

APPENDIX X

Response to Public Comments from *CP-PMOP SFRMP Draft Plan*

1.1 Background

A public comment period for the Chippewa Plains / Pine Moraines and Outwash Plains Draft SFRMP started on August 25, 2008 and ended October 10, 2008. Comments were accepted via letter, email, or fax (a list of individuals and organizations that submitted comments is found at the end of this Appendix). The Comments submitted are grouped into forest management issues as organized in the Draft CP-PMOP SFRMP. Each Comment below is recited from the submitted comments. The complete correspondence is available by contacting the Department. For each Comment, a Response is provided followed by supporting General Direction Statements and Strategies taken from the CP-PMOP SFRMP. These statements are included to further clarify the Department's direction and policy concerning the specific Comment offered. Where appropriate, Action resulting from the Comment is also identified.

1.2 Issue Specific Comments

Comments relating to the Issue of Age Classes:

1. *SFRMP restricts timber availability via a variety of constraints placed on the modeling process (including misapplication of extended rotation forestry).*
2. *The DNR needs to identify which constraints have the greatest impact on timber outputs and work to minimize impacts of these constraints.*

Response:

The Department perceives these two issues as primarily timber volume questions from the Minnesota Forests Industries and the Minnesota Timber Producers Association (MFI/TPA). From these Comments it is perceived that the constraints and model used by MFI/TPA results in different volume projections than identified in the CP-PMOP SFRMP. The Department's response to these Comments centers on clarifications on volume, both in acres and cords, as projected in the CP-PMOP SFRMP. The acres and cords resulting from the MFI/TPA model are compared with acres and cords as projected in the CP-PMOP SFRMP using two methods of projecting volumes: the historical Department method based on selected acres and associated FIM data, and projections resulting from applying the Walters-Ek volume estimating method.

MFI/TPA Effective ERF model projects the volume by cords resulting from the 10-Year Stand Exam List as included in the CP-PMOP SFRMP at an annual average of 136,862 cords. When all prescriptions are considered (Partial Cut, Field Visits etc.), the CP-PMOP SFRMP projected cords resulting from harvests of the 10-Year Stand Exam List are at an annual average ranging from 104,259 to 134,132 (see Table 3.9e, page 3.66 of the Final Plan). The higher projection results from application of the Walters-Ek volume-estimating model. Total annual cords, as projected by MFI/TPA, compared to cords projected under the Walters-Ek method are very consistent, 136,000 compared to 134,000 cords (see Table 3.9e on page 3.66).

MFI/TPA's model projects the total acreage to be harvested to be 9,409 acres under Maximum Timber Scenario and 6,140 acres under MFI Effective ERF Scenario (annual average over the 10-year planning period). These acreage projections are then compared with the even aged acreage projection of 4,800 average annual acres taken from the CP-PMOP SFRMP. The 4,800 acre projection does not consider stands with prescriptions of Partial Cut or Field Visit. As shown on Table 3.9d, (page 3.64) considering all prescriptions (Even Aged Harvest, Partial Cut and Field Visit) the CP-PMOP SFRMP projects total acres to be to 9,288 (Final Plan, very near the MFI Maximum Timber Scenario of 9,409 acres). Although the total acres are similar, the volumes differ greatly between the MFI/TPA estimate and DNR's estimates (FIM based method) due in large part to very different assumptions made about volumes from those acres (e.g.,

MFI/TPA assumes clear-cut harvest of cover types DNR manages primarily via uneven-age management, such as northern & lowland hardwoods, white pine; MFI also assumes full volumes from all stands, while DNR assumes reduced volumes from stands receiving a “field visit” (preliminary prescription).

Identified below is a revised Table 3.9f taken from the Final CP-PMOP SFRMP and shows that the total average annual harvest in cords resulting from the CP-PMOP SFRMP will range from 104,259 to 134,132 cords compared with the MFI Effective ERF scenario of 136,862. The high CP-PMOP SFRMP projection is derived from application of the Walters-Ek yield equations in estimating timber volume and is presumably the same or similar to the yield equations applied by MFI/TPA. There is not significant difference between CP-PMOP SFRMP and the MFI/TPA projections.

Table 3.9f Summary Estimated CP-PMOP Annual Treatment (cords) Compared With Past Area Volumes (cords)

Cover types	Past Area Volumes ² 1995 – 2004	Projected Annual Treatment ¹ 2009 – 2017	
		Dept FIM-based	Walters-Ek
Even-aged			
Aspen/BG	64,090	53,270	69,823
Birch	6,555	4,302	6,386
Jack Pine	10,708	6,445	8,288
Balsam Fir	4,410	2,290	2,926
Tamarack	3,780	7,510	8,081
BLS both site indexes	1,699	2,287	3,444
Oak both site indexes	4,191	8,617	12,382
Red (Norway) Pine	4,867	11,112	13,566
White Spruce	941	3,027	1,790
Cedar	194		
Uneven-aged			
NH	3,238	3,830	5,224
Ash / Lhwh	---	967	1,352
White Pine	232	601	871
Total	104,905	104,295	134,132

¹ 10-year planned volumes divided equally over plan years

² annual average of volume sold over the 10 year period

³ includes scotch pine acres

To summarize, specific key inputs to the MFI/TPA model that are different than inputs used in the CP-PMOP treatment models will result in different outcomes. Specifically the following differences are noted:

- Available timberland acres appear to be substantially different (i.e., greater) (e.g., aspen/BG 8% higher, jack pine nearly 25% higher)
- The current age class distributions used were substantially different, with MFI/TPA assuming substantial additional acres in mature age classes.
- Assumed harvest volumes per acre were substantially higher than used by DNR (e.g., aspen/BG at 25 cords/acre vs. 19 cords/acre; jack pine at 20 cords/acres vs. 17 cords/acre)
- MFI/TPA model appears to assume even-aged harvests in types DNR is managing primarily through uneven-aged systems (e.g., hardwoods, white pine).

- MFI/TPA model assumes full volume in all stands, while DNR reduces volume estimates for stands assigned a preliminary prescription of “field visit.”

With all of the modeling discrepancies and differences, it is difficult to filter out all of the “noise” to allow apples to apples comparisons. However, even with the additional acres (and mature acres) assumed in the MFI/TPA model, DNR’s annual acres being visited for potential final regeneration harvest is about the same as in the MFI/TPA ERF model (i.e., 6,174 vs. 6,147) and total DNR annual acres being examined is more than the MFI/TPA maximum timber model (i.e., 9,489 vs. 9,409).

Concerning the Comment referencing misapplication of ERF, all SFRMP teams receive and are required to follow the same direction on application of the *DNR’s ERF Guidelines*. The *1994 DNR ERF Guidelines* remains the primary policy document guiding ERF, but has been supplemented by several Commissioner’s Office or FRIT memos and guidance documents intended to clarify the application and operational implementation of the *ERF Guideline*. None of the supplemental guidance is viewed as substantially altering the scope or intent of the original *Guidelines*, but rather were provided to facilitate the implementation of the *Guideline* in a more efficient and effective manner.

Rotation ages by cover type noted in the *1994 ERF Guidelines* are provided as a recommended average. The *Guidelines* suggested a minimum of 10 percent Prescribed ERF as a qualified target acknowledging that this minimum figure will vary in different landscapes across the state. In some cases, the *Guidelines* indicate that it may be appropriate to manage more than 50 percent of the timberlands as Prescribed ERF to achieve desired future condition goals (e.g., effective ERF goals).

In establishing ERF percentages, the CP-PMOP SFRMP Prescribed ERF and Effective ERF strategies resulted from:

- the need to provide for a sustainable and adequate acreage of old forest on the landscape over time, including modeling the expected availability of old forest into the future;
- the need to specifically identify which areas will be managed to provide old forest conditions to plan in advance when stands should be harvested;
- the desire to continue to manage ERF stands for forest products;
- the desire to designate areas as ERF to assure that regeneration to desired cover types is not jeopardized when they are harvested at a later age;
- the desire to prescribe/designate ERF in specific areas, such as in old forest management complexes and riparian areas.

It is important to note that the identification of ERF on Department administered lands does not remove timberlands from forest production. Designation of a timber stand to be managed as ERF specifically requires that forest management, including final regeneration timber harvest, occur on these stands.

The Department finds that the intent of extended rotation forests as established in the *1994 ERF Guidelines* and additional guidance have been appropriately applied in the CP-PMOP SFRMP.

Action resulting from the Comment:

Final CP-PMOP SFRMP is revised and clarifies that Table 3.9d and Table 3.9e states that the projected cords include estimates resulting from all prescriptions tagged on the 10-Year Stand Exam List.

3. An analysis of the economic impacts of the constraints should additionally be provided. The plan did not properly assess the impacts of these constraints to regional economies and timber productivity and production.

Response:

The Department considers this Comment to be a question relating to volume and whether the CP-PMOP SFRMP appropriately identifies the volume (either in acres or cords) as should be expected from the inventory. As stated above the volume differences in both acres and cords is not significant between the MFI/TPA projections (Effective ERF Scenario) and those contained in Table 3.9f, page 3.67 of the CP-PMOP SFRMP (Walters-Ek method). Table 3.9f projects the volume in cords using the traditional Department method of estimating volume from acres and FIM data and also projects the anticipated volume using the Walters-Ek yield equation applied to the suite of selected stands. It is the Department's understanding that the yield tables employed in the REMSOFT forest modeling software used by MFI/TPA is similar to Walters-Ek yield equations, but not identical.

That table shows that implementation of the CP-PMOP SFRMP results in total annual timber volumes of 134,132 cords (Walters-Ek) compared with MFI's projection of 136,832 cords for the Effective ERF Scenario.

Although the differences in projected timber volumes (Walters-Ek method) is not significant, the differences may be significant when compared to MFI/TPA's modeling that applies different assumptions about ERF and rotation ages than used in the CP-PMOP SFRMP. The Department notes that by statute, policy, and directive many goals are required to be taken into consideration in addition to producing wood products. Given the Department's long-term perspective and the requirement to accommodate multiple forest users, the Department must implement multiple forest management objectives for both the near and long term. The CP-PMOP SFRMP has considered such issues as rotation ages, ERF, and harvest levels to increase timber productivity in the CP-PMOP subsections, but must balance this with the need to consider effects on wildlife habitat, recreational values, ecological, cultural resources and sustainability.

Treatment levels resulting from modeled inputs used by MFI/TPA that are different from those used in the CP-PMOP SFRMP would produce different outcomes. Inputs such as rotation ages and the amount of prescribed ERF are factors that differ between MFI/TPA modeling and the inputs used in the CP-PMOP SFRMP treatment level spreadsheets. The Prescribed ERF levels shown on Table 3.1d (page 3.12 of the CP-PMOP SFRMP) are necessary to achieve the desired Effective ERF for each cover type. As shown in the Chapter 4 tables of *Treatment Summary by Decade* for each cover type, the Effective ERF falls below 10% for various decades for various cover types. The 10% Effective ERF was identified as a starting discussion point from which effective ERF goals would be developed since, based on previous ERF discussions and debates, this is usually considered to be a critical threshold based on the habitat needs of associated wildlife species.

A stable supply of timber is one of the many factors that were considered as treatment levels were developed. Other factors considered were: existing age-class imbalances for even-aged cover types; amount of acres over rotation age; representation of old and young forest; cover type conversion goals; and uneven-aged management and thinning.

A sustainable supply of quality timber resources is one of the CP-PMOP SFRMP plan goals. Strategies and specific cover type management recommendations are identified in the CP-PMOP SFRMP to increase productivity and to promote higher quality timber. The demand for resources from the CP and PMOP subsections to supply the forest products industries, and the jobs these industries provide are considered in establishing treatment levels and are vital to local and state economies. The Department is charged with balancing these economic objectives with other objectives such as maintaining forest composition, old-forest habitats, and within-stand diversity.

To adequately address the concerns of all users of Department administered lands the CP-PMOP

SFRMP balances objectives that maximize timber quality and productivity with the forest resource objectives of other users. In some instances Department lands may not be managed for maximum timber production in an effort to accommodate other management objectives as outlined in the CP-PMOP SFRMP.

The *Sustainable Forest Resources Management Act* established a process by which broad landscape level goals including fostering economic productivity through timber products would be established and implemented by all public and private forest land managers. The broad goals of the Act considered the widest range of forest management objectives practicable. The CP-PMOP SFRMP DFFCs are consistent with the broad landscape level directions established in the *MFRC's North Central Landscape Plan*. The CP-PMOP SFRMP considered a wide range of forest management issues that have potential to impact local and statewide economies, game species, habitat, and recreation when determining the DFFCs and overall goals of the CP-PMOP SFRMP.

The forests of the CP and PMOP subsections are vitally important to both the forest products and tourism industries, and when balanced appropriately the demands from these two industries are compatible. Forest management for only timber production impacts other economic development strategies such as tourism, optimum wildlife habitat that supports hunting, recreational and residential development and business growth. The positive economic impacts from these industries is difficult to measure and quantify for inclusion in the CP-PMOP SFRMP. The CP-PMOP SFRMP identifies strategies and vegetation management efforts to achieve optimum timber production while reducing these impacts through the use of the site-level forest management guidelines and proper timber sale design. Timber harvests are designed to balance maximum volumes while minimizing impacts on aesthetics, water quality, rare plant communities and wildlife, and cultural resources.

The constraints as referred to in the Comment are interpreted to mean the inputs used to model the CP-PMOP SFRMP treatment levels. The primary inputs that have lead to the treatment levels recommended in the CP-PMOP SFRMP can be reviewed in Chapter 3 and Chapter 4. Of particular interest are the Stand Selection Criteria identified for each cover type as outlined in Chapter 4.

The constraints also are interpreted to include stands that are removed from consideration for timber harvest by statute, rule or existing Department policy. This includes state parks, SNAs, DNR-designated old growth, and designated EILC (although identification of EILC does not reduce timber harvest in affected lowland conifer types for the 10-year planning period). In addition, by policy (*DNR White Pine Management Policy*), white pine on DNR timberlands (i.e., not otherwise reserved) is to be managed as extended rotation forest and other strategies as described in the policy. These strategies do not reserve white pine from harvest, but limit harvests in the white pine cover type to thinning, selective harvest, shelterwood or seed tree harvest. The CP-PMOP SFRMP must incorporate all adopted statute, policy and directives guiding forest vegetation management on state timberlands.

To the remaining inventory, treatment levels were determined based on the DFFCs, Strategies and guidelines as developed by the Department including rotation ages and extended rotation forests.

The treatment levels, as projected in the CP-PMOP SFRMP for the plan implementation period propose essentially equal or higher harvest levels than historical levels from the period of 1995 to 2004. Historical annual average (1995 to 2004) was 104,905 cords with the projected (2009 to 2018) annual average volume ranging from 104,259 to 134,132 cords per year. In terms of the historical volumes, it should be noted that the traditional Department method of estimating cords from acres proves to be a conservative estimate. Actual resulting sales volumes increase from the cords estimated (meaning the acres that are estimated to result in 104,259 cords will likely result in higher actual volumes harvested).

While individual SFRMPs are not intended to prepare subsection specific cost analysis, DNR has examined the effects of various levels of prescribed ERF and rotation ages on potential harvest volumes. DNR ERF modeling indicates that using 20% prescribed ERF and the MFI/TPA suggested rotation ages increases estimated long-term annual harvest acreage and volume by 5-6%. This is consistent with similar statewide analyses (i.e., million cord analysis). At the same time, however, long-term old forest amounts would drop to 5-8%.

Representative GDS from the CP-PMOP SFRMP:

Forest resources will continue to represent multiple age classes, distributed across the landscape.

4. *The SFRMP management plan recommends an overall ERF application of 37 percent. This proposal is approximately two times greater than what the MN GEIS modeled of 20 percent*

Response:

Table 3.1d (page 3.12) identifies the Prescribed and Effective ERF percent goals and acres by individual cover type. This Table mistakenly can be interpreted to mean that for all cover types, 37% be applied as the amount of ERF on the landscape. This 37% figure actually refers only to Prescribed ERF for the tamarack cover type to achieve an Effective ERF in tamarack of 14%. In addition to the amount of prescribed ERF other factors must be considered when evaluating potential implications for long-term timber harvest volumes. Birch, for example has a desired effective ERF goal of 12.5% (dramatically lower than the current 89% above normal rotation age). But since the normal rotation age (i.e., 50 years) is so close to the maximum rotation age (i.e., 65 years, less than the average minimum extended rotation age recommended in the *DNR ERF Guideline* for birch), the amount of prescribed ERF needed is 55%. If birch had a longer maximum rotation age, the amount of prescribed ERF needed to achieve 12.5% effective ERF would be lower, but the average ERF and overall harvest age would be greater. Similarly, Aspen/BG has a desired effective ERF goal of 13.5% (significantly lower than the current 28% beyond normal rotation age), but requires only 30% prescribed ERF to achieve this (with a weighted normal rotation age of 41.5 and a weighted maximum rotation age of 76.5).

Current levels of timberland beyond normal rotation age in many of the cover types (i.e., those managed primarily via even-aged systems) further clouds and reduces the impacts of prescribed and effective ERF levels on potential timber harvest volumes over the immediate 10-year period. Over 35% of these timberlands are currently beyond normal rotation age. A more significant factor and consideration in proposed treatment levels in the first 10-year period is the desire to improve current age-class distributions and move towards the desired, more balanced age-class distribution.

The percentage of state timberlands managed as extended rotation forests was provided by a Statewide ERF Workgroup. As such, the amount of ERF, to be applied to the landscape was provided to the CP-PMOP SFRMP team as an input to help determine desired treatment levels. The Effective ERF for all cover types managed primarily via even-aged systems is shown on Table 3.1d (page 3.12 of the CP-PMOP SFRMP) and ranges from 10 to 25 percent, with an overall average of about 15%.

GEIS did not identify 20% (Prescribed ERF) as a recommended or correct amount of ERF needed, but rather was used as a reasonable model assumption of what might be applied by the state and USFS. . This is a rough modeling assumption used to project changes in forest age-class distributions over the 50-year modeling horizon. Twenty-percent was not intended to be the "correct" or "target amount" of ERF, but rather a reasonable assumption of what might eventually be managed as ERF on state and federal lands, noting that the *DNR ERF Guideline* was not yet completed when the GEIS was developed. The GEIS did not conclude that 20% ERF was adequate, and in fact still identified numerous potential significant impacts with this and other second model run assumptions in place. When 20% prescribed ERF is applied, the long-term

effective ERF levels on DNR timberlands drop to 5-8% for most types. This is significantly below the 10% “effective” ERF level that, based on ongoing SFRMP ERF discussions, appears to be a critical threshold for wildlife habitat (i.e., in general, there are substantial habitat concerns if effective ERF falls below 10%).

Representative Strategies from the CP-PMOP SFRMP:

4. Designate ERF stands in the amounts and percentages prescribed by the Statewide ERF Work Group.
 5. Distribute ERF stands across the landscape consistent with ERF policy.
 6. Prescribe ERF stands across all age classes to maintain a constant supply of effective ERF.
123. Achieve a declining age-class structure in ERF stands from normal rotation age through maximum rotation age.

Action resulting from the Comment:

Table 3.1d is revised in the Final CP-PMOP SFRMP to clarify that 37% refers only to Prescribed ERF in the tamarack cover type.

5. MFI recommends that the DNR implement ERF guidelines as modeled in the GEIS and as per the DNR guideline recommendations

Response:

This Comment suggests that the average recommended normal rotation ages and extended rotation ages contained in the *1994 ERF Guideline* be used in the CP-PMOP SFRMP without review or evaluation. The Department has not proposed that the average recommended rotation ages in the *1994 ERF Guideline* be followed everywhere in the state. The normal rotation ages and maximum rotation ages used in the CP-PMOP SFRMP were developed by the subsection Rotation Age Workgroup. This Workgroup developed the normal and maximum ages based on local timber productivity information, culmination of Mean Annual Increment (MAI) in particular with consideration of Periodic Annual Increment (PAI), together with local knowledge of site productivity and stand conditions. Since the inception of the DNR *ERF Guidelines*, the Department has consistently provided that relevant local data and field experience should be considered to establish appropriate normal rotation ages Department forest management planning (i.e., first in Area timber management plans, now in SFRMPs).

Representative Strategies from the CP-PMOP SFRMP:

4. Designate ERF stands in the amounts and percentages prescribed by the Statewide ERF Work Group.
 5. Distribute ERF stands across the landscape consistent with ERF policy.
 6. Prescribe ERF stands across all age classes to maintain a constant supply of effective ERF.
123. Achieve a declining age-class structure in ERF stands from normal rotation age through maximum rotation age.

6. ***At the current harvest levels Minnesota's forests will continue to increase in age. The significance of providing ERF at current harvest levels is highly questionable***

Response:

As shown in the tables in Chapter 4 identifying *Treatment Summary by Decade* by cover type, the average age of treated acres on DNR lands falls for each decade over the 50 year period for all cover types except red pine (all decades) and white spruce (in later decades). The average treatment age increases for red pine and white spruce reflects the lack of older age classes for these types (i.e., many acres of planted forests in these types, many originating over the past 40-50 years) and the CP-PMOP SFRMP DFFC of maintaining more, older longer-lived conifers on the landscape. As noted elsewhere, there are currently over 35% of even-aged forest types beyond normal rotation age, with a goal of reducing that to about 15% over time. DNR forest lands in these subsections will be getting younger, assuming timber markets remain viable.

One of the primary DFFCs is to maintain a sustainable harvest level and a sustainable amount of ERF. The sustained level of harvest and ERF is accomplished by establishing a balanced age class distribution in each even-aged cover type. One goal of the CP-PMOP SFRMP is to maintain at least 10% of each cover type as Effective ERF each decade, (i.e. between normal rotation and maximum rotation age). Maximum rotation is the age at which a harvest will yield a marketable product, and the stand still has the capability of regenerating to the same cover type. As shown in Chapter 4 tables outlining the *Treatment Summary by Decade*, due to the current age-class distribution, several cover types did not achieve the desired goal of 10% Effective ERF for each decade.

Under multiple use directives, including the *Sustainable Forest Resources Management Act*, a broad range of forest users must be accommodated as forest vegetative management is applied to state timberlands.

Representative Strategies from the CP-PMOP SFRMP:

6. Prescribe ERF stands across all age classes to maintain a constant supply of effective ERF.
123. Achieve a declining age-class structure in ERF stands from normal rotation age through maximum rotation age.

Action resulting from the Comment:

Chapter 4, *Cover Type Management Recommendations*, has been revised to clarify that the average age of treated acres falls for all cover types except red pine and white spruce.

7. ***the SFRMP proposes to manage 30 percent of its aspen forestlands to a rotation age that will have high mortality rates and low productivity***

Response:

Rotation ages were provided as inputs into the CP-PMOP SFRMP treatment model spreadsheets. The normal rotation ages provided evaluated several factors among them applying the peak of MAI, applying PAI and field knowledge to produce rotation ages as identified on Table 3.1c (page 3.11 of the CP-PMOP SFRMP). The amount of aspen/BG type beyond normal rotation age is expected to drop from the current 28% to 16% by the end of the first 10-year planning period, with the long-term goal being 13.5%.

The rotation ages, as provided, used the peak of MAI to determine normal rotation age so harvesting occurs when average growth starts to decline. By harvesting a stand at this time, rather than waiting until later in the life cycle, high productivity of timber values is maintained for a particular site. MAI measures are based on stand volume estimates usually derived from outside

diameter measurements taken at breast height and tree height. MAI from FIA data is based on net volume (gross growth minus defect/decay/mortality). Normal-rotation acres will be managed using rotation ages considering MAI.

In addition to rotation ages, ERF percentages will influence the overall ages by cover type. Direction for addressing ERF stands in SFRMPs comes from the *1994 DNR Extended Rotation Forest Guideline* and additional process direction provided to SFRMP teams (*Revised Process for Addressing ERF in SFRMP, February 11, 2002*).

As provided in the *1994 ERF Guideline*, a portion of all cover types will be managed as extended rotation forests. ERF targets applied to the CP-PMOP SFRMP were supplied by the Statewide ERF Workgroup. As stated in the CP-PMOP SFRMP, to achieve the long-term Effective ERF goal of 13.5% in aspen amount of the aspen type that needs to be identified across all age-classes to be managed to an extended rotation age (i.e., Prescribed ERF, the tool DNR uses to assure that the Effective ERF goal is achieved/sustained) is 30%. With multiple harvest ages between the normal rotation age and maximum rotation age, DNR staff will work to schedule harvest of individual ERF stands so that mortality and productivity losses are minimized.

It is important to note that the overall weighted rotation age for aspen/BG is projected to be about 50 years, with 70% of the aspen/BG type being managed to an average normal rotation age of 41.5 years. Some portion of the aspen/BG ERF stands will be managed to a maximum rotation age of roughly 75 years, which will result in some loss of timber quality via decay and mortality. However, these are the characteristics that make such older forests attractive and necessary habitat for certain suites of wildlife species.

Prescribed ERF is the cover type acreage designated for management as ERF. Stands prescribed as ERF will be held beyond the recommended normal rotation age out to the maximum rotation age. It should be noted that prescribed ERF stands can be of any age class. The amount of prescribed ERF by cover type was determined by modeling to provide the desired amount of effective ERF by cover type.

In the CP and PMOP subsections, the goal is to maintain approximately 15% of the even-aged managed timberlands as effective ERF. Considering the current age class distribution, approximately 35% must be prescribed ERF. The DNR's ERF process requires designation of a percentage of managed timberlands as prescribed ERF (ERF stands are not reserved from harvest treatments). While it is correct that 30% of aspen acres in the CP-PMOP SFRMP are designated as prescribed ERF, a significant portion of those acres will be younger than the normal rotation age at all times. The amount of prescribed ERF that is over normal rotation age is the effective ERF. In the CP-PMOP SFRMP the effective ERF goal of aspen/balm of Gilead is 13.5%. To meet the overall long-term goal of 13.5% effective ERF, 30% of the aspen/balm of Gilead acres needed to be designated as prescribed ERF.

Using aspen as an example, the average age of treated acres will drop from 73 years to 50 years during the 10 year plan implementation period. For all cover types the net result of implementation of the CP-PMOP SFRMP will be a reduction of the amount of acres over the normal rotation age from what currently exists in the subsections. Priority has been given to placing stands on the 10-Year Stand Exam List that are over normal rotation ages.

Representative Strategies from the CP-PMOP SFRMP:

158. Implement efforts to salvage usable timber stumpage from damaged stands in a timely manner to minimize losses due to decay and staining.

8. The SFRMP should disclose the costs of exceeding the intent of ERF management

Response:

The application of the DNR ERF Guideline in the CP-PMOP SFRMP is consistent with how DNR has interpreted and applied the 1994 Guidelines (and subsequent guidance documents) since they were adopted. Specifically, this means directing staff to adjust rotation ages based on local timber productivity data and establish ERF amounts based on landscape-specific conditions and goals.

Although effective ERF may appear high in the early decades of the 50 year period, these levels are a product primarily of the current age class distribution of various cover types and the goal to achieve a balanced age class distribution for even aged managed cover types at some point during the 50 year planning period. Some cover types will require several rotations based on their current age-class structure and rotation ages.

The *Sustainable Forest Resources Management Act* directs the Department to manage for sustainability of all forests, including older forests. The purpose of ERF management is to provide age diversity in all forest types across the landscape for a multitude of forest benefits. ERF is a tool to provide old-forest conditions while not withdrawing acres of forest from timber production.

The percentage of timberland identified as prescribed ERF was based on a goal to have a certain amount of the forest (i.e., ranging from 10-15% for most types) beyond the identified normal rotation age (i.e., effective ERF) at any point in time in the future once the cover type's desired age-class distribution is achieved.

The policy and directives outlining the responsibilities to reflect ERF in SFRMPs is established in the *1994 ERF Guidelines* and subsequent guidance documents. The ERF ages established in the CP-PMOP SFRMP are consistent and were approved as an interim step in development of the CP-PMOP SFRMP. The Plan reflects the ERF policy of the Department. While individual SFRMPs are not intended to prepare subsection specific cost analysis, DNR has examined the effects of various levels of prescribed ERF and rotation ages on potential harvest volumes. DNR ERF modeling indicates that using 20% prescribed ERF and MFI/TPA suggested rotation ages increases estimated long-term annual harvest acreage and volume by 5-6%. This is consistent with similar statewide analyses (i.e., million cord analysis). At the same time, however, long-term old forest amounts would drop to 5-8%.

Representative Strategies from the CP-PMOP SFRMP:

4. Designate ERF stands in the amounts and percentages prescribed by the Statewide ERF Work Group.
5. Distribute ERF stands across the landscape consistent with ERF policy.
6. Prescribe ERF stands across all age classes to maintain a constant supply of effective ERF.

Comments relating to the Issue of Timber Quality and Quantity

9. The DNR should consider a management strategy that recognizes the overmature jack pine and harvest these areas prior to further decline of timber volume and value

Response:

Regarding the jack pine cover type, given the number of older stands present on the landscape, the merchantable age (30 years), normal rotation age (40 years) and maximum rotation age (65 years), the CP-PMOP SFRMP represents a reasonable approach to targeting stands most in

need of treatment. The desire to improve productivity by quickly harvesting all older stands must be balanced with the need to provide a more or less even flow of timber products over time by balancing age classes.

In selecting stands to be included in the CP-PMOP SFRMP, a *Stand Scoring System* was employed which gives priority to stands that are beyond their normal rotation age (See Appendix K, *Stand Scoring System*). Within the inventory, the oldest jack pine stands received the highest scores indicating these stands were recommended as priority stands for treatment. Chapter 4, *Jack Pine Cover Type Management Recommendations* advises that the “emphasis is on treating the oldest age-classes to minimize loss of fiber to tree mortality. Very few stands should be allowed to go untreated beyond the maximum rotation age.”

In addition to the jack pine stand selection criteria found in Chapter 4 and in the *Stand Scoring System*, the CP-PMOP SFRMP has identified several stand level Strategies designed to harvest stands impacted by infestations and diseases. Historically, as infestations, disease, and events have impacted cover types in general or particular stands, the Department has responded with efforts to offer salvage sales to capture the volume, before decay or loss, as much as possible.

Summarizing, the management strategies used for all cover types to identify stands at the optimum age and avoid allowing cover types to overmature includes: applying rotation ages as an input into the treatment level spreadsheets to establish subsection treatment levels; applying stand selection criteria to all cover type inventories; applying a stand scoring system to give higher priority to the oldest stands; and responding to events through timber salvage sales.

Representative GDS from the CP-PMOP SFRMP:

Forests will be managed to increase overall timber productivity.

Representative Strategy from the CP-PMOP SFRMP:

158. Implement efforts to salvage usable timber stumpage from damaged stands in a timely manner to minimize losses due to decay and staining.

10. The SFRMP needs to review the management prescriptions for this covertime (jack pine). A scenario that captures timber value and volume prior to mortality should be implemented.

Response:

Historically in some Forestry Areas within the CP and PMOP subsections, jack pine was managed at a treatment age of 60 years. Experience has shown that with this age some stands succumb to diseases and windthrow with subsequent loss of harvest volume. As part of the SFRMP planning process, subsection planning teams are provided with latitude to establish rotation ages reflecting local conditions and past experience. In the CP-PMOP SFRMP the normal rotation age for jack pine has been lowered from the historical 60 years to 40 years in an effort to treat and harvest before diseases and windthrow affected volume. Treatment levels identified in the CP-PMOP SFRMP for jack pine reflect the lowered normal rotation age of 40 years in both the Chippewa Plains and in the Pine Moraines and Outwash Plains subsections.

Further as previously stated, a *Stand Scoring System* (Appendix K, CP-PMOP SFRMP) was employed in selecting stands to be placed on the 10-Year Stand Exam List. That *Stand Scoring System* gave priority and placed higher scores on older jack pine stands.

The strategy employed then in the CP-PMOP SFRMP is to reduce the normal rotation age from 60 years to 40 years and to place a higher priority on treating older stands. A strategy specific to jack pine to avoid decline of timber volume is outlined in Chapter 4 *Jack Pine Cover Type Management Recommendations* (page 4.57). This management strategy recognizes budworm as a limiting factor and provides several recommendations including salvage and pre-salvage

management. As stated, the Department has a long history of implementing salvage sales in response to disease and events that may affect harvest volumes.

Representative Strategies from the CP-PMOP SFRMP:

157. Evaluate large-scale (i.e., hundreds to thousands of acres) and small-scale (i.e., tens of acres) disturbance events to determine appropriate action.

158. Implement efforts to salvage usable timber stumpage from damaged stands in a timely manner to minimize losses due to decay and staining.

Action resulting from Comment:

Chapter 4, *Jack Pine Management Recommendations* (page 4.52) has been revised to emphasize that the normal rotation age for jack pine is lower in the CP-PMOP SFRMP than used in the past and that all older jack pine stands received a higher priority score to be placed on the 10-Year Stand Exam List.

11. SFRMP did not adequately consider the impacts of the constraints placed on timber management.

Response:

For purposes of responding to this Comment, constraints means rotation ages, ERF, designation of old growth, EILC and designation of OFMCs. Directives to accommodate all of these factors (constraints) have been adopted by the Department with requirements to reflect these in SFRMPs. In recommending treatment levels, the CP-PMOP SFRMP does not exceed any of these directives. The CP-PMOP SFRMP identifies the primary statutes, policy, guidelines and directives in place, which guided development of the CP-PMOP SFRMP (page 3.1). The more significant directives are discussed below:

The 1994 DNR *Old-Growth Forest Guideline* was developed via a stakeholder involvement process that led to consensus on old-growth forest goals by forest type by Ecological Classification System (ECS) subsection for DNR lands. Following the completion of the *Guideline*, the DNR undertook and completed an old-growth nomination, evaluation and designation process for DNR lands.

The 1994 DNR *Extended Rotation Forest (ERF) Guideline* was developed through a public and stakeholder input process. The primary purpose of the *ERF Guideline* is to provide adequate acres of forest cover types older than their normal rotation ages to provide for species and ecological processes that require older forest characteristics. During the SFRMP planning process, the *ERF Guideline* is to be applied to landscapes by designating specific forest stands for ERF management.

The statewide *ERF Guideline* establishes a starting point that 10 percent of the DNR Forestry- and Wildlife-administered timberlands within a subsection be managed as ERF. The CP-PMOP SFRMP goals were to maintain at least 10% ERF by cover type. Determining the amount of DNR timberlands to be managed as ERF within each subsection involves many considerations including wildlife habitat needs, visual and riparian corridors, and implications for timber production (both quantity and quality).

Normal rotation ages are established for each cover type managed primarily under even-aged silvicultural systems within the subsection based on site-quality characteristics related primarily to timber production (e.g., site index, growth rates, soils, insect and diseases, etc.). Maximum rotation ages for these cover types are also established based on the maximum age at which a stand will remain commercially viable as a marketable timber sale and retain its biological ability to regenerate to the same cover type.

The Department uses a variety of written vehicles (e.g., policies, guidelines, recommendations, memos, operational orders, agreements) to communicate vegetative management policy direction to all Department staff. These policy directions cover the broadest range of issues practical including: forest productivity, old-growth management, ecologically important lowland conifers, coordination among all Divisions, site-level mitigation, rare habitats and species, and extended rotation forest management. All of these plans, guidelines and processes are required to be considered and have been used to develop the CP-PMOP SFRMP. The CP-PMOP SFRMP must reflect statute and adopted Department policy. These directives may be viewed as constraints to timber production, but are required to be considered in SFRMPs.

Representative Strategies from the CP-PMOP SFRMP:

4. Designate ERF stands in the amounts and percentages prescribed by the Statewide ERF Work Group.
10. Manage designated old-growth stands and OFMCs according to individual OFMC plans and DNR *Old Growth Management Guidelines*.
124. Designate lowland conifer old growth from EILC stands and return undesignated stands to the harvest pool.

12. plan does not adequately address forest productivity. The SFRMP has failed to develop an active management strategy that would harvest overmature stands within the next 10 years.

Response:

In establishing and calculating treatment levels for each even aged managed cover types, the CP-PMOP SFRMP employs a Department developed spreadsheet model which takes into consideration all appropriate factors, leading to calculation of sustainable treatment levels. Factors included: DFFCs, cover type conversions, FIM inventory data, and, normal and extended rotation ages. Key factors applied to the spreadsheet model were identification of normal and maximum ages. Applying these factors to the FIM inventory allowed identification of a target of normal and mature aged stands from which stand selection occurred. Field staff and Team members were heavily involved in refining and finalizing treatment levels with the model so stand cover types were not lost due to age while maintaining old forest and balancing age classes. As stated above, a *Stand Scoring System* was also implemented to identify priorities of normal rotation and ERF stands for inclusion on the 10-Year Stand Exam List.

In addition to the spreadsheet model to establish cover type treatment targets, stand selection criteria developed for the CP-PMOP SFRMP specifically included consideration of stands that were near or over their rotation ages. Older stands were identified and given priority for treatment. For each of the cover types managed as even aged, Stand Selection Criteria identified that stands at or near normal age be given priority for selection onto the 10-Year Stand Exam List (see Chapter 4, *Cover Type Management Recommendations, Stand Selection Criteria*). For all even aged managed cover types, the *Stand Selection Criteria* identifies that the pool of stands to be considered includes all stands not reserved from harvest by statute or adopted policy; not designated to be managed as ERF; and near normal harvest rotation age.

To assist in identifying highest priority stands for treatment, Appendix K of the CP-PMOP SFRMP identifies a *Stand Scoring System*. The *Stand Scoring System* scored all stands over or within 10 years of their maximum rotation age. These stands were required to be placed on the 10-Year Stand Exam List. Further the *Scoring System* provided specific priority to stands that were over or within 10 years of normal rotation age, if any acres were selected in that age class.

To achieve forest productivity, the CP-PMOP SFRMP takes into consideration the conflicting demands of a multiple-use forest. Increasing industrial demands on forested lands provides

reason to manage acres for timber productivity. The CP-PMOP SFRMP identifies several strategies designed to maintain a particular site's timber productivity and growth rate at a high levels including: maintaining soil productivity; support research that maximizes timber productivity; improve stocking and stand composition; and, match tree species to the site characteristics, considering the wide range of factors that affect growth.

To address the concerns of all users of these subsections, the Department is precluded from management where the sole objective is to maximize timber productivity on state lands. Some lands will be managed for less timber productivity in order to address other management objectives such as ERF to maintain old-forest habitats.

Representative GDS from the CP-PMOP SFRMP:

Forests will be managed to increase overall timber productivity.

Representative Strategies from the CP-PMOP SFRMP:

- 72. Maintain the highest soil productivity possible by favoring regeneration and growth of native vegetation and trees using the MFRC *Voluntary Site-level Forest Management Guidelines*.
- 98. Increase the productivity and maintain the health of even-aged cover types.
- 102. Maintain the productivity of forest soils to favor regeneration and growth of native vegetation and trees.
- 136. Support research that maximizes timber productivity (e.g., optimal stocking levels, mixed species management, treatment timing) without impacting wildlife and plant species.
- 137. Apply management techniques to improve stocking and stand composition on general forestry lands.

Action resulting from Comment:

Chapter 4, *Cover Type Management Recommendations* of the Final CP-PMOP SFRMP has been revised to emphasize that the adopted Stand Selection Criteria resulted in identification of older stands based on rotation ages and maximum ages for purposes of inclusion on the 10-Year Stand Exam List. Further, Chapter 4 is revised to reference the *Stand Scoring System* and how the *System* prioritized stands based on age and designation (normal or ERF).

Comments relating to the Issue of Forest Composition:

- 13. recommends that old forest complexes not be incorporated in the SFRMP. ERF application should be used to provide for older forests.**

Response:

The CP-PMOP SFRMP process does not include new directives to reserve timberlands from management. All timberlands permanently reserved from timber harvest or forest management are identified through other processes external to SFRMP (e.g., DNR old growth, SNA designation). In comprehensively managing forest vegetation, all past directives must be accommodated and taken into consideration as SFRMPs are prepared.

OFMCs are not new or unique to the CP-PMOP SFRMP. The history and concept of establishing old growth or old forest complexes/communities is first identified the 1994 *DNR Old Growth Guideline*, the 1995 *Addendum to the Old Growth Guideline*, 1994 *GEIS Mitigation Strategies*

(i.e., connected OG with corridors of ERF), and the *2002 Report DNR's Old-Growth Forests Guideline Implementation Result*.

Identifying OFMCs is an effort to place prescribed ERF (i.e., to provide a matrix of stands managed to older ages around stands designated as old growth) and is required by Department policy. In the CP-PMOP SFRMP, ERF stands were identified adjacent to designated old growth. These designations (together with the 330 foot OG special management zone discussed below) were termed OFMCs (see Appendix D, *Process Used to Determine Old Forest Management Complexes*).

Designation of OFMCs does not increase the amount of ERF planned for the subsections (i.e., they are not in addition to the established ERF targets for a subsection). OFMCs are simply locational boundaries within which ERF can be placed on the landscape in an effort to achieve multiple goals (protecting the attributes of old growth while creating patches of older aged forests. OFMCs are comprised of designated old growth stands and stands surrounding the designated old growth stands that will be managed as ERF. ERF stands within the OFMC will be harvested with special guidelines within 330-foot special management zone of the old growth stand.

OFMCs were originally intended to be identified by Forestry Areas following completion of the OG designation process. However if not already completed, designation of OFMCs became part of the preparation steps for SFRMP (i.e., identifying OFMCs to aid in achieving some of the subsection's ERF targets).

Representative Strategies from the CP-PMOP SFRMP:

10. Continue to prescribe ERF stands adjacent to old growth to create OFMCs consistent with DNR OFMC policy.
11. Prescribe ERF stands in steep areas, inaccessible terrain, riparian areas, habitat areas, travel corridors, visual corridors to achieve desired old forest attributes consistent with DNR OFMC policy.

Action resulting from Comment:

Chapter 3 (page 3.15) of the Final CP-PMOP SFRMP has been revised to clarify that old forest management complexes were required under policy directives prior to development of the CP-PMOP SFRMP. OFMCs were included as part of the CP-PMOP SFRMP, but were required independent of the SFRMP process.

14. The DNR again fails to provide the rationale of reserving timberlands as EILC. The DNR needs to identify the importance of these areas, such as, which species will benefit.

Response:

The rationale for identifying and reserving ecologically important lowland conifer (EILC) in the CP-PMOP SFRMP is that in designating old growth stands through the *1994 DNR Old Growth Guidelines* process no old growth lowland conifer was included. The Department has directed staff to identify ecologically important lowland conifer (EILC) stands and reserve them from harvest until old growth lowland conifers are defined and incorporated in the *DNR Old-Growth Forest Guideline*. Acres of EILC are not removed from the commercial timberland base for the purposes of identifying desired treatment levels. Stands within EILC sites are reserved from harvest for the 10-year period, thus shifting the desired level of harvesting during that time period to other lowland conifer stands outside these identified EILC stands.

The designation of old-growth and future old-growth forest on DNR administered lands follows the process established by the DNR old-growth forest committee and documented in the *1994 Old-*

Growth Forest Guidelines and subsequent *Amendments Nos. 1-6*. Currently, the old-growth designation process does not address lowland conifer old growth in terms of acreage goals. However, the DNR old-growth forest committee identified the need to amend the *Guidelines* in the future to address old growth lowland conifers. Future old-growth guideline amendments will provide direction on lowland conifers as an old-growth type. By Commissioner directive, SFRMP planning processes are to identify EILC and to defer these stands from treatment during the SFRMP plan implementation period. Stands deferred as EILC will be reviewed for continued protection at the beginning of the next cycle of subsection planning based on the old-growth forest *Guidelines* or other guidelines in place at that time.

The process for identifying the pool of stands as EILC and the method to establish acre goals for EILC to be deferred during the SFRMP implementation period is documented in the *SFRMP Guidebook* under Incorporating Rare Feature Information in SFRMP (May 6, 2002). According to *Guidebook* direction, Ecological Services staff is responsible to develop a pool of preliminary stands based primarily on the following criteria:

- Stands with CSA inventory types of BSL, SX, WC, CX, T, and TX
- Stands that appear to have not previously been harvested, generally with a CSA stand age > 100 years
- Stands located away from roads, ditches, and utility corridors
- Stands identified by MCBS/NHNRP that have an A or B rank as a native plant communities
- Stands that contain special landforms (e.g., ovoid islands).

Stands selected as EILC sites should be examples of high-quality native plant communities, represent the range of lowland conifer native plant communities found in the subsection, and be distributed in a representative fashion across the LTAs in the subsection (e.g., if a particular lowland conifer community type is found mostly in certain LTAs, then most of the acres of that type chosen as EILC should be in those LTAs). In designating specific stands as EILC wildlife species that will benefit include among others great gray owl, hawk owl, Connecticut Warbler, spruce grouse, northern bog lemming, and wintering yards for white-tailed deer.

The deferred EILC stands will be reviewed for continued protection at the beginning of the next cycle of SFRMP planning for these subsections or sooner if an amendment to DNR old-growth forests guideline regarding lowland conifers provides other direction. Lowland conifer cover type treatment acre calculations and treatment levels will be reviewed during the next 10-year planning process and adjusted as appropriate (see Appendix F, *Ecologically Important Lowland Conifers: Stand Designation Process*).

Action resulting from Comment

Chapter 3 of the Final CP-PMOP SFRMP (page 3.54) has been revised to clarify the process and intent of establishing EILC, and the species that benefit from identifying EILC habitat.

15. field surveys be conducted for threatened, endangered, and sensitive species on stands prior to assignment of final treatment

Response:

As the 10-Year Stand Exam List, Area Annual Stand Exam Lists and Stand Silvicultural Prescription Worksheets are prepared, DNR staff use all available information relative to threatened, endangered and sensitive species and consider this information as vegetation management decisions are made. Information on the distribution, abundance, and ecology of rare species, their habitats, and other rare features gathered by the DNR (Minnesota County Biological Survey and Natural Heritage and Nongame Research Program) provides much of the basis for determining the status of rare features in the state. The DNR acknowledges its

leadership role in advocating for maintaining habitat of rare features throughout the state, regardless of ownership, and in protecting and providing habitat for rare and threatened species on state lands (*Directions 2000, The Strategic Plan*).

Element occurrence information is maintained on the Natural Heritage data system that can be accessed by DNR personnel. These recorded locations are kept up-to-date, and are continually added to as data are received from qualified observers and from the County Biological Survey efforts. Appendix O, *Areas of High or Outstanding Biodiversity within the CP-PMOP* identifies where surveys have been completed and acreages of identified sites. Appendix J identifies *Native Plant Communities* and their S-Ranks as found in the CP and PMOP subsections. Where occurrences are known, forest management will incorporate best management practices for the species in question, consistent with the applicable state and federal laws.

At the time of preparation of the Draft CP-PMOP SFRMP, published MCBS sites of biodiversity significance were completed for two counties within the CP-PMOP subsections: Morrison and Mahanomen. Within these two counties exist 29 sites ranked as High or Outstanding Biodiversity. Of these 29 sites, six are located at least partially within state forest boundaries and were available as the CP-PMOP Plan and 10-Year Stand Exam List was prepared. In addition the 10-Year Stand Exam List was reviewed by Ecological Resources staff against other known but not yet published locations of biodiversity sites. The CP-PMOP team considered this review, and the resulting stand comments were incorporated into the 10-Year Stand Exam List Implementation Dataset. This information is available to field staff as stands are site visited and management objectives determined. MCBS information will be considered as Area Annual Plan Lists or Annual Plan Additions are prepared, and also as *Silvicultural Prescription Worksheets* are prepared. Further, up to the time of the actual timber sale, any new information can be incorporated into sale regulations for that particular stand.

Over the implementation period of this Plan new information and research will become available. All new information will be used as much as possible to guide future stand management decisions. Since completion of the Draft CP-PMOP SFRMP, Otter Tail and Todd counties' MCBS Surveys have been completed. As Area Annual Plan Exam Lists are prepared that affect these two counties, these newly completed MCBS Surveys will be consulted.

To ensure that all resources are used to identify threatened, endangered, and sensitive species as Annual Stand Exam Lists are selected, a primary coordination tool used between Divisions is the *Interdisciplinary Forest Management Coordination Framework*, December 2007. The purpose of the *Framework* is to ensure effective coordination between the Divisions of Forestry, Fish and Wildlife, and Ecological Resources to improve decision-making and achieve sustainable forest management. The *Framework* applies primarily to planning and implementing forestry and fish and wildlife management practices on land administered by the divisions of Forestry, and Fish and Wildlife.

The process of selecting each Area's Annual Stand Exam List includes participation by Wildlife and Ecological Resources staff. One purpose of their involvement is to identify stands that may contain threatened, endangered and sensitive species. If such species are known or have potential to be found on the stand, a joint site visit among Wildlife, Ecological Resources and Forestry staff can be implemented. Following the joint site visit, if such species are found on the stand, they will be taken into consideration as the final treatment is determined. This information is recorded on the *Stand Silvicultural Prescription Worksheet* as shown in Appendix E of the CP-PMOP SFRMP.

The Department has designated four hundred-forty plants and animals as endangered, threatened and species of special concern. All species are part of the natural forest ecosystem and contribute to its healthy functioning. Where these species are known to occur, their presence will be taken into consideration as stand prescriptions are implemented. Forestry staff is directed

to consult all relevant background information concerning a stand before site visits are undertaken. The purpose of this background review is to determine if there is potential for a stand to contain threatened, endangered or sensitive species.

The Department is committed to forestry management consistent with the ecological classification system and in utilizing native plant communities as significant factors to determine appropriate stand management. The *Stand Silviculture Prescription Worksheet*, is the required field decision management tool to be used by all foresters. For each stand site visited, the *Worksheet* requires the forester to assess the stand's characteristics in terms of ecological classification, land type association, and, native plant community as stand management objectives and specific prescriptions are implemented. If threatened endangered or sensitive species of plants or animals are detected, such occurrences will be considered and reflected in stand management objectives and prescriptions.

Representative GDS from the CP-PMOP SFRMP:

Forest management will continue to implement measures to sustain or enhance existing biodiversity.

Representative Strategies from the CP-PMOP SFRMP:

41. Document and manage known locations of NPCs with a statewide rank of Critically Imperiled (S1), or Imperiled (S2) and other plant communities that are rare in the landscape to maintain their ecological integrity.
112. Give consideration to within stand occurrences of species that are endangered, threatened, or of special concern.
114. Consider Natural Heritage Program data and other rare species information during development and implementation of both the 10-Year Stand Exam List and Annual Stand Exam Lists.
115. Enhance habitat while completing land treatments by using practices and procedures outlined in the DNR *Forestry-Wildlife Habitat Management Guidelines* and the DNR's *Interdisciplinary Forest Management Coordination Policy*.
149. Consult the Natural Heritage database (including the rare features database) prior to prescribing or implementing forest management activities.

Action resulting from this Comment:

The Final CP-PMOP SFRMP has been revised (page 3.73) to clarify that three levels of review for sensitive species are implemented: as part of 10 year stand exam list; as part of Area Annual Stand Exam list; and, as part of Stand Silvicultural Prescription Worksheet.

16. (The Leech Lake Band offers) to accompany DNR on site visits as final treatment prescriptions are developed

Response:

The Department is committed to and encourages cooperation and coordination with adjacent landowners and other land managers such as the Leech Lake Band of Ojibwe. To implement this coordination the Department has specifically requested review of the CP-PMOP SFRMP from the Leech Lake Band. In addition, as Area Annual Stand Exam Lists are prepared and submitted for public review, comments from all adjacent landowners and land managers is requested. As those Annual Stand Exam Lists are publicly reviewed, if specific stands are of interest to the Band, comments can be submitted and will be taken into consideration by the appropriate Forestry Area before the Annual Stand Exam List is adopted. Review of stand exam lists and dialogue at this level is most effective to share concerns or comments concerning individual stand

management. Following evaluation of comments resulting from public review of an Area Annual Stand Exam List, if specific stands are viewed as unique, posing special and significant management challenges, joint site visits with the Leech Lake Band can be arranged.

Representative Strategies from the CP-PMOP SFRMP:

38. Protect significant plant communities as they are identified.

140. Invite comment from, and coordinate with adjacent landowners.

Comments relating to the Issue of Riparian and Aquatic Areas:

17. *more attention should be given to the impact of forest management practices on coldwater fisheries*

18. *it is essential to think in terms of the entire watershed and not just the riparian zone*

Response:

Forestry management practices adjacent to all water bodies is guided by the *MFRC Site Level Guidelines* and are considered a mandatory set of *Guidelines* for Department staff. Designated trout streams (coldwater fisheries) are given special consideration in the *Guidelines* to ensure minimal impact to the water body.

In addition to implementing the *Site-Level Guidelines* several landscape-level actions identified the CP-PMOP SFRMP support appropriate riparian zone management. Many of the acres and stands identified for old growth, extended rotation, and special wildlife management areas fall within riparian zones. These designations will tend to minimize the impacts or further constrain active timber management within the identified acres or stands.

Landscape-level management of riparian zones and watersheds is complicated by the fractured ownership pattern found within the CP and PMOP subsections. It is noted that the Department manages only approximately 13% of the two subsections. While site-level coordination between landowners will continue to occur, the required level of coordination to effect larger-scale management poses a challenge and is implemented through the MFRC landscape level planning process. Most forest land managers implement the MFRC Voluntary Site Level Guidelines.

In addressing forest management landscape level impacts on water quality, the CP-PMOP SFRMP specifically identified a General Direction Statement in an effort to ensure that management activities across the landscape were taken into consideration. The GDS that describes the Department's goal is stated below. The purpose of this GDS is to recognize that individual stand management may have limited impacts on water quality, but taken together may result in cumulative impacts. This GDS establishes the direction that cumulative impacts on aquatic resources will be considered as individual stand management decisions are made.

As noted in Chapter 3 of the CP-PMOP SFRMP, Department staff from all DNR Divisions are part of the process to identify stands on the 10-Year Stand Exam List, as well as when Forestry Area Annual Stand Exam Lists are prepared. This coordination is implemented through the *Interdisciplinary Forest Management Coordination Framework*, the formal process by which all Divisions are advised of planned forest management activities, including selection of specific stands to be site visited for possible treatment. All Divisions view improving water quality as a primary objective as forest vegetation management is implemented. As evidence of the commitment to understanding vegetation management and relationship to water quality, the Department has increased capabilities in areas such as Clean Water Initiatives.

The CP-PMOP SFRMP will adhere to the MFRC's site-level guidelines, which are mandatory on state land. The objectives of MFRC riparian guidelines are to protect water quality, forest productivity, and bank stability as vegetation management is implemented. The *Guidelines* allow

for flexibility in identifying the appropriate riparian management zone (RMZ) width for a particular site as determined by site-level conditions and management goals. Based on on-site conditions, the RMZ and subsequently the vegetation management within the RMZ can include all lands where vegetation management may have an impact on the water body. The *Guidelines* identify the characteristics of water bodies and the range of management practices to be implemented to protect water quality.

Representative GDS from the CP-PMOP SFRMP:

The management and administration of state land will minimize negative cumulative impacts on aquatic resources.

Representative Strategies from the CP-PMOP SFRMP:

54. Continue to implement all MFRC *Voluntary Site-level Forest Management Guidelines* directing forest management practices that pose potential impacts to surface waters.
55. Collect baseline ecological data on surface water quality across the subsection.
56. Implement ongoing surface water quality monitoring.
57. Coordinate and cooperate with other landowners and water resource managers to establish guidelines that determine and minimize cumulative impacts.
58. Implement site level surface water quality monitoring on water that may be impacted by logging activities when there is cause for concern

Action resulting from Comment:

The Final CP-PMOP SFRMP has been revised (page 3.36) to add discussion concerning how overall forest management can have impacts on water quality. In particular Department commitments to Clean Water Initiatives have been identified.

Comments relating to the Issue of Managing Impacts:

19. (Comment asks) why DNR did not address ash and emerald ash borer in the plan?
20. do not follow management strategies that increase the ash component on the landscape.

Response:

Chapter 4, *Cover Type Management Recommendations* (page 4.21) identifies emerald ash borer as a special concern for ash management in these subsections, The CP-PMOP SFRMP advises that because emerald ash borer will eventually be found in Minnesota, the following recommendations be implemented: continue harvest activities in the higher site index black ash stands; choose harvest methods that favor regeneration of species other than ash; avoid harvesting in low site index ash stands; and, be prepared to accept the loss of the sites due to high water tables if the ash die due to emerald ash borer infestation.

Resources that will be employed by field staff to identify, monitor and respond to damage from emerald ash borer includes the DNR invasive species web site; *Field Guide to the Native Plant Communities of Minnesota - The Laurentian Mixed Forest Province*, Ecological Classification System, Minnesota County Biological Survey; Natural Heritage and Nongame Research Program; and, the Forest Health Monitoring Program.

Concerning strategies that do not increase the ash cover type, the CP-PMOP SFRMP recommends that the total acres of ash / lowland hardwoods be reduced over the 10 and 50 year plan implementation periods. For the 10-year implementation period, ash / lowland hardwoods will be reduced a total of 4% with conversion to tamarack and cedar. Over the 50-year period the

CP-PMOP SFRMP identifies that the total acreage will be reduced by 11% with conversions to tamarack and cedar.

Further the CP-PMOP SFRMP identifies that efforts to salvage timber damaged from disturbances or disease will be undertaken in an effort to limit further damage in adjacent stands. Recent efforts by the Department include restrictions that limit transporting unapproved firewood onto state administered lands and certifying firewood vendors.

The CP-PMOP SFRMP identifies that the overall management strategy of ash / lowland hardwoods is to: reduce the acreage of this cover type; convert a percentage of this cover type to cedar and tamarack; continue to harvest high site index ash stands; recognize the restrictions on movement of firewood that are designed to control emerald ash borer; to monitor for emerald ash borer infestations; and, to take salvage actions.

Representative GDS from the CP-PMOP SFRMP:

Damage to forests from exotic species will be minimized.

Representative Strategies from the CP-PMOP SFRMP:

153. Identify, document and monitor exotic species populations (e.g. gypsy moth, garlic mustard, common buckthorn, emerald ash borer, and earthworms) as part of the *Forest Health Monitoring Program* on state-managed lands.
154. Contain and reduce impacts caused by exotic species using proven techniques.
155. Manage the impact of exotic species using techniques such as aggressive containment or seasonal timing.

Action resulting from Comment:

The Final CP-PMOP SFRMP Chapter 3, (page 3.76) has been revised to emphasize that the Department has developed a program to certify firewood vendors; enforcing statutes that bans all firewood on state lands unless it is approved wood; and, requiring that firewood not be transported more than 100 miles to a state recreation facility, in an effort to curtail movement of wood potentially infested with emerald ash borer.

Comments relating to Diversity and Complexity and Cultural Resources:

21. LLDRM opposes forestry practices on the LLR that may reduce stand diversity and, consequently, tribally important species.

Response:

One of the primary goals of the CP-PMOP SFRMP is to maintain and improve within-stand diversity. Within stand diversity can be identified as a stand management objective for any growth stage. As stand management is implemented, methods identified in the CP-PMOP SFRMP to meet within-stand composition goals includes use of the *Ecological Land Classification System*, developed by the Department. This *System* guides land managers in determining the suitability of a stand for particular management objectives and treatments. For example, land managers would use soil and vegetation characteristics described in the *Ecological Classification System* keys and other published tools to determine the suitability of a particular aspen stand for conifer growth. Diversity within a stand requires careful thought and knowledge about the native plant communities that occur on the landscape. The *ECS System* identifies particular species expected to be found in a given stand, information which can be used as part of stand management to further maintaining stand diversity.

Further, maintaining inclusions of certain species is a strategy that Department staff will use to help maintain or improve stand diversity. Additional strategies that encourage and maintain stand diversity are identified in the CP-PMOP SFRMP and will be considered (depending on the site) as stand management objectives and treatments are implemented. Examples include: MFRC site-level guidelines to reserve legacy patches, leave trees, snags, and coarse woody debris; implementing harvest techniques that encourage diversity (e.g., selective, group selection, shelterwood harvesting); applying varying stocking levels and distribution; and use of prescribed fire.

DFFC from the CP-PMOP SFRMP:

All silvicultural prescriptions for uneven aged management cover types will ensure that all tree sizes, ages and species present in the stand at the time of the site level visit will be well represented following the stand treatment

Representative GDSs from the CP-PMOP SFRMP:

Diversity of plant species within stands will be maintained or increased.

Representations of all growth stages with vertical and horizontal structural diversity will be distributed across the landscape.

Representative Strategies from the CP-PMOP SFRMP:

73. Utilize harvest systems, methods and sale regulations (e.g., process at stump) that protect advanced regeneration and maintain or improve the patterns, diversity and composition of forest vegetation present in the stand prior to harvest.
74. Preserve legacy patches and inclusions in stands for seed sources and native plant diversity, as well as to favor regeneration and seeding of native vegetation.
75. Establish and manage plantations to more closely resemble naturally occurring stands by planting a variety of tree species using variable-density thinning techniques, preserving existing natural vegetation, and preserving advanced regeneration.
76. Develop methods to measure and monitor the within-stand diversity of plant species, and provide ongoing education and training on these techniques and methods.

22. document how the MNDNR will prevent further degradation of the understory plant communities of pine forests found on TCPs (traditional cultural properties) valued by Ojibwe people.

Response:

The CP-PMOP SFRMP identifies several Strategies specifically designed to support and maintain stand diversity including the understory. The *Stand Silvicultural Prescription Worksheet* to be completed as each stand is site visited includes specific review and assessment of the stand's understory to determine if understory communities are present that should be taken into consideration as management objectives and treatments are prescribed for the stand. Identification of Native Plant Communities (NPCs) is a consideration as the *Stand Silviculture Prescription Worksheet* is prepared. When known, NPC information will be used to prepare the stand management objectives and prescriptions.

The CP-PMOP SFRMP recites intermediate silvicultural treatments prescribed to stands designed to manipulate the forest canopy to influence the amount of light and moisture available at the forest floor. Thinning prescriptions that allow significant light will stimulate the herb and shrub regeneration, the development of an understory, and layering in transition and mature

stands. Variable density techniques may be prescribed during the planning of timber sales and/or forest development activities. Harvest (clearcut or thinning) and planting (or seeding) would be accomplished in a pattern (clumped or dispersed) that more closely replicates patterns created after natural disturbance that encourages understory plant communities.

Maintaining the understory is a specific strategy to be implemented in appropriate stands. Documenting how these strategies are implemented is managed through completion of the *Stand Silvicultural Prescription Worksheet* for each stand site visited. Information from the *Worksheets* will be used to prepare periodic CP-PMOP SFRMP Monitoring Reports. These Reports will assess whether on-the-ground actions are consistent with the directions in the CP-PMOP SFRMP and whether these actions are having the desired effect.

Documentation of whether the directions and strategies identified in the CP-PMOP SFRMP are being implemented will be developed and evaluated as part of the formal monitoring of the CP-PMOP SFRMP as discussed in Chapter 5, Monitoring.

Representative GDS from the CP-PMOP SFRMP:

Forest management activities will protect cultural resources on state administered lands.

Representative Strategies from the CP-PMOP SFRMP:

73. Utilize harvest systems, methods and sale regulations (e.g., process at stump) that protect advanced regeneration and maintain or improve the patterns, diversity and composition of forest vegetation present in the stand prior to harvest.
74. Establish and manage plantations to more closely resemble naturally occurring stands by planting a variety of tree species using variable-density thinning techniques, preserving existing natural vegetation, and preserving advanced regeneration.
86. Provide growing conditions (i.e., sunlight, periodic fire, etc.) that will encourage species diversity in the ground, shrub and sub-canopy layers.
129. Manage selected forest stands for non-timber forest products.
132. Apply knowledge of existing traditional gathering areas of non-timber forest products when managing other forest resources.
133. Identify managers with local expertise in managing non-timber products and utilize their knowledge when managing non-timber forest products at the landscape and statewide levels.
144. Share data on known cultural sites and consider impacts to these sites as silvicultural treatments are applied.
145. Increase cultural resource training for field staff, stress the importance of preserving cultural resources, and encourage the reporting of new sites.

23. The LLBO suggests that the MNDNR deepen its commitment to implement the goals of the North-Central Landscape by not further creating or maintaining plantation structure on the LLR.

Response: Consistency with the MFRC's *North Central Landscape Region Plan's* desired future conditions as identified below can be found throughout the GDSs, DFFCs and Strategies of the CP-PMOP SFRMP:

1. There will be an increased component of red, white and jack pine, cedar, tamarack, spruce and fir.
2. The forest will have a range of species, patch sizes, and classes that more closely resemble natural patterns and functions within this landscape.
3. The amount of forest land and timberland will not decrease using FIA definitions for timberland and forest land. 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, and to minimize land use conflicts (hereafter referred to as “natural resource emphasis areas”).
4. In large blocks of contiguous forest land retain critical natural shoreline on lakes for scenic, wildlife, water quality, and other natural resource values.

Concerning the comment on not creating plantation structures, a primary DFFC of the CP-PMOP SFRMP is to implement management that reflects natural disturbances. Plantations will be managed to more closely resemble natural stands by promoting species mixture, accepting lower and higher stocking levels, and applying limited use of prescribed fire. However, when commercially thinning established plantations, some appearance of rows may be necessary in order to allow equipment access. Species and age diversity will be retained when possible.

The Department is required by statute to reforest harvested sites and is committed to doing so in a cost efficient and effective manner. Of the acres of state land harvested each year, approximately two-thirds is naturally regenerated (e.g., via root suckering, stump sprouts, natural seeding) and one-third is artificially regenerated. The knowledge and ability to successfully regenerate shade-intolerant early successional conifers naturally has not been widely tested in Minnesota and as such is evolving. The Department recognizes the importance of maintaining and managing natural forest stands in order to fulfill its obligations to all forest resources and Minnesota citizens. Through the development and implementation of an Ecological Classification System (ECS) and subsequent management interpretations, the Department will increase the number of conifer sites that are regenerated through means other than planting seedlings.

Further, to aid in minimizing plantation structures, the silvicultural techniques and practices as identified in the CP-PMOP SFRMP are more varied and inclusive than past Department practices. For example, specific management recommendations from Chapter 4 of the CP-PMOP SFRMP state that as red pine stands age, they should be managed to diversify within-stand species composition and increase within-stand structure to maintain or improve site productivity, wildlife habitat, and biodiversity.

Thinning in normal rotation and ERF stands will maintain (especially in natural origin stands) or increase within-stand diversity (especially ERF), while retaining red pine as the main cover type by the following methods:

- a. Reserve from harvest individual trees or patches of other species appropriate to the site, where possible.
- b. Consider creating or maintaining variable densities within stands when thinning.
- c. Protect advanced regeneration of desirable understory species, where possible.
- d. Higher stand densities (basal area) are recommended along stand edges exposed to wind and along high visual quality corridors, such as major roads and lakes.
- e. Consider underplanting tolerant species, where seed sources or advance regeneration for these are lacking. For species suggestions, refer to the natural history section for the pertinent native plant community in the Field Guide to Native Plant Communities of *Minnesota*.
- f. Provide for six cavity trees, potential cavity trees, or snags per acre as recommended in the MFRC *Voluntary Site-level Forest Management Guidelines: Timber Harvest* p.36 and TSI p. 7).

As one tool designed to increase conifers on the landscape, the CP-PMOP SFRMP has identified specific areas, based on soils and historical vegetation patterns, where pine are likely an appropriate cover type. These areas have been identified as *Potential Pine Woodlands Areas*, (Appendix R of the CP-PMOP SFRMP). Management suggestions for potential pine woodland areas includes promoting natural regeneration through seed tree and small gap harvests for non-serotinous jack pine, conduct brush and sod control when necessary, manage for prairie grasses and forbs (ground layer) in appropriate NPCs, and use prescribed burning (understory and light slash burns) when appropriate.

One purpose of identifying potential pine woodland areas is to foster stands where natural regeneration of pine has more likelihood of success. Management toward a pine woodland complex specifically avoids pine plantation characteristics.

Representative GDS from the CP-PMOP SFRMP:

Diversity of plant species within stands will be maintained or increased.

Representative Strategies from the CP-PMOP SFRMP:

20. Consider with the *MFRC North Central Landscape Region Plan* forest composition goals and objectives.
43. Implement the *MFRC Voluntary Site-level Forest Management Guidelines*.
75. Establish and manage plantations to more closely resemble naturally occurring stands by planting a variety of tree species using variable-density thinning techniques, preserving existing natural vegetation, and preserving advanced regeneration.
76. Develop methods to measure and monitor the within-stand diversity of plant species, and provide ongoing education and training on these techniques and methods.
111. Establish and manage plantations to more closely resemble naturally occurring stands by planting diverse tree species, preserving existing natural vegetation, and preserving advanced regeneration by using variable density thinning techniques, varying stem density, and using less intense methods.

Comments relating to the Issue of Sustainable Harvest:

- 24. MNDNR should modify its management on the LLR so that final harvests are not conducted in mature pine stands. Secure wood by thinning pine stands at younger ages and then allowing various tree species to develop in the understory.**

Response:

The majority of treatments in all age classes of pine stands will be intermediate treatments with the stand management objective of maintaining mature pine stands out to their normal and maximum rotation ages. Given the multiple use policy of striving to balance ecological values and local economies, it is very difficult, as a policy, to eliminate final harvests in mature pine stands.

It should be noted that little upland pine within the Leech Lake Reservation is under state management. Of the pine acreage under state management, the following recommendations are identified in Chapter 4, *Cover Type Management Recommendations* that address this comment.

Thinning will be used to reduce stand density to increase future tree growth, quality, and vigor, and to obtain the desired composition of the stand. Additional recommendations include:

- a. Normal rotation stand thinnings will occur in merchantable stands at approximately 10-year intervals, depending on site quality.
- b. Older stands may have longer intervals between thinnings to compensate for slower growth rates and to facilitate the growth of desirable understory species.
- c. Variable density thinning or other techniques will be incorporated to meet ERF or other objectives. Examples are: 1) thin 20 percent of the stand to 60 BA, 60 percent to 90 BA, and skip thinning in 20 percent to encourage within-stand diversity.
- d. Large gaps (~3 ac) may be produced during early thinnings in mixed red pine/jack pine stands to encourage jack pine seeding, thereby ensuring that the species is not eliminated from the stand during later thinnings or due to early mortality.

Further, specific to white pine, the Department is following the recommendations of the White Pine Regeneration Strategies Work Group. White pine harvest policy on state lands is as follows: (1) When harvesting in the pine cover types, restrict white pine harvesting to thinnings, selective harvests (e.g., removal of diseased and defective trees), or shelterwood harvest. This type of harvesting will maintain an older white pine component in the pine stands while promoting white pine regeneration and age-class diversity of white pine within these stands. (2) When harvesting in other forest cover types that contain white pine, retain adequate seed-producing white pine and carry out treatments (e.g., scarification of the soil by mechanized disturbance or prescribed burning and leaving a partial overstory) to increase white pine natural regeneration. Elimination of white pine from other cover types will not be permitted. (3) Reserve the better white pine that occur as scattered individuals or in small groups for their seed-producing, aesthetic, wildlife, and ecological benefits. (4) Manage all white pine under ERF guidelines to increase the acreage and distribution of older white pine stands and trees on the landscape. With these *Guidelines*, white pine harvesting on state timberlands is very limited. Much of the white pine harvest in recent years has been due to salvage of blown-down and damaged trees from windstorms or salvage of disease-infected (e.g., white pine blister rust) trees.

Thinning of white pine is a recommended management strategy to promote white pine regeneration and increase growth rates. Dense shade from trees and shrubs greatly reduces growth of seedlings and eventually kills them. Reducing stand density down to about 50 percent crown closure (approximately 60 BA or less) allows enough sunlight to reach the forest floor to promote growth and survival of the white pine seedlings. The partial overstory also reduces the risk of white pine blister rust infection and white pine weevil damage. Thinning also allows the remaining trees to grow larger at a faster rate.

Due to the less than desired current acreage in older age-classes, no final harvest is planned in the white pine cover type during the implementation period for the CP-PMOP SFRMP. In subsequent planning periods final harvest in the white pine cover type may occur but is recommended only after a stand reaches 180 to 240 years old.

Thinning in stands will maintain or increase within-stand diversity, while retaining white pine as the main cover type. For example, the younger white pine stands may have a larger component of aspen and birch, while older stands (90+ years) may increase in white spruce and cedar with smaller amounts of aspen, birch, and balsam fir. Red pine may be present throughout the life of the stand. The following methods should be considered:

- a. Consider creating or maintaining variable densities within stands when thinning ranging from unthinned areas to heavily thinned or group-selected areas within a stand.
- b. Protect advanced regeneration of desirable understory species, where possible.
- c. Higher stand densities (BA) are recommended along stand edges exposed to wind and along high visual quality corridors, such as major roads and lakes. Older (90+ years) white pine stands will be managed primarily for a multi-aged stand structure using even-aged management techniques. The move toward a multi-aged structure will be

accomplished through thinning and shelterwood harvests. A goal is to mimic light to high intensity surface fires and partial crown fires that historically occurred.

During thinning or shelterwood harvests, from 90 years old to final harvest, retain at least 25 percent of the largest white pine present, and manage out to the ERF age of 180 - 240 years. The goal is to retain a significant number of the largest cohorts out to the final harvest age, while creating or maintaining a multi-aged white pine stand.

Every third entry should be a group selection harvest, with goal of establishing a new age-class of white pine within the stand. The long-term goal is to create stands with layered age-classes (two or more). Timing of the first group selection harvest will depend on seed production and stand condition (age, density, and distribution of white pine).

Although eliminating final harvest in mature pine stands is not consistent with the Department's multiple use directives, as identified above, many Strategies and management recommendations are included in the CP-PMOP SFRMP that give preference to thinning pine stands, maintaining all white pine as ERF and manage pine stands for understory.

DFFC from the CP-PMOP SFRMP

The Plan will move these subsections toward more conifer cover type acreage in upland areas. Cover type increases over the next 10 years will occur in jack pine 38%, white pine 23%, red pine 17% (50-year).

Representative Strategies from the CP-PMOP SFRMP:

73. Utilize harvest systems, methods and sale regulations (e.g., process at stump) that protect advanced regeneration and maintain or improve the patterns, diversity and composition of forest vegetation present in the stand prior to harvest.
74. Preserve legacy patches and inclusions in stands for seed sources and native plant diversity, as well as to favor regeneration and seeding of native vegetation.
75. Establish and manage plantations to more closely resemble naturally occurring stands by planting a variety of tree species using variable-density thinning techniques, preserving existing natural vegetation, and preserving advanced regeneration.
77. Use intermediate treatments to provide age diversity and vertical/horizontal structure in the young forest, transition and mature forest growth stages.
79. Design final harvest projects in a way that will transmit a legacy of age diversity, and vertical/horizontal structure.
93. Maintain conifers as a component of deciduous cover types where suitable to the site.
108. Retain conifers and protect conifer regeneration in clumps or strips to provide thermal cover, food, nesting cover, and structural attributes beneficial to wildlife.
111. Establish and manage plantations to more closely resemble naturally occurring stands by planting diverse tree species, preserving existing natural vegetation, and preserving advanced regeneration by using variable density thinning techniques, varying stem density, and using less intense methods

Comments relating to the Issue of Rare Species / Features:

25. (Leech Lake Band recommends that) state-designated species of greatest conservation need (SGCNs) be managed as described in the MNDNR's *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife Comprehensive Wildlife Conservation Strategy*

Response:

The SFRMP process incorporates biodiversity considerations in planning for forest systems on DNR lands. The Ecological Resources Division has provided ecological information pertinent to managing for biodiversity within the two subsections (e.g. *Tomorrow's Habitat for the Wild and Rare: Minnesota's Comprehensive Wildlife Conservation Strategy; An Action Plan for Minnesota Wildlife, 2006*; Minnesota County Biological Survey data; Natural Heritage information; and, Scientific and Natural Area biodiversity management techniques experience). SFRMP direction in addressing issues and developing GDSs, Strategies, DFFCs, and the 10-Year Stand Exam List and New Access Needs List reflect vegetative management to maintain biodiversity.

A number of wildlife species that are known to occur within the CP-PMOP are identified as Species of Greatest Conservation Need (SGCN)(see Appendix L *Terrestrial, Vertebrates Species List*). These SGCN are identified in *Tomorrow's Habitat for the Wild and Rare, An Action Plan for Minnesota Wildlife, 2006*. Key habitats for SGCN have been identified statewide with five found in the CP-PMOP. These key habitats are upland shrub/woodland (jack pine woodland), upland coniferous forest in CP, upland coniferous forest (red-white pine) in PMOP, non-forested wetlands, and headwater to large rivers. Foresters will consider these unique resources as stand prescriptions are implemented.

SGCN are taken into consideration as vegetation management is practiced in the CP and PMOP subsections through the following processes. *Tomorrow's Habitat for the Wild and Rare* is specifically identified as background material to be considered as the 10-Year Stand Exam List is prepared and also as Annual Stand Exam Lists are prepared by Forestry Areas. In preparing these stand exam lists, the *Interdisciplinary Forest Management Coordination Framework* is implemented which provides for review of proposed stand exam lists by Ecological Resources and Wildlife staff. Joint site visits are implemented if rare or sensitive species are known or thought to occur in the stand area. Further, as site visits are made a *Stand Silvicultural Prescription Worksheet* is prepared which requires the forester to assess and note any occurrences of rare, unique, threatened species for consideration as management objectives and treatment prescriptions are identified. Finally the periodic CP-PMOP SFRMP Monitoring reports specifically requires that issues related to stand management relative to rare and sensitive species be monitored.

Representative GDS from the CP-PMOP SFRMP:

Adequate landscape-level habitat and habitat components will be maintained for wildlife and plant species found within these two subsections.

Representative Strategies from the CP-PMOP SFRMP:

112. Give consideration to within stand occurrences of species that are endangered, threatened, or of special concern.

Comments relating to Other Statutes:

26. (LLB) concerned that monitoring actions proposed in the CP-PMOP SFRMP will not adequately answer whether landscape-scale goals are being met.

Response:

Chapter 5, Monitoring of the CP-PMOP SFRMP identifies the importance, process and responsibilities of monitoring the implementation of the CP-PMOP SFRMP. Beyond the department's desire to monitor the effectiveness of SFRMP planning efforts, maintaining forest certification also requires an effective, ongoing plan implementation monitoring program.

As the CP-PMOP SFRMP is implemented, monitoring of forest management activities is critical to determine if the goals of the Plan are being achieved. Listed below are the reviews and tracking of stand treatments and the landscape-level monitoring that will be used to monitor the implementation of CP-PMOP SFRMP:

- Annual Stand Exam list review among Divisions of DNR
- Stand Treatments and Site level Monitoring
- Landscape level Plan Implementation Monitoring

To monitor landscape-level forest management by the Department against the goals of the CP-PMOP SFRMP, two types of monitoring questions will be addressed:

1. Implementation Monitoring, which determines whether the management actions are being implemented as written in the CP-PMOP Plan, meaning:
2. Effectiveness Monitoring, which determines the appropriateness or effectiveness of specific management actions designed and implemented to accomplish specific objectives identified in the CP-PMOP Plan, meaning:

The CP-PMOP Planning Team through the CORE group is responsible to implement and oversee periodic monitoring of the CP-PMOP SFRMP. Chapter 5 *Monitoring* of the CP-PMOP SFRMP identifies data sources, staff responsibilities and timeframes for completing monitoring reports. Of primary importance is to record and compile the information necessary to allow meaningful monitoring to be completed. The CP-PMOP SFRMP Table 5.1 (page 5.6) identifies a broad range of Monitoring Questions, Indicators, Data Sources, Report Frequency and overall Priority to support the CP-PMOP SFRMP monitoring responsibility. Specific monitoring questions are posed that, as answered through analysis of SRM information, will provide direction as to whether the broad landscape goals of the CP-PMOP SFRMP are being addressed.

Representative Strategies from the CP-PMOP SFRMP:

36. Develop a methodology to measure growth stages, within-stand age diversity, plant species diversity and vertical/horizontal structure and use this methodology to quantify and monitor changes.
42. Identify stands with known locations of Critically Imperiled (S1) or Imperiled (S2) NPCs and monitor those stands during Annual Stand Exam List review.
75. Develop methods to measure and monitor the within-stand diversity of plant species, and provide ongoing education and training on these techniques and methods.
80. Develop a methodology for measuring growth stages, within stand age diversity, plant species diversity, and vertical/horizontal structure, and use this methodology to quantify and monitor changes.

1.3 List of organizations and individuals that submitted Comments on the Draft CP-PMOP SFRMP

The following individuals / organizations have submitted comments on *the Draft Chippewa Plains / Pine Moraines and Outwash Plains Subsection Forest Resources Management Plan* dated July 2008:

1. Dr. Steven Katovich, USDA, Forest Service, dated August 27, 2008
2. Steven Young, Headwaters Chapter of Trout Unlimited, dated September 22, 2008
3. Bruce Johnson, Leech Lake Band of Ojibwe, Division of Resource Management, dated October 10, 2008
4. Roy Higgins, Minnesota Timber Products Association, dated October 10, 2008
5. Tim J. O'Hara, Minnesota Forest Products Industry, dated October 10, 2008