Appendix C

Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife

Links to Other Plans (organized alphabetically by subsection)

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Plan	Page	Composition	Succession/ development	Spatial	Sites
Agassiz Lowlands Subsection	pp. ii, iii, 3-	- Key changes in forest composition include	- Ideally, a cover type has	- Patches will be	- Consult the Natural Heritage Database
Forest Resource Management	4 to 3-9	more acres of jack pine (+5400 acres), white	a balance of age classes to	distributed in a	during stand selection, and field visits, to
Plan (SFRMP), Dec. 2002		pine (+988 acres), red pine (+1953 acres),	provide a sustainable	range of ages and	identify known locations of rare species or
		upland tamarack (+615 acres), upland white	range of wildlife habitat	sizes characteristic	plant communities of concern.
		cedar (+1510 acres), spruce/fir (+2500 acres),	and forest products. One	of the	- Consult with the Regional Non-game
		and northern hardwoods (+619 acres) than the	goal of this plan is to	landscape. (p. 3-	Specialist or the Regional Plant Ecologist if a
		acres of these species found there now.	manage toward that	24)	new location for a rare species is found
		- Retain or increase oak as a stand component	balance, which includes a		during this plan period, if a new species is
		(up to 2000 acres).	percentage of older forest.		added to the ETS list, or for assistance in
		- And a decrease in aspen-birch stands (-13545	Balanced age-class		managing for rare species at known
		acres).	distribution, including		locations.
		- Maintain acreage and mosaic of brushlands/	Extended Rotation Forest		- Reference the Forestry/Wildlife Guidelines.
		peatlands at the current level (815376 acres).	(ERF) and old growth.		Originally published in 1985, this document
		(pp. 3-4 to 3-9) - The DNR will manage forest stands to	-ERF ranges from 30 to		provides specific guidelines for the
		provide a diversity of plant species and forest	100% (prescribed) depending on the cover		management of Bald Eagles and other ETS
		structure. (p. 3-25)	type (see pp. 3-17, 3-18,		species. - Encourage completion of the MCBS.
		structure. (p. 3-23)	table 5).		Information from the MCBS is needed for
			(pp.3-14 to 3-19)		the identification and location of rare species
			(pp.3-14 to 3-17)		and features in the Agassiz Lowlands. (pp. 3-
					20 to 3-23)
Forest Resources Council		To maintain a viable, healthy functioning			
Northern Landscape Region, May		ecosystem on the landscape.			
25, 2004		I I I I I I I I I I I I I I I I I I I			
,		(No specific compositional, age-class, or patch			
		Desired Future Forest Condition Goals			
		articulated.)			
The Nature Conservancy, The	pp. 37-39;				Priority conservation areas:
Superior Mixed Forest Ecoregion:	Appendix				Terrestrial – Lake of the Woods; Rainy River
A Conservation Plan, November	G				Clay Plain; Pine Island/Warroad River;
2002					Black River; Red Lake Peatland; Upper
					Tamarack; Upper Roseau
					Aquatic – Manomin; Rainy River; Sandy
					River; Rapid River; Warroad River;
	N 74				Clearwater River; Winter Road River
Ecoregional Planning in the	Map, p. 56;				Priority conservation areas:
Northern Tallgrass Prairie, The	Figure 15				Terrestrial – Moose River
Nature Conservancy, May 1998	Annondia 4				Drighty concernation process
The Nature Conservancy, The Northern Tallgrass Prairie	Appendix 4				Priority conservation areas: Aquatic – Red Lake/Clearwater Rivers; Rat
Ecoregion: A River and Stream					and Roseau Rivers
Ecoregion: A Kiver and Stream					and Koseau Kivers

Appendix C. Links to other plans Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife

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Conservation Portfolio				
Minnesota Wetlands Conservation Plan – January 1997	pp. 33; 38	Maintain: -Non-forested wetlands (mostly types 2, 5) -Lowland shrublands (type 6 wetlands) -Lowland conifer forests (type 8) -Percent of area as wetlands: 83% (of 4,356,036 acres) -Estimated remaining presettlement wetlands: 89-98% -Percentages based NWI layer Type 1: 0.23% Type 2: 7.6% Type3: 0.57% Type4: 0.20% Type5: 14.52% Type6: 16.09% Type7: 11.06% Type8: 33.12%		

Anoka Sand Plain

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites
Minnesota Wetlands Conservation Plan – January 1997	p. 45	Goal: Wetland restorationEstimated remaining presettlement wetlands: 33-80%Percent of area as wetlands: 23%Type 13.56Type 29.68Type 339.89Type 41.39Type 514.11Type 618.69Type 711.19Type 81.48			
SFRMP (not completed – expected to begin again soon)					
MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.stat e.mn.us/Info/MFR Cdocs/East_Centra Landscape_Persp ectives_Report.pdf		 -Protecting and enhancing biological and structural diversity (p16) -Generate guidelines to ensure the production of oak stands through more intensive improvement cuts, harvest and regeneration practices -To manage northern hardwood and other cover types for purpose of forest health and habitat (p14) -Put land in wildlife preservation programs to protect endangered or threatened species -Balance the forest diversity by maintaining forest composition that was present historically -To restore areas to native prairie and wetlands -Improve habitat through vegetation management (p12) - Increase protection of water quality through vegetated cover and riparian buffers (p10) 	 To achieve an adequate distribution of age classes across the landscape (p14) Increase age class diversity of forest types by harvesting and regeneration some acres of birch, jack pine, and oak cover. Conversion of some aspen, birch, and jack pine to communities of long- lived types (p14) Perform passive management i.e. fire suppression and natural selection in open woods, open conifer areas and regions with northern hardwoods (p14) 	 -Protect large intact forest areas that are threatened from conversion to non-forest uses. (pp7-8) - To benefit the wildlife, fish and biodiversity of the area through protection of larger blocks of forest, i.e. prevent fragmentation. (p12) - To move forests to a more ideal patch size distribution (p14) Uneven-aged management standards. Patch size distribution: 640+ acres: 10% of landscape 250 – 639 acres: 15% 100-249 acres: 40% 40-99 acres: 25% <40 acres: 10% 	
The Nature Conservancy, The Prairie-Forest	Table 5 and Appendi				Priority conservation areas: Terrestrial – Lake Maria

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Border Ecoregion:	x E		State Park; St. Cloud
A Conservation			Area Outcrop; Sherburne
Plan			Refuge-Sand Dunes State
			Forest; Elk River Dunes;
			Cedar Creek NHA-
			Carlos Avery WMA
			Aquatic – Minnesota
			River; Rum River; Upper
			Mississippi River; North
			Fork Crow River
			Aquatic/Terrestrial –
			Upper Mississippi River
The Nature	pp. 37-		Priority conservation
Conservancy, The	39;		areas:
Superior Mixed	Appendi x G		Terrestrial – St. Croix
Forest Ecoregion: A Conservation	хG		Moraine; Rum River Headwaters
Plan, November			Headwaters
2002			
The Nature	Appendi		Priority conservation
Conservancy, The	x 4		areas:
Northern Tallgrass	A 1		Aquatic – Minnesota
Prairie Ecoregion:			River Mainstem
A River and			
Stream			
Conservation			
Portfolio			
The Nature			Priority conservation
Conservancy			areas:
(UMR-specific):			Aquatic – Northern
			Stretch; Pool 1; Pool 2;
			Lower Minnesota;
			Mississippi River; Sauk
			River; North Fork Crow
			River; Rum River; Coon
			River; Sunrise River;
			Hardwood Creek;
			Minnehaha Creek

See also:

Isanti County Comprehensive Local Water Plan, 2000 Isanti County Comprehensive Plan, 1998 Morrison County Water Plan, 2002 Benton County Comprehensive Plan, 1999 Sherburne County Comprehensive Water Management Plan, 2001

Appendix C: MN CWCS, Links to other plans Sherburne County Comprehensive Land Use Plan, 1992

Plan	Pages	Composition	Succession/development	Spatial	Site
MN DNR NW Region	III-11 to	- Establish coarse-grained mosaics of prairies,	- Burn aspen parkland habitats on a	in relatively large	
Natural Resources Plan,	III-15, III-	brush prairies, fens, wetlands, and woodlands	5-10 year cycle.	blocks (ideally 2000	
DRAFT, June 1994	27 to III-	- Retain or increase the oak component of aspen	- Maintain a component of older	acres or more).	
	33.	stands, particularly on drier sites.	trees where long-lived species (eg	- Maintain relatively	
		- Maintain a component of (lowland) conifers	oak) occur. Extended rotation of	large consolidated	
		where they have occurred historically.	120 years for oak.	blocks of public land,	
		- Maintain a component of aspen stands	- Even-aged mgmt of aspen and	minimally 40 acres,	
		throughout the sub-landscape.	balm of gilead stands (40-45 year	but ideally thousands	
			rotations).	of acres in each block.	
Ecoregional Planning in the Northern Tallgrass Prairie, The Nature Conservancy, May 1998	Map, p. 56; Figure 15				Priority conservation areas: Terrestrial – Tallgrass Aspen Parklands; Agassiz Dunes; Agassiz NWR; Chester Hills; Goose Lake Parkland; Gully
					Fens; Moose River; New Maine; Pembina Beach Ridges Prairies; Rosewood; <i>Roseau River; Thief</i> <i>Lake</i>
The Prairie-Forest Border	Map 7a				Priority conservation areas:
Ecoregion: A Conservation					Terrestrial – Chester Hills Prairies
Plan, Then Nature					
Conservancy					
The Superior Mixed Forest	Appendix				Priority conservation areas:
Ecoregion: A Conservation	G				Terrestrial – Red Lake Peatland
Plan, The Nature					Aquatic – Clearwater River
Conservancy	N 26				D
The Northern Tallgrass Prairie Ecoregion: A River and Stream Conservation Portfolio, The Nature Conservancy	Map p. 26; Appendix 4				Priority conservation areas: Aquatic – Wild Rice/Buffalo/ Marsh Rivers; Red Lake/Clearwater Rivers; Rat and Roseau Rivers
Forest Resources Council		Desired Outcome: To maintain a viable, healthy			
Northern Landscape Region, May 25, 2004		functioning ecosystem on the landscape, but no specific compositional, age-class, or patch Desired Future Condition Goals articulated.			
Subsection Forest Resource	1	Expected to begin after completion of the			
Management Plan (SFRMP)		Agassiz Lowlands subsection.			
Minnesota Wetlands		-Restore wetlands: Estimated remaining			
Conservation Plan – January		presettlement wetlands: 8-44%			
1997		Percent area as wetlands: 18.9%, non-forested			

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inprendin of fill of the	CS, Links to other plans	
	(types 1-5): 11.4%	
	Type 1 4.30	
	Type 2 69.90	
	Type 3 18.50	
	Type 4 2.70	
	Type 5 4.61	
	Туре 6 42.08	
	Type 7 22.63	
	Type 8 2.16	

Big Woods

A. Other Plans/Efforts in Subsection

Plan	Pages	Composition	Succession/development	Spatial	Sites
MN Forest Resources		-Protecting and enhancing biological and structural	- To achieve an adequate	-Protect large intact forest areas	
Council: Forest		diversity (p16)	distribution of age classes	that are threatened from	
Resource Management		-Generate guidelines to ensure the production of	across the landscape (p14)	conversion to non-forest uses.	
in East Central		oak stands through more intensive improvement	-Increase age class diversity	(pp7-8)	
Minnesota, A		cuts, harvest and regeneration practices	of forest types by harvesting	- To benefit the wildlife, fish and	
Landscape Perspective,		-To manage northern hardwood and other cover	and regeneration some acres	biodiversity of the area through	
June 2004		types for purpose of forest health and habitat (p14)	of birch, jack pine, and oak	protection of larger blocks of	
http://www.frc.state.mn.		-Put land in wildlife preservation programs to	cover.	forest, i.e. prevent	
us/Info/MFRCdocs/East		protect endangered or threatened species	-Conversion of some aspen,	fragmentation. (p12)	
<u>Central Landscape Pe</u>		-Balance the forest diversity by maintaining forest	birch, and jack pine to	- To move forests to a more	
rspectives_Report.pdf		composition that was present historically	communities of long-lived	ideal patch size distribution	
		-To restore areas to native prairie and wetlands	types (p14)	(p14)	
		-Improve habitat through vegetation management	-Perform passive	Uneven-aged management	
		(p12)	management i.e. fire	standards.	
		- Increase protection of water quality through	suppression and natural	Patch size distribution:	
		vegetated cover and riparian buffers (p10)	selection in open woods,	640+ acres: 10% of landscape	
			open conifer areas and	250 – 639 acres: 15% 100-249 acres: 40%	
			regions with northern	40-99 acres: 25%	
			hardwoods (p14)	<pre><40-99 acres: 25%</pre> <pre><40 acres: 10%</pre>	
MN Forest Resources		-Protect, restore and enhance a variety of wetland	-Maintain old growth forest	-Promote development of habitat	
Council: Forest		habitat (p11)	(p25)	corridors, prevent fragmentation	
Resource Management		-Protect woodlands, bluffs and other natural areas	-Minimize conversion of oak	of habitat (p10)	
in Southeast Minnesota:		(p8)	to hardwoods (p27)	-Promote ecosystem level	
A Landscape		-Conserve biodiversity/conserve native plants and	to hardwoods (p27)	stewardship planning to protect	
Perspective, May 2002		animals (p14)		and enhance regionally	
· · · · · · · · · · · · · · · · · · ·		-Protect rare species and enhance their habitats		significant areas (p12)	
		(p11)		· · · · · · · · · · · · · · · · · · ·	
		-Increase natural communities (p25)			
		-Maintain and improve riparian vegetation and			
		management (p12)			
		-Increase riparian buffers and vegetative strips			
		(pp7-11)			
		-Manage forests for multiple species (p14)			
		-Maintain diversity of forest types and age classes			
		(p14)			
		-Promote regeneration of forestlands/increase			
		amount of forested area (pp25-26)			
		-Promote oak regeneration (p25)			

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Appendix C. M		Links to other plans	1	
		 -Restore and maintain mix of hardwoods, oak savanna, and prairie (p25) -Promote white pine along riparian corridors and where it exists as component of other cover types (p26) -Decrease susceptibility to pests by increasing diversity of wood lot (p28) 		
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Map 7a; Table 5; Appendix E			Priority conservation areas: Terrestrial – Lake Maria State Park; Upper Cannon River; <i>Taylor's Woods; Savage Fen</i> Aquatic – Minnesota River; Straight and Turtle Rivers; North Fork Crow River; Upper Mississippi River Aquatic/Terrestrial – Upper Mississippi River
The Northern Tallgrass Prairie Ecoregion: A River and Stream Conservation Portfolio	Appendix 4			Priority conservation areas: Aquatic – Minnesota River- Southern Drainages; Minnesota River Mainstem; Rush River/High Island Creek
The Nature Conservancy (UMR- specific)				Priority conservation areas: Aquatic – Blue Earth River; Cannon River; North Fork Crow River; High Island Creek; Le Sueur River; Lower Minnesota; Minnehaha Creek; Minnesota River; Mississippi River; Northern Stretch; Pool 1; Pool 2; Rum River; Rush River; South Branch Rush River
Forest Resources Council Southeast Landscape, June 2004		Focus area does not cover this subsection.		
Subsection Forest Resource Management Plan (SFRMP)		Not yet completed.		
Minnesota Wetlands Conservation Plan – January 1997	p. 46	Restore wetlands:Estimated remaining presettlement wetlands: 2-43%Percent area as wetlands: 17.2%, non-forested (types 1-5): 19.0 %Type 113.2Type 20.86		

Type 3	45.2		
Type 4	1.2		
Type 5	30.5		
Туре б	3.8		
Type 7	5.3		
Type 8	0.01		

The Blufflands

Plan	Page	Composition	Succession/	Spatial	Sites
	_		development	_	
Blufflands/		-Maintain native plant communities identified with the highest biodiversity	-Maintain static amount	-Identify	
Rochester Plateau		significance (~12,700 acres) (p8)	of acreage and spatial	treatment	
Subsection Forest		-Identify varying management objectives for areas of other biodiversity	distribution of old-	options to	
Resource		significance (~34,900 acres) to promote wildlife habitat, regenerate forest	growth (~1200 acres) and	perpetuate acres	
Management Plan		cover types and perpetuate NPCs and rare species (p8)	extended rotation forest	of NPCs with	
		-Minimize loss of existing oak acreage (~35,400 acres) (p9)	(~5900 acres) (p8)	concentrations	
		-Limit/delay harvesting of lowland hardwoods (~9200 acres) where reed	-Minimize conversion of	of forest interior	
		canary grass is present in understory (p9)	oak to northern	species and	
		-Increase in age and size northern hardwood cover type (p9)	hardwoods through	threatened,	
		-Retain commercially viable species (hickory, oak, black cherry) in central	concentrated harvest of	endangered and	
		hardwoods cover type (p9)	certain age classes in oak	special concern	
		-Maintain/enhance existing acreage (~1300 acres) of black walnut (p9)	cover type (p9)	species (p8)	
		-Increase/maintain existing acreage (~1500 acres) of white pine, by	-Perpetuate northern		
		maintaining native white pine cover types and white pine components in other	hardwoods through		
		cover types (p9)	uneven-age management		
		-Maintain/increase existing acreage (~1000 acres) of aspen for wildlife and	(p9)		
		nongame species (p9)	-Minimize impact of red		
		-Increase/maintain black cherry acreage (p9)	cedar invasion on bluff		
		-Maintain/enhance quality of oak savanna communities (p10)	prairies, but not to the		
		-Maintain existing acreage amount of ash, willow, aspen, cottonwood, walnut,	exclusion of the species		
		jack pine, and tamarack cover types (pC-1)	(p10)		
		-Reduce acreage of non-natives present in subsection (norway pine, white			
		spruce, and upland larch) (pC-1)		D (
MN Forest Resources		-Protect, restore and enhance a variety of wetland habitat (p11)	-Maintain old growth	-Promote	
Council: Forest		-Protect woodlands, bluffs and other natural areas (p8) -Conserve biodiversity/conserve native plants and animals (p14)	forest (p25) -Minimize conversion of	development of habitat	
Resource		-Protect rare species and enhance their habitats (p14)		corridors,	
Management in		-Increase natural communities (p25)	oak to hardwoods (p27)	prevent	
Southeast		-Maintain and improve riparian vegetation and management (p12)		fragmentation of	
Minnesota: A		-Increase riparian buffers and vegetation and management (p12)		habitat (p10)	
Landscape		-Manage forests for multiple species (p14)		-Promote	
Perspective, May		-Maintage forests for multiple species (p14) -Maintain diversity of forest types and age classes (p14)		ecosystem level	
2002		-Promote regeneration of forestlands/increase amount of forested area (pp25-		stewardship	
2002		26)		planning to	
		-Promote oak regeneration (p25)		protect and	
		-Restore and maintain mix of hardwoods, oak savanna, and prairie (p25)		enhance	
		-Promote white pine along riparian corridors and where it exists as component		regionally	
		of other cover types (p26)		significant areas	

A	opendix	C:]	MN	CW	CS,	Links	to	other	plans
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		-Decrease susceptibility to pests by increasing diversity of wood lot (p28)	(p12)	
MN Forest		-Increase forest land by 3 percent of entire land area over the next 5-10 years	-Decrease	
Resources Council		(approx. 77,000 acres) for the Blufflands and Rochester Plateau subsections	fragmentation	
 Landscape 		(p5)	from	
Program:		-Establish appropriate species on appropriate sites:	development	
Recommended		- in mesic sites promote mix of maple, cottonwood, basswood, oak, and	(p7)	
Vision, Goals and		other native species		
Strategies:		- in dry (oak savanna) and dry-mesic (hardwood) sites, promote		
Southeast		regeneration and management of oak, walnut, shagbark hickory, and		
Landscape, June		other natives		
2003		- in prairie and wetlands areas promote appropriate native vegetation (p5)		
The Prairie-Forest	Table 5 and			Priority conservation areas:
Border Ecoregion:	Appendix			Terrestrial – Lower Cannon
A Conservation	E			River; Hay Creek; Dennison
Plan, The Nature				Prairies; Partridge Creek;
Conservancy				Spring Valley-Middle Root
				River; Forestville-Mystery
				Cave; Root River-Rushford;
				Weaver Dunes-Finger Lakes;
				Great River Bluffs State Park
				Aquatic – Rollingstone
				River; Root River; South
				Fork Root River; Spring
				Valley-Middle Root River;
				Upper Mississippi River
				Aquatic/Terrestrial –
				Whitewater River; South
				Fork Root River; Upper
				Iowa River; Lower St. Croix
				River; Root River; Upper
				Mississippi River
The Superior	Appendix			Priority conservation areas:
Mixed Forest	G			Terrestrial – Lower St. Croix
Ecoregion: A				Aquatic – Lower St. Croix
Conservation Plan				-
The Nature				Priority conservation areas:
Conservancy				Aquatic – Black River;
(UMR-specific)				Chippewa River; Pool 3;
- '				Pool 4; Pool 5; Pool 5A;
				Pool 6; Pool 7; Pool 8; Pool
				9; Root River; Rush Creek;
				St. Croix River; Zumbro
				River

Border Lakes

Plan	Pages	Composition	Succession/development/pr	Spatial	Sites	Source
	_	_	ocesses			
Border Lakes Subsection Forest Resource Management Plan	P2.3	 -Increase upland conifer types – (double by 2051) -Maintain upland brush cover types -Protect rare and sensitive plant communities. See Table 	 -Increase within stand diversity. -Increase age diversity – especially white pine. -Balanced age-class structure of even-aged managed forest cover types. -More old pine and other conifers. -Retain old forest component. -Protect ecological processes and biodiversity. 	 -Increase average patch size. -Connectivity between large old patches. -Maintain some large old patches. -Manage for a range of patch sizes and ages. 		
Minnesota Forest Resources Council Landscape Program – Northeast Landscape Region, March 25, 2003	P.10	 -Increase white and red pine component. -Increase white pine, white spruce, and tamarack -Increase red/white pine and white spruce in the dry-mesic white-red pine ecosystems. -Increase jack pine throughout the jack-pine black spruce ecosystem. 	 -Increase > 101 year growth stage of red and white pine in mesic red/white pine ecosystem. -Increase >81 year multi-aged conifer growth stage in mesic aspen-birch ecosystem. -Increase the 121+ year old growth stages in the dry-mesic white-red pine ecosystems. -Allow for regeneration of jack pine, thus increasing the younger age classes. 			
Records of Decision, Revised Forest Plans, Final Environmental Impact Statement: Superior National Forest, USDA, Forest Service Eastern Region, August 2004		 -Increase acres of red, white and jack pine, spruce/fir, and northern hardwood vegetation communities (p2-23) -Decrease acres of aspen communities (p2-23) -Maintain acres of lowland conifer and lowland hardwood (p2-23) -Maintain acres of non-forested wetlands (p2-23) -Decrease acres of maintained 	-Increase/maintain amounts, distribution and characteristics of vegetation representative of environmental conditions that would have resulted from natural cycles, processes and disturbances under which current forest ecosystems and accompanying biodiversity evolved, and that also provide for sustained yield of timber/pulpwood products (p2-22) -Manage vegetation as constantly	-Restore diversity of degraded/ decreased vegetation spatial landscape patterns to conditions that more closely emulate landscape scale patterns that would result from natural disturbances and other ecological processes (p2-22)		Terrestrial Ecological Unit Inventory (landscape ecosystem classification), RNV – range of natural variability (means of analyzing landscape conditions and

Appendix C. Mix CWCS, Lin	his to other plans			1
	permanent upland openings (p2-	changing and through naturally	-Re-establish spatial	their ability to
	23)	occurring disturbances and	patterns that promote:	maintain long-term
	-Increase component of white	ecosystem recovery processes such	well-distributed	ecological
	pine, red pine, paper birch,	as wind, fire, flooding, insects,	habitats; restoration	sustainability),
	yellow birch, upland tamarack,	disease, and vegetation succession	of ecosystem	Great Lakes
	white cedar, white spruce and	within acceptable range of	function or processes;	Ecological
	black spruce to restore within	variability (p2-22)	connectivity between	Assessment (broad-
	stands diversity of tree species	-Re-establish old forest and old-	aquatic, terrestrial	scale ecosystem
	(p2-23)	growth forest age classes and	and riparian	condition)
	-Increase acres of young and old-	vegetative growth stages, while	ecosystems across the	
	growth lowland black spruce and	providing for full array of forest	landscape (p2-23)	
	tamarack forests (p2-24)	age classes and growth stages (p2-	-Re-establish	
	-Protect/enhance watersheds and	22)	diversity of size,	
	their components to provide for	-Re-establish uneven-aged and	shape, and	
	unique plant and animal	multi-aged forests with a variety of	distribution of	
	communities, special habitat	tree ages and different vegetation	patches of forest	
	features, habitat linkages,	layers within the same community	(including large	
	wildlife corridors, aquatic	while also providing for even-aged	patches - 300-1000s	
	ecosystems and riparian	forests (p2-22)	of acres of mature	
	ecosystems (p2-10)	-Re-establish the full range of	and older forest that	
	-Increase/maintain the diversity,	successional stages in non-forested	provide interior forest	
	productivity, health and	lands such as bogs, fens, grass,	habitat), and of	
	resilience of native vegetation	shrublands (p2-22)	temporary forest	
	communities (p2-22)	-Retain adequate representation of	openings (including	
	-Restore vegetation conditions	naturally disturbed forest that is	opening sizes from 1-	
	that have been degraded or	not salvaged (p2-23)	1,000 acres) (p2-23)	
	decreased in extent to conditions	-Increase acres of old forest, old-	-Maintain/restore	
	more representative of native	growth forest, and multi-aged	ecological processes	
	vegetation communities (p2-22)	upland forest communities (p2-24)	of native vegetation	
	-Re-establish diverse mixes of		communities at	
	trees, shrubs, herbs, mosses,		multiple scales to	
	lichens, and fungi species at site		provide	
	and landscape levels that are		representation of	
	representative of native		natural range of	
	vegetation communities		distribution and	
	(including an increase of rare		variation within	
	and sensitive plants and native		context of multi-use	
	plant communities; white, red,		goals and ecosystem	
	and jack pine; yellow birch;		sustainability (p2-23)	
	white cedar; upland tamarack;		• • • /	
	and in some areas, white and			
	black spruce as components of			
	native communities) (p2-22)			

Appendix C: MIN CV			1	1	1	
		-Re-establish structural diversity				
		in native vegetation communities				
		that have been harvested or				
		undergone disturbance (p2-22)				
		-Manage to ensure that native				
		and desired non-native aquatic				
		and terrestrial wildlife habitats				
		and species populations are				
		present in amounts, quality,				
		distributions and patterns				
		representative of historical				
		conditions (p2-27)				
	A	conditions (p2-27)			Dui auita	
The Superior Mixed	Appendix				Priority	
Forest Ecoregion: A	G				conservation areas:	
Conservation Plan, The					Terrestrial –	
Nature Conservancy,					Quetico;	
November 2002					Nor'wester; Little	
					Fork; Seven	
					Beaver/Sand Lake;	
					Border Lakes	
					Aquatic – Rainy	
					River; Black	
					Duck/Ash River;	
					Kawashiwi River;	
					Kawashiwi River	
					Headwaters;	
					Vermillion River;	
					Snake River; Perent	
					River; Island River;	
					Little Fork River	
Great Lakes Ecoregional	Map 9				Priority	
Plan: A First Iteration,	in the p				conservation areas:	
The Nature Conservancy,					Terrestrial – Swamp	
December 1999					River; Brule River;	
December 1999					Mississippi Creek	
Aquetia Econorianal	Appendix				Priority	
Aquatic Ecoregional	Appendix 7					
Planning in the U.S.	/				conservation areas:	
Portion of the Great					Aquatic –	
Lakes Watershed, The					Reservation River;	
Nature Conservancy					Brule Lake	
					Complex; Pigeon	
					River and Estuary;	
					Brule River-Lower;	

				Swamp River; Cascade River	
Minnesota Wetlands Conservation Plan – January 1997	p. 40	-Maintain high quality wetland resources: -Estimated remaining presettlement wetlands: 93-100% -Percent area as wetlands: 93-100% (many of these are lakes classified as type 5 wetlands), non-forested (types 1-4): 5.3 % Type 1 0.17 		Cascade Kiver	
		therefore this number is inflated).			

Citations:

Friedman, S.K. and P.B. Reich. 2005. Regional legacies of logging: Departure from presettlement forest conditions in Northern Minnesota. Ecological Applications. 15(2), pp. 726-744.

MFRC

http://www.frc.state.mn.us/Info/MFRCdocs/lp0303a.pdf

Chippewa Plains

Plan Composition Succession/development Spatial Sites Page Source MN Forest Resources -Minimize loss of forestland and -The forest will have a range -The forest will have Council – Landscape timberland (p14) of age classes that more a range of patch -There will be an increased component closely resemble natural sizes that more Program: **Recommended Desired** of red, white and jack pine, cedar, patterns and functions within closely resemble Outcomes, Goals and tamarack, spruce and fir (p8) the landscape (p8) natural patterns and -The forest will have a range of species Strategies: North -Increase >171 year growth functions within the stage for boreal hardwoodthat more closely resemble natural Central Landscape landscape (p8) patterns and functions within the Region, March 2003 conifer, dry-mesic pine, and -Retain contiguous blocks of forest land (Amended January landscape (p8) mesic-northern hardwoods 2004) -Boreal Hardwood-Confier (p9): (pp9-11) (p15) -Restore historic components of white -Increase 81+ year growth -The amount of pine, upland tamarack and cedar, stages for dry-mesic pine-oak forestland and include spruce/fir communities (p12) and dry timberland will not decrease using FIA -Maintain substantial amount in evenpine communities dominated aged aspen by red and white pine (p13) definitions. Large -Emphasize mixed stands of spruce, -Increase younger age classes blocks of contiguous of jack pine in dry pine balsam fir, aspen, birch, red maple forest land that have -Dry-Mesic Pine (p10): communities (p13) minimal inclusion of -Increase red and white pine and conflicting land uses tamarack, and oak/hardwood will be created composition and/or retained for -Mesic-Northern Hardwoods (p11): natural resource and -Maintain better quality aspen stands ecological benefits using even-age management (p8) -Establish or maintain white pine, -In large blocks of balsam fir and white spruce as stand contiguous components starting at 21-40 growth forestland, retain stage critical natural -Create a more natural composition of shoreline on lakes plant community starting at 40-80 year (p8) growth stage Dry-Mesic Pine-Oak (p12): -Increase jack pine and oak in 1-20 and 21-40 year growth stages -Decrease aspen in 41-80 year growth stage and restore red, white and jack

A. Other Plans/Effort

Appendix C. Links to other plans Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife

	pine			
	-Increase red/white pine in 81+ year			
	growth stages		-	
Records of Decision,	-Increase/maintain the diversity,	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Revised Forest Plans,	productivity, health and resilience of	distribution and characteristics	degraded/decreased	Ecological
Final Environmental	native vegetation communities (p2-21)	of vegetation representative of	vegetation spatial	Unit Inventory
Impact Statement:	-Minimize undesirable occurrences of	environmental conditions that	landscape patterns	(landscape
Chippewa National	non-native invasive species (p2-21)	would have resulted from	to conditions that	ecosystem
Forest, USDA, Forest	-Restore vegetation conditions that	natural cycles, processes and	more closely	classification),
Service Eastern Region,	have been degraded or decreased in	disturbances under which	emulate landscape	RNV – range
August 2004	extent to conditions more	current forest ecosystems and	scale patterns that	of natural
	representative of native vegetation	accompanying biodiversity	would result from	variability
	communities (p2-21)	evolved, and that also provide	natural disturbances	(means of
	-Re-establish diverse mixes of trees,	for sustained yield of	and other ecological	analyzing
	shrubs, herbs, mosses, lichens, and	timber/pulpwood products	processes (p2-21)	landscape
	fungi species at site and landscape	(p2-21)	-Re-establish spatial	conditions and
	levels that are representative of native	-Manage vegetation as	patterns that	their ability to
	vegetation communities (including an	constantly changing and	promote: well-	maintain long-
	increase of rare and sensitive plants and	through naturally occurring	distributed habitats;	term
	native plant communities; white, red,	disturbances and ecosystem	restoration of	ecological
	and jack pine; white cedar; upland	recovery processes such as	ecosystem function	sustainability),
	tamarack; and in some areas, white and	wind, fire, flooding, insects,	or processes;	Great Lakes
	black spruce as components of native	disease, and vegetation	connectivity	Ecological
	communities) (p2-21)	succession within acceptable	between aquatic,	Assessment
	-Re-establish structural diversity in	range of variability (p2-21)	terrestrial and	(broad-scale
	native vegetation communities that	-Re-establish old forest and	riparian ecosystems	ecosystem
	have been harvested or undergone	old-growth forest age classes	across the landscape	condition)
	disturbance, by providing small patches	and vegetative growth stages,	(p2-21)	,
	of forest (reserve islands); scattered/	while providing for full array	-Re-establish	
	clumped standing, mature and older	of forest age classes and	diversity of size,	
	live trees; dead trees; and coarse woody	growth stages (p2-21)	shape, and	
	debris (p2-21)	-Re-establish uneven-aged and	distribution of	
	-Increase acres of red, white and jack	multi-aged forests with a	patches of forest	
	pine, spruce/fir, and northern hardwood	variety of tree ages and	(including large	
	vegetation communities (p2-22)	different vegetation layers	patches of mature	
	-Decrease acres of aspen vegetation	within the same community	and older forest that	
	communities (p2-22)	while also providing for even-	provide interior	
	-Maintain/slightly increase acres of	aged forests (p2-21)	forest habitat), and	
	birch vegetation communities (p2-22)	-Re-establish the full range of	of temporary forest	
	-Maintain acres of lowland conifer and	successional stages in non-	openings (including	
	lowland hardwood (p2-22)	forested lands such as bogs,	opening sizes from	
	-Maintain acres of non-forested	fens, grass, shrublands (p2-21)	1-1,000 acres) (p2-	
	wetlands (p2-22)	-Retain adequate	22)	
	wettallus (p2-22)	-retain adequate	<i>22</i>)	

Appendix C. MIX C	,				
		-Increase acres of young and old-	representation of naturally	-Maintain/restore	
		growth lowland black spruce and	disturbed forest that is not	ecological processes	
		tamarack forest communities (p2-23)	salvged (p2-23)	of native vegetation	
		-Manage to ensure that native and		communities at	
		desired non-native aquatic and		multiple scales to	
		terrestrial wildlife habitats and species		provide	
		populations are present in amounts,		representation of	
		quality, distributions and patterns		natural range of	
		representative of historical conditions		distribution and	
		(p2-24)		variation within	
				context of multi-use	
				goals and ecosystem	
				sustainability (p2-	
				22)	
The Superior Mixed	Appendix			,	Priority conservation
Forest Ecoregion: A	G				areas:
Conservation Plan, The	-				Terrestrial – Mississippi
Nature Conservancy,					Headwaters; Leech Lake
November 2002					Watershed; Sugar Hills
					Aquatic – Schoolcraft
					River; Sandy River;
					Upper Mississippi River;
					Boy River; Turtle River;
					Kabekona River; Upper
					Big Fork River;
					Clearwater River
The Prairie-Forest	Table 5;				Priority conservation
Border Ecoregion: A	Appendix				-
Conservation Plan, The	E				areas: Terrestrial – White Earth
	E				
Nature Conservancy	A 1'				Hardwood Forest
The Northern Tallgrass	Appendix				Priority conservation
Prairie Ecoregion: A	4				areas:
River and Stream					Aquatic – Wild
Conservation Portfolio,					Rice/Buffalo/Marsh
The Nature					Rivers; Red
Conservancy					Lake/Clearwater Rivers
The Nature					Priority conservation
Conservancy (UMR-					areas:
specific)					Aquatic – Fishermans
					Brook; Mississippi
					River; Schoolcraft River;
					Steamboat River; Third
					River; Turtle River

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
Ecoregional Planning in					Priority conservation	
the Northern Tallgrass					areas:	
Prairie, The Nature					Terrestrial – Chanarambie	
Conservancy, May					Creek Valley; Des	
1998					Moines River Valley;	
					Hole-in-the-Mountain;	
					Heron Lake	
The Northern Tallgrass	Appendix				Priority conservation	
Prairie Ecoregion: A	4				areas:	
River and Stream					Aquatic – Minnesota	
Conservation Portfolio,					River-Southern	
The Nature					Drainages; Des Moines	
Conservancy					River; Big Sioux/Rock	
					Rivers; Little Sioux River	
The Nature					Priority conservation	
Conservancy (UMR-					areas:	
specific)					Aquatic – Coon Creek;	
					Des Moines River; Mud	
					Creek; Redwood River;	
					Three-Mile Creek;	
					Watonwan River; North	
					Fork Watonwan River;	
					South Fork Watonwan	
					River; Yellow Medicine	
					River; North Branch	
					Yellow Medicine River	

Glacial Lake Superior Plain

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
The Mille Lacs		-Maintain and/or enhance forest types	-Increase diversity in forest age and	-Consider designation	-Recommended	RNV, LTA
Uplands, Glacial		currently significantly less common	structure, improve age class	of priority open	locations of ERFs:	(designation of
Lake Superior Plain,		(birch, white pine, tamarack) (p5)	distribution of all forest types (p21)	landscape complexes	adjacent to	ERF based on
and St. Croix		-Increase management of forest types	-Manage as older forest at least 10%	(p6)	designated old-	historical
Moraines Subsection		currently suffering from inadequate	of Divisions of Forestry and Wildlife	-Manage specific	growth forest; in	disturbance
Forest Resource		regeneration (white cedar, white pine, red	lands (p23)	areas to maintain	riparian areas; in	regime, RNV,
Management Plan		oak, white birch) (p6)	-Locate ERF areas where they will	open landscapes	areas where large	and DNR field
		-Increase native plant community types	provide the desired timber quality	needed to maintain	forest patches	staff recs- p
		that were historically more common (p29)	and old forest attributes (p24)	populations of	desired for wildlife	26)
		-Monitor representative wildlife	-Maximize benefits derived from	species of	habitat; in areas	
		management species and protect habitat	efforts to regenerate forests after	management concern	that can provide	
		for game and nongame species (p36).	harvest (p29)	(p32)	high quality timber	
		-Protect areas of unusual ecological	-Ensure presence of oldest age	-Maintain/enhance	resource (p6)	
		significance or high biodiversity for	classes on landscape in adequate	forested connections	-Concentrate ERF	
		conservation of rare species (p36)	amounts (p21)	between existing	in areas that	
		-The following are acreage goals for the	-Emphasize early successional	large blocks of	historically	
		following cover types by 2051: (p38)	species (aspen, jack pine, birch) in	forested land and	supported oldest	
		-Maintain existing levels of ash and	ERF areas in addition to later	riparian areas (p39)	forests and highest	
		lowland hardwoods, northern hardwoods,	successional species (p23)	-Maintain large,	proportion of older	
		red pine, jack pine, white spruce, balsam	-Increase harvest of old-age aspen	contiguous patches of	forests (p23)	
		fir, upland black spruce, and red cedar	(p8), and encourage natural	forest in designated		
		-Reduce aspen/balm of gilead by 5%	succession to mixed hardwoods on	areas (p40)		
		-Increase birch by 50%	appropriate sites (p32)	-Work with partners		
		-Increase oak (red oak, bur oak, white	-Improve age-class structure of white	to minimize road		
		oak) and central hardwoods by 2%	cedar and birch (p30)	construction (p40)		
		-Increase white pine by 100% as a	-Manage oak stands as even-aged or	-ERFs (extended		
		component in other forest types	two-aged systems (p34)	rotation forests)		
		-Decrease scots pine and norway spruce	-Manage northern hardwood stands	managed to provide		
		by 100%	to be average 60-80 years of age with	suite of "old-forest"		
		-Maintain white cedar with regeneration	representatives of all age classes	characteristics on		
		(p30)	(p34)	landscape in context		
		-Convert mistletoe infected lowland black	-By 2122, northern hardwood acres	of working,		
		spruce stands to tamarack	equally divided among basal area	productive forests		
		-Protect healthy butternut specimens on	classes 80-100, 101-120, and 121-	(p6)		
		state and private lands (p32)	140 for perpetuity (p34)			

	/			
Great Lakes	Map 9		Priority	
Ecoregional Plan: A			conservation areas:	
First Iteration, The			Terrestrial – St.	
Nature Conservancy,			Louis River	
December 1999			Estuary; Pokegoma	
			Swamp	
Aquatic Ecoregional	Appendix		Priority	
Planning in the U.S.	7		conservation areas:	
Portion of the Great			Aquatic – St. Louis	
Lakes Watershed			River Estuary	
The Nature			Priority	
Conservancy (UMR-			conservation areas:	
specific)			Aquatic – Kettle	
			River; Moose	
			River	

Plan	Page	Composition	Succession/development	Spatial	Sites
MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 <u>http://www.frc.state.</u> <u>mn.us/Info/MFRCdo</u> <u>cs/East_Central_Lan</u> <u>dscape_Perspectives</u> <u>Report.pdf</u>		 -Protecting and enhancing biological and structural diversity (p16) -Generate guidelines to ensure the production of oak stands through more intensive improvement cuts, harvest and regeneration practices -To manage northern hardwood and other cover types for purpose of forest health and habitat (p14) -Put land in wildlife preservation programs to protect endangered or threatened species -Balance the forest diversity by maintaining forest composition that was present historically -To restore areas to native prairie and wetlands -Improve habitat through vegetation management (p12) - Increase protection of water quality through vegetated cover and riparian buffers (p10) 	 To achieve an adequate distribution of age classes across the landscape (p14) Increase age class diversity of forest types by harvesting and regeneration some acres of birch, jack pine, and oak cover. Conversion of some aspen, birch, and jack pine to communities of long-lived types (p14) Perform passive management i.e. fire suppression and natural selection in open woods, open conifer areas and regions with northern hardwoods (p14) 	 -Protect large intact forest areas that are threatened from conversion to nonforest uses (pp7-8) - To benefit the wildlife, fish and biodiversity of the area through protection of larger blocks of forest, i.e. prevent fragmentation (p12) - To move forests to a more ideal patch size distribution (p14) Uneven-aged management standards. Patch size distribution: 640+ acres: 10% of landscape 250 – 639 acres: 15% 100-249 acres: 25% <40 acres: 10% 	
MN Forest Resources Council: Forests in the West Central Landscape: Desired Outcomes, Goals and Strategies, March 2004		-Restore the following native forest types from current 11% to 15% coverage in next 10-20 years: pine, tamarack, oak, lowland hardwoods, upland hardwoods, and aspen/birch (p8) -Increase existing grassland habitat fro current 27% to 33% coverage by restoring native species and protecting remaining native prairies (p9) -Maintain and increase riparian buffers (p10)		-Maintain size of tracts of 500 contiguous acres or greater of forest land (p9)	
The Prairie-Forest Border Ecoregion: A Conservation Plan,	Table 5; Appendix E				Priority conservation areas: Terrestrial – Hagen WPA; Duck Slough; Avon Hills;

The Nature		St. Cloud Area Outcrop;
Conservancy		Rollag Hills; White Earth
Conservancy		Hardwood Forest; Chester
		Hills Prairies
		Aquatic – Long Prairie
		River; Otter Tail; Glacial
		Lakes; Upper Mississippi
		River; North Fork Crow
		River
		Aquatic/Terrestrial – Glacial
		Lakes; Upper Mississippi
		River
Ecoregional Planning		Priority conservation areas:
in the Northern		Terrestrial – Agassiz Dunes;
Tallgrass Prairie, The		Chester Hills; Gully Fens
Nature Conservancy,		
May 1998		
The Superior Mixed	Appendix	Priority conservation areas:
Forest Ecoregion: A	G	Terrestrial – St. Croix
Conservation Plan,		Moraine
The Nature		Aquatic – Partridge River;
Conservancy,		Clearwater River
November 2002		
The Northern	Appendix	Priority conservation areas:
Tallgrass Prairie	4	Aquatic –
Ecoregion: A River		Chippewa/Pomme de Terre
and Stream		Rivers; Otter Tail/Pelican
Conservation		Rivers; Wild
Portfolio, The Nature		Rice/Buffalo/Marsh Rivers;
Conservancy		Red Lake/Clearwater Rivers
The Nature		Priority conservation areas:
Conservancy (UMR-		Aquatic – Chippewa River;
specific)		North Fork Crow River; Elk
specific)		River; Getchell Creek;
		Mississippi River; Pomme
		de Terre River; Sauk River
	1	ue rene River, Sauk River

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
Ecoregional Planning in the					Priority conservation	
Northern Tallgrass Prairie,					areas:	
The Nature Conservancy,					Terrestrial –	
May 1998					Chanarambie Creek	
					Valley; Hole-in-the-	
					Mountain	
The Northern Tallgrass	Appendix				Priority conservation	
Prairie Ecoregion: A River	4				areas:	
and Stream Conservation					Aquatic – Des Moines	
Portfolio, The Nature					River; Minnesota	
Conservancy					River-Southern	
					Drainages; Big	
					Sioux/Rock Rivers	
The Nature Conservancy					Priority conservation	
(UMR-specific)					areas:	
					Aquatic – Redwood	
					River; Coon Creek	

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
North Shore		-Move forest cover type composition closer	-Distribute old forest across	-Maintain existing large	-Incorporate MCBS	Range of
Highlands, Toimi		to the range of cover type that historically	the landscape (p3.4)	patches and increase	sites with Outstanding	natural
Uplands, and		occurred (p3.10)	-Manage even-aged managed	average patch size on	or High ranking or with	variation
Laurentian Uplands		-Manage state lands within MCBS	cover types to move toward a	state lands over time	a preliminary survey	analysis
Subsection Forest		biodiversity sites to minimize loss to	balanced age-class structure	with consideration of	priority of High for	primary tool
Resource		biodiversity significance factors (p3.27)	(p3.39)	natural spatial patterns	SFRMP planning over	for
Management Plan		-Protect, maintain or enhance rare native	-Manage ERF stands in even-	(p3.19): patches	the 10-yr planning	identifying
(SFRMP), MDNR,		plant communities, rare plants and animals	aged managed cover types to	identified by subsection	period (p3.30)	potential
Dec. 2004 - Draft		and their habitats (pp3.36-3.38)	achieve a declining age-class	and name (pp3.21-3.24)		composition
		-Maintain or increase species, age and	structure from normal rotation	-Manage habitat		change goals
		structural diversity within stands of white	age to maximum rotation age	fragmentation to		(Appendix
		pine, lowland hardwoods, ash, northern	(p3.40)	minimize impacts on		G)
		hardwoods, and some stands of cedar, red	-Include a representation of	species (p3.26)		
		pine and white spruce (p3.44)	each of the growth stages that	-Ensure presence of		
		-Increase or maintain by reserving from	historically occurred in the	adequate habitat and		
		harvest white pine, white spruce, upland	ecosystems (p3.41)	habitat components,		
		cedar, oak, yellow birch and upland	-Distribute young, early	simultaneously at		
		tamarack as a component within	successional forest across the	multiple scales, to		
		appropriate cover types (p3.45)	landscape over time (p3.43)	provide for game and		
		-Manage some stands to reflect the	-Determine appropriate forest	nongame species across		
		composition, structure and function of	management needed to	the landscape (pp3.47-		
		NPCs (p3.46)	address impacts of disturbance	3.54)		
		-Manage riparian areas to provide critical	on the landscape (p3.84)			
		habitat for fish, wildlife and plant species				
		(p3.54)				
		-Manage forests to adequately protect				
		wetlands and seasonal ponds (p3.57)				
		-Increase by 2064 conifer cover type				
		acreage in upland areas for red pine (~3200				
		acres), white pine (~8400 acres), jack pine				
		(~2800 acres), black spruce (~700 acres)				
		white spruce (~3600 acres), and white cedar				
		(~2000 acres) (pp3.11-3.14)				
		-Minor increase by 2064 of oak (~300				
		acres) and northern hardwood (~700 acres)				
		cover type (pp3.11-3.14)				

	-Decrease by 2064 aspen (~14,800 acres), birch (~5900 acres), balsam fir (~1200			
	acres) cover types (pp3.11-3.14)			
Records of Decision,	-Protect/enhance watersheds and their	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Revised Forest Plans,	components to provide for unique plant and	distribution and characteristics	degraded/ decreased	Ecological
Final Environmental	animal communities, special habitat	of vegetation representative of	vegetation spatial	Unit
Impact Statement:	features, habitat linkages, wildlife corridors,	environmental conditions that	landscape patterns to	Inventory
Superior National	aquatic ecosystems and riparian ecosystems	would have resulted from	conditions that more	(landscape
Forest, USDA, Forest	(p2-10)	natural cycles, processes and	closely emulate	ecosystem
Service Eastern	-Increase/maintain the diversity,	disturbances under which	landscape scale patterns	classificatio
Region, August 2004	productivity, health and resilience of native	current forest ecosystems and	that would result from	n), RNV –
	vegetation communities (p2-22)	accompanying biodiversity	natural disturbances and	range of
	-Minimize undesirable outbreaks of fire,	evolved, and that also provide	other ecological	natural
	insect, and disease (p2-19)	for sustained yield of	processes (p2-22)	variability
	-Restore vegetation conditions that have	timber/pulpwood products	-Re-establish spatial	(means of
	been degraded or decreased in extent to	(p2-22)	patterns that promote:	analyzing
	conditions more representative of native	-Manage vegetation as	well-distributed	landscape
	vegetation communities (p2-22)	constantly changing and	habitats; restoration of	conditions
	-Re-establish diverse mixes of trees, shrubs,	through naturally occurring	ecosystem function or	and their
	herbs, mosses, lichens, and fungi species at	disturbances and ecosystem	processes; connectivity	ability to
	site and landscape levels that are	recovery processes such as	between aquatic,	maintain
	representative of native vegetation	wind, fire, flooding, insects,	terrestrial and riparian	long-term
	communities (including an increase of rare	disease, and vegetation	ecosystems across the	ecological
	and sensitive plants and native plant	succession within acceptable	landscape (p2-23)	sustainabilit
	communities; white, red, and jack pine;	range of variability (p2-22)	-Re-establish diversity	y), Great
	yellow birch; white cedar; upland tamarack;	-Re-establish old forest and	of size, shape, and	Lakes
	and in some areas, white and black spruce	old-growth forest age classes	distribution of patches	Ecological
	as components of native communities) (p2-	and vegetative growth stages,	of forest (including	Assessment
	22)	while providing for full array	large patches – 300-	(broad-scale
	-Re-establish structural diversity in native	of forest age classes and	1000s of acres of mature	ecosystem
	vegetation communities that have been	growth stages (p2-22)	and older forest that	condition)
	harvested or undergone disturbance, by	-Re-establish uneven-aged and	provide interior forest	,
	providing small patches of forest (reserve	multi-aged forests with a	habitat), and of	
	islands); scattered/ clumped standing,	variety of tree ages and	temporary forest	
	mature and older live trees; dead trees; and	different vegetation layers	openings (including	
	coarse woody debris (p2-22)	within the same community	opening sizes from 1-	
	-Increase acres of red, white and jack pine,	while also providing for even-	1,000 acres) (p2-23)	
	spruce/fir, and northern hardwood	aged forests (p2-22)	-Maintain/restore	
	vegetation communities (p2-23)	-Re-establish the full range of	ecological processes of	
	-Decrease acres of aspen communities (p2-25)	successional stages in non-	native vegetation	
	23)	forested lands such as bogs,	communities at multiple	
	-Maintain acres of lowland conifer and	fens, grass, shrublands (p2-22)	scales to provide	
	lowland hardwood (p2-23)	-Retain adequate	representation of natural	

					ſ	1
		-Maintain acres of non-forested wetlands	representation of naturally	range of distribution and		
		(p2-23)	disturbed forest that is not	variation within context		
		-Decrease acres of maintained permanent	salvaged (p2-23)	of multi-use goals and		
		upland openings (p2-23)	-Increase acres of old forest,	ecosystem sustainability		
		-Increase component of white pine, red	old-growth forest, and multi-	(p2-23)		
		pine, paper birch, yellow birch, upland	aged upland forest			
		tamarack, white cedar, white spruce and	communities (p2-24)			
		black spruce to restore within stands				
		diversity of tree species (p2-23)				
		-Increase acres of young and old-growth				
		lowland black spruce and tamarack forests				
		(p2-24)				
		-Manage to ensure that native and desired				
		non-native aquatic and terrestrial wildlife				
		habitats and species populations are present				
		in amounts, quality, distributions and				
		patterns representative of historical				
		conditions (p2-27)				
The Superior Mixed	Annondia	conditions (p2-27)			Priority conservation	
	Appendix					
Forest Ecoregion: A	G				areas: Terrestrial – Seven	
Conservation Plan,						
The Nature					Beaver/Sand Lake;	
Conservancy,					Border Lakes	
November 2002					Aquatic – Kawashiwi	
					River Headwaters;	
					Snake River; Perent	
					River; Island River	
Great Lakes	Map 9				Priority conservation	
Ecoregional Plan: A					areas:	
First Iteration, The					Terrestrial –	
Nature Conservancy,					Temperance; Marble	
December 1999						
Aquatic Ecoregional	Appendix				Priority conservation	
Planning in the U.S.	7				areas:	
Portion of the Great					Aquatic – Sand Lake	
Lakes Watershed,					Complex and St. Louis	
The Nature					River Headwaters;	
Conservancy					Upper Cloquet River	
conservancy	I		1	1	oppor croquer reiver	1

Appendix C: MN CWCS, Links to other plans Littlefork-Vermillion Uplands

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
The Superior	Appen				Priority conservation areas:	
Mixed Forest	dix G				Terrestrial – Rainy River Clay	
Ecoregion: A					Plain; Black River; Little Fork;	
Conservation					Border Lakes; Upper Tamarack	
Plan, The Nature					Aquatic – Rainy River; Upper	
Conservancy,					Big Fork River; Little Fork	
November 2002					River	
Records of		-Increase/maintain the diversity,	-Increase/maintain amounts,	-Restore diversity of		Terrestrial
Decision, Revised		productivity, health and resilience of	distribution and characteristics	degraded/decreased		Ecological
Forest Plans,		native vegetation communities (p2-21)	of vegetation representative of	vegetation spatial		Unit
Final		-Minimize undesirable occurrences of	environmental conditions that	landscape patterns to		Inventory
Environmental		non-native invasive species (p2-21)	would have resulted from	conditions that more		(landscape
Impact Statement:		-Restore vegetation conditions that have	natural cycles, processes and	closely emulate landscape		ecosystem
Chippewa		been degraded or decreased in extent to	disturbances under which	scale patterns that would		classification
National Forest,		conditions more representative of native	current forest ecosystems and	result from natural), RNV –
USDA, Forest		vegetation communities (p2-21)	accompanying biodiversity	disturbances and other		range of
Service Eastern		-Re-establish diverse mixes of trees,	evolved, and that also provide	ecological processes (p2-		natural
Region, August		shrubs, herbs, mosses, lichens, and fungi	for sustained yield of	21)		variability
2004		species at site and landscape levels that are	timber/pulpwood products	-Re-establish spatial		(means of
		representative of native vegetation	(p2-21)	patterns that promote:		analyzing
		communities (including an increase of rare	-Manage vegetation as	well-distributed habitats;		landscape
		and sensitive plants and native plant	constantly changing and	restoration of ecosystem		conditions
		communities; white, red, and jack pine;	through naturally occurring	function or processes;		and their
		white cedar; upland tamarack; and in some	disturbances and ecosystem	connectivity between		ability to
		areas, white and black spruce as	recovery processes such as	aquatic, terrestrial and		maintain
		components of native communities) (p2-	wind, fire, flooding, insects,	riparian ecosystems		long-term
		21)	disease, and vegetation	across the landscape (p2-		ecological
		-Re-establish structural diversity in native	succession within acceptable	21)		sustainability
		vegetation communities that have been	range of variability (p2-21)	-Re-establish diversity of), Great
		harvested or undergone disturbance, by	-Re-establish old forest and	size, shape, and		Lakes
		providing small patches of forest (reserve	old-growth forest age classes	distribution of patches of		Ecological
		islands); scattered/ clumped standing,	and vegetative growth stages,	forest (including large		Assessment
		mature and older live trees; dead trees; and	while providing for full array	patches of mature and		(broad-scale
		coarse woody debris (p2-21)	of forest age classes and	older forest that provide		ecosystem
		-Increase acres of red, white and jack pine,	growth stages (p2-21)	interior forest habitat),		condition)
		spruce/fir, and northern hardwood	-Re-establish uneven-aged and	and of temporary forest		

	C W CS, LINKS to other plans		1	ı
	vegetation communities (p2-22)	multi-aged forests with a	openings (including	
	-Decrease acres of aspen vegetation	variety of tree ages and	opening sizes from 1-	
	communities (p2-22)	different vegetation layers	1,000 acres) (p2-22)	
	-Maintain/slightly increase acres of birch	within the same community	-Maintain/restore	
	vegetation communities (p2-22)	while also providing for even-	ecological processes of	
	-Maintain acres of lowland conifer and	aged forests (p2-21)	native vegetation	
	lowland hardwood (p2-22)	-Re-establish the full range of	communities at multiple	
	-Maintain acres of non-forested wetlands	successional stages in non-	scales to provide	
	(p2-22)	forested lands such as bogs,	representation of natural	
	-Increase acres of young and old-growth	fens, grass, shrublands (p2-21)	range of distribution and	
	lowland black spruce and tamarack forest	-Retain adequate	variation within context	
	communities (p2-23)	representation of naturally	of multi-use goals and	
	-Manage to ensure that native and desired	disturbed forest that is not	ecosystem sustainability	
	non-native aquatic and terrestrial wildlife	salvged (p2-23)	(p2-22)	
	habitats and species populations are		(<u>r</u>)	
	present in amounts, quality, distributions			
	and patterns representative of historical			
	conditions (p2-24)			
Records of	-Protect/enhance watersheds and their	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Decision, Revised	components to provide for unique plant	distribution and characteristics	degraded/ decreased	Ecological
Forest Plans,	and animal communities, special habitat	of vegetation representative of	vegetation spatial	Unit
Final	features, habitat linkages, wildlife	environmental conditions that	landscape patterns to	Inventory
Environmental	corridors, aquatic ecosystems and riparian	would have resulted from	conditions that more	(landscape
Impact Statement:	ecosystems (p2-10)	natural cycles, processes and	closely emulate landscape	ecosystem
Superior National	-Increase/maintain the diversity,	disturbances under which	scale patterns that would	classification
Forest, USDA,	productivity, health and resilience of	current forest ecosystems and	result from natural), RNV –
Forest Service	native vegetation communities (p2-22)	accompanying biodiversity	disturbances and other	range of
Eastern Region,	-Minimize undesirable outbreaks of fire,	evolved, and that also provide	ecological processes (p2-	natural
August 2004	insect, and disease (p2-19)	for sustained yield of	22)	variability
August 2004	-Restore vegetation conditions that have	timber/pulpwood products	-Re-establish spatial	(means of
	been degraded or decreased in extent to	(p2-22)	patterns that promote:	analyzing
	conditions more representative of native	-Manage vegetation as	well-distributed habitats;	landscape
	vegetation communities (p2-22)	constantly changing and	restoration of ecosystem	conditions
	-Re-establish diverse mixes of trees,	through naturally occurring	function or processes;	and their
	shrubs, herbs, mosses, lichens, and fungi	disturbances and ecosystem	connectivity between	
	species at site and landscape levels that are	recovery processes such as	aquatic, terrestrial and	ability to maintain
	representative of native vegetation	wind, fire, flooding, insects,	riparian ecosystems	long-term
	communities (including an increase of rare	disease, and vegetation	across the landscape (p2-	ecological
	and sensitive plants and native plant	succession within acceptable	23) De establish diversity of	sustainability
	communities; white, red, and jack pine;	range of variability (p2-22)	-Re-establish diversity of), Great
	yellow birch; white cedar; upland	-Re-establish old forest and	size, shape, and	Lakes
	tamarack; and in some areas, white and	old-growth forest age classes	distribution of patches of	Ecological
	black spruce as components of native	and vegetative growth stages,	forest (including large	Assessment

Appendix C. Mit CWCS, Links to other plans			
communities) (p2-22)	while providing for full array	patches - 300-1000s of	(broad-scale
-Re-establish structural diversity in native	of forest age classes and	acres of mature and older	ecosystem
vegetation communities that have been	growth stages (p2-22)	forest that provide interior	condition)
harvested or undergone disturbance, by	-Re-establish uneven-aged and	forest habitat), and of	
providing small patches of forest (reserve	multi-aged forests with a	temporary forest openings	
islands); scattered/ clumped standing,	variety of tree ages and	(including opening sizes	
mature and older live trees; dead trees; and	different vegetation layers	from 1-1,000 acres) (p2-	
coarse woody debris (p2-22)	within the same community	23)	
-Increase acres of red, white and jack pine,	while also providing for even-	-Maintain/restore	
spruce/fir, and northern hardwood	aged forests (p2-22)	ecological processes of	
vegetation communities (p2-23)	-Re-establish the full range of	native vegetation	
-Decrease acres of aspen communities	successional stages in non-	communities at multiple	
(p2-23)	forested lands such as bogs,	scales to provide	
-Maintain acres of lowland conifer and	fens, grass, shrublands (p2-22)	representation of natural	
lowland hardwood (p2-23)	-Retain adequate	range of distribution and	
-Maintain acres of non-forested wetlands	representation of naturally	variation within context	
(p2-23)	disturbed forest that is not	of multi-use goals and	
-Decrease acres of maintained permanent	salvaged (p2-23)	ecosystem sustainability	
upland openings (p2-23)	-Increase acres of old forest,	(p2-23)	
-Increase component of white pine, red	old-growth forest, and multi-		
pine, paper birch, yellow birch, upland	aged upland forest		
tamarack, white cedar, white spruce and	communities (p2-24)		
black spruce to restore within stands			
diversity of tree species (p2-23)			
-Increase acres of young and old-growth			
lowland black spruce and tamarack forests			
(p2-24)			
-Manage to ensure that native and desired			
non-native aquatic and terrestrial wildlife			
habitats and species populations are			
present in amounts, quality, distributions			
and patterns representative of historical			
conditions (p2-27)			

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
The Mille Lacs		-Maintain and/or enhance forest types	-Increase diversity in forest age	-Consider designation of	-Recommended	RNV,
Uplands, Glacial		currently significantly less common (birch,	and structure, improve age class	priority open landscape	locations of ERFs:	LTA
Lake Superior Plain,		white pine, tamarack) (p5)	distribution of all forest types	complexes (p6)	adjacent to designated	(designati
and St. Croix		-Increase management of forest types	(p21)	-Manage specific areas to	old-growth forest; in	on of ERF
Moraines Subsection		currently suffering from inadequate	-Manage as older forest at least	maintain open landscapes	riparian areas; in areas	based on
Forest Resource		regeneration (white cedar, white pine, red	10% of Divisions of Forestry and	needed to maintain	where large forest	historical
Management Plan		oak, white birch) (p6)	Wildlife lands (p23)	populations of species of	patches desired for	disturbanc
-		-Increase native plant community types that	-Locate ERF areas where they will	management concern	wildlife habitat; in areas	e regime,
		were historically more common (p29)	provide the desired timber quality	(p32)	that can provide high	RNV, and
		-Monitor representative wildlife	and old forest attributes (p24)	-Maintain/enhance	quality timber resource	DNR field
		management species and protect habitat for	-Maximize benefits derived from	forested connections	(p6)	staff recs-
		game and nongame species (p36).	efforts to regenerate forests after	between existing large	-Concentrate ERF in	p 26)
		-Protect areas of unusual ecological	harvest (p29)	blocks of forested land	areas that historically	•
		significance or high biodiversity for	-Ensure presence of oldest age	and riparian areas (p39)	supported oldest forests	
		conservation of rare species (p36)	classes on landscape in adequate	-Maintain large,	and highest proportion	
		-The following are acreage goals for the	amounts (p21)	contiguous patches of	of older forests (p23)	
		following cover types by 2051: (p38)	-Emphasize early successional	forest in designated areas	-	
		-Maintain existing levels of ash and	species (aspen, jack pine, birch) in	(p40)		
		lowland hardwoods, northern hardwoods,	ERF areas in addition to later	-Work with partners to		
		red pine, jack pine, white spruce, balsam	successional species (p23)	minimize road		
		fir, upland black spruce, and red cedar	-Increase harvest of old-age aspen	construction (p40)		
		-Reduce aspen/balm of gilead by 5%	(p8), and encourage natural	-ERFs (extended rotation		
		-Increase birch by 50%	succession to mixed hardwoods on	forests) managed to		
		-Increase oak (red oak, bur oak, white oak)	appropriate sites (p32)	provide suite of "old-		
		and central hardwoods by 2%	-Improve age-class structure of	forest" characteristics on		
		-Increase white pine by 100% as a	white cedar and birch (p30)	landscape in context of		
		component in other forest types	-Manage oak stands as even-aged	working, productive		
		-Decrease scots pine and norway spruce by	or two-aged systems (p34)	forests (p6)		
		100%	-Manage northern hardwood stands			
		-Maintain white cedar with regeneration	to be average 60-80 years of age			
		(p30)	with representatives of all age			
		-Convert mistletoe infected lowland black	classes (p34)			
		spruce stands to tamarack	-By 2122, northern hardwood acres			
		-Protect healthy butternut specimens on	equally divided among basal area			
		state and private lands (p32)	classes 80-100, 101-120, and 121-			
			140 for perpetuity (p34)			

		S, LINKS to other plans				1
MN Forest Resources		-Protecting and enhancing biological and	- To achieve an adequate	-Protect large intact		
Council: Forest		structural diversity (p16)	distribution of age classes across	forest areas that are		
Resource		-Generate guidelines to ensure the	the landscape (p14)	threatened from		
Management in East		production of oak stands through more	-Increase age class diversity of	conversion to non-forest		
Central Minnesota, A		intensive improvement cuts, harvest and	forest types by harvesting and	uses. (pp7-8)		
Landscape		regeneration practices	regeneration some acres of birch,	- To benefit the wildlife,		
Perspective, June		-To manage northern hardwood and other	jack pine, and oak cover.	fish and biodiversity of		
2004		cover types for purpose of forest health and	-Conversion of some aspen, birch,	the area through		
http://www.frc.state.		habitat (p14)	and jack pine to communities of	protection of larger		
mn.us/Info/MFRCdo		-Put land in wildlife preservation programs	long-lived types (p14)	blocks of forest, i.e.		
cs/East_Central_Lan		to protect endangered or threatened species	-Perform passive management i.e.	prevent fragmentation.		
dscape Perspectives		-Balance the forest diversity by maintaining	fire suppression and natural	(p12)		
Report.pdf		forest composition that was present	selection in open woods, open	- To move forests to a		
		historically	conifer areas and regions with	more ideal patch size		
		-To restore areas to native prairie and	northern hardwoods (p14)	distribution (p14)		
		wetlands	· · ·	Uneven-aged		
		-Improve habitat through vegetation		management standards.		
		management (p12)		Patch size distribution:		
		- Increase protection of water quality		640+ acres: 10% of		
		through vegetated cover and riparian		landscape		
		buffers (p10)		250 – 639 acres: 15%		
				100-249 acres: 40%		
				40-99 acres: 25%		
				<40 acres: 10%		
The Superior Mixed	Appen				Priority conservation	
Forest Ecoregion: A	dix G				areas:	
Conservation Plan,					Terrestrial – Kettle	
The Nature					River; Fond du Lac;	
Conservancy,					Rum River Headwaters;	
November 2002					Snake River	
					Headwaters; St. Croix	
					Moraine; Lower St.	
					Croix; Nemadji	
					Peatlands; Fish	
					Lake/Crex Meadows	
					Aquatic – Yellow	
					River; Lower St. Croix;	
					Middle St. Croix;	
					Upper Tamarack;	
					Lower Tamarack;	
					Upper Kettle River;	
	1		1			
					Sand River; Upper	

		5, Elliks to other plans		τ	
				Lakes	
The Prairie-Forest	Table			Priority conservation	
Border Ecoregion: A	5;			areas:	
Conservation Plan,	Appen			Terrestrial – Sherburne	
The Nature	dix E			Refuge-Sand Dunes SF	
Conservancy				Aquatic – Rum River;	
				Upper Mississippi	
				River	
				Aquatic/Terrestrial –	
				Lower St. Croix River;	
				Upper Mississippi	
				River	
	M O				
Great Lakes	Map 9			Priority conservation	
Ecoregional Plan: A				areas:	
First Iteration, The				Terrestrial - Kettle	
Nature Conservancy,				Lake (Corona); St.	
December 1999				Louis River Estuary	
Aquatic Ecoregional	Appen			Priority conservation	
Planning in the U.S.	dix 7			areas:	
Portion of the Great				Aquatic – St. Louis	
Lakes Watershed,				River Estuary	
The Nature				River Estuary	
Conservancy					
				Drignita, agregamentian	
The Nature				Priority conservation	
Conservancy (UMR-				areas:	
specific)				Aquatic – Birch Creek;	
				Bogus Creek; Chase	
				Brook; Grindstone	
				River; Kettle River;	
				Knife River; Mike	
				Drew Brook;	
				Mississippi River;	
				Moose River; Mud	
				Creek; Namekagon	
				River; Pine River; Run	
				River; West Branch	
				Rum River; Sauk River;	
				Snake River; St. Croix	
				River; Sunrise River;	
				Tibbetts Brook; Upper	
				Tamarack River;	
				Vondell Brook; Willow	
				River	

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
Ecoregional					Priority conservation areas:	
Planning in the					Terrestrial – Upper Minnesota River	
Northern					Valley; Lake Traverse; Thielke Lake;	
Tallgrass Prairie,					Swan Lake; Minnesota Lake	
The Nature						
Conservancy,						
May 1998						
The Prairie-	Table 5;				Priority conservation areas:	
Forest Border	Appendix				Aquatic – Minnesota River; Long	
Ecoregion: A	E				Prairie River; Otter Tail; North Fork	
Conservation					Crow River; Glacial Lakes	
Plan, The Nature					Aquatic/Terrestrial – Glacial Lakes	
Conservancy					1	
The Northern	Appendix				Priority conservation areas:	
Tallgrass Prairie	4				Aquatic – Chippewa/Pomme de	
Ecoregion: A					Terre Rivers; Minnesota River-	
River and Stream					Southern Drainages; Rush	
Conservation					River/High Island Creek; Minnesota	
Portfolio, The					River Mainstem; Des Moines River;	
Nature					Mustinka/Bois de Sioux Rivers; Otter	
Conservancy					Tail/Pelican Rivers	
The Nature					Priority conservation areas:	
Conservancy					Aquatic – Blue Earth River;	
(UMR-specific)					Butterfield Creek; Chippewa River;	
					Clear Creek; Cottonwood River;	
					North Fork Crow River; South Fork	
					Crow River; Des Moines River; Dry	
					Weather Creek; Getchell Creek; High	
					Island Creek; Le Sueur River; Lower	
					Minnesota; Minnesota River; Mud	
					Creek; Perch Creek; Pomme de Terre	
					River; Ramsey Creek; Redwood	
					River; Rush River; Rush River,	
					Middle Brook; Rush River, South	
					Brook; Sauk River; Spring Creek;	
					Three-Mile Creek; Watonwan River;	

	North Fork Watonwan River; South
	Fork Watonwan River; North Fork
	Yellow Bank River; South Fork
	Yellow Bank River; Yellow
	Medicine River; North Branch
	Yellow Medicine River

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
Records of		-Protect/enhance watersheds and their	-Increase/maintain amounts,	-Restore diversity of		Terrestrial
Decision,		components to provide for unique plant	distribution and characteristics	degraded/ decreased		Ecological
Revised Forest		and animal communities, special habitat	of vegetation representative of	vegetation spatial		Unit
Plans, Final		features, habitat linkages, wildlife	environmental conditions that	landscape patterns to		Inventory
Environmental		corridors, aquatic ecosystems and riparian	would have resulted from	conditions that more		(landscape
Impact		ecosystems (p2-10)	natural cycles, processes and	closely emulate		ecosystem
Statement:		-Increase/maintain the diversity,	disturbances under which	landscape scale		classificatio
Superior		productivity, health and resilience of	current forest ecosystems and	patterns that would		n), RNV –
National Forest,		native vegetation communities (p2-22)	accompanying biodiversity	result from natural		range of
USDA, Forest		-Minimize undesirable outbreaks of fire,	evolved, and that also provide	disturbances and		natural
Service Eastern		insect, and disease (p2-19)	for sustained yield of	other ecological		variability
Region, August		-Restore vegetation conditions that have	timber/pulpwood products	processes (p2-22)		(means of
2004		been degraded or decreased in extent to	(p2-22)	-Re-establish spatial		analyzing
		conditions more representative of native	-Manage vegetation as	patterns that promote:		landscape
		vegetation communities (p2-22)	constantly changing and	well-distributed		conditions
		-Re-establish diverse mixes of trees,	through naturally occurring	habitats; restoration		and their
		shrubs, herbs, mosses, lichens, and fungi	disturbances and ecosystem	of ecosystem		ability to
		species at site and landscape levels that	recovery processes such as	function or processes;		maintain
		are representative of native vegetation	wind, fire, flooding, insects,	connectivity between		long-term
		communities (including an increase of	disease, and vegetation	aquatic, terrestrial		ecological
		rare and sensitive plants and native plant	succession within acceptable	and riparian		sustainabilit
		communities; white, red, and jack pine;	range of variability (p2-22)	ecosystems across the		y), Great
		yellow birch; white cedar; upland	-Re-establish old forest and	landscape (p2-23)		Lakes
		tamarack; and in some areas, white and	old-growth forest age classes	-Re-establish		Ecological
		black spruce as components of native	and vegetative growth stages,	diversity of size,		Assessment
		communities) (p2-22)	while providing for full array	shape, and		(broad-scale
		-Re-establish structural diversity in native	of forest age classes and	distribution of		ecosystem
		vegetation communities that have been	growth stages (p2-22)	patches of forest		condition)
		harvested or undergone disturbance, by	-Re-establish uneven-aged and	(including large		
		providing small patches of forest (reserve	multi-aged forests with a	patches - 300-1000s		
		islands); scattered/ clumped standing,	variety of tree ages and	of acres of mature		
		mature and older live trees; dead trees;	different vegetation layers	and older forest that		
		and coarse woody debris (p2-22)	within the same community	provide interior forest		
		-Increase acres of red, white and jack	while also providing for even-	habitat), and of		
		pine, spruce/fir, and northern hardwood	aged forests (p2-22)	temporary forest		
		vegetation communities (p2-23)	-Re-establish the full range of	openings (including		

		WCS, Links to other plans	1	1	1	1
		-Decrease acres of aspen communities	successional stages in non-	opening sizes from 1-		
		(p2-23)	forested lands such as bogs,	1,000 acres) (p2-23)		
		-Maintain acres of lowland conifer and	fens, grass, shrublands (p2-22)	-Maintain/restore		
		lowland hardwood (p2-23)	-Retain adequate	ecological processes		
		-Maintain acres of non-forested wetlands	representation of naturally	of native vegetation		
		(p2-23)	disturbed forest that is not	communities at		
		-Decrease acres of maintained permanent	salvaged (p2-23)	multiple scales to		
		upland openings (p2-23)	-Increase acres of old forest,	provide		
		-Increase component of white pine, red	old-growth forest, and multi-	representation of		
		pine, paper birch, yellow birch, upland	aged upland forest	natural range of		
		tamarack, white cedar, white spruce and	communities (p2-24)	distribution and		
		black spruce to restore within stands		variation within		
		diversity of tree species (p2-23)		context of multi-use		
		-Increase acres of young and old-growth		goals and ecosystem		
		lowland black spruce and tamarack		sustainability (p2-23)		
		forests (p2-24)				
		-Manage to ensure that native and desired				
		non-native aquatic and terrestrial wildlife				
		habitats and species populations are				
		present in amounts, quality, distributions				
		and patterns representative of historical				
		conditions (p2-27)				
The Superior	Appe				Priority conservation areas:	
Mixed Forest	ndix				Terrestrial – Little Fork; Seven	
Ecoregion: A	G				Beaver/Sand Lake; Border Lakes	
Conservation					Aquatic – Swan River; Prairie River	
Plan, The Nature					Headwaters; Little Fork River	
Conservancy,						
November 2002						
The Nature					Priority conservation areas:	
Conservancy					Aquatic – Swan River; Prairie River	
(UMR-specific)						

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
North Shore Highlands, Toimi Uplands, and Laurentian Uplands Subsection Forest Resource Management Plan (SFRMP), MDNR, Dec. 2004 - Draft		 -Move forest cover type composition closer to the range of cover type that historically occurred (p3.10) -Manage state lands within MCBS biodiversity significance factors (p3.27) -Protect, maintain or enhance rare native plant communities, rare plants and animals and their habitats (pp3.36-3.38) -Maintain or increase species, age and structural diversity within stands of white pine, lowland hardwoods, ash, northern hardwoods, and some stands of cedar, red pine and white spruce (p3.44) -Increase or maintain by reserving from harvest white pine, white spruce, upland cedar, oak, yellow birch and upland tamarack as a component within appropriate cover types (p3.45) -Manage some stands to reflect the composition, structure and function of NPCs (p3.46) -Manage forests to adequately protect wetlands and seasonal ponds (p3.57) -Increase by 2064 conifer cover type acreage in upland areas for red pine (~3200 acres), white pine (~8400 acres), jack pine (~2800 acres), black spruce (~700 acres) white spruce (~3600 acres), and white cedar (~2000 acres) (pp3.11-3.14) -Minor increase by 2064 of oak (~300 acres) and northern hardwood (~700 acres) cover type (pp3.11-3.14) 	-Distribute old forest across the landscape (p3.4) -Manage even-aged managed cover types to move toward a balanced age-class structure (p3.39) -Manage ERF stands in even- aged managed cover types to achieve a declining age-class structure from normal rotation age to maximum rotation age (p3.40) -Include a representation of each of the growth stages that historically occurred in the ecosystems (p3.41) -Distribute young, early successional forest across the landscape over time (p3.43) -Determine appropriate forest management needed to address impacts of disturbance on the landscape (p3.84)	-Maintain existing large patches and increase average patch size on state lands over time with consideration of natural spatial patterns (p3.19): patches identified by subsection and name (pp3.21-3.24) -Manage habitat fragmentation to minimize impacts on species (p3.26) -Ensure presence of adequate habitat and habitat components, simultaneously at multiple scales, to provide for game and nongame species across the landscape (pp3.47- 3.54)	-Incorporate MCBS sites with Outstanding or High ranking or with a preliminary survey priority of High for SFRMP planning over the 10-yr planning period (p3.30)	Range of natural variation analysis primary tool for identifying potential composition change goals (Appendix G: Process Used to Determine Forest Composition Goals)

	CVVCS, Links to other plans			1
	-Decrease by 2064 aspen (~14,800 acres),			
	birch (~5900 acres), balsam fir (~1200 acres)			
	cover types (pp3.11-3.14)			
Records of	-Protect/enhance watersheds and their	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Decision, Revised	components to provide for unique plant and	distribution and characteristics	degraded/ decreased	Ecological
Forest Plans, Final	animal communities, special habitat features,	of vegetation representative of	vegetation spatial	Unit Inventory
Environmental	habitat linkages, wildlife corridors, aquatic	environmental conditions that	landscape patterns to	(landscape
Impact Statement:	ecosystems and riparian ecosystems (p2-10)	would have resulted from natural	conditions that more	ecosystem
Superior National	-Increase/maintain the diversity, productivity,	cycles, processes and	closely emulate	classification),
Forest, USDA,	health and resilience of native vegetation	disturbances under which current	landscape scale patterns	RNV – range
Forest Service	communities (p2-22)	forest ecosystems and	that would result from	of natural
Eastern Region,	-Minimize undesirable outbreaks of fire,	accompanying biodiversity	natural disturbances and	variability
August 2004	insect, and disease (p2-19)	evolved, and that also provide	other ecological	(means of
	-Restore vegetation conditions that have been	for sustained yield of	processes (p2-22)	analyzing
	degraded or decreased in extent to conditions	timber/pulpwood products (p2-	-Re-establish spatial	landscape
	more representative of native vegetation	22)	patterns that promote:	conditions and
	communities (p2-22)	-Manage vegetation as	well-distributed	their ability to
	-Re-establish diverse mixes of trees, shrubs,	constantly changing and through	habitats; restoration of	maintain long-
	herbs, mosses, lichens, and fungi species at	naturally occurring disturbances	ecosystem function or	term
	site and landscape levels that are	and ecosystem recovery	processes; connectivity	ecological
	representative of native vegetation	processes such as wind, fire,	between aquatic,	sustainability),
	communities (including an increase of rare	flooding, insects, disease, and	terrestrial and riparian	Great Lakes
	and sensitive plants and native plant	vegetation succession within	ecosystems across the	Ecological
	communities; white, red, and jack pine;	acceptable range of variability	landscape (p2-23)	Assessment
	yellow birch; white cedar; upland tamarack;	(p2-22)	-Re-establish diversity	(broad-scale
	and in some areas, white and black spruce as	-Re-establish old forest and old-	of size, shape, and	ecosystem
	components of native communities) (p2-22)	growth forest age classes and	distribution of patches	condition)
	-Re-establish structural diversity in native	vegetative growth stages, while	of forest (including	
	vegetation communities that have been	providing for full array of forest	large patches – 300-	
	harvested or undergone disturbance, by	age classes and growth stages	1000s of acres of	
	providing small patches of forest (reserve	(p2-22)	mature and older forest	
	islands); scattered/ clumped standing, mature	-Re-establish uneven-aged and	that provide interior	
	and older live trees; dead trees; and coarse	multi-aged forests with a variety	forest habitat), and of	
	woody debris (p2-22)	of tree ages and different	temporary forest	
	-Increase acres of red, white and jack pine,	vegetation layers within the	openings (including	
	spruce/fir, and northern hardwood vegetation	same community while also	opening sizes from 1-	
	communities (p2-23)	providing for even-aged forests	1,000 acres) (p2-23)	
	-Decrease acres of aspen communities (p2-23)	(p2-22)	-Maintain/restore	
	-Maintain acres of lowland conifer and	-Re-establish the full range of	ecological processes of	
	lowland hardwood (p2-23)	successional stages in non-	native vegetation	
	-Maintain acres of non-forested wetlands (p2-	forested lands such as bogs, fens,	communities at	
	23)	grass, shrublands (p2-22)	multiple scales to	
	-Decrease acres of maintained permanent	-Retain adequate representation	provide representation	
	2 corouse acres of maintained permanent	result adoquate representation	r.s.ide representation	

		VCS, Links to other plans			
		upland openings (p2-23)	of naturally disturbed forest that	of natural range of	
		-Increase component of white pine, red pine,	is not salvaged (p2-23)	distribution and	
		paper birch, yellow birch, upland tamarack,	-Increase acres of old forest, old-	variation within context	
		white cedar, white spruce and black spruce to	growth forest, and multi-aged	of multi-use goals and	
		restore within stands diversity of tree species	upland forest communities (p2-	ecosystem	
		(p2-23)	24)	sustainability (p2-23)	
		-Increase acres of young and old-growth	, ,		
		lowland black spruce and tamarack forests			
		(p2-24)			
		-Manage to ensure that native and desired			
		non-native aquatic and terrestrial wildlife			
		habitats and species populations are present in			
		amounts, quality, distributions and patterns			
		representative of historical conditions (p2-27)			
The Superior	Appe	(P - ·)			Priority conservation
Mixed Forest	ndix				areas:
Ecoregion: A	G				Terrestrial –
Conservation Plan,	-				Nor'wester; Kettle
The Nature					River; Seven
Conservancy,					Beaver/Sand Lake;
November 2002					Border Lakes; Fond du
1000012002					Lac; Pokegoma Swamp
					Aquatic – Upper Kettle
					River; Island River
Great Lakes	Map				Priority conservation
Ecoregional Plan:	9				areas:
A First Iteration,					Terrestrial – Swamp
The Nature					River; Brule River;
Conservancy,					Mississippi Creek;
December 1999					Sawtooth; Temperance;
Determoer 1999					Manitou; Marble;
					Tettegouche;
					Splitgoose; Boulder
					Lake; Hasty Brook;
					Kettle Lake (Corona);
					St. Louis River Estuary;
					Hawk Ridge; Lester
					Amity; Wolf Ridge; Duluth Township
Aquatic	Anno				
	Appe				Priority conservation
Ecoregional	ndix				areas:
Planning in the	7				Aquatic – Reservation
U.S. Portion of the					River; Knife River and

Great Lakes		Stony Point; Pigeon
Watershed, The		River and Estuary;
Nature		Brule River-Lower; St.
Conservancy		Louis River Estuary;
		Swamp River; Manitou
		River; Cascade River;
		Upper Cloquet River
The Nature		Priority conservation
Conservancy		areas:
(UMR-specific)		Aquatic – Kettle River;
		Moose River; Prairie
		River

Plan	Page	Composition	Succession/dev	Spatial	Sites	Sour
			elopment			ce
MN Forest Resources Council: Forest Resource Management in Southeast Minnesota: A Landscape Perspective, May 2002		 Protect, restore and enhance a variety of wetland habitat (p11) Protect woodlands, bluffs and other natural areas (p8) Conserve biodiversity/conserve native plants and animals (p14) Protect rare species and enhance their habitats (p11) Increase natural communities (p25) Maintain and improve riparian vegetation and management (p12) Increase riparian buffers and vegetative strips (pp7-11) Manage forests for multiple species (p14) Maintain diversity of forest types and age classes (p14) Promote regeneration of forestlands/increase amount of forested area (pp25-26) Promote oak regeneration (p25) Restore and maintain mix of hardwoods, oak savanna, and prairie (p25) Promote white pine along riparian corridors and where it exists as component of other cover types (p26) Decrease susceptibility to pests by increasing diversity of wood lot (p28) 	-Maintain old growth forest (p25) -Minimize conversion of oak to hardwoods (p27)	-Promote development of habitat corridors, prevent fragmentation of habitat (p10) -Promote ecosystem level stewardship planning to protect and enhance regionally significant areas (p12)		
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appe ndix E				Priority conservation areas: Terrestrial – Hegre Prairie; Nerstrand Woods; Upper Cannon River; Dennison Prairies; Beaver Creek; Rock Dell Fen; <i>Pine Bend Bluffs</i> Aquatic – Minnesota River; Straight and Turtle Rivers; Otter Creek; Upper Mississippi River; South Branch Middle Fork Zumbro; <i>Wapsipinicon</i> <i>River</i> Aquatic/Terrestrial – Upper Iowa River; Upper Mississippi River	

The Nature			Priority conservation areas:	
Conservancy			Aquatic – Beaver Creek; Cannon	
(UMR-specific)			River; Cedar River; Dobbin Creek; Le	
			Sueur River; Little Cedar River; Otter	
			Creek; Pool 2; Pool 3; Roberts Creek;	
			Rose Creek; St. Croix River; Turtle	
			Creek; Upper Iowa River;	
			Wapsipinicon River; Woodbury Creek	

Plan	Page	Composition	Succession/developme	Spatial	Sites	Source
			nt	-		
MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.stat e.mn.us/Info/MFR Cdocs/East Centra <u>Landscape_Persp</u> ectives_Report.pdf		 -Protecting and enhancing biological and structural diversity (p16) -Generate guidelines to ensure the production of oak stands through more intensive improvement cuts, harvest and regeneration practices -To manage northern hardwood and other cover types for purpose of forest health and habitat (p14) -Put land in wildlife preservation programs to protect endangered or threatened species -Balance the forest diversity by maintaining forest composition that was present historically -To restore areas to native prairie and wetlands -Improve habitat through vegetation management (p12) Increase protection of water quality through vegetated cover and riparian buffers (p10) 	nt - To achieve an adequate distribution of age classes across the landscape (p14) -Increase age class diversity of forest types by harvesting and regeneration some acres of birch, jack pine, and oak cover. -Conversion of some aspen, birch, and jack pine to communities of long-lived types (p14) -Perform passive management i.e. fire suppression and natural selection in open woods, open conifer areas and regions with northern hardwoods (p14)	-Protect large intact forest areas that are threatened from conversion to non- forest uses. (pp7-8) - To benefit the wildlife, fish and biodiversity of the area through protection of larger blocks of forest, i.e. prevent fragmentation. (p12) - To move forests to a more ideal patch size distribution (p14) Uneven-aged management standards. Patch size distribution: 640+ acres: 10% of landscape 250 – 639 acres: 15% 100-249 acres: 40% 40-99 acres: 25% <40 acres: 10%		
MN Forest Resources Council – Landscape		-Minimize loss of forestland and timberland (p14) -There will be an increased component of	-The forest will have a range of age classes that more closely resemble	-The forest will have a range of patch sizes that more closely resemble		
Program:		red, white and jack pine, cedar, tamarack,	natural patterns and	natural patterns and		
Recommended		spruce and fir (p8)	functions within the	functions within the		
Desired Outcomes,		-The forest will have a range of species	landscape (p8)	landscape (p8)		
Goals and		that more closely resemble natural	-Increase >171 year growth	-Retain contiguous		
Strategies: North		patterns and functions within the	stage for boreal hardwood-	blocks of forest land		
Central Landscape		landscape (p8)	conifer, dry-mesic pine, and	(p15)		
Region, March		-Boreal Hardwood-Confier (p9):	mesic-northern hardwoods	-The amount of		
2003 (Amended		-Restore historic components of white	(pp9-11)	forestland and		

Appendix C. Links to other plans Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife

* *	CvvCS, Links to other plans	I Ol		
January 2004)	pine, upland tamarack and cedar, include	-Increase 81+ year growth	timberland will not	
	spruce/fir	stages for dry-mesic pine-	decrease using FIA	
	-Maintain substantial amount in even-	oak communities (p12) and	definitions. Large	
	aged aspen	dry pine communities	blocks of contiguous	
	-Emphasize mixed stands of spruce,	dominated by red and white	forest land that have	
	balsam fir, aspen, birch, red maple	pine (p13)	minimal inclusion of	
	-Dry-Mesic Pine (p10):	-Increase younger age	conflicting land uses	
	-Increase red and white pine and	classes of jack pine in dry	will be created and/or	
	tamarack, and oak/hardwood composition	pine communities (p13)	retained for natural	
	-Mesic-Northern Hardwoods (p11):		resource and ecological	
	-Maintain better quality aspen stands		benefits (p8)	
	using even-age management		-In large blocks of	
	-Establish or maintain white pine, balsam		contiguous forestland,	
	fir and white spruce as stand components		retain critical natural	
	starting at 21-40 growth stage		shoreline on lakes (p8)	
	-Create a more natural composition of		· · ·	
	plant community starting at 40-80 year			
	growth stage			
	Dry-Mesic Pine-Oak (p12):			
	-Increase jack pine and oak in 1-20 and			
	21-40 year growth stages			
	-Decrease aspen in 41-80 year growth			
	stage and restore red, white and jack pine			
	-Increase red/white pine in 81+ year			
	growth stages			
Records of	-Increase/maintain the diversity,	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Decision, Revised	productivity, health and resilience of	distribution and	degraded/decreased	Ecological
Forest Plans, Final	native vegetation communities (p2-21)	characteristics of vegetation	vegetation spatial	Unit Inventory
Environmental	-Minimize undesirable occurrences of	representative of	landscape patterns to	(landscape
Impact Statement:	non-native invasive species (p2-21)	environmental conditions	conditions that more	ecosystem
Chippewa National	-Restore vegetation conditions that have	that would have resulted	closely emulate	classification),
Forest, USDA,	been degraded or decreased in extent to	from natural cycles,	landscape scale patterns	RNV – range
Forest Service	conditions more representative of native	processes and disturbances	that would result from	of natural
Eastern Region,	vegetation communities (p2-21)	under which current forest	natural disturbances and	variability
August 2004	-Re-establish diverse mixes of trees,	ecosystems and	other ecological	(means of
1 105001 200 1	shrubs, herbs, mosses, lichens, and fungi	accompanying biodiversity	processes (p2-21)	analyzing
	species at site and landscape levels that	evolved, and that also	-Re-establish spatial	landscape
	are representative of native vegetation	provide for sustained yield	patterns that promote:	conditions and
	communities (including an increase of	of timber/pulpwood	well-distributed	their ability to
	rare and sensitive plants and native plant	products (p2-21)	habitats; restoration of	maintain long-
	communities; white, red, and jack pine;	-Manage vegetation as	ecosystem function or	U
			•	term
	white cedar; upland tamarack; and in	constantly changing and	processes; connectivity	ecological
	some areas, white and black spruce as	through naturally occurring	between aquatic,	sustainability),

Appendix C. I		b, Links to other plans				1
		components of native communities) (p2-	disturbances and ecosystem	terrestrial and riparian		Great Lakes
		21)	recovery processes such as	ecosystems across the		Ecological
		-Re-establish structural diversity in native	wind, fire, flooding, insects,	landscape (p2-21)		Assessment
		vegetation communities that have been	disease, and vegetation	-Re-establish diversity		(broad-scale
		harvested or undergone disturbance, by	succession within	of size, shape, and		ecosystem
		providing small patches of forest (reserve	acceptable range of	distribution of patches		condition)
		islands); scattered/ clumped standing,	variability (p2-21)	of forest (including		
		mature and older live trees; dead trees;	-Re-establish old forest and	large patches of mature		
		and coarse woody debris (p2-21)	old-growth forest age	and older forest that		
		-Increase acres of red, white and jack	classes and vegetative	provide interior forest		
		pine, spruce/fir, and northern hardwood	growth stages, while	habitat), and of		
		vegetation communities (p2-22)	providing for full array of	temporary forest		
		-Decrease acres of aspen vegetation	forest age classes and	openings (including		
		communities (p2-22)	growth stages (p2-21)	opening sizes from 1-		
		-Maintain/slightly increase acres of birch	-Re-establish uneven-aged	1,000 acres) (p2-22)		
		vegetation communities (p2-22)	and multi-aged forests with	-Maintain/restore		
		-Maintain acres of lowland conifer and	a variety of tree ages and	ecological processes of		
		lowland hardwood (p2-22)	different vegetation layers	native vegetation		
		-Maintain acres of non-forested wetlands	within the same community	communities at		
		(p2-22)	while also providing for	multiple scales to		
		-Increase acres of young and old-growth	even-aged forests (p2-21)	provide representation		
		lowland black spruce and tamarack forest	-Re-establish the full range	of natural range of		
		communities (p2-23)	of successional stages in	distribution and		
		-Manage to ensure that native and desired	non-forested lands such as	variation within context		
		non-native aquatic and terrestrial wildlife	bogs, fens, grass, shrublands	of multi-use goals and		
		habitats and species populations are	(p2-21)	ecosystem		
		present in amounts, quality, distributions	-Retain adequate	sustainability (p2-22)		
		and patterns representative of historical	representation of naturally			
		conditions (p2-24)	disturbed forest that is not			
		······································	salvaged (p2-23)			
The Prairie-Forest	Table 5;				Priority conservation areas:	
Border Ecoregion:	Appendix				Terrestrial – White Earth	
A Conservation	E				Hardwood Forest	
Plan, The Nature	2				Aquatic – Long Prairie	
Conservancy					River; Otter Tail; Upper	
2 onser valley					Mississippi River	
					Aquatic/Terrestrial – Upper	
					Mississippi River	
The Superior	Appendix				Priority conservation areas:	
Mixed Forest	G				Terrestrial – St. Croix	
Ecoregion: A					Moraine; Mississippi	
Conservation Plan,					Headwaters; Leech Lake	
The Nature					Watershed; Leaf River Oak	

Conservancy, November 2002			Woodlands; Park Rapids Sand Plain; Wing River/Wadena Oak Woodlands Aquatic – Mosquito Creek; Schoolcraft River; Upper Mississippi River; Boy River; Partridge River; Singobee River; Kabekona River; Brainerd Lakes
The Northern Tallgrass Prairie Ecoregion: A River and Stream Conservation Portfolio, The Nature Conservancy	Appendix 4		Priority conservation areas: Aquatic – Otter Tail/Pelican Rivers; Wild Rice/Buffalo/Marsh Rivers
The Nature Conservancy (UMR-specific)			Priority conservation areas: Aquatic – Elk River; Mississippi River; Schoolcraft River; Steamboat River; Swan Creek

Plan	Page	Composition	Succession/	Spatial	Sites	Source
			development			
The Prairie-Forest Border	Table 5;				Priority conservation areas:	
Ecoregion: A Conservation Plan,	Appendix				Terrestrial – Waubun Prairie Complex; Rollag Hills;	
The Nature Conservancy	Е				Aquatic – Otter Tail	
Ecoregional Planning in the					Priority conservation areas:	
Northern Tallgrass Prairie, The					Terrestrial – Agassiz Dunes; Barnesville; Bluestem Prairie;	
Nature Conservancy, May 1998					Felton Prairie; Waubun Prairies and Fens; Twin Valley Prairies;	
					Rothsay Prairies; Lake Traverse; Hopke's Prairie	
The Northern Tallgrass Prairie	Appendix				Priority conservation areas:	
Ecoregion: A River and Stream	4				Aquatic – Chippewa/ Pomme de Terre Rivers; Mustinka/Bois de	
Conservation Portfolio, The Nature					Sioux Rivers; Otter Tail/Pelican Rivers; Red Lake/ Clearwater	
Conservancy					Rivers; Red River; Wild Rice River; Wild Rice/Buffalo/Marsh	
-					Rivers	
The Nature Conservancy (UMR-					Priority conservation areas:	
specific)					Aquatic – Pomme de Terre River	

A. Analysis Summary B. Other Plans/Efforts in Subsection

Plan	Pa ge	Composition	Succession/deve lopment	Spatial	Sites	So ur ce
Blufflands/ Rochester Plateau Subsection Forest Resource Management Plan		 -Maintain native plant communities identified with the highest biodiversity significance (~12,700 acres) (p8) -Identify varying management objectives for areas of other biodiversity significance (~34,900 acres) to promote wildlife habitat, regenerate forest cover types and perpetuate NPCs and rare species (p8) -Minimize loss of existing oak acreage (~35,400 acres) (p9) -Limit/delay harvesting of lowland hardwoods (~9200 acres) where reed canary grass is present in understory (p9) -Increase in age and size northern hardwood cover type (p9) -Retain commercially viable species (hickory, oak, black cherry) in central hardwoods cover type (p9) -Maintain/enhance existing acreage (~1300 acres) of black walnut (p9) -Increase/maintain existing acreage (~1500 acres) of aspen for wildlife and nongame species (p9) -Maintain/enhance quality of oak savanna communities (p10) -Maintain existing acreage amount of ash, willow, aspen, cottonwood, walnut, jack pine, and tamarack cover types (pC-1) -Reduce acreage of non-natives present in subsection (norway pine, white spruce, and upland larch) (pC-1) 	-Maintain static amount of acreage and spatial distribution of old- growth (~1200 acres) and extended rotation forest (~5900 acres) (p8) -Minimize conversion of oak to northern hardwoods through concentrated harvest of certain age classes in oak cover type (p9) -Perpetuate northern hardwoods through uneven-age management (p9) -Minimize impact of red cedar invasion on bluff prairies, but not to the exclusion of the species (p10)	-Identify treatment options to perpetuate acres of NPCs with concentratio ns of forest interior species and threatened, endangered and special concern species (p8)		
MN Forest Resources Council: Forest Resource Management in Southeast Minnesota: A Landscape		 -Protect, restore and enhance a variety of wetland habitat (p11) -Protect woodlands, bluffs and other natural areas (p8) -Conserve biodiversity/conserve native plants and animals (p14) -Protect rare species and enhance their habitats (p11) -Increase natural communities (p25) -Maintain and improve riparian vegetation and management (p12) 	-Maintain old growth forest (p25) -Minimize conversion of oak to hardwoods (p27)	-Promote development of habitat corridors, prevent fragmentatio n of habitat		

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Plan	Page	Composition	Succession/development	Spatial	Sites	Source
MN Forest		-Minimize loss of forestland and	-The forest will have a range of	-The forest will have		
Resources Council		timberland (p14)	age classes that more closely	a range of patch sizes		
 Landscape 		-There will be an increased component	resemble natural patterns and	that more closely		
Program:		of red, white and jack pine, cedar,	functions within the landscape (p8)	resemble natural		
Recommended		tamarack, spruce and fir (p8)	-Increase >171 year growth stage	patterns and		
Desired Outcomes,		-The forest will have a range of species	for boreal hardwood-conifer, dry-	functions within the		
Goals and		that more closely resemble natural	mesic pine, and mesic-northern	landscape (p8)		
Strategies: North		patterns and functions within the	hardwoods (pp9-11)	-Retain contiguous		
Central Landscape		landscape (p8)	-Increase 81+ year growth stages	blocks of forest land		
Region, March		-Boreal Hardwood-Confier (p9):	for dry-mesic pine-oak	(p15)		
2003 (Amended		-Restore historic components of white	communities (p12) and dry pine	-The amount of		
January 2004)		pine, upland tamarack and cedar,	communities dominated by red and	forestland and		
•		include spruce/fir	white pine (p13)	timberland will not		
		-Maintain substantial amount in even-	-Increase younger age classes of	decrease using FIA		
		aged aspen	jack pine in dry pine communities	definitions. Large		
		-Emphasize mixed stands of spruce,	(p13)	blocks of contiguous		
		balsam fir, aspen, birch, red maple		forest land that have		
		-Dry-Mesic Pine (p10):		minimal inclusion of		
		-Increase red and white pine and		conflicting land uses		
		tamarack, and oak/hardwood		will be created and/or		
		composition		retained for natural		
		-Mesic-Northern Hardwoods (p11):		resource and		
		-Maintain better quality aspen stands		ecological benefits		
		using even-age management		(p8)		
		-Establish or maintain white pine,		-In large blocks of		
		balsam fir and white spruce as stand		contiguous		
		components starting at 21-40 growth		forestland, retain		
		stage		critical natural		
		-Create a more natural composition of		shoreline on lakes		
		plant community starting at 40-80 year		(p8)		
		growth stage		· · ·		
		Dry-Mesic Pine-Oak (p12):				
		-Increase jack pine and oak in 1-20 and				
		21-40 year growth stages				
		-Decrease aspen in 41-80 year growth				
		stage and restore red, white and jack				

	pine			
	-Increase red/white pine in 81+ year			
	growth stages	· · · ·		
Records of	-Increase/maintain the diversity,	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Decision, Revised	productivity, health and resilience of	distribution and characteristics of	degraded/decreased	Ecological
Forest Plans, Final	native vegetation communities (p2-21)	vegetation representative of	vegetation spatial	Unit
Environmental	-Minimize undesirable occurrences of	environmental conditions that	landscape patterns to	Inventory
Impact Statement:	non-native invasive species (p2-21)	would have resulted from natural	conditions that more	(landscape
Chippewa National	-Restore vegetation conditions that	cycles, processes and disturbances	closely emulate	ecosystem
Forest, USDA,	have been degraded or decreased in	under which current forest	landscape scale	classificatio
Forest Service	extent to conditions more	ecosystems and accompanying	patterns that would	n), RNV –
Eastern Region,	representative of native vegetation	biodiversity evolved, and that also	result from natural	range of
August 2004	communities (p2-21)	provide for sustained yield of	disturbances and	natural
_	-Re-establish diverse mixes of trees,	timber/pulpwood products (p2-21)	other ecological	variability
	shrubs, herbs, mosses, lichens, and	-Manage vegetation as constantly	processes (p2-21)	(means of
	fungi species at site and landscape	changing and through naturally	-Re-establish spatial	analyzing
	levels that are representative of native	occurring disturbances and	patterns that promote:	landscape
	vegetation communities (including an	ecosystem recovery processes such	well-distributed	conditions
	increase of rare and sensitive plants and	as wind, fire, flooding, insects,	habitats; restoration	and their
	native plant communities; white, red,	disease, and vegetation succession	of ecosystem	ability to
	and jack pine; white cedar; upland	within acceptable range of	function or processes;	maintain
	tamarack; and in some areas, white and	variability (p2-21)	connectivity between	long-term
	black spruce as components of native	-Re-establish old forest and old-	aquatic, terrestrial	ecological
	communities) (p2-21)	growth forest age classes and	and riparian	sustainabilit
	-Re-establish structural diversity in	vegetative growth stages, while	ecosystems across the	y), Great
	native vegetation communities that	providing for full array of forest	landscape (p2-21)	Lakes
	have been harvested or undergone	age classes and growth stages (p2-	-Re-establish	Ecological
	disturbance, by providing small patches	21)	diversity of size,	Assessment
	of forest (reserve islands); scattered/	-Re-establish uneven-aged and	shape, and	(broad-scale
	clumped standing, mature and older	multi-aged forests with a variety of	distribution of	ecosystem
	live trees; dead trees; and coarse woody	tree ages and different vegetation	patches of forest	condition)
	debris (p2-21)	layers within the same community	(including large	condition)
	-Increase acres of red, white and jack	while also providing for even-aged	patches of mature and	
	pine, spruce/fir, and northern hardwood	forests (p2-21)	older forest that	
	vegetation communities (p2-22)	-Re-establish the full range of	provide interior forest	
	-Decrease acres of aspen vegetation	successional stages in non-forested	habitat), and of	
	communities (p2-22)	lands such as bogs, fens, grass,	temporary forest	
	-Maintain/slightly increase acres of	shrublands (p2-21)	openings (including	
	birch vegetation communities (p2-22)	-Retain adequate representation of	opening sizes from 1-	
	-Maintain acres of lowland conifer and	naturally disturbed forest that is	1,000 acres) (p2-22)	
	lowland hardwood (p2-22)	not salvged (p2-23)	-Maintain/restore	
		not salvgeu (p2-23)		
	-Maintain acres of non-forested		ecological processes	
	wetlands (p2-22)		of native vegetation	

FF:		VCS, LINKS to other plans	1		
		-Increase acres of young and old-		communities at	
		growth lowland black spruce and		multiple scales to	
		tamarack forest communities (p2-23)		provide	
		-Manage to ensure that native and		representation of	
		desired non-native aquatic and		natural range of	
		terrestrial wildlife habitats and species		distribution and	
		populations are present in amounts,		variation within	
		quality, distributions and patterns		context of multi-use	
		representative of historical conditions		goals and ecosystem	
		(p2-24)		sustainability (p2-22)	
The Prairie-Forest	Table				Priority conservation areas:
Border Ecoregion:	5;				Aquatic – Upper Mississippi
A Conservation	Appe				River
Plan, The Nature	ndix				Aquatic/Terrestrial – Upper
Conservancy	E				Mississippi River
The Superior	Appe				Priority conservation areas:
Mixed Forest	ndix				Terrestrial – Leech Lake
Ecoregion: A	G				Watershed; Sugar Hills; Rum
Conservation Plan,	0				River Headwaters; Little Fork;
The Nature					Kettle River; Floodwood River
Conservancy,					Aquatic – Upper Mississippi
November 2002					River; Boy River; Swan River;
					Upper Kettle River; Willow
					River; Prairie River Headwaters;
					Little Fork River; Brainerd
					Lakes
Creat Labor	Man				
Great Lakes	Map				Priority conservation areas:
Ecoregional Plan:	9				Terrestrial – Hasty Brook; Kettle
A First Iteration,					Lake (Corona)
The Nature					
Conservancy,					
December 1999					
The Nature					Priority conservation areas:
Conservancy					Aquatic – Hanson Creek; Kettle
(UMR-specific)					River; Mississippi River; Moose
					River; Prairie River; Rum River;
					Steamboat River; Swan River;
					Willow River

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
MN Forest		-Protecting and enhancing	- To achieve an adequate	-Protect large intact		
Resources Council:		biological and structural diversity	distribution of age classes across	forest areas that are		
Forest Resource		(p16)	the landscape (p14)	threatened from		
Management in		-Generate guidelines to ensure the	-Increase age class diversity of	conversion to non-		
East Central		production of oak stands through	forest types by harvesting and	forest uses. (pp7-8)		
Minnesota, A		more intensive improvement cuts,	regeneration some acres of birch,	- To benefit the		
Landscape		harvest and regeneration practices	jack pine, and oak cover.	wildlife, fish and		
Perspective, June		-To manage northern hardwood	-Conversion of some aspen, birch,	biodiversity of the		
2004		and other cover types for purpose	and jack pine to communities of	area through		
http://www.frc.stat		of forest health and habitat (p14)	long-lived types (p14)	protection of larger		
e.mn.us/Info/MFR		-Put land in wildlife preservation	-Perform passive management i.e.	blocks of forest, i.e.		
Cdocs/East Centra		programs to protect endangered or	fire suppression and natural	prevent		
1_Landscape_Persp		threatened species	selection in open woods, open	fragmentation. (p12)		
ectives_Report.pdf		-Balance the forest diversity by	conifer areas and regions with	- To move forests to a		
		maintaining forest composition	northern hardwoods (p14)	more ideal patch size		
		that was present historically	``	distribution (p14)		
		-To restore areas to native prairie		Uneven-aged		
		and wetlands		management		
		-Improve habitat through		standards.		
		vegetation management (p12)		Patch size		
		- Increase protection of water		distribution:		
		quality through vegetated cover		640+ acres: 10% of		
		and riparian buffers (p10)		landscape		
				250 – 639 acres: 15%		
				100-249 acres: 40%		
				40-99 acres: 25%		
				<40 acres: 10%		
The Prairie-Forest	Table 5;				Priority conservation areas:	
Border Ecoregion:	Appendix				Terrestrial – Corrie's Swamp;	
A Conservation	E				Pig's Eye SNA; Pine Bend Bluffs	
Plan, The Nature					Aquatic – Minnesota River;	
Conservancy					Upper Mississippi River	
-					Aquatic/Terrestrial – Lower St.	
					Croix; Upper Mississippi River;	
					Kinnickinnic River	
The Superior	Appendix				Priority conservation areas:	

Mixed Forest	G		Terrestrial – Lower St. Croix;
Ecoregion: A			Star Prairie
Conservation Plan,			Aquatic – Lower St. Croix
The Nature			-
Conservancy,			
November 2002			
The Northern	Appendix		Priority conservation areas:
Tallgrass Prairie	4		Aquatic – Minnesota River
Ecoregion: A River			Mainstem
and Stream			
Conservation			
Portfolio, The			
Nature			
Conservancy			
The Nature			Priority conservation areas:
Conservancy			Aquatic – Coon River;
(UMR-specific)			Hardwood Creek; Lower
			Minnesota; Northern Stretch;
			Pool 1; Pool 2; Pool 3; St. Croix
			River; Sunrise River

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
MN Forest		-Minimize loss of forestland and	-The forest will have a range of	-The forest will have		
Resources Council		timberland (p14)	age classes that more closely	a range of patch sizes		
 Landscape 		-There will be an increased	resemble natural patterns and	that more closely		
Program:		component of red, white and jack	functions within the landscape (p8)	resemble natural		
Recommended		pine, cedar, tamarack, spruce and	-Increase >171 year growth stage	patterns and		
Desired Outcomes,		fir (p8)	for boreal hardwood-conifer, dry-	functions within the		
Goals and		-The forest will have a range of	mesic pine, and mesic-northern	landscape (p8)		
Strategies: North		species that more closely resemble	hardwoods (pp9-11)	-Retain contiguous		
Central Landscape		natural patterns and functions	-Increase 81+ year growth stages	blocks of forest land		
Region, March		within the landscape (p8)	for dry-mesic pine-oak	(p15)		
2003 (Amended		-Boreal Hardwood-Confier (p9):	communities (p12) and dry pine	-The amount of		
January 2004)		-Restore historic components of	communities dominated by red and	forestland and		
•		white pine, upland tamarack and	white pine (p13)	timberland will not		
		cedar, include spruce/fir	-Increase younger age classes of	decrease using FIA		
		-Maintain substantial amount in	jack pine in dry pine communities	definitions. Large		
		even-aged aspen	(p13)	blocks of contiguous		
		-Emphasize mixed stands of		forest land that have		
		spruce, balsam fir, aspen, birch,		minimal inclusion of		
		red maple		conflicting land uses		
		-Dry-Mesic Pine (p10):		will be created and/or		
		-Increase red and white pine and		retained for natural		
		tamarack, and oak/hardwood		resource and		
		composition		ecological benefits		
		-Mesic-Northern Hardwoods		(p8)		
		(p11):		-In large blocks of		
		-Maintain better quality aspen		contiguous		
		stands using even-age management		forestland, retain		
		-Establish or maintain white pine,		critical natural		
		balsam fir and white spruce as		shoreline on lakes		
		stand components starting at 21-40		(p8)		
		growth stage				
		-Create a more natural composition				
		of plant community starting at 40-				
		80 year growth stage				
		Dry-Mesic Pine-Oak (p12):				
		-Increase jack pine and oak in 1-20				

Appendix C. I	, Links to other plans		1	, 1
	and 21-40 year growth stages			
	-Decrease aspen in 41-80 year			
	growth stage and restore red, white			
	and jack pine			
	-Increase red/white pine in 81+			
	year growth stages			
Records of	-Protect/enhance watersheds and	-Increase/maintain amounts,	-Restore diversity of	Terrestrial
Decision, Revised	their components to provide for	distribution and characteristics of	degraded/ decreased	Ecological
Forest Plans, Final	unique plant and animal	vegetation representative of	vegetation spatial	Unit
Environmental	communities, special habitat	environmental conditions that	landscape patterns to	Inventory
Impact Statement:	features, habitat linkages, wildlife	would have resulted from natural	conditions that more	(landscape
Superior National	corridors, aquatic ecosystems and	cycles, processes and disturbances	closely emulate	ecosystem
Forest, USDA,	riparian ecosystems (p2-10)	under which current forest	landscape scale	classificatio
Forest Service	-Increase/maintain the diversity,	ecosystems and accompanying	patterns that would	n), RNV –
Eastern Region,	productivity, health and resilience	biodiversity evolved, and that also	result from natural	range of
August 2004	of native vegetation communities	provide for sustained yield of	disturbances and	natural
8	(p2-22)	timber/pulpwood products (p2-22)	other ecological	variability
	-Minimize undesirable outbreaks	-Manage vegetation as constantly	processes (p2-22)	(means of
	of fire, insect, and disease (p2-19)	changing and through naturally	-Re-establish spatial	analyzing
	-Restore vegetation conditions that	occurring disturbances and	patterns that promote:	landscape
	have been degraded or decreased	ecosystem recovery processes such	well-distributed	conditions
	in extent to conditions more	as wind, fire, flooding, insects,	habitats; restoration	and their
	representative of native vegetation	disease, and vegetation succession	of ecosystem	ability to
	communities (p2-22)	within acceptable range of	function or processes;	maintain
	-Re-establish diverse mixes of	variability (p2-22)	connectivity between	long-term
	trees, shrubs, herbs, mosses,	-Re-establish old forest and old-	aquatic, terrestrial	ecological
	lichens, and fungi species at site	growth forest age classes and	and riparian	sustainabilit
	and landscape levels that are	vegetative growth stages, while	ecosystems across the	y), Great
	representative of native vegetation	providing for full array of forest	landscape (p2-23)	Lakes
	communities (including an	age classes and growth stages (p2-	-Re-establish	Ecological
	increase of rare and sensitive	22)	diversity of size,	Assessment
	plants and native plant	-Re-establish uneven-aged and	shape, and	(broad-scale
	communities; white, red, and jack	multi-aged forests with a variety of	distribution of	ecosystem
	pine; yellow birch; white cedar;	tree ages and different vegetation	patches of forest	condition)
	upland tamarack; and in some	layers within the same community	(including large	condition)
	areas, white and black spruce as	while also providing for even-aged	patches – 300-1000s	
			of acres of mature	
	components of native	forests (p2-22) -Re-establish the full range of	and older forest that	
	communities) (p2-22)	successional stages in non-forested	provide interior forest	
	-Re-establish structural diversity in		1	
	native vegetation communities that	lands such as bogs, fens, grass,	habitat), and of	
	have been harvested or undergone	shrublands (p2-22)	temporary forest	
	disturbance, by providing small	-Retain adequate representation of	openings (including	
	patches of forest (reserve islands);	naturally disturbed forest that is	opening sizes from 1-	

Appendix C.		5, Links to other plans				
		scattered/ clumped standing,	not salvaged (p2-23)	1,000 acres) (p2-23)		
		mature and older live trees; dead	-Increase acres of old forest, old-	-Maintain/restore		
		trees; and coarse woody debris	growth forest, and multi-aged	ecological processes		
		(p2-22)	upland forest communities (p2-24)	of native vegetation		
		-Increase acres of red, white and		communities at		
		jack pine, spruce/fir, and northern		multiple scales to		
		hardwood vegetation communities		provide		
		(p2-23)		representation of		
		-Decrease acres of aspen		natural range of		
		communities (p2-23)		distribution and		
		-Maintain acres of lowland conifer		variation within		
		and lowland hardwood (p2-23)		context of multi-use		
		-Maintain acres of non-forested		goals and ecosystem		
		wetlands (p2-23)		sustainability (p2-23)		
		-Decrease acres of maintained				
		permanent upland openings (p2-				
		23)				
		-Increase component of white pine,				
		red pine, paper birch, yellow birch,				
		upland tamarack, white cedar,				
		white spruce and black spruce to				
		restore within stands diversity of				
		tree species (p2-23)				
		-Increase acres of young and old-				
		growth lowland black spruce and				
		tamarack forests (p2-24)				
		-Manage to ensure that native and				
		desired non-native aquatic and				
		terrestrial wildlife habitats and				
		species populations are present in				
		amounts, quality, distributions and				
		patterns representative of historical				
		conditions (p2-27)				
The Prairie-Forest	Table 5;				Priority conservation areas:	
Border Ecoregion:	Appendix				Aquatic – Upper Mississippi	
A Conservation	E				River	
Plan, The Nature					Aquatic/Terrestrial – Upper	
Conservancy					Mississippi River	
The Superior	Appendix				Priority conservation areas:	
Mixed Forest	G				Terrestrial – Sugar Hills; Seven	
Ecoregion: A					Beaver/Sand Lake; Floodwood	
Conservation Plan,					River; Fond du Lac	
The Nature					Aquatic – Upper Mississippi	

Conservancy,			River; Swan River
November 2002			
Aquatic	Appendix		Priority conservation areas:
Ecoregional	7		Aquatic – Sand Lake Complex
Planning in the			and St. Louis River Headwaters
U.S. Portion of the			
Great Lakes			
Watershed, The			
Nature			
Conservancy			
The Nature			Priority conservation areas:
Conservancy			Aquatic – Kettle River;
(UMR-specific)			Mississippi River; Prairie River;
			Swan River; Willow River

A. Analysis Summary B. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
North Shore		-Move forest cover type composition	-Distribute old forest across	-Maintain existing large	-Incorporate MCBS	Range of
Highlands, Toimi		closer to the range of cover type that	the landscape (p3.4)	patches and increase	sites with Outstanding	natural
Uplands, and		historically occurred (p3.10)	-Manage even-aged managed	average patch size on	or High ranking or with	variation
Laurentian Uplands		-Manage state lands within MCBS	cover types to move toward a	state lands over time with	a preliminary survey	analysis
Subsection Forest		biodiversity sites to minimize loss to	balanced age-class structure	consideration of natural	priority of High for	primary tool
Resource		biodiversity significance factors (p3.27)	(p3.39)	spatial patterns (p3.19):	SFRMP planning over	for identifying
Management Plan		-Protect, maintain or enhance rare native	-Manage ERF stands in even-	patches identified by	the 10-yr planning	potential
(SFRMP), MDNR,		plant communities, rare plants and	aged managed cover types to	subsection and name	period (p3.30)	composition
Dec. 2004 - Draft		animals and their habitats (pp3.36-3.38)	achieve a declining age-class	(pp3.21-3.24)		change goals
		-Maintain or increase species, age and	structure from normal rotation	-Manage habitat		(Appendix G:
		structural diversity within stands of white	age to maximum rotation age	fragmentation to		Process Used
		pine, lowland hardwoods, ash, northern	(p3.40)	minimize impacts on		to Determine
		hardwoods, and some stands of cedar, red	-Include a representation of	species (p3.26)		Forest
		pine and white spruce (p3.44)	each of the growth stages that	-Ensure presence of		Composition
		-Increase or maintain by reserving from	historically occurred in the	adequate habitat and		Goals)
		harvest white pine, white spruce, upland	ecosystems (p3.41)	habitat components,		
		cedar, oak, yellow birch and upland	-Distribute young, early	simultaneously at multiple		
		tamarack as a component within	successional forest across the	scales, to provide for		
		appropriate cover types (p3.45)	landscape over time (p3.43)	game and nongame		
		-Manage some stands to reflect the	-Determine appropriate forest	species across the		
		composition, structure and function of	management needed to	landscape (pp3.47-3.54)		
		NPCs (p3.46)	address impacts of disturbance			
		-Manage riparian areas to provide critical	on the landscape (p3.84)			
		habitat for fish, wildlife and plant species				
		(p3.54)				
		-Manage forests to adequately protect				
		wetlands and seasonal ponds (p3.57)				
		-Increase by 2064 conifer cover type				
		acreage in upland areas for red pine				
		(~3200 acres), white pine (~8400 acres),				
		jack pine (~2800 acres), black spruce				
		(~700 acres) white spruce (~3600 acres),				
		and white cedar (~2000 acres) (pp3.11-				
		3.14)				
		-Minor increase by 2064 of oak (~300				

	CS, LINKS to other plans			1	
	acres) and northern hardwood (~700				
	acres) cover type (pp3.11-3.14)				
	-Decrease by 2064 aspen (~14,800 acres),				
	birch (~5900 acres), balsam fir (~1200				
	acres) cover types (pp3.11-3.14)				
Records of Decision,	-Protect/enhance watersheds and their	-Increase/maintain amounts,	-Restore diversity of		Terrestrial
Revised Forest Plans,	components to provide for unique plant	distribution and characteristics	degraded/ decreased		Ecological
Final Environmental	and animal communities, special habitat	of vegetation representative of	vegetation spatial		Unit Inventory
Impact Statement:	features, habitat linkages, wildlife	environmental conditions that	landscape patterns to		(landscape
Superior National	corridors, aquatic ecosystems and riparian	would have resulted from	conditions that more		ecosystem
Forest, USDA, Forest	ecosystems (p2-10)	natural cycles, processes and	closely emulate landscape		classification),
Service Eastern	-Increase/maintain the diversity,	disturbances under which	scale patterns that would		RNV – range
Region, August 2004	productivity, health and resilience of	current forest ecosystems and	result from natural		of natural
	native vegetation communities (p2-22)	accompanying biodiversity	disturbances and other		variability
	-Minimize undesirable outbreaks of fire,	evolved, and that also provide	ecological processes (p2-		(means of
	insect, and disease (p2-19)	for sustained yield of	22)		analyzing
	-Restore vegetation conditions that have	timber/pulpwood products	-Re-establish spatial		landscape
	been degraded or decreased in extent to	(p2-22)	patterns that promote:		conditions and
	conditions more representative of native	-Manage vegetation as	well-distributed habitats;		their ability to
	vegetation communities (p2-22)	constantly changing and	restoration of ecosystem		maintain long-
	-Re-establish diverse mixes of trees,	through naturally occurring	function or processes;		term
	shrubs, herbs, mosses, lichens, and fungi	disturbances and ecosystem	connectivity between		ecological
	species at site and landscape levels that	recovery processes such as	aquatic, terrestrial and		sustainability),
	are representative of native vegetation	wind, fire, flooding, insects,	riparian ecosystems		Great Lakes
	communities (including an increase of	disease, and vegetation	across the landscape (p2-		Ecological
	rare and sensitive plants and native plant	succession within acceptable	23)		Assessment
	communities; white, red, and jack pine;	range of variability (p2-22)	-Re-establish diversity of		(broad-scale
	yellow birch; white cedar; upland	-Re-establish old forest and	size, shape, and		ecosystem
	tamarack; and in some areas, white and	old-growth forest age classes	distribution of patches of		condition)
	black spruce as components of native	and vegetative growth stages,	forest (including large		,
	communities) (p2-22)	while providing for full array	patches – 300-1000s of		
	-Re-establish structural diversity in native	of forest age classes and	acres of mature and older		
	vegetation communities that have been	growth stages (p2-22)	forest that provide interior		
	harvested or undergone disturbance, by	-Re-establish uneven-aged and	forest habitat), and of		
	providing small patches of forest (reserve	multi-aged forests with a	temporary forest openings		
	islands); scattered/ clumped standing,	variety of tree ages and	(including opening sizes		
	mature and older live trees; dead trees;	different vegetation layers	from 1-1,000 acres) (p2-		
	and coarse woody debris (p2-22)	within the same community	23)		
	-Increase acres of red, white and jack	while also providing for even-	-Maintain/restore		
	pine, spruce/fir, and northern hardwood	aged forests (p2-22)	ecological processes of		
	vegetation communities (p2-23)	-Re-establish the full range of	native vegetation		
	-Decrease acres of aspen communities	successional stages in non-	communities at multiple		
	(p2-23)	forested lands such as bogs,	scales to provide		

Appendix C. M		s, minks to other plans	I			ı
		-Maintain acres of lowland conifer and	fens, grass, shrublands (p2-22)	representation of natural		
		lowland hardwood (p2-23)	-Retain adequate	range of distribution and		
		-Maintain acres of non-forested wetlands	representation of naturally	variation within context		
		(p2-23)	disturbed forest that is not	of multi-use goals and		
		-Decrease acres of maintained permanent	salvaged (p2-23)	ecosystem sustainability		
		upland openings (p2-23)	-Increase acres of old forest,	(p2-23)		
		-Increase component of white pine, red	old-growth forest, and multi-			
		pine, paper birch, yellow birch, upland	aged upland forest			
		tamarack, white cedar, white spruce and	communities (p2-24)			
		black spruce to restore within stands				
		diversity of tree species (p2-23)				
		-Increase acres of young and old-growth				
		lowland black spruce and tamarack				
		forests (p2-24)				
		-Manage to ensure that native and desired				
		non-native aquatic and terrestrial wildlife				
		habitats and species populations are				
		present in amounts, quality, distributions				
		and patterns representative of historical				
	A 1	conditions (p2-27)			D: :	
The Superior Mixed	Append				Priority conservation	
Forest Ecoregion: A	ix G				areas:	
Conservation Plan,					Terrestrial – Seven	
The Nature					Beaver/Sand Lake	
Conservancy,						
November 2002 Great Lakes	Map 9				Drighty concernation	
Ecoregional Plan: A	Map 9				Priority conservation areas:	
First Iteration, The					Terrestrial – Marble;	
Nature Conservancy,					Boulder Lake	
December 1999					Douldel Lake	
Aquatic Ecoregional	Append				Priority conservation	
Planning in the U.S.	ix 7				areas:	
Portion of the Great	1Λ /				Aquatic – Sand Lake	
Lakes Watershed,					Complex and St. Louis	
The Nature					River Headwaters;	
Conservancy					Upper Cloquet River	
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