

NOTE: This is a summary document developed by the University of Minnesota's Boreal Forest and Community Resilience Project to inform an update to the Minnesota Forest Resources Council's Northeast Landscape Plan.

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Document Title	Source	Date	URL or Address
North Shore Highlands, Toimi Uplands, and Laurentian Uplands Subsections Forest Resources Management Plan: Step 3 – Draft	Minnesota Department of Natural Resources	2004	http://www.dnr.state.mn.us/forestry/subsection/

VISION(S)

None identified.

Draft issues, goals, and strategies

(Retrieved from 3-x. General Direction Statements (GDSs) and Strategies section of North Shore SFRMP.)

ISSUES (Issues)

1. Biological diversity, forest composition, and spatial distribution
2. Age-class distribution
3. Within-stand composition and structure
4. Wildlife habitat
5. Riparian and aquatic areas
6. Timber productivity
7. Forest pests, pathogens, and exotic species
8. Visual quality
9. Harvest levels
10. Access to state land
11. Cultural resources
12. Disturbance events

GOALS (General Direction Statements) (# links to issue)

1. Old forest is distributed across the landscape (1).
2. Forest cover type composition on stands moves closer to the range of cover type composition that historically occurred within the ecosystems found in these three subsections (1).
3. Patch management in these subsections maintains existing large patches and increases the average patch size on state lands over time, with consideration of natural spatial patterns (1).
4. Habitat fragmentation is managed to minimize the impacts on species that are negatively affected by fragmentation (1).

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5. Management of state lands with MCBS sites of statewide biodiversity significance implements measures to sustain or minimize the loss of the biodiversity significance factors on which these MCBS sites were ranked (1).
6. Rare native plant communities are protected, maintained, or enhanced in these subsections (1).
7. Rare plants and animals and their habitats are protected, maintained, or enhanced in these subsections (1).
8. Even-aged managed cover types will be managed to move toward a balanced age-class structure (2).
9. ERF stands in even-aged managed cover types will be managed to achieve a declining age-class structure from the normal rotation age to the maximum rotation age (2).
10. State lands include a representation of each of the growth stages that historically occurred in the ecosystems found in these three subsections (2).
11. Young, early successional forest is distributed across the landscape over time (2).
12. Species, age, and structural diversity within some stands will be maintained or increased (3).
13. Some stands on state lands will be managed to reflect the composition, structure, and function of native plant communities (3).
14. Adequate habitat and habitat components exist, simultaneously at multiple scales, to provide for nongame species found in these subsections (4).
15. Adequate habitat and habitat elements exist, simultaneously at multiple scales, to provide for game species found in these subsections (4).
16. Riparian areas are managed to provide critical habitat for fish, wildlife, and plant species (5).
17. Forest management on state lands adequately protect wetlands and seasonal ponds (5).
18. Timber productivity and quality on state timberlands is increased (6).
19. Limit damage to forests from insects, disease, and exotic species to acceptable levels where feasible (7).
20. Reduce the negative impacts caused by wildlife species on forest vegetation on state forestlands (7).
21. Forest management on state lands attempts to mitigate global climate change effects on forestlands. Management is based on our current knowledge and will be adjusted based on future research findings (7).
22. Minimize forest management impacts on visual quality (8).
23. The SFRMP treatment level for each cover type moves toward the desired age-class structure of even-aged cover types (both normal and extended rotation forest), and improves the age-structure and timber quality of uneven-aged cover types (9).
24. The harvest of nontimber forest products is managed to provide a sustainable supply for humans while providing for wildlife habitat and biodiversity (9).
25. Forest access routes are well planned and there is a high level of collaboration with federal, private, and local units of government to share access and minimize new construction (10).

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26. Cultural resources will be protected on state-administered lands (11).
27. Disturbance events that occur on state land within these three subsections are promptly evaluated to determine the appropriate forest management needed to address the impacts of the disturbance on the landscape (12).

STRATEGIES (General Direction Statement Strategies) (# links to goal)

1. Determine the desired level of effective extended rotation (ERF) for even-aged cover types (1).
2. Prescribe ERF stands within even-aged cover types so that when a balanced age-class distribution is achieved, the desired amount of effective ERF will be provided (1).
3. Target ERF stand selection to enhance old growth, riparian corridors, and patches (1).
4. Manage riparian management zones primarily to reflect old forest conditions (1).
5. Allow some stands to naturally success to long-lived cover types without harvest (1).
6. Managed designated old-growth stands and old forest management complexes (OFMC) according to DNR policy (1).
7. Designate ecologically important lowland conifers according to department direction (1).
8. Follow the MFRC's *Voluntary Site-Level Forest Management Guidelines* to retain components of old forest in even-aged cover types (1).
9. Use silvicultural treatments that retain old forest components in some stands (1).
10. Increase the acres of jack pine, upland black spruce, and long-lived upland conifer cover types on state lands using specific actions (see pg 3.16 for specific actions) (2).
11. Increase mixed forest conditions in some stands in all cover types (2).
12. Coordinate with the MFRC's Northeast Landscape Committee planning efforts on forest composition goals and objectives (2).
13. Select stands for treatment during development of the 10-year stand examination list that group harvest activities to create, maintain, or enhance large patches (3).
14. During development of the annual stand examination lists, review and revise stands selected for treatment as needed to ensure that harvest activities are groups to create, maintain, or enhance large patches (3).
15. Convert some even-aged managed stands to uneven-aged managed stands to enhance existing uneven-aged managed patches (3).
16. Convert some uneven-aged managed stands to uneven-aged managed stands to enhance existing uneven-aged managed patches (3).
17. When possible, cooperate with other landowners in patch management to maintain existing large patches and increase the average patch size across forestland of multiple ownerships (3).
18. Avoid breaking up larger patches (4).
19. Minimize the fragmenting of habitat with roads and forest access trails (4).
20. Identify opportunities to maintain existing and potential connections between larger patches when developing 10-year stand examination list (4).
21. Leave live trees and snags within most even-aged managed timber harvests to mitigate the effects of habitat fragmentation (4).

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22. Restore or maintain original stand size in forest management activities (4).
23. Determine which MCBS sites are of greatest concern or importance for SFRMP planning over the 10-year planning period (5).
24. Consider the broader context and significance of the MCBS site as a whole when assigning management objectives and selecting stands for treatment (5).
25. Determine location and composition of stand conversions based on NPCs (5).
26. Allow some stands to succeed naturally to long-lived conifer communities (5).
27. Strive to emulate the within-stand composition, structure, and function of older vegetative growth strategies (VGSs) when managing some stands (5).
28. Apply variable density techniques during harvest or reforestation (5).
29. Apply variable retention techniques during harvest (5).
30. Designate some stands as ERF to provide old forest conditions (5).
31. Maintain or increase within-stand species, age, and structural composition that is moving toward the mix and proportion of species found in the native plant community appropriate to that site (5).
32. Whenever possible and practical, manage stand cover type conversions with less intensive site preparation or plantations with less intensive timber stand improvement (tsi) (5).
33. Increase the use of prescribed fire as a silvicultural technique in managing firedependent NPCs (5).
34. Locate roads to minimize fragmentation of a MCBS site (5).
35. Emulate natural disturbance conditions in large patch management (5).
36. Apply special management recommendations for known rare features (5).
37. Defer management of some stands for further assessment (e.g., EILC and nominated natural areas) (5).
38. Consider timber productivity when managing stands in these MCBS sites (5).
39. Provide an opportunity for further input by the divisions into the management of stands during the annual stand examination list review (5).
40. Forestry, Wildlife, and Ecological Services staff will communicate with other landowners, as opportunities arise, to inform them of the significance of these MCBS sites and management options that could be implemented to address the biodiversity objectives of these MCBS sites (5).
41. Complete the Minnesota County Biological Survey (MCBS) and document known locations of NPCs with a statewide rank of critically imperiled (S1) or imperiled (S2), and those NPCs with S-Ranks of S3 to S5 that are rare or otherwise unique in these subsections (6).
42. Manage known locations of critically imperiled (S1) or imperiled (S2) NPCs and those NPCs that are rare statewide or with limited occurrences in these subsections to maintain their ecological integrity (6).
43. During the development of the 10-year stand examination list and during annual stand review, stands with known locations of critically imperiled (S1) or imperiled (S2) NPCs and those NPCs with S-Ranks of S3 to S5 that are rare or otherwise unique in these subsections will be identified by Ecological Services staff (6).

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44. Provide current rare features database (Natural Heritage Information System) to DNR staff through the DNR Quick Themes in ArcView (7).
45. Incorporate new rare features inventory information as the Minnesota County Biological Survey is completed in these subsections (7).
46. Select some ERF, OFMC, and EILC stands based on their association with rare features (7).
47. During the development of the 10-year stand examination list and annual stand examination lists, land managers check the rare features database and flag those stands proposed for treatment that include a rare feature for follow-up consultation (7).
48. Harvest prescriptions, access plans, and other management proposals identify and implement measures that protect rare features (7).
49. Target the selection of stand treatment acres to the appropriate age classes (8).
50. Prescribe ERF stands within even-aged managed cover types so that each age class will be represented to produce a sustainable amount of old forest over time (9).
51. Target ERF stand treatment acres to the appropriate age classes to move toward the declining age-class structure after normal rotation age (9).
52. Provide representations of growth stages in the desired age-class distributions (goals 1, 8, 9 and 11) and through the forest composition goals (2) for these subsections (10).
53. Strive to emulate the within-stand composition, structure, and function of older growth stages when managing some stands (GDS-3A and 3B and Chapter 4) (10).
54. Consider the contribution of nontimberland cover types (e.g., stagnant conifer types), inoperable stands, and reserved areas (old growth, SNAs, state parks) in providing representations of growth stages (10).
55. Coordinate with the MFRC's Northeast Landscape Committee planning efforts on forest composition goals and objectives (10).
56. Move aspen, balsam poplar, paper birch, and jack pine cover types toward a balanced age-class structure (8,11).
57. Increase the treatment level for the paper birch cover type (11). (GDS-9A)
58. Regenerate most paper birch harvest sites to well-stocked young paper birch stands (11).
59. Maintain young, early successional forest in a variety of patch sizes to provide habitat for the associated species (11).
60. Use selective harvesting to encourage diversity of species, ages, and stand structures within stands of white pine, lowland hardwoods, ash, northern hardwoods, and some stands of cedar, red pine, and white spruce (12).
61. Implement the MFRC's *Voluntary Site-Level Forest Management Guidelines* designed to maintain a diversity of tree species within a stand (12).
62. Use the NPC Field Guide, site index, and soils data to aid in determining the species composition and structure most appropriate for the site (12).
63. Retain tree species, stand structure, and ground layer diversity within stands when prescribing timber stand improvement and thinning activities (12).
64. Reserve seed trees in harvest and site preparation areas where possible (12).

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65. Use harvest systems or methods that protect advanced regeneration. Retain conditions that favor regeneration and understory initiation (12).
66. Increase and/or maintain by reserving from harvest, target species including white pine, white spruce, upland cedar, oak, yellow birch, and upland tamarack as a component within appropriate cover types. Silvicultural practices that may add or increase the presence of these target species will include planting, interplanting, and artificial or natural seeding (12).
67. Manage planted and seeded stands to represent the array of plant diversity (12,17).
68. Use ERF in some even-aged management stands to encourage greater structural diversity (12).
69. Encourage fruit and mast-producing species (12).
70. Train field staff in the use of the *Field Guide to the Native Plant Communities in Minnesota: The Laurentian Mixed Forest Province* and native plant community classification stands to NPC (13).
71. Provide old forest distribution across the landscape (14, 15).
72. Provide young forest distributed across the landscape (14, 15).
73. Provide a variety of patch sizes across the landscape that better reflect patterns produced by natural disturbances and attempt to maintain existing large patches. (14).
74. Manage to retain the integrity of riparian areas and provide protection for seasonal and permanent wetlands (14).
75. Provide for the needs of species associated with conifer stands and mixed conifer/hardwood stands (14).
76. Provide for creation and maintenance of within-stand diversity (14).
77. Manage to favor native plant communities and retain elements of biodiversity significance (14).
78. Consider Natural Heritage Program data and other rare species information during development of both the 10-year and annual stand examination lists (14).
79. Apply the DNR management recommendations for habitats of nongame species as described in DNR guidelines and policies. For example:
 - a. Provide adequate conditions for gray wolves in the subsections.
 - b. Follow guidelines for management around bald eagle nests
 - c. Use management that enhances or protects wood turtle nesting sites.
 - d. Review the Northern Goshawk Management Considerations (dated 12-03-2004) relating to landscape and site management for the northern goshawk (14).
80. Provide a balanced age-class structure in cover types managed with even-aged silvicultural systems (15).
81. Increase the productivity and maintain the health of even-aged managed cover type stands (15).
82. Provide for the needs of species associated with conifer stands and mixed conifer/hardwood stands (15).
83. Provide for creation and maintenance of within-stand diversity (15).
84. Designate special management areas for the benefit of game species (15).

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85. Apply the MFRC's *Voluntary Site-Level Forest Management Guidelines* relating to riparian areas (16, 17).
86. Using the flexibility built into site-level guidelines, determine the appropriate RMZ width and residual tree densities after conducting an on-site evaluation of the RMZ area. A forester (and other division staff when appropriate) will conduct the evaluation before carrying out any timber harvest activity in riparian areas (16).
87. Manage to maintain or increase old forest in riparian areas (16).
88. Using the NPC Field Guide, manage for the appropriate species for the site. Emphasize conifers where appropriate and discourage aspen and birch in the RMZ (16).
89. Apply the Shipstead-Newton-Nolan Act restrictions, where applicable, on state lands in the subsection (16).
90. Follow the recommendations in the St. Louis River Management Plan (16).
91. Develop prescriptions that consider site-specific conditions such as soil, topography, hydrology, past management, and existing desired vegetation when applying site-level considerations and guidelines (17).
92. Move toward harvesting even-aged managed and non-ERF stands at their normal rotation age (18).
93. Field visit all the identified high-risk, low volume (HRLV) stands during this 10-year plan period to address stands with heavy insect or disease damage, or old, low volume stands (18).
94. Thin or selectively harvest in some aspen, balm of gilead, birch, white pine, red pine, jack pine, balsam fir, white spruce, northern hardwoods, lowland hardwoods, ash, and oak stands to capture mortality and/or increase growth rates (18).
95. Include silvicultural treatments in plantation management to increase productivity such as site preparation, interplanting, release from competition (e.g., herbicide application or hand release), and timely thinnings (18).
96. Apply and supervise the implementation of the *MFRC's Voluntary Site-Level Forest Management Guidelines* on treatment sites (18).
97. Continue to implement, supervise, and enforce current DNR timber sale regulations to protect and minimize damages to sites or residual trees from treatment activities (18).
98. Manage some ERF stands for larger diameter, high-quality sawtimber products by retaining adequate stocking and basal area (18).
99. Identify and monitor insect, disease, and harmful exotic species populations as part of the Forest Health Monitoring Program and document their occurrence on state-managed lands (19).
100. Manage existing forest insect and disease problems, as appropriate (19).
101. Manage stands to reduce the potential impact of insects and diseases (19).
102. In extended rotation forest (ERF) stands, a higher level of impact may be accepted as long as it does not jeopardize the ability to regenerate the stand to the desired forest cover type or the management goals for the surrounding stands (19).
103. Improve field staff knowledge about the complexity of factors that affect solutions to preventing or reducing damage cause by wildlife. Do this through training and/or field level coordination on sites where problems exist (20).

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104. Consider the potential for wildlife impacts to planted or natural regenerating trees before damage occurs. Coordinate on preventative strategies before planting or timber sales begin (20).
105. Focus forest regeneration efforts in areas less likely to be negatively impacted by wildlife species (20).
106. On sites where damage from wildlife species is anticipated, use mitigation techniques to reduce damage when planting susceptible tree species (20).
107. When deciding what to plant, consider species or stock sources (if available) that are less palatable to wildlife (20).
108. Maintain or increase species diversity across the subsections (21).
109. Maintain connectivity that permits the migration of plants and animals as climate changes in the landscape (21).
110. Evaluate site conditions with respect to climate change when selecting tree species for regeneration (21).
111. Use the concept of carbon sequestering to remove carbon dioxide (the most significant anthropogenic greenhouse gas) from the atmosphere (21).
112. Maintain or increase conifers adjacent to coldwater streams to moderate the microclimate that provides a cooling effect in warm water and retains a snowpack longer that slows discharge in the spring (21).
113. Apply the MFRC's *Voluntary Site-Level Forest Management Guidelines* for tree species at the edge of their range (21).
114. Apply the MFRC's *Voluntary Site-Level Forest Management Guidelines* on visual quality on all vegetative management activities (22).
115. Consider known traditional gathering areas when managing other forest resources (24).
116. Supervise and enforce special product permit regulations to ensure that the site's capacity for future production is not jeopardized (24).
117. Consider managing or using some forest stands for nontimber forest products, such as balsam boughs, berry patches, or decorative tops (24).
118. Develop a sustainable treatment level for decorative tree top (black spruce) harvest (24).
119. Consider the known locations of important wildlife habitats, rare native plant communities or species, and the possible impacts of nontimber forest products harvest practices before issuing special product permits (24).
120. Forest managers should proceed judiciously when issuing special products permits for species where limited knowledge and understanding constrains our ability to know if we are managing these groups of species sustainably (e.g., commercial harvest of mushrooms, lycopodium, and native plant seed) (24).
121. Continue to seek cooperation with other forest landowners to retain existing access to state land and to coordinate new road access development and maintenance across mixed ownerships (25).
122. Follow Minnesota statutes and guidelines and DNR policies for state forest roads (25).

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123. Apply the department direction regarding access roads across EILC and other areas that have been reserved (or deferred) from treatment during the 10-year plan (25).
124. Follow strategies identified under other General Direction Statements (issues, goals, strategies in this document) that apply to roads throughout the planning, development, and disposition of forest roads (25).
125. Complete a timber access plan (25).
126. Identify stands that have known cultural resources and consider them during stand selection, stand examinations, and the forest management activity (26).
127. Collaborate with local tribal agencies to enhance the opportunities to identify and protect cultural resources located within the three subsections (26).
128. Apply the MFRC's *Voluntary Site-Level Forest Management Guidelines* pertaining to cultural resources in the management of state lands (26).
129. The subsection planning team will evaluate large-scale (100's to 1000's of acres) disturbance events to determine appropriate action (27).
130. Local land managers will evaluate and determine appropriate actions for small-scale (10's of acres) disturbance events (27).