype
These forests occur on seasonally flooded river bottoms. The dominant canopy species can include a combination of silver maple *(Acer saccharinum)*, or a mix of silver maple and cottonwood *(Populus deltoides)*, and black willow *(Salix nigra)*. Other canopy trees can include green ash *(Fraxinus pennsylvanica)*, bur oak *Quercus macrocarpa)*, American elm *(Ulmus americana)*, and slippery elm *(Ulmus rubra)*. The herbaceous understory is variable. Areas along the Vermillion bottoms are relatively low in species diversity. Areas along the lower Cannon River are more diverse and support an array of spring ephemerals. Ecological quality of these forests ranges from AB to C rank.

d. MIXED EMERGENT MARSH (prairie section)
These communities are found in open wetlands and on mineral soils in shallow basins or along stream margins. There is standing water present most of the year and the dominant species vary. Species typical of these areas include cattails *(Typha spp.)*, bulrushes *(Scirpus spp.)*, and broad-leaved arrowhead *(Sagittaria latifolia)*. Ecological quality of these communities ranges from B to BC rank.

e. WET MEADOW
These communities are open wetland areas that occur adjacent to floodplain forest and emergent marsh communities. They are typically dominated by lake sedge (*Carex lacustris)* or tussuck sedge (*Carex stricta)* with other species such as boneset (*Eupatorium perfoliatum)*, false indigo (*Amorpha fruticosa)*, and swamp milkweed (*Asclepias incarnata*) present. Ecological quality of this community is B ranked.

f. CALCAREOUS SEEPAGE FEN (southeast section, prairie subtype)
Calcareous Seepage Fen- These fens are an open wetland community on organic soils in areas of calcareous groundwater discharge. Species common to these communities include *Carex stricta, Carex prairiea, Carex interior, Carex comosa,* Virginia mountain-mint, marsh marigold, and great lobelia *(Lobelia siphilitica)*. Ecological quality of this community is BC ranked.

2. SILVICULTURE OF LOWLAND HARDWOODS AND COTTONWOOD

The silviculture of the flood resistant species that comprise the forest in a lowlandhardwood type is reasonably well understood. The area provides habitat for a variety of species including a number of forest interior birds and is an important part of the larger Mississippi migratory route. There is growing concern over the future of the floodplain habitat itself. Reed Canary grass has invaded many of the areas and is a continuing threat. The older forest is fairly even aged and the altered flood regime has resulted in little regeneration. Careful planning needs to be undertaken to address the native plant community concerns while providing the needed habitat for the species that depend on this area.

In addition, much of the floodplain area, especially along the Cannon River, provides habitat for wood turtles. Winter logging will be done so as not to disturb turtles during their nesting and foraging period. As with interior bird species, there is much that needs to be learned about habitat requirements for wood turtles. A literature search will be done to determine if there is an optimal size of undisturbed forest for turtles. Research and monitoring will also be conducted by local field staff.

One method found successful for regeneration of lowland hardwoods involves harvest, mowing rows within the harvest area with a Seppi type mower, treating the strips with herbicide, and planting. This practice combined with natural regeneration has been successful where it has been tried. A set of herbicide test plots for control of canary grass was placed in the Zumbro Bottoms in the summer of 2001. Several treatments provided control through late summer and 2 treatments provided control into November.

Reed canary grass will have to be controlled if the bottomlands harvested are to be adequately regenerated. More research is needed on the control of canary grass. Ecological Services will work with the Division of Forestry to set up experimental plots to determine ways to reduce the invasion of reed canary grass and how to control it if it becomes established.

Another major problem that occurs in management of these forests is flooding. On several occasions what appeared to be regeneration success stories were wiped out by prolonged flooding. This is more of a problem in the Mississippi River floodplain than in the smaller river floodplains where inundation does not last as long and seedlings have a better chance to recover. Sites where seedling survival is decimated by flooding will need to be replanted until the area is successfully regenerated.

Direct seeding also can play a role in forest regeneration. Silver Maple and Cottonwood seed can be gathered in the spring and broadcast on silt left as soon as flood-waters recede. Direct seeded areas look more natural than planted areas.

Because regeneration of harvested stands will be critical to the overall success of this high biodiversity area, special emphasis will need to be placed on doing timely regeneration surveys and determining successive treatments if the first treatment is not successful.

The management of the area will require a balance between maintaining canopy for forest interior species and addressing the need to effectively manage the forest for long-term maintenance.

3. *MANAGEMENT OBJECTIVES*
    a. The acreage of the lowland hardwood type within the project area will be maintained or increased over the next 7 years.
    b. The 67 stands recommended for treatment in the SFRMP process will be revisited and will be combined where necessary to achieve a stand size that meets the acreage requirement determined to be crucial to interior bird species. In some instances this may mean treating a stand not identified in the SFRMP process. Because there are now markets for hardwood pulpwood, this should not be a problem to achieve.
    c. All areas harvested will be intensively treated to assure they are adequately regenerated . This will require regeneration surveys at least annually. It will also require that the Department be prepared to invest the dollars and time needed to regenerate these sites.
    d. Types harvested in past years will also have regeneration surveys done to assure regeneration is adequate. Areas where reed canary grass has invaded will be treated to control it and then planted or seeded to native species.

Oak And Central Hardwoods

1. *ASSOCIATED NATIVE PLANT COMMUNITIES*

a. OAK WOODLAND-BRUSHLAND (southeast section)

Oak woodland-brushland are dry to dry-mesic woodlands. The canopy cover is 50-70% and dominated by one or more oak species including northern pin oak *(Quercus ellipsoidalis)*, northern red oak, and/or bur oak *(Quercus macrocarpa)*. Other canopy trees may include paper birch *(Betula papyrifera)*, and red cedar *(Juniperus virginiana)*. These areas exhibit a dense shrub layer and the understory is a mix of species found in savannas and forests. Oak woodland-brushlands will be managed to encourage regeneration of the oak forest and/or oak savanna communities through controlled burning and, to open up canopies, carefully planned logging. Areas that are threatened by invasion of nonnatives will be managed to reduce the threat of these species.Ecological quality of these forests ranges from BC to C rank.

b. OAK FOREST (southeast section) DRY SUBTYPE

Oak woodland-brushland are dry to dry-mesic woodlands. The canopy cover is 50-70% and dominated by one or more oak species including northern pin oak *(Quercus ellipsoidalis)*, northern red oak, and/or bur oak *(Quercus macrocarpa)*. Other canopy trees may include paper birch *(Betula papyrifera)*, and red cedar *(Juniperus virginiana)*. These areas exhibit a dense shrub layer and the understory is a mix of species found in savannas and forests. Oak woodland-brushlands will be managed to encourage regeneration of the oak forest and/or oak savanna communities through controlled burning and, to open up canopies, carefully planned logging. Areas that are threatened by invasion of nonnatives will be managed to reduce the threat of these species.Ecological quality of these forests ranges from BC to C rank.

c. OAK FOREST (southeast section) MESIC SUBTYPE

Oak Forests (mesic subtype) are typically mesic forests, often on west and east-facing slopes and broad ridge crests. Dominant canopy trees include red oak and white oak (*Quercus alba)*. Other canopy species include basswood, quacking aspen, and black cherry. These communities often transition to maple-basswood in wetter, steeper areas. Understory species include summer-blooming species such as wild geranium (*Galium concinnum)* and elm-leaved goldenrod (*Solidago ulmifolia)*. The ecological quality of these forest ranges from B to C rank.

d. DRY OAK SAVANNAH (southeast section) SAND GRAVEL SUBTYPE

Dry oak savannas are dry savannas that occur on outwash sands on Mississippi River terraces. Canopy cover ranges from 10-70% and is dominated by bur oak *(Quercus macrocarpa*). Red oak (*Quercus rubra)* is sometimes present as a canopy tree. The shrub layer is patchy to dense and the understory is dominated by grasses and forbs typical of dry prairies including species such as little bluestem (*Schizachyrium scoparium),* big bluestem (*Andropogon gerardii),* birdfoot coreopsis *(Coreopsis palmata),* and silky aster *(Aster sericeus).* Ecological quality of these forests ranges from C to CD rank.

2. SILVICULTURE

Generally speaking a central hardwood type is an oak type that does not have enough oak in it to be classified an oak type by DNR CSA forest inventory. The threshold for CSA is that 40% or more of the volume must be oak in order to be classed as an oak type. (By contrast, the Natural Heritage program considers a stand an oak type if 30% or more of the canopy is oak.)

Because of the high component of oak present in central hardwood stands, they will be managed to

increase the oak component wherever possible. If conversion to a northern hardwood type is inevitable, oak will be retained as a component in the stand as long as possible.

These forests vary in moisture across the site. Areas that are more mesic, have well established maple regeneration, and grade into maple-basswood will be allowed to succeed to the maple-basswood community type. Other areas that are drier, have invasive species problems, or are not regenerating to maple will be managed to retain oak using various silvicultural techniques. As with the other hardwood plant communities, research from the DNR as well as other agencies will be used to determine the best management technique to achieve the desired natural community.

Management to maintain or increase oak requires an aggressive cutting regime. Oak is a shade intolerant species that grows in even age stands. Perpetuation of the cover type will require that areas be clearcut.

Two stands of oak cover type were identified for harvest during the stand selection process. One is located in 35-113-16 and will be managed along with the walnut in that section.

The second stand is stand 1 in section 2-113-16. It is a 40 acre type that is adjacent to other State Forest land in 35-114-16. The lowland hardwood type in section 35 was selected for harvest but the oak and northern hardwood types were not.

Two central hardwood stands were selected for harvest during the stand selection process: stand 7 in section 8 of 113-15 and stand 6 in section 16 of 113-15. The stands are less than ½ mile apart.

3. MANAGEMENT OBJECTIVES
   a. Only four stands were identified for harvest in these two types. They were described above.
   b. All will be examined for the possibility for harvest over the next seven years.
   c. Due to steep slopes on portions of these types as much as 40% of these stands may be inoperable.
   d. To achieve the goal of managing the Collischan area as an ecosystem rather than as a series of timber stands, some stands that were not selected during the SFRMP process may be added as additions to the planned cut list

Northern Hardwoods

1. ASSOCIATED NATIVE PLANT COMMUNITY

a. *MAPLE-BASSWOOD FOREST (SOUTHEAST)*

Maple-basswood forests are typically mesic to wet-mesic forest on steep north-to east-facing slopes. Sugar maple (*Acer saccharum),* basswood (*Tilia americana),* Lowland hardwood forests are wet-mesic forests that occur on river terraces above the normal flood levels. The canopy is typically dominated by bur oak *(Quercus macrocarpa),* basswood (*Tilia americana),* and red oak (*Quercus rubra).* These forests have a well established groundlayer with a variety of spring ephemerals including some rare species such as American ginseng (*Panax quinquefolium)* and Moschatel (*Adoxa moschatellina).* The ecological quality of these forests ranges from AB to BC rank.

2. SILVICULTURE

The long term goal for these forests is to to maintain the maple basswood plant communities while retaining a diverse shrub layer and maintaining or increasing rare plants in the herbaceous layer.

Northern hardwood timber types are predominated by sugar maple and basswood, and are managed on an uneven age basis.

A total of seven northern hardwood stands were identified for harvest.

- Two of the stands are in section 7-113-15, two in section 16-113-15, one in section 1-113-16, one in section 34-113-16, and one in 35-114-16.
- With the exception of the stand in 34-113-16, all of the stands fall within the Collischan Bottoms area.

As was the case with the oak and central hardwood types, slopes are extremely steep and in several areas within the types they will be inoperable.

The northern hardwood type will be managed according to the management guidelines developed by the North Central Forest Experiment Station where trees of all age classes are represented. Research in maple-basswood plant communities in Northern Minnesota has indicated that logging in this community may increase the invasion of non-native species and impact some spring ephemeral plants. Research plots are being established in the West Indian Creek area to determine if this is the case in Southeastern Minnesota. This monitoring effort will study both long-term and short-term effects of logging on the understory of the maple-basswood plant community.

3. MANAGEMENT OBJECTIVES
    a. Management of northern hardwoods will be done on an ecosystem basis rather than a stand basis. Local resource managers will determine size of blocks that are most advantageous to the various species of flora and fauna that utilize the area as well as considering economies of scale for setting up timber sales. They will also determine where sales should be spatially set up to maximize benefits of non-timber crops of the forest.
    b. Most of the northern hardwood stands have been mentioned in the descriptions of other forest types and will be managed in conjunction with these types

Walnut

1. ASSOCIATED NATIVE PLANT COMMUNITY

a. NOT APPLICABLE

2. SILVICULTURE

Because of its high value, walnut is managed on an individual tree basis.

Type 2 of 36-113-16 was the only walnut type identified in the SFRMP process. It totals 10 acres. This is an upland walnut type that is landlocked. An oak type adjacent to it was harvested 8 years ago and is regenerating nicely.

Poor access will make long- term management of this area difficult. Nonetheless, because of the high value species present, the costs can be justified.

3. MANAGEMENT OBJECTIVES
    a. Mark individual walnut trees for harvest and sell at annual Lake City Area timber auction. Maintain an adequate stocking of Walnut.

b. Two other timber types in section 36, an oak type and an aspen type were also identified for harvest. These types should also be marked and sold along with the walnut.

Aspen

1. ASSOCIATED NATIVE PLANT COMMUNITY

a. NOT APPLICABLE

2. SILVICULTURE

Aspen is managed on an even age basis. As Southeast Minnesota is a fair distance from most pulp markets, aspen in this section of the state is usually made into pallets. It has high value for wildlife.

Only one aspen stand was identified for harvest during the stand selection process within the project area: type 3 of 36-113-16.

3. MANAGEMENT OBJECTIVES

As mentioned in the previous text regarding walnut, this type will be managed along with the walnut type and oak type adjacent to it.

Native Plant Communities In The Collischan Bottoms Not Associated With Timber Types

1. Dry prairie (southeast section) bedrock bluff subtype

These prairies occur on thin loess over bedrock on steep south-to west-facing bluffs with frequent rock outcrops. Dominant species in these prairies can include little bluestem *(Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), Indian grass (S*orghastrum nutans),* side-oats grama *(Bouteloua curtipendula),* procupine grass *(Stipa spartea),* prairie dropseed *(Sporobolus heterolepis),* plains muhly *(Muhlenberia cuspidata),* birdfoot coreopsis (*Coreopsis palmata),* gray goldenrod *(Solidago nemoralis),* silky aster *(Aster sericeus),* and leadplant *(Amorpha canescens).* These areas will be maintained with periodic fire and brush cutting to control woody competition. Ecological quality of these praries are BC ranked.

2. Dry prairie (southeast section) sand-gravel subtype

These prairies occur on alluvium (with gravel fraction > 10%), on river terraces. common species include little bluestem (*Schizachyrium scoparium),* big bluestem (*Andropogon gerardii),* birdgoot coreopsis *(Coreopsis palmata),* clammy-weed *(Polanisia dodecandra),* pasque-flower *Pulsatilla nuttaliana),* and silky aster *(Aster sericeus).* Ecological quality of these prairies ranges from C to CD rank.

Action Items

For this plan to be effective, several action items will need to be acted on. The local resource managers will work cooperatively to assure these tasks are completed on a timely basis. The following timetable was agreed upon by the Lake City Area Biodiversity Team:

1. By 6/1/02
   Inform managers in Region VI of this plan and request their involvement and cooperation
   Mike Tenney and Ann Pierce
2. By 7/1/02
   Make individual contact with the Corps of Engineers, the Red Wing Wildlife Protective League, XCEL Energy, and the Prairie Island Indian Community to seek their partnership in the project. (To be worked on in conjunction with #8. These 4 organizations are highest priority.)

Terry Helbig and Mike Tenney	RWWPL
Walt Popp	Xcel Energy and Corps of Engineers
Jaime Edwards and Ann Pierce	Prairie Island

3. By 7/15/02
   Arrange meeting with the 4 organizations listed in number 2 along with other appropriate partners to answer group questions about the project.
   Tim Schlagenhaft
4. By 10/1/02
   Determine what size management blocks are appropriate for this area by synthesizing available research on interior forest birds and other unique elements found within the project area.
   Jamie Edwards, Mike Tenney and Ann Pierce
   Other resource professionals as available
5. By 11/1/02
   Check with Grand Rapids Inventory to relocate lost Phase II data. Reinventory areas where data is missing.
   Kathy Kruger
6. By 12/31/02
   Based on recommendations from number 4, develop an initial plan for vegetative management combining DNR and institutional partners land.
   Lake City Area and Region VI Biodiversity Teams
7. By 2/1/03
   Begin to implement management agreement including marking timber sales in approved areas.
   Lake City Area Forestry Staff
8. By 4/1/03
   Arrange meeting to solicit support for project from cooperating agencies (e.g. Corps of Engineers), private conservation organizations (e.g. Izaak Walton League) and remaining institutional partners.
   Lake City Area and Region VI Biodiversity Teams

Over the long term this project will require investments of time and dollars from all DNR disciplines involved. The Lake City Area Biodiversity Team feels the investments will be well worth the time and effort involved. The Team hopes to continue to have the Division Directors' approval to pursue the above timetable and take other actions necessary to achieve the end goal of protecting this unique area. The Team will provide periodic reports on the status of the project.

Appendix 7. Collischan Bottoms Management History

Timber Sales

Description	S-T-R	Year	Activity Summary
NWSW	15-113-15	1997	98,000 BF bottomland hardwoods partial harvest 16 acres
SW1/4	15-113-15	1999	142,000 BF bottomland hardwoods clearcut harvest 30 acres
SWSE NWNE NENW	9/16-113-15	1993	190,000 BF bottomland hardwoods clearcut harvest 44 acres
E1/2 NW1/4	22-113-15	1996	167,000 BF bottomland hardwoods partial harvest 33 acres
SWSE	9-113-15	1989	7500 BF mixed hardwoods commercial fuelwood harvest 1 acre
NW1/4	22-113-15	1996	1000 BF bottomland hardwoods clearcut harvest 1 acre
NWNE	16-113-15	1993	15,000 BF bottomland hardwoods salvage harvest 2 acres
SESE/SWSW	9/10	1990	54,410 BF bottomland hardwoods clearcut harvest 22 acres
NENE	22-113-15	1989	72,730 BF bottomland hardwoods partial harvest 14 acres
SENW	16-113-15	1983	40,000 BF mixed hardwoods partial harvest 5 acres
SESE	16-113-15	1984	25,000 BF oak partial harvest 5 acres

Description	S-T-R	Year	Activity Summary
SWNW	16-113-15	1984	7500 BF mixed hardwoods commercial fuelwood harvest 5 acres
SENW	16-113-15	1985	5000 BF mixed hardwoods commercial fuelwood harvest 3 acres
SWNW	16-113-15	1985	5000 BF mixed hardwoods commercial fuelwood harvest 18 acres
SENW	16-113-15	1984	10,000 BF mixed hardwoods commercial fuelwood harvest 3 acres
SWNW	16-113-15	1983	1,230 BF walnut logs partial cut 8 acres
SWNW	16-113-15	1983	1970 BF walnut logs partial harvest 4 acres
SWNW	16-113-15	1983	980 BF walnut logs partial harvest 5 acres
NENW	16-113-15	1983	102,000 BF bottomland hardwoods partial harvest 6 acres
SWNW	16-113-15	1982	30,200 BF oak clearcut 4 acres
S1/2NW	16-113-15	1982	3,590 BF walnut partial harvest 3 acres
S1/2NW	16-113-15	1984	35,080 BF oak clearcut harvest 10 acres
NWSE	16-113-15	1986	14,280 BF oak commercial fuelwood and salvage sale 5 acres

Description	S-T-R	Year	Activity Summary
SESE	15-113-15	1988	17,140 BF bottomland hardwoods clearcut harvest 12 acres
SESE	19-113-15	1984	64,490 BF bottomland hardwoods clearcut harvest 28 acres
SESE	15-113-15	1990	5080 BF bottomland hardwoods clearcut 10 acres
SESW	15/22-113-15	1986	22,040 BF bottomland hardwoods clearcut and salvage 25 acres
NENW	16-113-15	1986	5,000 BF mixed hardwoods commercial fuelwood sale 3 acres
SWNE	8-113-15	1982	50,000 BF bottomland hardwoods partial harvest 11 acres

TIMBER SALE ACTIVITY SUMMARY:

336 acres of harvest since 1982
1,193,220 BF of timber will be harvested to date by January 2001

Tree Planting

S-T-R	Year	Activity Summary
16-113-15	1992	Tree planting 23 acres bottomland hardwoods
16-113-15	1978	Tree planting 16 acres bottomland hardwoods
16-113-15	1978	Tree planting 15 acres bottomland hardwoods
16-113-15	1992	Tree planting 9 acres bottomland hardwoods
9-113-15	1992	Tree planting 9 acres bottomland hardwoods
9-113-15	1976	Tree planting/seeding 3 acres bottomland hardwoods

9/10-113-15	1978	Tree planting 4 acres bottomland hardwoods
19-113-15	1981	Tree planting 36 acres bottomland hardwoods
15-113-15	1992	Tree planting 12 acres bottomland hardwoods
16-113-15	1993	Tree planting 2 acres wildlife shrubs and spruce
16-113-15	1997	Tree planting 2 acres
16-113-15	2000	Tree planting 1 acre bottomland hardwoods
21-113-15	1979	Tree planting 4 acres hardwoods

TREE PLANTING ACTIVITY SUMMARY:

136 acres of trees planted or seeded

Miscellaneous Forest Management

S-T-R	Year	Activity
16-113-15	1991	Well Closure
16-113-15	1990	Building site cleanup - disposal/demolition of old farm buildings
9-113-15	1991	Well closure
9-113-15	1991	Well closure

Site Preparation

S-T-R	Year	Activity Summary
16-113-15	1983	Chemical/mechanical site preparation for tree planting 5 acres hack and frill
16-113-15	1978	Site preparation for tree planting by scalping and chemical weed control 12 acres
9-113-15	1991	Site preparation for tree planting 9 acres mechanical
15-113-15	1991	Site preparation for tree planting 12 acres mechanical/chemical

SITE PREPARATION SUMMARY:
29 acres site mechanical/chemical preparation
9 acres mechanical site preparation

Timber Stand Improvement

S-T-R	Year	Activity Summary
16-113-15	1985	Mechanical post sale timber stand improvement 9 acres
16-113-15	1985	Mechanical post sale timber stand improvement 6 acres
21-113-15	1979	Timber stand improvement 3 acres walnut pruning
15-113-15	2000	Pre-sale timber stand improvement 30 acres chemical/mechanical
15-113-15	1997	Pre-sale timber stand improvement 16 acres chemical/mechanical
16-113-15	1998	Timber stand improvement 7 acres tree pruning
22-113-15	1995	Timber stand improvement 33 acres pre-sale chemical/mechanical
9-113-15	1975	Post sale timber stand improvement 3 acres mechanical

TIMBER STAND IMPROVEMENT SUMMARY:
10 acres pruning
79 acres chemical/mechanical tsi
18 acres mechanical tsi

Tree Planting Release

S-T-R	Year	Activity Summary
16-113-15	1980	Chemical release of tree planting 23 acres
16-113-15	1981	Chemical release of tree planting 25 acres
16-113-15	1982	Chemical release of tree planting 10 acres
16-113-15	1983	Chemical release of tree planting 25 acres
16-113-15	1983	Chemical release of tree planting 25 acres
9-113-15	1992	Chemical release of tree planting 9 acres
19-113-15	1983	Mechanical/chemical release of tree planting 10 acres
19-113-15	1985	Mechanical release of tree planting 20 acres
21-113-15	1980	Mechanical release of tree planting 2 acres
21-113-15	1984	Chemical/mechanical release of tree planting 4 acres
15-113-15	1992	Chemical release of tree planting 12 acres
9/10-113-15	1991	Mechanical release of tree planting 17 acres
16-113-15	1998	Chemical release of tree planting 3 acres

TREE PLANTING RELEASE SUMMARY:
14 acres chemical/mechanical
132 acres chemical
39 acres mechanical