

Cass County Forest Resources Management Plan

Adopted: [month] 2003



Cass County Board

James Demgen, District 1
Robert Kangas, District 2
Rusty Lilyquist, District 3
James Dowson, District 4
Dick Downham, District 5

Draft: 5/1/03

Land Department Staff

Norm Moody, Land Commissioner
Carole Martin, Administrative Secretary
Patrick Bundy, Forest Resource Manager
Jerry Lamon, FRM
Joel Lemberg, FRM
Amy Rand, FRM
Mike Wadman, FRM
Elissa Vredenburg, FRM
Erik Lindquist, Forest Resource Specialist
Larry Olson, Temporary Part-Time

**Prepared for Cass County
by the Consultant Team of:**

Pro-West & Associates, Inc.	Applied Insights North	George Host / Mark White
Lee Westfield P.O. Box 812 Walker, MN 56484 consult@prowestgis.com	John Powers 721 N 16 th Avenue East Duluth, MN 55812 djpowers@cpinternet.com	George Host 6244 Erickson Road Culver, MN 55779 ghost@sage.nrri.umn.edu

Natural Resources Advisory Committee

John Alden
Sharon Anderson
Barry Babcock
James Ballentine
William Berger
Eleanor Burkett
Jerry Demars
James Dowson
Carol Emery
James Erkel
Larry Fransen
Max Gilbert
Larry Howes
Greg Johnson
Dale Jones

Kyle Klalke
Tom Kuschel
Greg Leverington
Rusty Lilyquist
Gary Lyall
Ted Lundrigan
Bill MacFarlane
Ted Melby
Al Mitton
Pat Moran
Rob Naplin
Richard Nelles
Fran Olds
Marlin Parry
Greg Proper

Joe Rakos
Greg Ranczka
Ralph Reiter
Sharon Smith
John Sumption
Erik Thorson
Jerry Trout
Derek Ward
Brian Wise
Tom Witkowski
Bob Woetzel
Doug Zaske
Bob Yochum

Forest Advisory Committee

Max Gilbert, Chair
Eleanor Burkett
Al Mitton
Rob Naplin
Richard Nelles
Greg Proper
Erik Thorson
Tom Witkowski
Amy Rand, staff

Cass County Forest Resources Management Plan

Table of Contents

Executive Summary	i
1.0 Mission	1:1
1.1 Mission	1:1
1.2 Management Approach	1:1
1.3 Certification	1:1
2.0 Plan Context	2:1
2.1 Economic Context	2:1
2.2 Social Context	2:2
2.3 Ecological Context	2:2
2.4 Forest Dynamics	2:9
3.0 Resource Description	3:1
3.1 Land Ownership	3:1
3.2 Native Plant Communities	3:2
3.3 Cover Type	3:8
3.4 Resource by NPC	3:13
3.5 High Conservation Value Forests	3:23
3.6 Habitat	3:24
4.0 Strategic Management	4:1
4.1 Assumptions	4:1
4.2 Principles	4:1
4.3 Smartwood Standards	4:3
4.4 Strategic Initiatives	4:4
5.0 Department Administration	5:1
5.1 Assessment	5:1
5.2 Policies	5:6
5.3 Strategic Actions	5:8
6.0 Land Administration: General	6:1
6.1 Assessment	6:1
6.2 Policies	6:2
6.3 Strategic Actions	6:3
7.0 Land Administration: Leases and Easements	7:1
7.1 Assessment	7:1
7.2 Policies	7:2
7.3 Strategic Actions	7:3
8.0 Habitat	8:1
8.1 Assessment	8:1
8.2 Policies	8:13
8.3 Procedures	8:13
8.4 Strategic Actions	8:19
9.0 Forest Roads	9:1
9.1 Assessment	9:1
9.2 Policies	9:3
9.3 Strategic Actions	9:3
10.0 Recreation	10:1
10.1 Assessment	10:1
10.2 Policies	10:4
10.3 Strategic Actions	10:5

11.0	Timber Management	11:1
11.1	Assessment	11:1
11.2	Policies	11:4
11.3	NPC Management	11:5
11.4	General Silvicultural Practices	11:6
11.5	Cover Type Management	11:11
11.6	Strategic Actions	11:31
12.0	Assessment of Change: 2000 - 2100	12:1
12.1	Summary	12:1
12.2	Cover Type	12:2
12.3	NPCs and Cover Type	12:6
12.4	Succession / Vegetation Growth Stages	12:8
12.5	Habitat	12:18
12.6	Roads	12:20
12.7	Recreation	12:20

Maps

	County location map	
	Map 1: Ecological Provinces in Minnesota	2:3
	Map 2: Ecological Sections in Minnesota	2:5
	Map 3: Ecological Subsections in Cass County	2:6
	Map 4: LandType Associations in Cass County	2:7
	Map 5: Native Plant Communities in Cass County	3:4
	Map 6: Cover Type on Cass County Tax Forfeited Lands	3:9
	Map 7: Forest Roads in Cass County	9:2

Figures

	Fig. 1: Generalized Vegetation Growth Stages	2:11
	Fig. 2: Simplified Succession Web	2:12
	Fig. 3: Cass County Land Ownership	3:1
	Fig. 4: Cover Type Cass County TF Lands, 2001	3:11
	Fig. 5: Aspen Cover Type by Age Class, 2001	3:12
	Fig. 6: Birch Cover Type by Age Class, 2001	3:12
	Fig. 7: Jack Pine Cover Type by Age Class, 2001	3:12
	Fig. 8: Red Pine Cover Type by Age Class, 2001	3:12
	Fig. 9: Northern Hardwoods Cover Type by Age Class, 2001	3:12
	Fig. 10: Oak Cover Type by Age Class, 2001	3:12
	Fig. 11: Composition of NPC by General Cover Type	3:13
	Fig. 12: Land Department Income by Source, 1992-2001	5:2
	Fig. 13: Forfeited Tax Fund Apportionment + PILOT, 1993-01	5:3
	Fig. 14: Distribution of PILOT & FT Fund Apportionment, 1993-01	5:3
	Fig. 15: Aspen Cover Type Distribution by Patch Size, 2001	8:12
	Fig. 16: General Ownership by NPC	11:2

Current Forest

	Dry Pine NPC (series of figures)	3:15
	Dry Mesic Pine NPC (series of figures)	3:16
	Dry Mesic Pine-Oak NPC (series of figures)	3:17
	Mesic Oak NPC Growth Stage Composition, TFL 2001	3:18
	Mesic Boreal Hardwood NPC Growth Stage Composition, TFL 2001	3:18
	Mesic Northern Hardwoods NPC (series of figures)	3:19
	Mesic Boreal Hardwood NPC (series of figures)	3:20
	Wet Mesic Lowland Mixed NPC Growth Stage Composition, TFL 2001	3:21
	Organic Conifer NPC Growth Stage Composition, TFL 2001	3:22
	Fig. 18: Cover Type Groups, Cass County TFL, 2001	12:3
	Fig. 19: Cover Type Groups, Cass County TFL, 2101	12:3
	Fig. 20: Aspen Pure Cover Type 2001, 2051, 2101	12:3

Fig. 21: Aspen Mixed Cover Type 2001, 2051, 2101	12:3
Fig. 22: Birch Cover Type 2001, 2051, 2101	12:3
Fig. 23: Northern Hardwoods Cover Type 2001, 2051, 2101	12:4
Fig. 24: Oak Cover Type 2001, 2051, 2101	12:4
Fig. 25: Jack Pine Cover Type 2001, 2051, 2101	12:4
Fig. 26: Red Pine Cover Type 2001, 2051, 2101	12:4

Assessment of Change 2001-2101

Dry Pine NPC (series of figures)	12:9
Dry Mesic Pine NPC (series of figures)	12:10
Dry Mesic Pine-Oak NPC (series of figures)	12:11
Mesic Oak (series of figures)	12:12
Boreal Hardwoods NPC (series of figures)	12:13
Mesic Northern Hardwoods NPC (series of figures)	12:14
Mesic Boreal Hardwood-Conifer NPC (series of figures)	12:15
Wet Mesic Lowland Mixed NPC (series of figures)	12:16
Organic Lowland Conifer NPC (series of figures)	12:17



Executive Summary

This summary presents an overview of the key components of the strategic management plan including a synopsis of the anticipated changes the plan may generate in the forest resource.

The Resource

Cass County administers about 248,000 acres of tax-forfeited land or 20% of the county's total area. Just over three-quarters of this land is forested with the rest being brush, water, or developed.

Nearly half the lands lie on two highly productive native plant communities – dry mesic pine and dry mesic pine-oak systems. Another quarter lies on wet organic lowland communities.

The single largest forest cover type is aspen (36% of forested land area) followed by aspen mixed forest (27%). The next largest types are birch (6%) and oak (5%). Pine types account for 8% and all conifers (lowland and upland) for another 8%.

Mission

The mission of the Cass County Land Department is *to professionally manage the County's forest land base within the confines of Minnesota Statutes 282 and to improve the quality and value of the County's forest land resources.*

Cass County adopts the approach that its responsibility is to *manage the resource* and its focus is on long-term, not short-term, goals and objectives.

In 2001 Cass County's forests were certified under the SmartWood® program of the Forest Stewardship Council (FSC). The County sought this certification to assure the public and consumers of products from the forest that the lands are being managed in environmentally, economically, and socially sound manner. Further, the County intends for certification to generate a financial premium for wood products.

Strategic Management

Cass County's management is rooted in a series of core values stated as **strategic principles**:

- Long-term forest integrity is the foundation of all management / *Retaining forest stability, defined as maintenance of forest integrity, is essential to the ongoing health, diversity, and productivity of the forest. / Strategic management is based upon those forest elements which are the most constant and enduring over time / The general objective is to manage the resource, not to manage for specific outputs.*
- Humans are embedded in nature / *Humans are fundamental influences in ecological processes and cannot be considered external factors. Human values and ethics play a dominant role in directing management initiatives and setting goals / In general, human uses of the forest and resource base will be accommodated to the constraints placed upon them by the ecological considerations articulated in the other principles.*

- Patch size distribution will tend to favor larger, aggregated patches / *Except where management objectives, such as wildlife considerations, support smaller forest patches, the general trend of patch size distribution will be toward creation of larger patches.*
- Manage consistent with native plant community / *Stands will be managed so that their forest type, cover type, and related attributes are in accord with the underlying native plant community.*
- Resource distributed in accord with vegetational growth stage / *Management will seek to secure a representative distribution of vegetational growth stages (aka successional stages or phases) across the aggregated stands for each native plant community.*
- Manage by species age / *Establish a balance of age class groups as appropriate for each cover type.*

As a certified forest manager under the Forest Stewardship Council's **SmartWood^{CM}** program, Cass County adheres to the following **standards**:

1. Compliance with laws and FSC principles: Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.
2. Tenure and use rights and responsibilities: Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.
3. Indigenous peoples' rights: The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.
4. Community relations and workers' rights: Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.
5. Benefits from the forest: Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.
6. Environmental impact: Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.
7. Management plan: A management plan – appropriate to the scale and intensity of the operations – shall be written, implemented, and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.
8. Monitoring and assessment: Monitoring shall be conducted – appropriate to the scale and intensity of forest management – to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

9. Maintenance of high conservation value forests: Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.
10. Plantations: Plantations shall be planned and managed in accordance with the FSC Principles and Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's need for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

The following **strategic initiatives** define the core efforts to be taken Cass County to implement this plan.

★ **Land Asset Management Program**

Implement a land asset management program that improves efficiency and effectiveness of holdings to achieve desired management, and, reduces future public costs to service remote and isolated private land by retaining and consolidating the tax forfeited land base. This is to be accomplished in a manner that does not reduce the private property tax base within the county.

★ **Management by Native Plant Community**

Achieve the following objectives for these native plant community.

Dry Pine: Slightly increase acres of red pine at expense of aspen. Sustain all other cover types. Manage for older pine resource

Dry Mesic Pine & Dry Mesic Pine Oak: Slightly increase acres of red pine and oak at expense of aspen. Increase amount of red/white pine as component within mixed stands. Sustain all other cover types. Manage for older pine and northern hardwoods resource.

Mesic Oak: Manage mixed aspen for increased oak component. Sustain all cover types. Manage for older northern hardwoods.

Mesic Boreal Hardwood: Convert jack pine to aspen at time of harvest. Sustain birch. Increase white pine and oak/hardwood component in the aspen cover type.

Mesic Northern Hardwood: Sustain all cover types. Manage for older northern hardwoods.

Mesic Boreal Hardwood-Conifer: Increase amount of red pine as component within aspen. Reserve hardwoods within aspen. Manage hardwoods for older resource

Wet Mesic Lowland Mixed & Organic Lowland Conifer: Sustain cover types.

Achieving the above objectives will also achieve the following goals for individual cover types:

Regarding the **aspen cover type**: low density stands are to be converted to conifer or hardwood depending upon ecological system; higher density and quality stands are to be retained as productive aspen cover type with rotation ages designed to balance age classes and provide for older forest ecological niches.

Mid-density aspen stands, now re-labeled as **aspen mixed forest** are to be managed as mixed species, multiple-aged forests with significant presence of conifer (primarily pine) and oak/hardwoods.

Increase the amount of **pine** on the landscape. On the appropriate ecological systems the acres of pine cover type will increase usually on converted aspen sites. Pine as a species will be encouraged throughout the forest (as inclusions, small stands, scattered species within stands).

Retain **jack pine** as a cover type through accelerated harvest of existing, degenerating stands, and planting. Portions of the jack pine type will be converted to red pine or a mix of red and jack pine (or aspen in boreal hardwoods).

Northern hardwoods and **oak** will see increased management resulting in more of each type on the landscape, better balance of oak age classes, and northern hardwood stands possessing the characteristics of large patch, mature forest.

★ **Habitat**

A variety of **habitats** will be supported through a coarse filter vegetation management approach. Habitats vital to the maintenance of identified rare, threatened and endangered species will be managed at both the landscape and stand level. Habitat for major game species and non-game species will be managed appropriately with consideration given to maintaining core areas, meeting seasonal needs, and providing connecting corridors.

★ **Recreation**

Emphasize creation and maintenance of a diversity of dispersed recreation opportunities across County administered lands. No new recreational facilities will be constructed and efforts will be made to transfer ownership of existing County-owned accesses to appropriate public entities. County will support a network of designated trails for all user groups.

★ **Deep Portage**

Sustain and enhance the 6,000-acre Deep Portage Conservation Reserve as the natural resource foundation for a premier conservation / environmental learning center.

★ **Management Information**

The type of information and the system for handling it will be greatly enhanced to improve short- and long-term management of the resource.

Anticipated Change

If the management directives contained within this plan are followed over the next century and the effects of markets, natural disturbance, and climate change are assumed to be neutral, then the following changes are anticipated:

Aspen Management: The amount of “pure” aspen cover type will be retained and managed with a balance of age classes. Native Plant Community (NPC)-based management fosters older stands on suitable sites.

Mixed Forest: Mixed forest management is a hallmark of this plan. Initially about 10% will be converted to hardwoods or pine. The remaining acres are managed as mixed species, multi-aged

stands. The pine component will increase and the aspen component will be retained. The “feel” and character of these stands will be older than the rotation age.

Conifers Enhanced: The amount of pine and conifer on the landscape will increase during the plan period. In addition, the mix of pine will shift with slightly less jack pine and substantially more red and white pine.

Habitat Shift: The blend of habitats will change with more younger types, especially in aspen-birch and pine, and older types, particularly in hardwoods and conifers. Late successional stage hardwoods will be a major habitat feature across the landscape.

Timber Flow: A predictable flow of diverse forest resources is provided by the plan. Aspen will reach a steady state once the initial age class imbalance is addressed. The amount of sawtimber quality northern hardwoods and pine will increase dramatically.

Recreation: There will likely be additional designated trails, both motorized and non-motorized, running across County lands. No new facilities such as campgrounds will be constructed and the existing boat accesses will have been transferred to other entities. Pressures on public lands for recreational uses will increase.