

## Vegetation

This chapter is divided into four subsections and they include: (1) Landscape Ecosystem - Composition and Age. (2) Vegetation Spatial Distribution. (3) Management Area - Forest Vegetation. (4) Management Indicator Species - White Pine. Subsections #1 and #2 have been annually documented since 2004 and provide us an important assessment of vegetation attainment objectives across the forest. This 2009 Monitoring and Evaluation Report (M&E) will be the first year in addressing Subsections #3. Subsection #4 has been documented each year but previously had been discussed within the Wildlife Management Indicator Species Section.

Monitoring discussed in this chapter utilized the Combined Data System (CDS) database and associated Geographic Information System (GIS) spatial data. The Forest “froze” the CDS database November 2009 to display both accomplished, planned (NEPA decisions not yet implemented), and unplanned disturbance activities or events which had occurred since October 1, 2008.

### Landscape Ecosystem Objectives - Composition, Structure, and Age

Monitoring Landscape Ecosystem (LE) objectives is important because they are Forest-wide objectives and one of the foundations of the management direction in the Forest Plan. It is also important information for Interdisciplinary Teams (IDTs) as they plan and analyze vegetation management projects.

#### Monitoring Question

(1) To what extent are Forest management, natural disturbances, and subsequent recovery processes changing vegetation composition and structure and ecosystem processes? To what extent are conditions moving toward short-term (1-20 years) and long-term (100 years) objectives at Landscape Ecosystem, Management Area, and other appropriate landscape scales? (2) To what extent is the forest meeting vegetation composition and age class objectives for each of the Landscape Ecosystems? ([Forest Plan, Chapter 4 Monitoring and Evaluation](#))

#### Forest Plan Direction

Applicable [Forest Plan direction](#) includes O-VG-1 “Move vegetation conditions from Year 2003 conditions toward the long-term desired composition, structure, age, spatial patterns, and within-stand diversity” O-VG-13. Maintain a full range of age classes from young to old, including old growth and multi-aged growth stages... O-VG-8. Restore structural diversity and ecosystem processes within stands when harvesting or burning by retaining a diverse ....The monitoring questions and drivers were chosen because they are important for telling us if we are on track with our vegetation management in the forest. It is also critical information for IDTs as they plan and analysis vegetation management projects.

The units of measure selected were (a) Forest Type and age percentage by LE. (CDS and GIS data). FP pp 2-55 – 2-73 and (b) Percent of LE with vegetation management decisions.

These respective measures were compared against (a) Decade 1 objective for each Forest Type and Age Class percentage by LE and (b) Comparison between current LE objective achievement and percent of LE treated.

These units of measure and comparison were chosen because the LE objectives for age class and composition are key components of the Forest Plan giving direction for implementation, identifying the purpose and need for resource management activities.

**Monitoring Method(s)**

This monitoring effort considered the six LE’s across the SNF. This evaluation used data extracted from the SNF CDS and GIS data for fiscal year 2009 and compared to the objectives delineated in the [Forest Plan](#). Monitoring and evaluation for the LE’s has utilized these databases since the first monitoring effort for the 2004 Forest Plan. The [2005 SNF Monitoring and Evaluation Report, Section 8.a Vegetation Management](#) (pages 85-86) provides discussion on LE’s and forest stand data: Changes in data and GIS Layer from planning to implementation.

**Results**

The following, Tables 8.1 through 8.11, display the percentages of forest type composition and age classes for the LE’s as of the end of fiscal year 2009, September 30, 2009. They also include the 2003 existing condition and Decade 1 objectives shown in the Forest Plan.

Upland Forest Type	2009 %	FP 2003 %	FP Decade 1 %	2003 to 2009 %	2009/FP Decade 1 Comparison
Jack Pine	9	9	10	0	No Gain
Red Pine	13	13	13	0	Meets
White Pine	10	7	9	+3	Exceeds
Spruce-fir	8	8	11	0	No Gain
Oak	0	0	0	0	Meets
N. Hardwds.	1	1	1	0	Meets
Aspen	50	52	47	-2	Attaining
Paper Birch	9	10	9	-1	Meets
	100	100	100		

**Table 8.2. Dry-mesic Red and White Pine LE Age-Class Distribution**

<b>Age-Class</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009 %</b>	<b>2009/FP Decade 1 Comparison</b>
0-9	9	10	10	-1	Receding
10-49	37	33	44	+4	Attaining
50-99	42	45	32	-3	Attaining
100-139	12	12	14	0	No Gain
140+	0	0	0	0	Meets
	100	100	100		

**Table 8.3. Mesic Red and White Pine LE Vegetation Composition by Forest Type**

<b>Upland Forest Type</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009</b>	<b>2009/FP Decade 1 Comparison</b>
Jack Pine	5	5	6	0	No Gain
Red Pine	7	6	7	+1	Meets
White Pine	4	3	5	+1	Attaining
Spruce-fir	15	16	18	-1	Receding
Oak	0	0	0	0	Meets
N. Hardwds.	3	2	2	+1	Exceeds
Aspen	51	51	47	0	No Gain
Paper Birch	16	15	15	+1	Exceeds
	100	98	100		

**Table 8.4. Mesic Red and White Pine LE Age-Class Distribution**

<b>Age-Class</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009 %</b>	<b>2009/FP Decade 1 Comparison</b>
0-9	7	15	10	-8	Receding
10-49	37	30	45	+7	Attaining
50-79	24	29	16	-5	Attaining
80-99	21	17	21	+4	Meets
100-119	8	6	6	+2	Exceeds
120+	3	2	2	+1	Exceeds
	100	100	100		

**Table 8.5. Jack Pine Black Spruce LE Vegetation Composition by Forest Type**

<b>Upland Forest Type</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009</b>	<b>2009/FP Decade 1 Comparison</b>
Jack Pine	24	24	28	0	No Gain
Red Pine	10	10	10	0	Meets
White Pine	4	3	3	+1	Exceeds
Spruce-fir	12	13	15	-1	Receding
Oak	0	0	0	0	Meets
N. Hardwds.	1	1	0	0	No Gain
Aspen	45	45	40	0	No Gain
Paper Birch	5	5	5	0	Meets
	100	101	101		

**Table 8.6. Jack Pine LE Age-Class Distribution**

<b>Age-Class</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009 %</b>	<b>09 FP Decade 1 Comparison</b>
0-9	7	10	14	-3	Receding
10-49	41	38	42	+3	Attaining
50-79	22	24	18	-2	Attaining
80-109	26	25	22	+1	Exceeding
110-179	5	4	5	+1	Meets
180+	0	0	0	0	Meets
	100	100	100		

**Table 8.7. Sugar Maple LE Vegetation Composition by Forest Type**

<b>Upland Forest Type</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009 %</b>	<b>2009/FP Decade 1 Comparison</b>
Jack Pine	0	0	0	0	Meets
Red Pine	5	5	5	0	Meets
White Pine	2	1	2	+1	Meets
Spruce-fir	14	15	15	-1	Receding
Oak	0	0	0	0	Meets
N. Hardwds.	37	36	37	+1	Meets
Aspen	26	27	25	-1	Attaining
Paper Birch	16	17	17	-1	Receding
	100	100	100		

**Table 8.8. Sugar Maple LE Age-Class Distribution**

<b>Age-Class</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009 %</b>	<b>09 FP Decade 1 Comparison</b>
0-9	5	6	4	-1	Attaining
10-49	27	27	34	0	No Gain
50-99	43	45	38	-2	Attaining
100-149	24	21	23	+3	Exceeding
150+	1	1	2	0	No Gain
	100	100	100		

**Table 8.9. Mesic Birch/Aspen/Spruce-fir LE Vegetation Composition by Forest Type**

<b>Upland Forest Type</b>	<b>2009 %</b>	<b>FP 2003 %</b>	<b>FP Decade 1 %</b>	<b>2003 to 2009 %</b>	<b>2009/FP Decade 1 Comparison</b>
Jack Pine	4	3	4	+1	Meets
Red Pine	5	5	5	0	Meets
White Pine	3	2	3	+1	Meets
Spruce-fir	25	25	26	0	No Gain
Oak	0	0	0	0	Meets
N. Hardwds.	5	4	4	+1	Exceeds
Aspen	44	45	43	-1	Exceeds
Paper Birch	15	15	14	0	Exceeds
	100	100	100		

8.10. Mesic Birch/Aspen/Spruce-fir LE Age-Class Distribution					
Age-Class	2009 %	FP 2003 %	FP Decade 1 %	2003 to 2009 %	09 FP Decade 1 Comparison
0-9	6	13	10	-7	Receding
10-49	37	33	45	+4	Attaining
50-79	24	28	15	-4	Attaining
80-99	23	19	21	+4	Exceeding
100+	10	8	9	+2	Exceeding
	100	100	100		

Table 8.11. Lowland Conifer LE Age-Class Distribution					
Percentages of Age Classes for Lowland Conifer A-JPBS-DMRWP					
Age Class	2009 %	FP 2003 %	FP Decade 1 %	2003 to 2009 %	2009/FP Decade 1 Comparison
0-9	0	0	3	0	static-below
10-39	7	7	5	0	static-exceeds
40-79	25	24	18	+1	exceeding
80-159	66	65	69	+1	attaining
160+	2	3	4	-1	receding
Total	100	100	100		
Percentages of Age Classes for Lowland Conifer B-MRW-MBASF					
0-9	1	1	2	0	static-below
10-39	5	4	4	+1	exceeding
40-79	23	25	14	-2	attaining
80-159	65	62	70	+3	attaining
160+	6	8	10	-2	receding
Total	100	100	100		
Percentages of Age Classes for Lowland Conifer C-SM					
0-9	1	0	1	+1	meets
10-39	3	2	2	+1	exceeding
40-79	16	25	19	-9	receding
80-159	58	49	45	+9	exceeding
160+	22	24	33	-2	receding
Total	100	100	100		

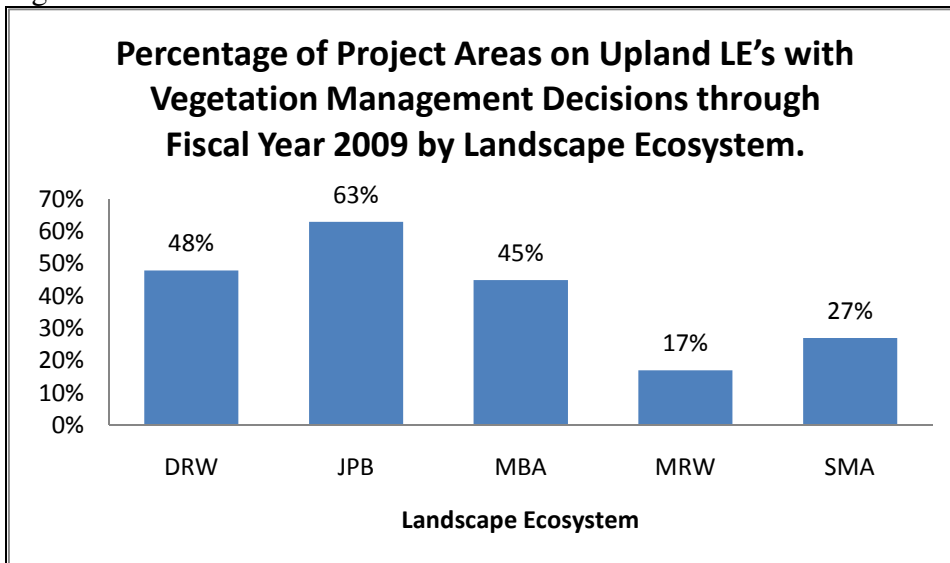
Management actions and natural succession in the Lowland Conifer LE have resulted in maintenance of existing forest type vegetation composition, meeting forest Plan Direction for maintaining existing acres of lowland black spruce, tamarack, and cedar forest types. (No table included).

In each LE with a white pine objective for Decade 1 (all but LLC) the white pine forest type has increased by one percentage point. The increase of the white pine forest type is beneficial for the SNF in terms of generally meeting LE Decade 1 objectives and in promoting white pine Forest-wide as a MIS (FP 2-35, O-WL-32 and O-WL-33). Further discussion on white pine as a MIS is included at the end of this chapter.

No apparent gains toward the Decade 1 objectives appear to have been made for the spruce-fir forest type within any of the upland LE's. In three of the LE's the amount of spruce-fir is one percentage point less than it was in 2003. It is the same percentage in 2009 as it was in 2003 in the other LE's. From 2003, the aspen type has decreased in three of the LEs and is the same in two others. The decreased aspen is consistent with LE objectives and forest-wide objectives. The jack pine forest type is trending towards LE objectives within two LE's (sugar maple and birch-aspen birch) but unchanged within the remaining upland LE's. Red pine is attaining or exceeding Decade 1 objectives across all upland LE's.

Except for the sugar maple LE, all LE's across the SNF are receding from 0-9 age class objectives and exceeding in the 50+ year age classes. Based on available acreages and relationship with Decade 1 objectives, the aspen forest type appears to provide the best opportunities to address the need to increase other forest types, especially spruce-fir.

Figure 8.1.



As shown in Figure 8.1, the Jack Pine/Black Spruce LE has the greatest percentage (63%) of vegetation management decisions made in the LE. It is also the LE with the least amount of movement towards the Forest Plan Decade 1 objectives, especially in reducing its aspen forest type and increasing the jack pine type in the 0-9 year age class. Since the objectives for the Lowland Conifer LE are to maintain existing forest composition conditions through the next 100 years, it is not included in Figure 1.

Nearly half of the Dry-mesic Red and White Pine and Mesic Birch Aspen LE's (45% each) have vegetation management decisions. The Mesic Red and White Pine and Sugar Maple LE's have had relatively low percentages of the LE with vegetation management decisions. These LEs appear to have opportunities for continued movement toward the Forest Plan Decade 1 objectives.

## **Implications**

### Dry-mesic Red and White Pine (DRW) LE Implications

*Need to work on the Spruce-fir objective.*

It appears spruce-fir and jack pine forest type objectives would be addressed by continuing to decrease the aspen forest type available acreages and relationship with decade 1 objectives. The apparent excess of the white pine forest type may be beneficial for the SNF as a whole in promoting white pine as a MIS (FP 2-35, O-WL-32 and O-WL-33).

The rate of movement to the Decade 1 objectives appears to be lagging. Regeneration harvest within the 50-99 age class would directly address need to maintain and even increase the 0-9 age-class but also eventually lead to increases in the 10-49 age-class. Efforts also need to be made to provide for increasing the 100-139 age class from the 50-99 age class through deferred timber harvesting or thinning/improvement harvests.

### Mesic Red and White Pine (MRW) LE Implications

*Need to work on the Spruce-fir and Aspen objectives.*

Based on available acreages and relationship with decade 1 objectives, it appears that the best opportunities to address the need for spruce-fir will be in the aspen and paper birch forest types.

The 0-9 year age class is substantially farther from the Decade 1 objective than it was in 2003. Opportunities to address this need through timber harvest would most likely be in the 80-99 year age class since that has increased beyond the Decade 1 objective. The 50-79 year age-class also needs to continue to decrease and it would also provide opportunities for timber harvest to address the objectives of increasing the 0-9 year age class by the end of Decade 1.

### Jack Pine Black Spruce LE Implications

*LE is static and so it is falling behind the Forest Plan Decade 1 objectives.*

Based on available acreages and relationship with decade 1 objectives, it appears that the best opportunities to address the need for spruce-fir will be in the aspen forest type. The apparent excess of the white pine forest type may be beneficial for the SNF as a whole in promoting white pine Forest-wide as a MIS (FP 2-35, O-WL-32 and O-WL-33).

The 0-9 year age class is substantially farther from the Decade 1 objective than it was in 2003. Opportunities to address this need through timber harvest would most likely be in the 80-109 year age class since that has increased and the Decade 1 objective is to decrease the percentage of the LE in this age-class. The 50-79 year age-class also needs to continue to decrease and it would also provide opportunities for timber harvest to address the objectives of increasing the 0-9 year age class by the end of Decade 1.

### Sugar Maple LE Implications

*Need to work on the Spruce-fir and paper birch objectives.*

Based on available acreages and relationship with decade 1 objectives, it appears that the best opportunities to address the need for spruce-fir and paper birch forest types will be in the aspen forest type.

Need to provide for more 0-9 age class from mature age classes to replace the forest stands about to age into the 10-49 year age class from the 0-9 year age-class. Continue to provide for forests maturing into the 100-149 and 150+ age classes to maintain opportunity to meet older forest objectives in the SMA LE.

#### Mesic Birch/Aspen/Spruce-fir LE Implications

*Need to work on the Spruce-fir objective.*

The best opportunities may exist in decreasing, changing, the aspen and paper birch forest types to address the Forest Plan objective for the spruce-fir forest type.

The 0-9 year age class is substantially farther from the Decade 1 objective than it was in 2003. Opportunities to address this need through timber harvest would most likely be in the 80-99 year age class since that has increased beyond the Decade 1 objective. The 50-79 year age-class also needs to continue to decrease and it would also provide opportunities for timber harvest to address the objectives of increasing the 0-9 year age class by the end of Decade 1.

#### Lowland Conifer LE Implications

*No definitive implications within the Lowland Conifer LE.*

Within the Lowland Conifer A and B LE, the 40-79 year old age class needs to continue to decrease to meet Decade 1 objectives for the LE. Forest stands growing and aging out of the 40-79 year age-class will contribute to the need to increase the amount of forest stands in the 80-159 year age class and in the long term the 160+ age class.

#### Forest-wide Implications

Meeting the Decade 1 objectives provides the basis for best meeting subsequent objectives for each decade of implementation identified in the Forest Plan FEIS culminating in the 10th Decade objectives. The better the SNF is able to meet the Decade 1 objectives the better the SNF will be set up to meet the Decade 2 objectives and subsequently objectives on out to the 100 year projections in the Forest Plan. Overall, Tables 8.1 through 8.11 indicate that there has been movement toward achieving Forest Plan Decade 1 objectives for the landscape ecosystems. They also indicate opportunities for achieving Decade 1 objectives. Forest composition trends noted in our analysis are generally similar to FIA data for most of the SNF LE's particularly for red pine, white pine, and paper birch.

Although there has been positive movement in moving towards achieving objectives, the Jack Pine/Black Spruce LE appears to have waning opportunities for meeting the Forest Plan Decade 1 Objectives. In addition to the 63% of the LE,s with vegetation management decisions, assessment and analysis phases were initiated in fiscal year 2009 that would lead to an additional 14%, 77% total, of the LE's with vegetation management decisions.

#### **Recommendations**

1. Conduct further assessment of the LE evaluating capabilities of the remaining project implementation areas in moving the LE's toward meeting Forest Plan Decade 1 objectives.
2. Explore options forest-wide for moving forward on JPB LE – reconfiguring project implementation areas or center project development around meeting specific LE needs across the SNF or Ranger Districts, i.e. SNF Jack Pine/Black Spruce Projects or by East or West Zones of the SNF.



## Vegetation Spatial Distribution

### Monitoring Question

Same as preceding sub-section.

### Forest Plan Direction.

Direction relating to vegetation spatial distribution is located in the [Forest Plan, pages 2-22 – 2-27](#). O-VG-17 and O-VG-18. In mature or older upland forest types ... maintain large patches (100 acres or greater), manage patches to maintain the characteristics of mature or older native upland forest vegetation communities ...O-VG-19. Maintain a representative array of large patches of mature or older lowland forest.O-VG-20. Create large patch temporary openings up to 1000 acres through management activities. O-VG-21 Increase average size of openings....O-VG-22 (zones 1 and 2) maintain or increase amount of interior forest habitat. Provide interior habitat in a variety of upland and lowland vegetation communities. O-VG-23 (zones 1 and 2) maintain or increase the acres and number of patches of mature or older upland forest patches  $\geq 300$  ac. O-VG-24 (zone 3) strive to minimize the decrease in acres and number of patches of mature or older upland forest in patches  $\geq 300$  ac. O-VG-25 (zone 3) strive to minimize the decrease in interior forest habitat in a variety of upland and lowland vegetation communities.

The monitoring question and FP objectives were chosen because they inform us if we are on track with our vegetation management in the forest. It is also critical information for IDTs as they plan and analysis vegetation management projects.

The units of measure selected included; (a) Number of patches and acres by Patch Type and Size Category, and by patch zone. FP pp 2-22 - 2-27. (MIH 13)

These respective measures were compared against (a) Decade 1 objective for each Patch Type and Size Category by patch zone. FP pp 2-22 – 2-27.

These units of measure and comparison were chosen because they are important for telling us if we are on track with our vegetation management in the forest. It is also critical information for IDTs as they plan and analysis vegetation management projects.

### Monitoring Method

The forest vegetation spatial distribution in mature and older red and white pine forest, mature and older upland forest, and mature and older lowland conifer forest were also evaluated (Table 8.12). The pine and lowland conifer mature/older forest was reviewed Forest-wide while upland forest was evaluated by the three spatial zones delineated in the [Forest Plan \(p.2-25\)](#).

The data for 2009 shown in Table 8.12 is based on information in SNF GIS layers by Management Indicator Habitats 9, 12, and 13, [Forest Plan, Appendix C, pages C-1 – C-2](#).

**Results**

Within the upland mature and older forest Zones 1 through 3, definitive trends are difficult to determine as most values remain essentially steady and continue to exceed Forest Plan direction.

Table 8.12. Vegetation Spatial Distribution (patch type and size) FY-2009						
Patch size	2009		Forest Plan Standards, Guidelines, and Objectives		2004	
	Acres	#	Acres	#	Acres	#
Red/White pine mature and older forests patches (Forest-wide)						
100+	22,689	106	17,300	88	17,300	88
300+	7,511	12	4,700	8	4,700	8
All upland mature and older forest by Zone						
Zone 1						
300+	45,627	79	44,700	na	51,500	86
1000+	9,466	5	na	8	13,200	8
Zone 2						
300+	62,599	36	54,400	na	60,700	35
1000+	51,029	14	na	14	50,000	14
10,000+	16,539	1	11,700	1	13,000	1
Zone 3						
300+	200,059	167	O-VG-24 Strive to minimize decrease in acres and numbers of patches of mature or older upland forest in patches $\geq$ 300 acres.		185,200	177
1000+	134,854	43			116,500	47
10,000+	28,002	2			10,100	1
Lowland Conifer mature and older forest patches						
100+	81,462	351	O-VG-19 Maintain representative array of large patches ( $\geq$ 300 ac) of mature or older lowland forest.		72,500	310
300+	34,517	58			30,300	52
1000+	9,412	6			6,600	4

The information in Table 8.12 is very close on to the [2008 Monitoring and Evaluation Report \(p. 8.5\)](#) data on vegetation spatial distribution information for patches Forest-wide and for Zones 1 through 3. Some observations include:

- Within the red and white pine mature and older forest, patch size and number continue to surpass Forest Plan direction for both 100+ and 300+ acre patch sizes. The trend since 2005 shows continued increases in both categories. This increase likely resulted from succession of forest stands into older age classes and updated inventories.
- Within Zone 1, the number of 1000+ acre patches identified during 2008 was five, which is below the desired Forest Plan number of eight.
- Within Zone 2 the Forest Plan direction is to maintain one patch at 11,700 acres (which was in existence in 2004). Current condition shows an existing patch of 16,539 acres.

Potential fragmentation at this time would appear to be primarily due to wind events which create young forest gaps in the existing patch.

- In Zone 3, acres of patches in all size categories continue to exceed the 2004 existing condition. Although there was an increase in acres of patches in Zone 3 going from about 195,676 acres in 2008 to about 200,059 acres in 2009, there was one fewer patches overall in the Zone.
- Size and number of all patch categories in the lowland conifer mature and older forest continue to exceed those existing in 2004.

### **Implications**

Although the SNF is doing very well in meeting the Forest Plan standards, guidelines, and objectives for mature and older forest patches, the difference between the 2009 condition and the Forest Plan is not substantially large. Vegetation management project analyses need to continue to not only fully consider the potential negative effects but also take advantage of opportunities to promote proposed harvest on mature and older forests patches.

### **Recommendations**

None.

## **Management Area – Harvest Treatments**

Monitoring harvest treatments by Management Area (MA) is important because it indicates how activities occurring on the ground relate to what was projected in the forest plan. It also gives some indication of the forest structure being created by the harvest treatments.

### **Monitoring Question**

Same as preceding section of this chapter.

### **Forest Plan Direction.**

[D-LR-3](#) - A full range of silvicultural practices is employed. However, compared to General Forest MA, There is more uneven aged and partial cut harvesting resulting in more uneven aged and multi-aged forest. This area will have less extensive even-aged harvests than the General Forest MA. When clearcutting is used in this MA, it is often done at longer rotation ages

The Forest Plan Desired Condition was chosen because Achievement of MA vegetation objectives has not been looked at in previous M and E reports. This is important to determine if we are on the right track towards MA objectives.

The units of measure selected were 1. Harvest Treatments by FACTS by MAs in SNF GIS files And 2. Stand ages at time of harvest. Achievement of MA vegetation objectives has not been looked at in previous M and E reports. This is important to determine if we are on the right track towards MA objectives.

**Monitoring Method(s)**

The monitoring and evaluation shown in this section utilizes data from the Forest Activity and Tracking System (FACTS) and GIS maintained by the SNF. The data show acres of each type of harvest by Management Area across the SNF for fiscal year 2009 and stand ages at time of harvest. This information is compared to [Table APP-D3, Appendix D, page D-3](#) of the Forest Plan showing proposed management practices in Decade 1.

**Results**

**Table 8.13. FY2009 Harvest Treatments in Acres by Management Area**

<b>Management Area</b>	<b>Thin</b>	<b>Clear cut</b>	<b>Shelterwood &amp; Partial Cut 30</b>	<b>Uneven-Aged</b>	<b>Uneven-aged (aspens-fir)</b>	<b>Permanent Land Clearing</b>	<b>Totals</b>
General Forest (GF)	708	1940	190	0	0	21	2859
GF Longer Rotation	962	638	267	15	1	0	1883
Rec Use in Scenic Landscape	244	95	0	0	0	0	339
SPM Recreation	67	105	0	0	0	0	172
Eligible W,S,&R Rivers	63	0	0	0	0	0	63
<b>Totals</b>	<b>2044</b>	<b>2778</b>	<b>457</b>	<b>15</b>	<b>1</b>	<b>21</b>	<b>5316</b>

**Table 8.14. Projected Annual Average of Proposed and Probable Harvest Treatments in Acres by Management Area and Treatment Type in Decade 1**

<b>Management Area</b>	<b>Thin</b>	<b>Clear cut</b>	<b>Shelterwood &amp; Partial Cut 30</b>	<b>Uneven-Aged</b>	<b>Uneven-aged asp-asp/fir</b>	<b>Tot annual avg Decade</b>
General Forest (GF)	745	5,604	993	65	479	7,886
GF Longer Rotation	356	2,539	808	73	249	4,025
Rec Use in Scenic Landscape	0	225	302	134	49	710
Potential W,S,&R Rivers	0	0	110	7	44	161
SPM Recreation	0	0	71	10	223	304
SPNM Recreation	0	0	0	0	7	7
Riparian Emphasis Areas	0	0	36	2	61	99
<b>Total Annual Average</b>	<b>1,101</b>	<b>8,368</b>	<b>2,320</b>	<b>291</b>	<b>1,112</b>	<b>13,192</b>

**Table 8.15. Acres Cut by Age at Time of Harvest - FY 2009**

Management Area	Harvest Treatment	Age at Time of Harvest (years)								Total Acres
		< 10	10	20	30	40	50 - 99	100 - 149	150+	
General Forest (GF)	Clearcutting	38	44	30	17	15	1788	273	0	2205
	Shelterwood	0	0	0	0	0	174	15	0	189
	Thinning	0	0	0	0	174	488	41	0	703
Eligible W,S,&R Rivers	Thinning	0	0	0	0	43	20	0	0	63
GF Longer Rotation	Clearcutting	4	2	8	16	5	431	130	0	596
	Uneven-Aged (aspen-aspen/fir)	0	0	0	0	0	1	0	0	1
	Uneven-Aged	0	0	0	0	0	15	0	0	15
	Shelterwood & Partial Cut 30	1	0	2	3	2	159	98	0	265
	Thinning	0	27	5	76	386	451	18	0	963
Rec Use in Scenic Landscape	Clearcutting	0	14	0	0	0	79	2	0	95
	Thinning	0	0	244	0	0	0	0	0	244
SPM Recreation	Clearcutting	0	0	4	1	0	92	7	0	104
	Thinning	5	0	0	1	24	19	18	0	67
<b>TOTAL</b>	Total Acres	48	87	293	114	649	3717	602	0	5510

**Harvest Treatment Assessment:** The data shown in Tables 8.13 through 8.15, represent a snapshot of harvest treatments across the SNF by Management Area for FY-2009. It shows that overall harvest treatments accomplished on the SNF in 2009 represented about 40% of the annual average of proposed and probable harvest treatment acres shown in the Forest Plan ([Appendix D, Table APP-D3, page D-3](#)). In particular, this snapshot of the harvest treatments is consistent with the Landscape Ecosystem 0-9 year age-class data depicting receding percentages of the 0-9 year age class across the SNF.

Figure 8.2.

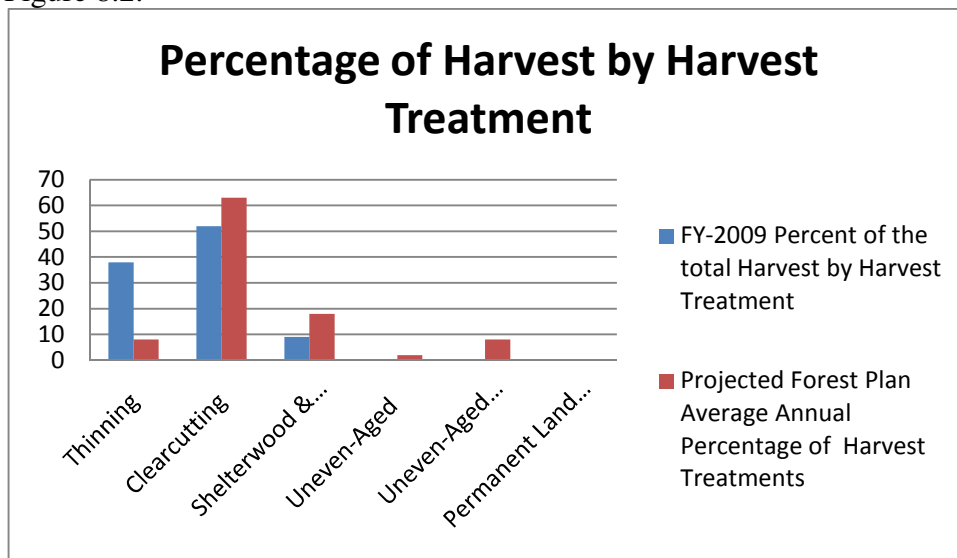
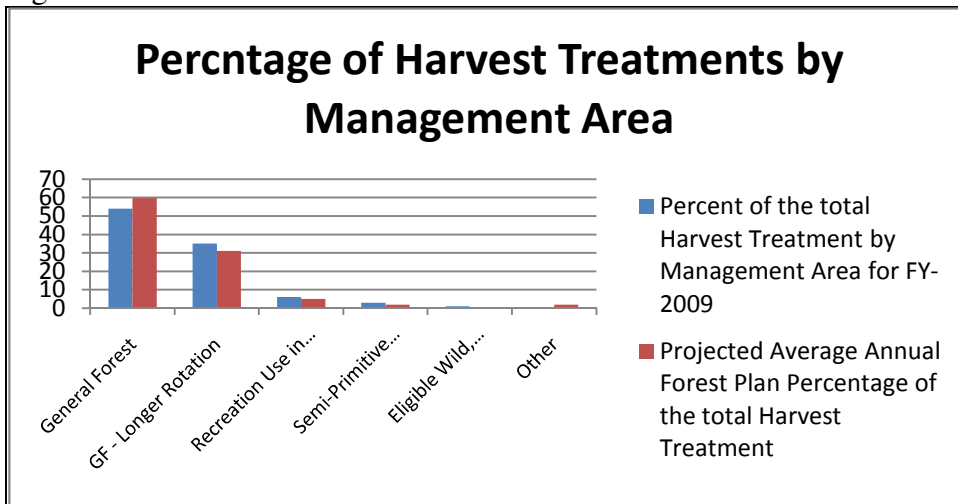


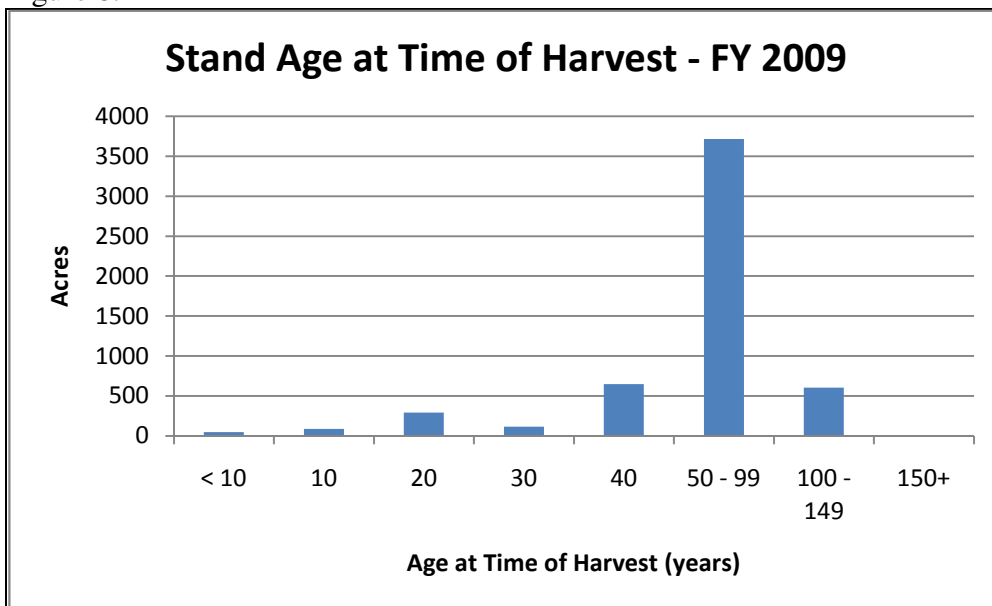
Figure 8.3.



As shown in Figures 8.2 and 8.3, there was a strong correlation between what was proposed in the Forest Plan and the harvest treatments in fiscal year 2009 in terms of the amount of harvest by management area and by harvest treatment. (See Chapter 6.1 Timber for discussion relating Proportion of Clearcutting on the SNF.)

Although the number of acres is lower than the numbers projected in the Forest Plan, they do represent consistency in the relationship of types of harvest projected to be the most prevalent in the Management Areas, especially in General Forest and General Forest - Longer Rotation. Clear-cutting was more prevalent in General Forest than in General Forest - Longer Rotation and General Forest - Longer Rotation had a greater proportion of intermediate harvest treatments than in General Forest.

Figure 8.4



**Implications**

Although there are some inconsistencies in the comparison between fiscal year 2009 and the projected annual average of the Forest Plan proposed harvest treatment (e.g. Thinning as shown in Figure 8.2), the comparisons imply that the harvest treatment projections in the Forest Plan were accurate in their relative magnitudes expected to occur.

**Management Indicator Species - White Pine**

**Monitoring Question**

To what extent is Forest management moving short- term (10-20 years) and long-term (100 years) objectives for their habitat conditions for management indicator species?

**Forest Plan Direction**

[Forest Plan direction](#) includes O-WL-32 Increase amount of white pine to amounts more representative of native plant communities by... This objective matches white pine objectives shown in the Landscape Ecosystems Objectives section. MIH Objectives. O-WL-33 Manage to improve white pine survival on planted sites and as many naturally regenerating sites as practical.

The unit of measure selected was 1. White pine forest type acres and percent by LE. This measure was compared against Decade 1 objective for white pine % by LE. FP pp 255-273. The monitoring question, FP objectives, units of measure and units of comparison were chosen because this is an MIS species and required monitoring. Also, we have distinct objectives for increasing White Pine on the Forest, O-WL-32 and O-WL-33.

**Monitoring Method**

This monitoring effort considered the six LE’s across the SNF. The evaluation used the CDS and GIS data for fiscal year 2009. Monitoring and evaluation for the LE’s has utilized these databases since the first monitoring effort for the Forest Plan since 2004. The Lowland Conifer LE was not included in this evaluation because there are no white pine composition objectives for that forest type in this LE.

**Results**

8.16. White Pine Forest Type Composition by Landscape Ecosystem					
LE	2009 %	FP 2003 %	FP Decade 1 %	2003 to 2009	2009/FP Decade 1 Comparison
MBA	3	2	3	+1	Meets
SMA	2	1	2	+1	Meets
JPB	4	3	3	+1	Exceeds
MRW	4	3	5	+1	Attaining
DRW	10	7	9	+3	Exceeds

MBA - Mesic Birch/Aspen/Spruce-fir; SMA – Sugar Maple; JPB – Jack Pine/Black Spruce; MRW - Mesic Red and White Pine; DRW – Dry-mesic Red and White Pine.

The white pine forest type meets or exceeds the Decade 1 objectives for white pine in four of the five LE's with objectives for the white pine forest type. The white pine forest type has increased in all of the LE's across the SNF. In the one LE where white pine does not currently meet the Decade 1 objective, Mesic Red and White Pine, the forest type is one percentage point from the objective. It has increased to four percent of the LE, up one percentage point from 2003.

### **Implications**

The increase on the white pine forest type across the SNF indicates that vegetation management across the SNF has consistently addressed the need for increasing white pine. The vegetation management projects have addressed not only LE composition objectives for white pine, but also for promoting white pine as a MIS consistent with Forest-wide objectives, O-WL-32 and O-WL-33.

As discussed on pages 8.5 and 8.6 of this chapter, the Dry-mesic Red and White Pine, Mesic Red and White Pine, and Mesic Birch/Aspen/Spruce-fir LE's and still have substantial amounts of the LE's to be considered in vegetation management projects to address Decade 1 objectives. These LE's also have the

### **Recommendations**

1. The SNF should continue to assess LE conditions and incorporate opportunities for establishing the white pine forest type. This is especially true for the Mesic Red and White Pine and Dry-mesic Red and White Pine LEs.