Appendix C

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

Links to Other Plans (organized alphabetically by subsection)

Agassiz Lowlands

A. Other Plans/Efforts in Subsection

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

Appendix C: MN CWCS, Links to other plans

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 restoration Estimated remaining presettlement wetlands: 33-80% Percent of area as wetlands: 23% Type 1 3.56 Type 2 9.68 Type 3 39.89 Type 4 1.39 Type 5 14.11 Type 6 18.69 Type 7 11.19 Type 8 1.48			
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.state.mn.us/Info/MFRCdocs/East_Central_Landscape_Perspectives_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

Appendix C: MN CWCS, Links to other plans

Border Ecoregion: A Conservation Plan	x E				State Park; St. Cloud Area Outcrop; Sherburne 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 Conservancy, The Superior Mixed Forest Ecoregion: A Conservation Plan, November 2002	pp. 37-39; Appendix G				Priority conservation areas: Terrestrial – St. Croix Moraine; Rum River Headwaters
The Nature Conservancy, The Northern Tallgrass Prairie Ecoregion: A River and Stream Conservation Portfolio	Appendix 4				Priority conservation areas: Aquatic – Minnesota River Mainstem
The Nature Conservancy (UMR-specific):					Priority conservation areas: 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

Aspen Parklands

A. Other Plans/Efforts in Subsection

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

		(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 Type 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 Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.state.mn.us/Info/MFRCdocs/East_Central_Landscape_Perspectives_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%	
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)	-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)	

		-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; *Taylor's Woods; Savage Fen* 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 1 13.2 Type 2 0.86 Type 3 45.2			

		Type 3 45.2 Type 4 1.2 Type 5 30.5 Type 6 3.8 Type 7 5.3 Type 8 0.01			

The Blufflands

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/ development	Spatial	Sites
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 white pine, by maintaining native white pine cover types and white pine components in other cover types (p9) -Maintain/increase existing acreage (~1000 acres) of aspen for wildlife and nongame species (p9) -Increase/maintain black cherry acreage (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 concentrations of forest interior species and threatened, endangered and special concern species (p8)	
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)	-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	

Appendix C: MN CWCS, Links to other plans

		-Decrease susceptibility to pests by increasing diversity of wood lot (p28)		(p12)	
MN Forest Resources Council – Landscape Program: Recommended Vision, Goals and Strategies: Southeast Landscape, June 2003		-Increase forest land by 3 percent of entire land area over the next 5-10 years (approx. 77,000 acres) for the Blufflands and Rochester Plateau subsections (p5) -Establish appropriate species on appropriate sites: - in mesic sites promote mix of maple, cottonwood, basswood, oak, and other native species - in dry (oak savanna) and dry-mesic (hardwood) sites, promote regeneration and management of oak, walnut, shagbark hickory, and other natives - in prairie and wetlands areas promote appropriate native vegetation (p5)		-Decrease fragmentation from development (p7)	
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5 and Appendix E				Priority conservation areas: Terrestrial – Lower Cannon River; Hay Creek; Dennison Prairies; Partridge Creek; 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 Mixed Forest Ecoregion: A Conservation Plan	Appendix G				Priority conservation areas: Terrestrial – Lower St. Croix Aquatic – Lower St. Croix
The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Black River; 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

A. Other Plans/Efforts in Subsection

Plan	Pages	Composition	Succession/development/processes	Spatial	Sites	Source
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

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

		-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)				
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Quetico; 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 Plan: A First Iteration, The Nature Conservancy, December 1999	Map 9				Priority conservation areas: Terrestrial – Swamp River; Brule River; Mississippi Creek	
Aquatic Ecoregional Planning in the U.S. Portion of the Great Lakes Watershed, The Nature Conservancy	Appendix 7				Priority conservation areas: Aquatic – Reservation River; 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: 45.3% (many of these are lakes classified as type 5 wetlands), non-forested (types 1-4): 5.3 % Type 1 0.17 Type 2 0.44 Type 3 10.1 Type 4 1.03 Type 5* 42.5 Type 6 6.07 Type 7 4.96 Type 8 34.7 *Several large lakes (such as Lk Vermillion have been classified as Type 5 wetlands in NWI, and 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

A. Other Plans/Effort

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

Appendix C: MN CWCS, Links to other plans

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

		-Increase acres of young and old-growth lowland black spruce and tamarack forest communities (p2-23) -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 (p2-24)	representation of naturally disturbed forest that is not salvged (p2-23)	-Maintain/restore ecological processes of native vegetation communities at multiple scales to provide representation of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-22)		
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Mississippi Headwaters; Leech Lake 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 Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Terrestrial – White Earth Hardwood Forest	
The Northern Tallgrass Prairie Ecoregion: A River and Stream Conservation Portfolio, The Nature Conservancy	Appendix 4				Priority conservation areas: Aquatic – Wild Rice/Buffalo/Marsh Rivers; Red Lake/Clearwater Rivers	
The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Fishermans Brook; Mississippi River; Schoolcraft River; Steamboat River; Third River; Turtle River	

Coteau Moraines

A. Other Plans/Efforts in Subsection

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

A. Other Plans/Efforts in Subsection

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

Appendix C: MN CWCS, Links to other plans

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

Hardwood Hills

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites
MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.state.mn.us/Info/MFRCdocs/East_Central_Landscape_Perspectives_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%	
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;

Appendix C: MN CWCS, Links to other plans

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

Inner Coteau

A. Other Plans/Efforts in Subsection

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

Laurentian Uplands

A. Other Plans/Efforts in Subsection

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 sites to minimize loss to 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 riparian areas to provide critical 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)	-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)

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

		-Maintain acres of non-forested wetlands (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)	representation of naturally disturbed forest that is not salvaged (p2-23) -Increase acres of old forest, old-growth forest, and multi-aged upland forest communities (p2-24)	range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-23)		
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Seven Beaver/Sand Lake; Border Lakes Aquatic – Kawashiwi River Headwaters; Snake River; Perent River; Island River	
Great Lakes Ecoregional Plan: A First Iteration, The Nature Conservancy, December 1999	Map 9				Priority conservation areas: Terrestrial – Temperance; Marble	
Aquatic Ecoregional Planning in the U.S. Portion of the Great Lakes Watershed, The Nature Conservancy	Appendix 7				Priority conservation areas: Aquatic – Sand Lake Complex and St. Louis River Headwaters; Upper Cloquet River	

Littlefork-Vermillion Uplands

A. Other Plans/Efforts in Subsection

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

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

		communities) (p2-22) -Re-establish structural diversity in native vegetation communities that have been harvested or undergone disturbance, by providing small patches of forest (reserve islands); scattered/ clumped standing, mature and older live trees; dead trees; and coarse woody debris (p2-22) -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 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)	while providing for full array of forest age classes and growth stages (p2-22) -Re-establish uneven-aged and multi-aged forests with a variety of tree ages and different vegetation layers within the same community while also providing for even-aged forests (p2-22) -Re-establish the full range of successional stages in non-forested lands such as bogs, fens, grass, shrublands (p2-22) -Retain adequate representation of naturally disturbed forest that is not salvaged (p2-23) -Increase acres of old forest, old-growth forest, and multi-aged upland forest communities (p2-24)	patches – 300-1000s of acres of mature and older forest that provide interior forest habitat), and of temporary forest openings (including opening sizes from 1-1,000 acres) (p2-23) -Maintain/restore ecological processes of native vegetation communities at multiple scales to provide representation of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-23)		(broad-scale ecosystem condition)

Mille Lacs Uplands

A. Other Plans/Efforts in Subsection

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

MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.state.mn.us/Info/MFRCdocs/East_Central_Landscape_Perspectives_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 Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Kettle River; Fond du Lac; Rum River Headwaters; 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; Sand River; Upper Snake River; Brainerd	

					Lakes	
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Terrestrial – Sherburne Refuge-Sand Dunes SF Aquatic – Rum River; Upper Mississippi River Aquatic/Terrestrial – Lower St. Croix River; Upper Mississippi River	
Great Lakes Ecoregional Plan: A First Iteration, The Nature Conservancy, December 1999	Map 9				Priority conservation areas: Terrestrial – Kettle Lake (Corona); St. Louis River Estuary	
Aquatic Ecoregional Planning in the U.S. Portion of the Great Lakes Watershed, The Nature Conservancy	Appendix 7				Priority conservation areas: Aquatic – St. Louis River Estuary	
The Nature Conservancy (UMR-specific)					Priority conservation areas: 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	

Minnesota River Prairie

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
Ecoregional Planning in the Northern Tallgrass Prairie, The Nature Conservancy, May 1998					Priority conservation areas: Terrestrial – Upper Minnesota River Valley; *Lake Traverse; Thielke Lake; Swan Lake; Minnesota Lake*	
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Aquatic – Minnesota River; Long Prairie River; Otter Tail; North Fork Crow River; Glacial Lakes Aquatic/Terrestrial – Glacial Lakes	
The Northern Tallgrass Prairie Ecoregion: A River and Stream Conservation Portfolio, The Nature Conservancy	Appendix 4				Priority conservation areas: Aquatic – Chippewa/Pomme de Terre Rivers; Minnesota River-Southern Drainages; Rush River/High Island Creek; Minnesota River Mainstem; Des Moines River; Mustinka/Bois de Sioux Rivers; Otter Tail/Pelican Rivers	
The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Blue Earth River; 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	

Appendix C: MN CWCS, Links to other plans

Nashwauk Uplands

A. Other Plans/Efforts in Subsection

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

		-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 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)	successional stages in non-forested lands such as bogs, fens, grass, shrublands (p2-22) -Retain adequate representation of naturally disturbed forest that is not salvaged (p2-23) -Increase acres of old forest, old-growth forest, and multi-aged upland forest communities (p2-24)	opening sizes from 1-1,000 acres) (p2-23) -Maintain/restore ecological processes of native vegetation communities at multiple scales to provide representation of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-23)		
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Little Fork; Seven Beaver/Sand Lake; Border Lakes Aquatic – Swan River; Prairie River Headwaters; Little Fork River	
The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Swan River; Prairie River	

North Shore Highlands

A. Other Plans/Efforts in Subsection

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 sites to minimize loss to 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 riparian areas to provide critical 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)	-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)

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

		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)	of naturally disturbed forest that is not salvaged (p2-23) -Increase acres of old forest, old-growth forest, and multi-aged upland forest communities (p2-24)	of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-23)		
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Nor'wester; Kettle River; Seven Beaver/Sand Lake; Border Lakes; Fond du Lac; *Pokegoma Swamp* Aquatic – Upper Kettle River; Island River	
Great Lakes Ecoregional Plan: A First Iteration, The Nature Conservancy, December 1999	Map 9				Priority conservation areas: Terrestrial – Swamp River; Brule River; Mississippi Creek; Sawtooth; Temperance; Manitou; Marble; Tettegouche; Splitgoose; Boulder Lake; Hasty Brook; Kettle Lake (Corona); St. Louis River Estuary; Hawk Ridge; Lester Amity; Wolf Ridge; Duluth Township	
Aquatic Ecoregional Planning in the U.S. Portion of the	Appendix 7				Priority conservation areas: Aquatic – Reservation River; Knife River and	

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

Oak Savanna

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
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; Appendix E				Priority conservation areas: Terrestrial – Hegre Prairie; Nerstrand Woods; Upper Cannon River; Dennison Prairies; Beaver Creek; Rock Dell Fen; *Pine Bend Bluffs* Aquatic – Minnesota River; Straight and Turtle Rivers; Otter Creek; Upper Mississippi River; South Branch Middle Fork Zumbro; *Wapsipinicon River* Aquatic/Terrestrial – Upper Iowa River; Upper Mississippi River	

The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Beaver Creek; Cannon 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	

Pine Moraines & Outwash Plains

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.state.mn.us/Info/MFRCdocs/East_Central_Landscape_Perspectives_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%		
MN Forest Resources Council – Landscape Program: Recommended Desired Outcomes, Goals and Strategies: North Central Landscape Region, March 2003 (Amended		-Minimize loss of forestland and timberland (p14) -There will be an increased component of red, white and jack pine, cedar, tamarack, spruce and fir (p8) -The forest will have a range of species that more closely resemble natural patterns and functions within the landscape (p8) -Boreal Hardwood-Confier (p9): -Restore historic components of white	-The forest will have a range of age classes that more closely resemble natural patterns and functions within the landscape (p8) -Increase >171 year growth stage for boreal hardwood-conifer, dry-mesic pine, and mesic-northern hardwoods (pp9-11)	-The forest will have a range of patch sizes that more closely resemble natural patterns and functions within the landscape (p8) -Retain contiguous blocks of forest land (p15) -The amount of forestland and		

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

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

Red River Prairie

A. Other Plans/Efforts in Subsection

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

Rochester Plateau

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

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
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 white pine, by maintaining native white pine cover types and white pine components in other cover types (p9) -Maintain/increase existing acreage (~1000 acres) of aspen for wildlife and nongame species (p9) -Increase/maintain black cherry acreage (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 concentrations 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 fragmentation of habitat		

Appendix C: MN CWCS, Links to other plans

Perspective, May 2002		-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)		(p10) -Promote ecosystem level stewardship planning to protect and enhance regionally significant areas (p12)		
MN Forest Resources Council – Landscape Program: Recommended Vision, Goals and Strategies: Southeast Landscape, June 2003		-Increase forest land by 3 percent of entire land area over the next 5-10 years (approx. 77,000 acres) for the Blufflands and Rochester Plateau subsections (p5) -Establish appropriate species on appropriate sites: - in mesic sites promote mix of maple, cottonwood, basswood, oak, and other native species - in dry (oak savanna) and dry-mesic (hardwood) sites, promote regeneration and management of oak, walnut, shagbark hickory, and other natives - in prairie and wetlands areas promote appropriate native vegetation (p5)		-Decrease fragmentation from development (p7)		
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Terrestrial – Nelson Fen WMA; Lower Cannon River; Partridge Creek; Spring Valley – Middle Root River; Forestville – Mystery Cave; Beaver Creek; Root River – Rushford; North Fork Zumbro River; Oronoco Prairie; Rock Dell Fen Aquatic – South Branch Middle Fork Zumbro; Rollingstone River; Spring Valley-Middle Root River; South Fork Root River; North Fork Zumbro River; Upper Mississippi River Aquatic/Terrestrial – Whitewater River; South Fork Root River; Upper Iowa River; Upper Mississippi River	
The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Cold Water Creek; Pine Creek; Pool 3; Pool 4; Root River; Rush Creek; Upper Iowa River	

St. Louis Moraines

A. Other Plans/Efforts in Subsection

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

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

		-Increase acres of young and old-growth lowland black spruce and tamarack forest communities (p2-23) -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 (p2-24)		communities at multiple scales to provide representation of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-22)		
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Aquatic – Upper Mississippi River Aquatic/Terrestrial – Upper Mississippi River	
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Leech Lake Watershed; Sugar Hills; Rum River Headwaters; Little Fork; Kettle River; Floodwood River Aquatic – Upper Mississippi River; Boy River; Swan River; Upper Kettle River; Willow River; Prairie River Headwaters; Little Fork River; Brainerd Lakes	
Great Lakes Ecoregional Plan: A First Iteration, The Nature Conservancy, December 1999	Map 9				Priority conservation areas: Terrestrial – Hasty Brook; Kettle Lake (Corona)	
The Nature Conservancy (UMR-specific)					Priority conservation areas: Aquatic – Hanson Creek; Kettle River; Mississippi River; Moose River; Prairie River; Rum River; Steamboat River; Swan River; Willow River	

St. Paul-Baldwin Plains

A. Other Plans/Efforts in Subsection

Plan	Page	Composition	Succession/development	Spatial	Sites	Source
MN Forest Resources Council: Forest Resource Management in East Central Minnesota, A Landscape Perspective, June 2004 http://www.frc.state.mn.us/Info/MFRCdocs/East_Central_Landscape_Perspectives_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 Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Terrestrial – Corrie's Swamp; *Pig's Eye SNA; Pine Bend Bluffs* Aquatic – Minnesota River; Upper Mississippi River Aquatic/Terrestrial – Lower St. Croix; Upper Mississippi River; *Kinnickinnic River*	
The Superior	Appendix				Priority conservation areas:	

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

Tamarack Lowlands

A. Other Plans/Efforts in Subsection

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

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

		scattered/ clumped standing, mature and older live trees; dead trees; and coarse woody debris (p2-22) -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 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)	not salvaged (p2-23) -Increase acres of old forest, old-growth forest, and multi-aged upland forest communities (p2-24)	1,000 acres) (p2-23) -Maintain/restore ecological processes of native vegetation communities at multiple scales to provide representation of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-23)		
The Prairie-Forest Border Ecoregion: A Conservation Plan, The Nature Conservancy	Table 5; Appendix E				Priority conservation areas: Aquatic – Upper Mississippi River Aquatic/Terrestrial – Upper Mississippi River	
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature	Appendix G				Priority conservation areas: Terrestrial – Sugar Hills; Seven Beaver/Sand Lake; Floodwood River; Fond du Lac Aquatic – Upper Mississippi	

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

Toimi Uplands

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

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 sites to minimize loss to 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 riparian areas to provide critical 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	-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)

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

		-Maintain acres of lowland conifer and lowland hardwood (p2-23) -Maintain acres of non-forested wetlands (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)	fens, grass, shrublands (p2-22) -Retain adequate representation of naturally disturbed forest that is not salvaged (p2-23) -Increase acres of old forest, old-growth forest, and multi-aged upland forest communities (p2-24)	representation of natural range of distribution and variation within context of multi-use goals and ecosystem sustainability (p2-23)		
The Superior Mixed Forest Ecoregion: A Conservation Plan, The Nature Conservancy, November 2002	Appendix G				Priority conservation areas: Terrestrial – Seven Beaver/Sand Lake	
Great Lakes Ecoregional Plan: A First Iteration, The Nature Conservancy, December 1999	Map 9				Priority conservation areas: Terrestrial – Marble; Boulder Lake	
Aquatic Ecoregional Planning in the U.S. Portion of the Great Lakes Watershed, The Nature Conservancy	Appendix 7				Priority conservation areas: Aquatic – Sand Lake Complex and St. Louis River Headwaters; Upper Cloquet River	