

Chapter VI

Appendices



Plan Appendix A

Management Area Map

The Ottawa National Forest Land and Resource Management Plan
"Management Area Map" is in the enclosed map packet.

Plan Appendix B

Timber Resource Summaries

Appendix B describes the timber resource as managed under the Forest Plan including timber resource land classification, allowable sale quantity and long-term sustained yield capacity, the planned vegetative management practices in the 10 years of plan implementation, descriptions of present and future forest conditions, timber productivity classification, and timber management activities on lands unsuitable for timber production.

Timber Resource
Land Suitability
Classification

National Forest System Land and Resource Management Planning Rules and Regulations (36 CFR, Part 219) to the National Forest Management Act require that the total net area of each National Forest be classified by its land management planning use status. The following category descriptions and definitions were used to identify forest lands' suitability for timber production.

1. Water - All nonmeandered rivers and streams 120 feet or more in width and lakes, reservoirs, and ponds more than 1 acre in size. Such areas were classified as not suited for timber production.
2. Nonforested Land - Lands never having or incapable of having 10 percent or more of the area land occupied by forest trees, and lands capable of supporting such cover but currently developed for nonforested uses.
3. Forested Land - Lands having or capable of having at least 10 percent of the area occupied by forest trees of any size and which are not currently developed for nonforest uses.
4. Forested Land Withdrawn from Timber Production - Lands designated by Congress, the Secretary of Agriculture, or the Chief of the Forest Service for purposes that preclude timber production. Experimental forests were included if their objectives preclude regularly scheduled timber production. Withdrawn land was classified as not suited forest land. It includes proposed research natural areas identified in compliance with 36 CFR 219.25.
5. Forested Land Not Producing Crops of Industrial Wood - Lands producing tree species that are not currently used industrially or not expected to be used industrially within the next 10 years. Such lands were classified as not suited forest land.
6. Forested Land Physically Not Suited - Forest lands where technology is unavailable to ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions; and lands Forest managers cannot ensure will be adequately restocked within 5 years. Such lands were classified as not suited forest land.
7. Forested Land - Inadequate Information - Forest lands where managers lack adequate information, based on current research and experience, to project responses to timber management practices. These lands were categorized as not suited forest land.
8. Tentatively Suitable Forest Lands - Forest lands tentatively identified as appropriate for timber production were calculated by taking the Forest land total and subtracting 1) lands withdrawn from timber production; 2) lands not producing crops of

industrial woods; 3) lands not physically suited; and 4) lands where information is inadequate.

9. Forested Land Not Appropriate for Timber Production - Forested lands inappropriate for timber production were determined by reviewing tentatively suitable Forest lands and summarizing the acres that were: (1) assigned to other resource uses to meet Forests' Plan objectives; (2) needed to meet minimum management requirements; and (3) not being the most cost efficient in meeting Forests' Plan objectives over the planning horizon.

10. Not Suited Forest Land - Total of items 4, 5, 6, 7, and 9.

11. Land Suitable for Timber Production - Lands that will be used for timber production as identified by the Forest Plan.

12. Total Net National Forest Land and Water - National Forest System land acreage of the Ottawa National Forest; total of items 1, 2, and 3.

Table B.1 summarizes the acreages identified for each of the above categories.

Table B.1
 Timber Resource Land Suitability Classification
 (in thousands of acres)

Type of Land	Acreage
1. Water	8.4
2. Nonforested land	59.3
3. Forested land	858.3
4. Forested land withdrawn from timber production ^{3/}	16.4
5. Forested land not producing crops of industrial wood	-
6. Forested land physically not suited: irreversible damage likely to occur ^{4/} not restockable within 5 years	2.8
7. Forested land-inadequate information ^{1/}	22.3
8. Tentatively suitable forest land (Items 3 minus items 4,5,6 & 7)	816.8
9. Forested land not appropriate for timber production ^{2/ 5/}	254.8
10. Not suited forest land (Items 4,5,6,7 & 9) ^{5/}	296.3
11. Land suitable for timber production (Item 3 minus Item 10)	562.0
12. Total net National Forest land and water (Items 1, 2, and 3)	926.0

^{1/} Lands for which current information is inadequate to project responses to timber management (Primarily lowland conifers and hardwoods on lowland-acid -organic soils).

^{2/} Lands identified as not appropriate for timber production due to (1) assignment to other resource uses to meet Forest Plan objectives; (2) needed to meet minimum management requirements; and (3) not being the most cost efficient in meeting Forest Plan objectives over the planning horizon.

^{3/} Forest land withdrawn from timber production -McCormick RNA and Experimental Forest- 16,402 acres of productive forest land.

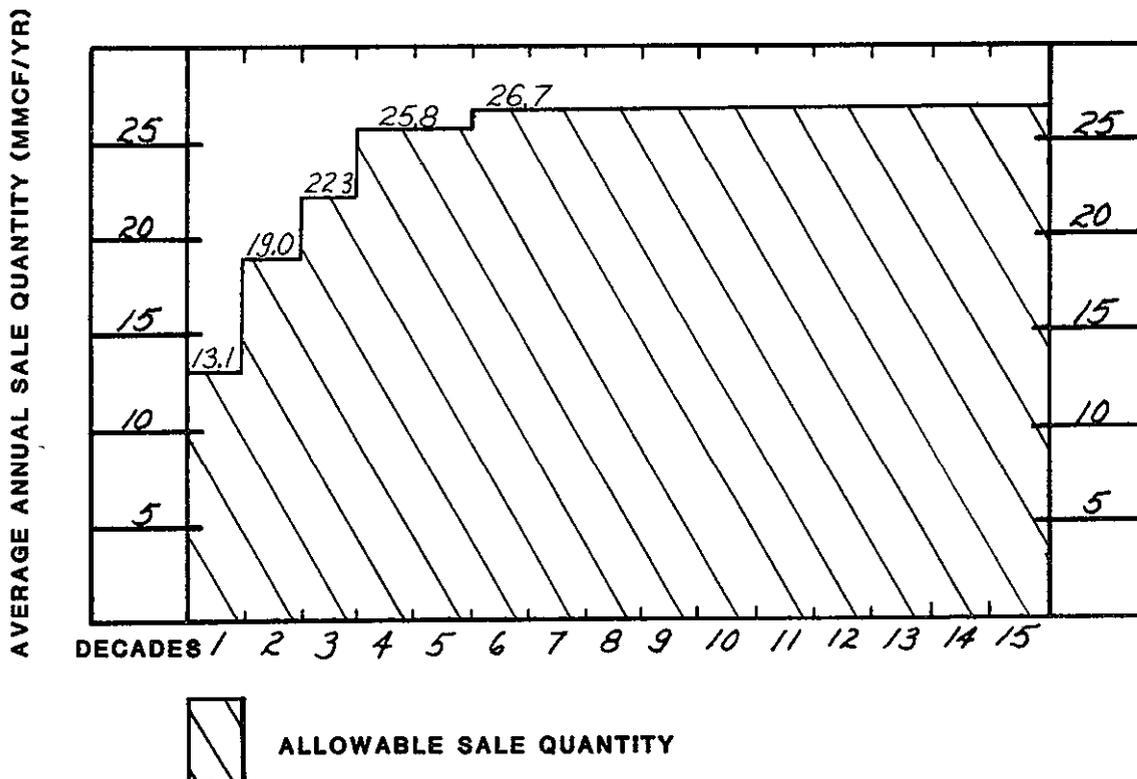
^{4/} Steep unstable slopes on river valley walls in LTA 20.

^{5/} Includes Sylvania roadless area (14,514 acres), Sturgeon Gorge roadless area (14,702 acres), and wild/scenic inventory river candidate corridors.

Allowable Sale
Quantity and
Long-Term
Sustained Yield
Capacity

The quantity of timber that may be sold from the area of suitable forestland for a specified time period is the "average annual allowable sale quantity" as shown in Figure B.1.

Figure B.1
Allowable Sale Quantity and Long-term Sustained Yield Capacity 1/



1/ For conversion to MMBF, multiply MMCF by 5.95

By Decade 6, the volume sold should approach the long-term sustained yield capacity (LTSY). LTSY is the highest uniform wood production from lands being managed for timber production that may be sustained under the goals, policies, and standards of this plan. LTSY is estimated at 26.7 MMCF/Yr.

Vegetative
Management
Practices and
Allowable Sale
Quantity

Tables B.2a and B.2b includes a summary of the average annual acreage of vegetative management practices that are to be applied to suitable forest lands during the 10 years of plan implementation. The total allowable sale quantity for the first decade is displayed along with an estimated breakdown of the allowable sale quantity by vegetative management practice and timber species/product group, which is planned to be produced from suitable forest lands.

Standards and guidelines applicable to these vegetative management practices can be found in Chapter IV of the Forest Plan.

A description of the harvest cutting methods and the rationale for the selection of appropriate harvest cutting methods by forest type can be found in Appendix C of the Forest Plan.

Table B.2a
Vegetation Management Practices and Allowable Sale Quantity
Annual Average, First Time Period

Practice	1/ Acres	Allowable Sale Quantity 5/						Total
		Hardwood Sawtimber	Softwood Sawtimber	Hardwood Pulpwood	Softwood Pulpwood	Aspen Swtbr.& Pulp		
<u>Regeneration Harvest</u>								
Clearcut	4,860	490	685	1,250	630	3,460	6,515	
Shelterwood Seedcut	1,210	300	240	300	125	80	1,045	
Selection 3/	3,800	540	100	1,620	165	240	2,665	
<u>Intermediate Harvest</u>								
Commercial thinning	2,900	320	450	1,000	430	320	2,520	
Removal cut 2/	340	150	80	100	25	-	355	
<u>Total for all Harvest Methods</u>	13,110	1,800	1,555	4,270	1,375	4,100	13,100	

Table B.2a (continued)

Practice	Allowable Sale Quantity ^{5/}						Total
	^{1/} Acres	Hardwood Sawtimber	Softwood Sawtimber	Hardwood Pulpwood	Softwood Pulpwood	Aspen Swtbr. & Pulp	
Additional Nonchargeable Volume ^{8/}	100	-	-	-	-	-	100

(in thousand cubic feet) ^{7/}

Table B.2b
Vegetation Management Practices, Average Annual Acreage, 1986-1995

Practice	^{1/} Acres
<u>Timber Stand Improvement</u> ^{4/}	1,050
<u>Reforestation</u>	
Natural (without site preparation)	5,540 ^{6/}
Natural (with site preparation)	3,800
Artificial	530

- ^{1/} Represents average annual acreage for the first time period, individual years may vary considerably from the 10 year average.
- ^{2/} Includes delayed removal cuts where regenerated stand is in an advanced stage of development.
- ^{3/} Includes improvement cuttings in stands being managed on an uneven-aged basis which have not yet reached the desired size class distribution.
- ^{4/} Includes release, cleaning and weeding, pre-commercial thinning and crop tree release.
- ^{5/} Includes only chargeable volumes from suitable lands.
- ^{6/} Results from regeneration cutting where no additional site preparation is required
- ^{7/} To convert to thousand board feet, multiply sawtimber by 5.4 and pulpwood by 6.4; to convert pulpwood to cords multiply by 12.7
- ^{8/} Includes only nonchargeable volumes from suitable and/or unsuitable lands, not included in the Allowable Sale Quantity. Since this volume is from unscheduled sales, no breakdown by method of harvest or species product group is provided. Situation where timber management activities may occur on unsuitable lands are described later in this appendix.

Present and
Future Forest
Conditions

Tables B.3a, B.3b, and B.3c display the present and future forest conditions in terms of growing stock volume, annual net growth, age class distribution, and rotation ages by vegetative type.

Summaries of present forest growing stock volume, live cull, salvable dead, annual net growth, and annual mortality are extrapolated from summaries of permanent plot inventory data for the Ottawa National Forest, and include estimates for both suitable and unsuitable forest land. Future forest inventory and growth estimates are based on FORPLAN inventory and growth reports and are only estimated for suitable forest land.

Present age class distribution is based on FORPLAN age class reports for suitable forest lands at the beginning of the planning horizon. Age class distribution of future forest is based on FORPLAN age class reports for suitable forest lands after 150 years.

Rotation ages by existing and regenerated vegetation types on lands suitable for timber production are expressed in terms of the range and average rotations. The range and average rotations for vegetation are based on the ages at which the vegetation is scheduled for final harvest from lands suitable for timber production, and as needed to meet the objectives of the Forest Plan in terms of conditions, outputs, and services provided.

Table B.3a
Present and Future Forest Conditions

	Unit of Measure	Suitable Land 2/	Not Suited Land
<u>Present forest</u>			
Growing stock	MMCF	784.0	386.0
	MMBF	4,234.0	2,084.0
Live cull	MMCF	60.6	29.8
	MMBF	327.2	161.1
Salvable dead	MMCF	28.6	14.1
	MMBF	154.4	75.9
Annual net growth	MMCF	23.9	11.8
	MMBF	129.1	63.5
Annual mortality	MMCF	6.9	3.4
	MMBF	37.3	18.4
<u>Future Forest 1/</u>			
Growing stock	MMCF	558.8	-
	MMBF	3,324.9	-
Annual net growth 1/	MMCF	26.7	-
	MMBF	158.9	-

1/ Future forest in 150 years

2/ Suitable forest lands include only those lands where timber management activities are planned (Refer to Table B.1).

Table B.3b
Age Class Distribution
Suitable Forest Acreage 2/

Age Class (years)	Present Forest (thousand acres)	Future Forest <u>1/</u> (thousand acres)
0-19	52	92
20-39	23	124
40-59	216	83
60-79	139	53
80-99	22	37
100+	47	8
Uneven-aged	63	165
Total	562	562

1/ Future forest in 150 years

2/ Suitable forest lands include only those lands where timber management activities are planned (refer to Table B.1).

Table B.3c
Rotation Ages by Existing and Regenerated Vegetative Type

Vegetative Type	Existing Vegetation <u>3/</u>		Regenerated Vegetation <u>4/</u>	
	Range	Average	Range	Average
	(years)		(years)	
Aspen-paper birch	40-90	64	40-70	54
Balsam fir-jack pine	50-90	69	50-80	67
Northern hardwoods	70-180	124	60-130	96
Lowland conifer	60-230	151	60-100	70
Hemlock	150-210	184	150	150
White spruce-red & white pine	90-220	137	50-130	91

3/ Based on age of final harvest cut of existing stands by existing vegetative type on lands suitable for timber production.

4/ Based on age of final harvest cut of regenerated stands (future conditions) by regenerated vegetative type on lands suitable for timber production.

Timber
Productivity
Classification

Table B.4 displays the acreage of land suitable for timber production, by cubic feet productivity classes. Productivity is based on the potential biological growth of natural stands.

Table B.4
Timber Productivity Classification

<u>Potential Growth</u> (cubic feet/acre/year)	<u>Suitable Lands</u> (thousands of acres)	<u>Not Suited Lands</u> (thousands of acres)
Less than 20	-	95
20-49	75	80
50-84	345	119
85-119	126	2
120+	16	-
Total	562	296

Timber Management
Activities
Carried Out on
Lands Not Suited
for Timber
Production

The following timber management activities may be carried out on not suited forest lands:

- Salvage or sanitation harvesting of trees or stands that are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect or disease attack.
- Cutting of individual trees or stands to test logging systems, to conduct experiments, or for the purpose of gathering information about tree growth, insect or disease organisms, or determining the effect of harvesting on other resources.
- Cutting of trees to promote the safety of forest users, such as hazard-tree removal in campgrounds and picnic areas, administrative sites, and along roads open to the public.
- Harvesting to meet habitat objectives for endangered or threatened animal or plant species or to maintain or improve habitat for fish or wildlife management indicator species.

- Harvesting to improve the visual resource by opening scenic vistas or by improving visual variety.
- Harvesting of firewood and Christmas trees.
- Harvesting to provide access for activities such as road construction or utility corridors.

Plan Appendix C

Harvest Cutting Methods

Appendix C describes the harvest cutting methods used under the Forest Plan and provides rationale for why these methods are considered appropriate.

Introduction

The National Forest Management Act of 1976 (Section 6(g)(3), (e)(iv) and (f)(i)) and the resulting Secretary's Regulations (36 CFR 219.15) require that vegetation management practices be chosen that are appropriate to meet the objectives and requirements of the land and resource management plan.

The Region recognizes 62 different forest survey types, (FSH 2409.21d-R9, June 1984), of which this Forest has 33 types, (FSH 2409.21d-R9, Ott. Supp. No. 5, Feb. 1985). The principal references for these types are within Silvicultural Systems for the Major Forest Types in the United States, Agricultural Handbook 445; and Silvics of Forest Trees of the United States, Agriculture Handbook 271. Additional references include manager's guides on individual tree species and collective forest types. The guides describe silvicultural characteristics by type and management practices appropriate for various management objectives. They also provide guidance on other resource considerations, such as soils, water, recreation, wildlife, and insect and disease management.

References are listed at the end of this Appendix.

Silvicultural Systems and Regeneration Harvest Methods

The principal objective in harvesting timber is to regenerate a stand to meet a number of resource management objectives. These include desired conditions for visual management, species composition, wildlife habitat, timber product mix and integrated pest management. Achieving the management objective is foremost in selecting the harvest method. Although there are many harvest methods used in managing forest lands, there are only two silvicultural systems, uneven-aged and even-aged management.

Within the even-aged category, there are three silvicultural harvest methods recognized by the Society of American Foresters: clearcutting, shelterwood, and seed tree. The uneven-aged category consists of the selection method. Principal variations are individual tree and group selection.

Uneven-aged System

A stand is considered uneven-aged if three or more 20-year age classes are represented within the stand (Roach, 1974). With an uneven-aged system, a portion of each age class in each stand must be harvested on a routine cutting cycle such as 10 to 20 years. Under a system with a 15-year cutting cycle, there would be harvesting activity on approximately 7 percent of the Forest landbase managed uneven-aged each year.

Two harvest methods may be used in an uneven-aged silvicultural system, individual tree selection and group selection. Under this plan, the individual tree selection method will be the predominant uneven-aged harvest method. However, in some cases, the group selection may be used to more effectively meet the management objective on a particular site.

Individual Tree
Selection
Method

Individual tree selection entails the periodic removal of individual trees. Initial cutting is often referred to as an "improvement cut" which is designed to move an even-aged stand toward an uneven-aged condition. The goal of the selection method is to maintain a given number of trees per acre in several diameter classes. This practice should not be confused with "high grading" where only large trees are cut. In order for the practice to work, some trees must be cut or killed within most, or all, diameter classes to maintain the desired distribution of diameter classes in the residual stand. This method favors shade-tolerant tree species.

Shade tolerance is a term that refers to the ability of a tree to survive and grow in shaded conditions. The primary species in this area that are shade tolerant are sugar maple and balsam fir.

The individual tree selection method meets the needs of most high-forest, cavity-dwelling, closed canopy wildlife species. This method is least beneficial for wildlife species that use openings, edges, and low browse.

The visual resource is minimally affected by harvesting with the individual tree selection method. This method provides for retaining a large-tree character in the landscape. To some, the frequent and repeated harvest operations and the extensive road system may be objectionable.

Group Selection
Method

In the group selection method, the management area is treated as a single stand and the volume to be harvested each cutting cycle determines the number of openings to establish.

The objective of this method is to establish desirable regeneration at each harvest cycle, thereby producing an uneven-aged stand. Because the removal of groups will permit more light to reach the forest floor than with individual tree selection, group selection can be used to encourage a higher proportion of shade-intolerant species.

When group cuts are made of a maximum size, often considered to be 2 acres, they resemble small clearcuts. The aesthetic and

wildlife benefits of using group selection depend largely upon group size and spacing.

Group selection harvest systems develop a vegetative condition with an interconnected canopy and many small openings (1/2 acre to 2 acres) simulating a checkerboard pattern within a forested environment. Unbroken stands of timber (20+ acres) would not exist. Wildlife that do well in a forested environment with many small openings and in a variety of age classes would do well in the habitat provided by group selection harvest. (i.e., rufous-sided towhee, white-crowned sparrow, barred owl, and redstart).

This method has not been practiced on the Ottawa National Forest in the past and will be used only on a very limited basis under this land and resource management plan.

Regeneration of mid-tolerant species can be accomplished more efficiently with the shelterwood method. Also, the group selection method is more difficult to regulate and site preparation for increasing mid-tolerant species would be uneconomical due to the very small size of regeneration groups. Therefore, in most cases, management objectives can be achieved more efficiently by use of the individual tree selection method or the shelterwood method.

Even-aged System

The intent of an even-aged management system is to maintain stands of manageable size and of the same age or age class. A stand is considered even-aged if the difference in age between the oldest and youngest trees of the managed stand does not exceed 20 percent of the length of rotation. This is 16 years for an 80-year rotation and 24 years for a 120-year rotation. With any of these systems, the size, shape, timing, and dispersion of harvest units is done to achieve the multiple use management objectives for the area.

The rotation age under an even-aged management system is the number of years between establishment of a stand of timber and when it is considered ready for final harvesting and regeneration. If a forested area is being managed on 120-year average rotation, about 8 percent of the area would be regenerated each decade, or less than 1 percent per year. During a rotation, there may be one or more periodic thinnings prior to the next regeneration harvest. Thus, the area may be directly impacted by harvesting equipment periodically after the trees in the stand reach commercial size.

Commercial thinnings are conducted periodically, usually at 10-20 year intervals, to maintain the density and composition of trees at a level which helps meet a variety of management objectives.

Some of the more obvious objectives of thinnings are to improve the growth rate of residual trees and provide for the periodic removal of a portion of the timber volume.

Some of the more subtle objectives of thinnings may include:

- Improving the composition of the stand to favor a more desirable mix of tree species.
- Improving the quality of the trees upon which growth occurs thus improving the dollar value growth in the stand.
- Harvesting trees that have a high risk of mortality thus utilizing wood volume which would otherwise be lost to mortality.
- Harvesting insect or disease infected trees to help reduce the spread of a particular insect or disease problem.
- Maintaining a more vigorous and healthy stand of trees thus reducing the risk of insect or disease attacks.
- Improve the diameter growth of residual trees resulting in a stand of larger diameter trees in a shorter period of time.
- Opening up the canopy of the stand to allow more sunlight to reach the ground and stimulating more plant growth to occur on the forest floor.

Thinning can alter the dynamics of a stand in several ways to help achieve more desirable conditions for a variety of resource uses.

Even-aged management offers many opportunities for a wide range of vegetative diversity. Even-aged management can provide a wide range of vegetative cover type composition in terms of species mixtures and also in terms of age classes, ranging from old mature forest to open conditions.

Three regeneration harvest methods may be used in an even-aged silvicultural system--clearcutting, shelterwood, and seed tree. Under this plan, the clearcutting and shelterwood methods will be featured. However, the seed tree method may have limited application in situations where it best meets site-specific management objectives.

Clearcut Method

With the exception of trees left for wildlife or visual purposes, all merchantable trees on an area are harvested at one time in clearcutting. Unmerchantable trees are often also felled to eliminate competition with the regeneration. Regeneration of tree species develops from natural seeding and/or sprouting or artificial seeding or planting in clearcut areas. This regeneration method favors the establishment and development of shade-intolerant species, such as aspen and jack pine.

Clearcutting is a method that can provide for a disturbance of a site needed to return the vegetation to an earlier successional stage. In a natural condition, this disturbance could be caused by wildfire, insects, diseases, or windthrow. Without manmade or natural disturbances, the forest tends to move toward a condition dominated by late successional vegetation such as sugar maple.

To obtain desirable natural regeneration of types such as aspen or jack pine, clearcutting is the most effective method.

Clearcutting favors species of wildlife that utilize open and young growth habitat conditions or are well adapted to early successional vegetative types, such as the five-lined skink, golden-winged warblers, white-tailed deer, and ruffed grouse.

Shelterwood Method

In the shelterwood method, the mature stand is removed in a series of two or three cuts. The early cuts are designed to improve vigor and seed production of the remaining trees while preparing the site for new seedlings (seed cut). The final harvest is made when a sufficient amount of desirable reproduction has become established and before the regeneration has reached 20 percent of its rotation age. This method provides a partial cover of either large or small trees. When the shelter becomes a hindrance to the growth of the seedlings, rather than a benefit, it is necessary to remove the remainder of the mature stand (removal cut) (Smith, 1962). In northern hardwoods, research has found that this will occur within 10 years.

The shelterwood method is most appropriate for species or sites where the shelter of a partial overstory is needed for reproduction, or to give desirable regeneration an advantage over less desirable species.

The shelterwood method provides conditions favorable to regeneration of a wide variety of hardwood and conifer tree species, such as yellow birch, eastern hemlock, paper birch, white pine, red oak, and white ash to name only a few. The individual species favored depends on several physical and biological factors, such as seed source, soil-site conditions, seedbed conditions, amount of shade, soil temperature, and other microclimatic conditions at the forest floor.

Therefore, shelterwood cutting favors wildlife species that utilize a variety of age classes and tree species mixtures, such as wood-pewee, purple finch, Cooper's hawk, and woodcock.

Seed-Tree Method

This method involves harvesting all but a few well-distributed trees of the desired species to provide seed for natural regeneration. After adequate regeneration has been established, the seed trees are normally harvested. This method is suited to situations where a seed source is needed along with full sunlight. This method will be utilized on a very limited basis under this Forest Plan.

Selection of Harvest Method

Some forest types can be regenerated by more than one silvicultural system and/or harvest method, but other types can not. Since a management area typically contains several forest types and forest type diversity is desirable within a management area, more than one silvicultural system or harvest method may be used within a management area.

Table C.1 shows the harvest methods by desired forest type that may be used on the Ottawa National Forest in management areas where timber harvest is utilized to meet the management area objectives (Management areas 1.1, 2.1, 3.1, 3.2, 4.1, 4.2, 6.1 and 6.2). The harvest cutting methods are expressed in terms of the desired forest type that is to be regenerated by one of the appropriate harvest cutting methods. The desired forest type that is regenerated may be regenerated from the same type or converted from a different type.

Table C.1
Harvest Cutting Methods by Desired Forest Type

<u>Harvest Cutting Methods</u>					
Desired Forest Type 1/	Clearcutting 2/	3/	Shelterwood 2/	Selection	Strip 4/
Aspen	x				
Paper birch			x		
Sugar maple			x	x	
Mixed upland hardwoods/Hemlock			x		
Lowland hardwoods			x	x	
Jack pine	x				
Red pine	x				
White pine			x		
White spruce-fir	x		x	x	x
Balsam fir	x		x	x	x
Lowland conifer	x		x		x
Nonforest openings and uses	x				

1/ The desired forest type is the type to be regenerated through maintenance of an existing type or converted from another forest type. For example: Conversion of hardwoods to aspen would utilize harvest cutting methods for aspen (clearcutting).

2/ Clearcut and shelterwood may include intermediate cuts (thinnings) during the rotation of the stand.

3/ Clearcutting may be used to convert a forest type where clearcutting is not indicated to one where clearcutting is indicated. For example, the mixed upland hardwood type may be clearcut to convert to aspen, jack pine, red pine, white spruce-fir or balsam fir types. White pine may be clearcut to convert to aspen, jack pine, red pine, white spruce-fir, or balsam fir types.

4/ Variation of clearcutting.

This table illustrates harvest cutting methods that are considered appropriate for regeneration of each of the major forest types on the Ottawa National Forest.

The amount of each harvest cutting methods will vary by management area.

Harvest
Method by
Management
Prescription

Management
Prescriptions
1.1, 4.1,
and 4.2

These management prescriptions emphasize shade-intolerant tree species and cover types in meeting the management objectives and providing the desired mix of outputs and services from the management area.

Therefore, these management prescriptions will have relatively high amounts of clearcutting, moderate amounts of shelterwood cutting, and rather low amounts of selection cutting.

Management
Prescriptions
2.1, 6.1, and
6.2

These prescriptions emphasize dispersed recreation and higher visual quality objectives. Shade-tolerant hardwood species and forest types are emphasized in meeting the management objectives and providing the desired mix of outputs and services from the management area. Therefore, these management prescriptions will have relatively high amounts of selection harvest and moderate to low amounts of shelterwood cutting and clearcutting.

Management
Prescriptions
3.1 and 3.2

These prescriptions emphasize a variety of vegetative conditions, including a variety of tree species and forest types of different ages.

A wide range of harvest cutting methods will be used to meet the management objectives and provide the desired mix of outputs and services from the management area. Therefore, these management areas will have moderate amounts of clearcutting, shelterwood cutting, and selection cutting.

Management
Prescriptions
5.1, 7.1, 8.2,
9.1, 9.2, and
9.3

These prescriptions will include very little or no timber harvesting. Minor amounts of timber harvesting may occur in management prescriptions 7.1 and 8.2 to meet specific management objectives to enhance recreational values.

Management prescriptions 9.2 and 9.3 could include minor amounts of timber harvesting for salvage purposes.

Management prescriptions 5.1 and 9.1 will not include any timber harvest.

Selection
Factors

The silvicultural system and harvest cutting methods were chosen to achieve a desired mix of conditions within each management area and across the Forest, in a manner that best meets the Forestwide management objectives and responds to the public issues, management concerns, resource opportunities, and to contribute to maximizing net public benefit. (See Chapter IV of this document).

The mix of harvest methods planned in the first period of the plan are shown in Table B.2, Appendix B, Forest Plan and by forest type in Table 4.7, Chapter IV, Forest Plan.

The rationale for selection of a harvest method is based on a variety of factors, some of which are site-specific in nature, as well as the overall direction for the management area.

The harvest cutting method is based upon the forest type that is to be regenerated and how that regeneration is to be accomplished (natural or artificial). The determination of the desired forest type to be regenerated requires management considerations such as:

- Vegetative composition objectives for the management area.
- Existing vegetative conditions.
- Spatial distribution of types within the management area.
- Potential soil-site productivity for suitable vegetative types based on ecological classification system information.
- Relative cost and benefits of alternative regeneration options.
- Ability to manage and protect the regenerated stand.
- Need for intrastand diversity.
- Desired recreation setting (ROS class) objectives.
- Desired mix of timber products.
- Presence of riparian areas.
- Visual quality objective.
- Potential insect, disease, and other risk factors.

The optimum mix of harvest methods proposed in this plan is based on the objective of maximizing net public benefits from the entire Forest as a unit, as opposed to site-by-site analysis.

As part of the overall Forest objectives, clearcutting was determined as being the optimum harvest cutting method to achieve some of those objectives.

The appropriate silvicultural system and harvest cutting method will be determined at the project level considering the site-specific conditions along with the objectives for the management area.

Clearcutting Rationale

Clearcutting was considered an appropriate harvest cutting method to regenerate several forest types as shown in Table C.1.

Clearcutting was determined to be the optimum method for regenerating (including conversion to) the following desired forest types given the considerations as listed under "selection factors" described earlier in this appendix.

Aspen

Clearcutting was determined to be the optimum method for regeneration of aspen because:

- Aspen is a very shade-intolerant tree species.
- Early successional species, such as raspberries, blackberries, grasses, and strawberries, or community types, including temporary openings, can be maintained within the management area as well as aspen regeneration.
- Habitat conditions for wildlife species that utilize young growth habitat are provided.
- Clearcutting stimulates root suckering and increases stocking and early growth of aspen.
- Visual variety can be increased in some specific locations through the design, timing, size, and location of clearcuts.
- Other types, including hardwoods, balsam fir, and jack pine can be naturally converted to aspen by clearcutting to meet management objectives.
- Motorized access needs are minimized. Most stands are accessed only once every 40 to 60 years, usually by temporary roads. This reduced access need results in conditions that reduce the conflicts with dispersed recreation activities and favor wildlife species requiring remoteness, such as the black bear.
- Costs are lower and revenues, higher. Costs are lower because there is only one timber sale for the stand and revenues are higher because of higher volumes per acre and harvest operations are conducted in a more efficient manner.

Jack Pine

Clearcutting was determined to be the optimum method for regeneration of jack pine because:

- Jack pine is a very shade-intolerant tree species.
- Early successional species, such as blueberries and grasses, or community types, including temporary openings, can be maintained within the management area as well as jack pine regeneration.
- Habitat conditions for wildlife species that utilize young growth conifer habitat are provided.
- Serotinous cones require high temperatures to open. These high temperatures can be achieved through the use of fire on cone bearing slash lying on the ground in full sunlight.
- Site preparation for seeding, planting, or natural regeneration including prescribed burning is accomplished more efficiently.
- Risk from windthrow and insects such as jack pine budworm and Ips bark beetle is reduced.
- Visual variety can be increased in some specific locations through the design, timing, size, and location of clearcuts.
- Other types, including hardwoods, aspen, red pine, white pine or balsam fir, can be converted to jack pine to meet management objectives.
- Genetically improved jack pine stock can be introduced through artificial reforestation.
- Costs are lower and revenues, higher. Costs are lower because there is only one timber sale for the stand, and revenues are higher because of higher volumes per acre and harvest operations are conducted in a more efficient manner.
- Motorized access needs are minimized. Most stands are accessed only once every 40 to 60 years, usually by temporary or short-term roads. This reduced access need results in conditions that reduce the conflicts with dispersed recreation activities, and favor wildlife species requiring remoteness such as the black bear.

Red Pine

Clearcutting was determined to be the optimum method for regeneration of red pine because:

- Red pine is a shade-intolerant species.
- Early successional species, such as raspberries, blackberries, blueberries, and grasses, or community types, including temporary openings, can be maintained within the management area, as well as red pine regeneration.
- Habitat conditions for wildlife species that utilize young growth conifer habitat are provided.

- Artificial regeneration (planting) is required. Seed production is too irregular to depend on natural regeneration (occurs at intervals of 10 years or more).
- Site preparation for planting, planting, and release can be accomplished in a more efficient manner.
- Genetically improved red pine stock or stock from known seed sources can be utilized.
- Risk from siroccoccus shoot blight is minimized.
- Visual variety can be increased over time in some specific locations through the design, timing, size, and location of clearcuts.
- Other types, including hardwoods, aspen, balsam fir, and jack pine, can be converted (planted) to red pine, following clearcutting, to meet management objectives.
- Costs are lower and revenues, higher. Cost are lower because there is only one timber sale for the stand being harvested, and revenues are higher because of higher volumes per acre and harvest operations are conducted in a more efficient manner.

White Spruce-
Balsam Fir

Several harvest cutting methods are appropriate for regeneration of white spruce, spruce-fir, or balsam fir forest types. Clearcutting was determined to be the optimum method for regeneration of these types in some situations and shelterwood as the appropriate method in other situations.

In situations where the desired condition is one of these forest types, and advanced regeneration is not present in adequate numbers, and artificial regeneration is not desired, or where frost damage to regenerated spruce is likely, the shelterwood method will be used where feasible. Stands that are overmature or high risk, have high windthrow hazard, or have inadequate volume/acre to support two or more cuts, are not shelterwood opportunities. These stands will be regenerated by clearcutting to convert to aspen or artificially regenerated to conifers.

Where use of the shelterwood method is not necessary to regenerate the type, or where shelterwood opportunities are not realistic, clearcutting is the optimum method because:

- Overmature and spruce budworm-damaged stands can be salvaged.
- Stands can be sold commercially as a clearcut that would not sell as a shelterwood because of low volume or value per acre (primarily balsam fir).
- Site preparation for planting and planting of white spruce can be accomplished more efficiently.
- Genetically improved white spruce planting stock can be introduced.
- Risk of windthrow and spruce budworm damage is reduced.
- Visual variety can be increased in some specific locations through the design, timing, size, and location of clearcuts.

- Other types, including hardwoods, aspen, and white pine can be converted naturally or artificially to spruce-fir, to meet management objectives, such as thermal cover.
- Costs are lower and revenues, higher. Cost are lower because there is only one timber sale for the stand, and revenues are higher because of higher volumes per acre and harvest operations are conducted in a more efficient manner.
- Habitat conditions for wildlife species that utilize young growth conifer habitat is provided.

Lowland
Conifer

Several harvest cutting methods are appropriate for regeneration of lowland conifers, including clearcutting. The amount of lowland conifer regeneration harvest proposed in the Forest Plan is very minor compared to other forest types.

In situations where the desired condition is lowland conifer and advanced regeneration is not present in adequate numbers, shelterwood, strip clearcutting, or patch clearcutting will be used where feasible. Stands that have high windthrow hazard or have inadequate volume/acre to support two or more cuts are not shelterwood opportunities. These stands will be regenerated by clearcutting to regenerate lowland conifers.

Where the shelterwood method is not necessary to regenerate the type, or where shelterwood opportunities are not realistic, clearcutting is the optimum method because:

- Risk of windthrow in mature-overmature stands is reduced.
- Slash disposal such as full tree logging, broadcast burning or piling and bunching to prepare (expose) a seedbed is accomplished more efficiently.
- Habitat conditions for wildlife species that utilize young growth lowland conifers is provided.
- Costs are lower and revenues, higher. Cost are lower because there is only one timber sale for the stand, and revenues are higher because of higher volumes per acre and harvest operations are conducted in a more efficient manner.
- Visual variety can be increased in some specific locations through the design, timing, size, and location of clearcuts.
- A variety of age/size classes of lowland conifer vegetation is provided.

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Plan Appendix D

Ecological Classification System Description

Appendix D describes the Ecological Classification System being developed and applied in the management of all resources on the Ottawa National Forest.

Ecological Classification System

The Ottawa National Forest is continuing to develop and apply a land classification system that integrates the soil, landform, vegetation, and riparian area resources into one capability system.

The Ecological Classification System (ECS) being used on the Forest has a hierarchical order to provide different levels of information for various levels of planning. The three levels of the hierarchy, from most general to most specific, are:

Landtype Associations (LTAs) -These units are defined by major glacial landforms, landforms influenced by bedrock control, and landforms created by post-glacial erosional processes.

The LTAs provided capability information used in the development of this Forest Plan. This information helped determine the appropriate vegetation composition, wildlife opportunities, potential productivity of timber products, road density, and ecological relationship of resources for specific portions of the Forest. This information also helped define major cost variations across Forest, the cost of vegetation management practices and roads and the suitability of management area prescriptions. Table VI D.1 describes some key characteristics of the LTAs.

Ecological Landtypes (ELTs) -These units are defined by moisture regimes, more specific glacial landforms, and vegetation. ELTs provide capability information for management area planning.

Ecological Landtype Phases (ELTPs) -These units are defined by specific soil conditions, segments of specific landforms, and habitat types. ELTPs provide capability information for project-level planning and implementation.

Table VI D.1
Landtype Association Characteristics of the Ottawa National Forest

LTA	Percent of Forest ^{1/}	Major Glacial Landform	Dominant Slope Gradient (In percent)	Dominant Local Relief (In feet)	Dominant Soils ^{2/}	Dominant Potential Vegetation ^{3/}
1	3	Recessional Moraine	5-25	30	Deep, somewhat excessively drained, coarse textured	Tsuga Series
2	18	Terminal Moraine	2-15	50	Deep, well drained, coarse textured and moderately well drained moderately coarse textured	Acer-Tsuga Series
3	2	Ground Moraine, bedrock controlled	1-10	25	Stony, moderately well drained, medium textured cap over moderately coarse material	Acer-Tsuga Series
4	2	Ground Moraine, stony	1-6	20	Stony, moderately well drained, moderately coarse textured	Acer-Tsuga Series
5	6	High, bedrock controlled moraines and outcrops	6-55	150	Moderately deep, moderately well drained moderately fine textured	Acer-Tsuga Series
6	6	Terminal Moraine	2-15	60	Moderately well drained, moderately medium textured cap over moderately fine textures	Acer-Tsuga Series Acer Series
7	10	Drumloid Ground Moraine	2-18	75	Moderately well drained, medium textured and moderately coarse textured	Acer-Tsuga Series Acer Series
8		Lake Gogebic				
9	5	Ground Moraine	2-10	50	Moderately well drained, somewhat poorly drained, and poorly drained, moderately coarse textured	Acer-Tsuga Series Tsuga Series
10	1	Ground Moraine, wet	0-6	20	Moderately well drained, moderately coarse textured and very poorly drained organics	Acer-Tsuga Series Tsuga-Thuja Series
11	5	Bedrock controlled, Ground Moraine	2-12	40	Moderately well drained, moderately coarse texture	Acer Series
12	3	Ground Moraine	1-6	15	Moderately well drained, somewhat poorly drained, fine textured	Tsuga-Acer Series
13	4	Dissected Ground Moraine	2-12	50	Moderately well drained, moderately fine textured	Tsuga-Thuja Series
14	7	Outwash Plains	2-18	20	Deep, somewhat excessively drained, coarse textured	Acer-Quercus Series

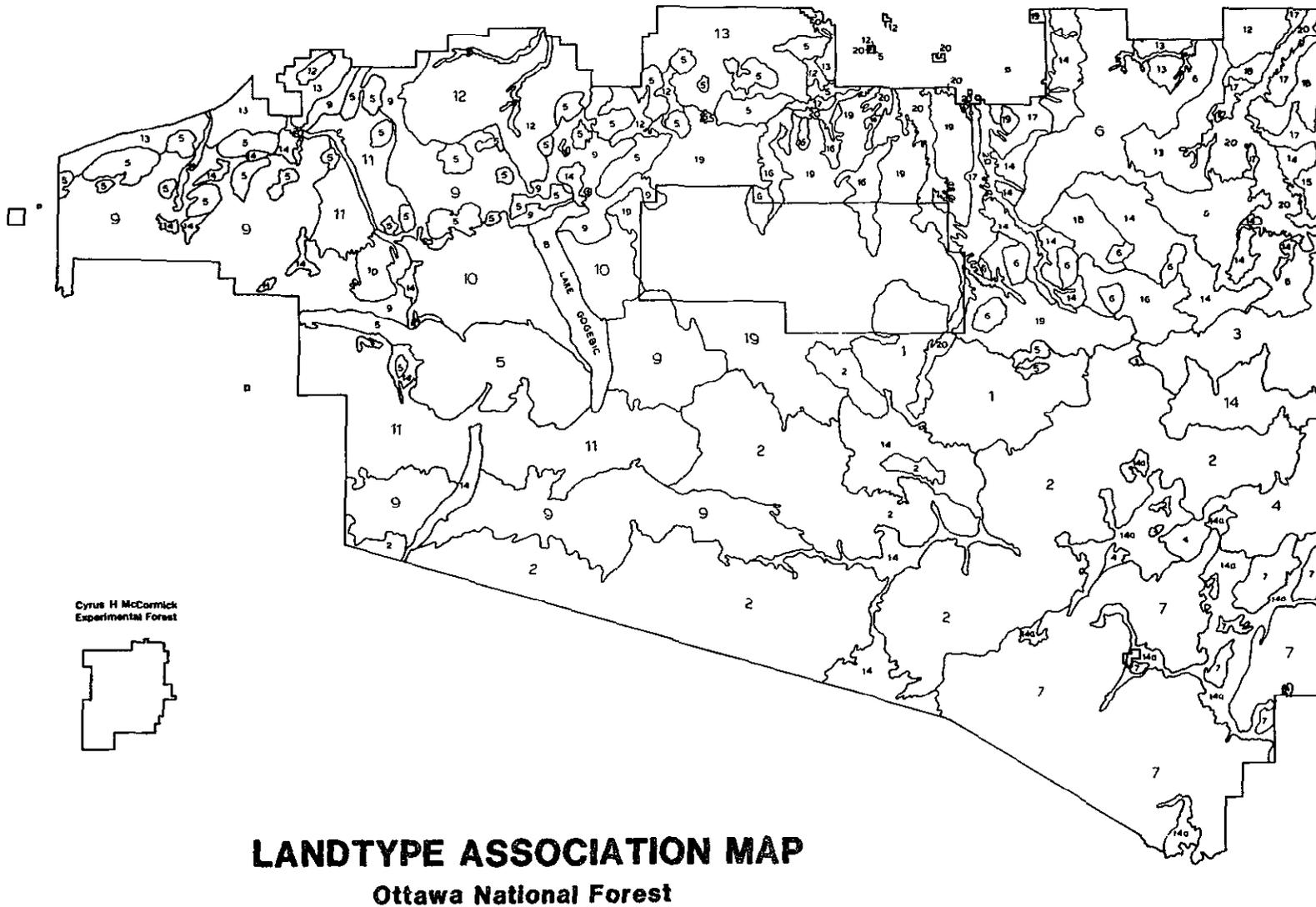
Table VI D.1 (continued)

LTA	Percent of Forest	1/ Major Glacial Landform	Dominant Slope Gradient (In percent)	Dominant Local Relief (In feet)	2/ Dominant Soils	Dominant Potential Vegetation	3/
14a	3	Valley Terraces	2-6	20	Deep, well drained, moderately coarse textured underlain by coarse textured	Tsuga Series	
15	<1	Outwash Lake Plain	1-8	10	Deep, excessively drained, coarse textured	Pinus Series	
16	2	Dissected Lake Plains	1-6 10-50 ravines	10-15 25-150 ravines	Moderately well drained, fine textured	Tsuga-Thuja-Series	
17	3	Lake Plain, sandy	2-10	20	Deep, somewhat excessively drained, coarse textured and moderately well drained, medium textured	Acer-Quercus Series Tsuga Series	
18	6	Dissected, Lake Plain Margin	2-18 25-70 ravines	25	Deep, somewhat excessively, coarse textured and well drained, medium and coarse textured	Tsuga Series Acer-Tsuga Series	
19	7	Lake Plain, clayey	2-6	10	Deep, moderately well drained and somewhat poorly drained, fine textured	Tsuga-Thuja Series Fraxinus Series	
20	6	River Valleys	30-70	50-300	Somewhat excessively to moderately well drained, coarse to fine textured	Variable	

1/ Calculated as the percentage of the total National Forest System ownership (928,221) acres within the Ottawa National Forest boundary.

2/ Soils that make up 75% or more of the LTA.

3/ Series class that is a grouping of plant associations (Habitat Types) that have a common climax dominant species.



Plan Appendix E

Ten-Year Vegetative Management and Road Construction Projects Action Program

Appendix E presents the vegetative management and road construction projects action program, including the multiple use management objectives of management practices many of which will be accomplished through commercial timber sales.

This schedule replaces the Five-Year Timber Sale Action Plan previously maintained by the Ottawa National Forest. Where investments have been made and dates are relatively firm, the projects have been carried forward if they were not in conflict with the Forest Plan.

This schedule meets all the requirements specified in 36 CFR 219.16 as well as the requirements in FSH 2409.13-42.7.

This vegetative management and road construction action program is based on current conditions and information available at the time the Forest Plan was developed. If conditions change or new information becomes available, the program may be modified during the implementation of the Forest Plan. The degree of modification will determine whether or not the Forest Plan will need to be amended.

Further into the future, the location and dates are less precise and more subject to change - due to volume overrun or underrun in other sales, funding changes, or scheduling difficulty. Adjustments from the specific sales to be offered in a given year may be made by the Forest without further public involvement. Public notice will be made of planned sales in advance for the following fiscal year.

Each year, the Forest Supervisor will update the Vegetative Management and Road Construction Project Action Program including the addition of the projects to occur in the future years. Annually, the public will be notified of changes to the program.

This schedule includes all timber sales in the Forest's normal program. Additional salvage sales, some small sales and firewood removals under the authority of the District Rangers are not included. This could include an additional volume of 3,000 - 4,000 MBF which will also be offered during each implementation year.

Sale locations and volumes are approximate. Specific location of sales may be obtained from the Forest Supervisor or the District Ranger.

Vegetative management and road construction practices for the period 1990 - 1996 are summarized on an average annual basis for each management area.

It should be noted that implementation of this schedule of treatments results in multiple resource benefits which are described in Chapter IV of this Forest Plan and in Chapters II and IV of the Final EIS. A narrative of the primary resource objectives for each project follows the annual schedule of projects for each management area in the same order. Additional information about specific management objectives and multiple resource benefits each project will provide can also be obtained from the Forest Supervisor or the District Ranger.

In addition, each proposed project will be implemented to achieve the long-term desired condition and other requirements that are specified for each management area. All of the projects will provide benefits in terms of local employment and income in the area surrounding the Ottawa National Forest.

Readers should also review Chapter IV of the Final EIS for a complete discussion and presentation of the environmental effects of these practices and the cumulative effects of these practices along with the other practices called for in the Forest Plan.

Legend

WO = Winter Only road standard
W/SD = Winter/Summer Dry road standard
SN = Summer Normal road standard
AW = All Weather road standard (collector roads)
Hdwd = Hardwood Timber Products
Sfwd = Softwood Timber Products
ST = Sawtimber
Prod = Products
MBF = Million board feet
MCF = Million cubic feet

**TEN-YEAR VEGETATIVE MANAGEMENT AND ROAD CONSTRUCTION PROJECTS
OTTAWA NATIONAL FOREST**

IMPLEMENTATION YEAR - 1987

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 1.1 - 1987								
Johnson Creek	T49N-R40W S. 10,11,14 15,16,21,22, & 27	Veg. Mgt.	Harvest Clearcut	550	Bergland/66, 67,101,102, & 105	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	15 50 260 270 <u>1,620</u> 2,215	
Road Construction								0.7 mi. WO
Whitetail	T47N-R37W S. 2 & 3	Veg. Mgt.	Harvest Clearcut Harvest Shelterwood	202 33	Kenton/98	Hdwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	50 750 250 <u>950</u> 2,000	
Kenton Heights	T47N-R37W S. 2	Veg. Mgt.	Harvest Clearcut Harvest Shelterwood Harvest Thin	38 23 145	Kenton/98	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	200 50 350 300 <u>200</u> 1,100	
Dirty Bear	T47N-R36W S. 2,3,9, 10 & 11	Veg. Mgt.	Harvest Clearcut Harvest Thin	201 181	Kenton/95	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	50 100 300 600 <u>1,150</u> 2,200	
Road Construction								0.2 mi. W/SD
Drummer	T49N-R39W S. 3,4,9,10, & 16 T50-R39W S. 33 & 34	Veg. Mgt.	Harvest Clearcut	395	Ontonagon/ 83, 137	Sfwd ST Sfwd Prod. Aspen Total MBF	180 350 <u>2,370</u> 2,900	
Road Construction								1.4 mi. WO

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard	
<u>Management Area 1.1 1987 (continued)</u>									
South Lodge	T49N-R38W S. 32 & 33	Veg. Mgt.	Harvest Shelterwood	100	Ontonagon/146	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Total MBF	70 30 180 20 300		
Wilski	T49N-R38W S. 19	Veg. Mgt.	Harvest Shelterwood	60	Ontonagon/133	Hdwd ST Hdwd Prod. Sfwd Prod. Total MBF	50 40 50 140		
<u>Total Management Area 1.1</u>			Harvest Clearcut	1,386		Hdwd ST	435		
			Harvest Shelterwood	216		Sfwd ST	410		
			Harvest Thin	326		Hdwd Prod.	1,880		
			Total Harvest Acres	1,928		Sfwd Prod.	1,840		
						Aspen	6,290		
			Road Construction			Total MBF	10,855		
							Total		2.1 mi. WO 0.2 mi. W/SD 2.3 mi

Implementation Year 1987

Management Area 1.1

Project Name	Objectives	
Johnson Creek	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse habitat. Create temporary and permanent openings for wildlife species desiring or needing early successional plant communities (Killdeer, rough-legged hawk, turkey vulture, Eastern bluebird, white crowned sparrow, Bohemian waxwing, etc.). Encourage beaver activity except where it threatens system roads.</p> <p><u>Visual</u> - Meet maximum modification visual quality objective. Keep slash low to ground where visible from roads. Obtain rapid aspen regeneration. Remove dead and damaged trees from harvest areas that can be seen from collector roads.</p> <p><u>Transportation</u> - Provide a cost-effective road system that will later serve walking, ATV, snowmobile, and some high clearance vehicle use. Control road use with gates and barriers.</p>	<p><u>Recreation</u> - Provide a roaded natural recreation setting. Provide huntable populations of deer, bear, snowshoe hare, and woodcock. Provide a road system that will also serve walking hunters, trappers, and ATV's.</p> <p><u>Timber</u> - Regenerate most stands to rapid growing quality aspen. Regenerate some stands to mixed aspen, hardwood, conifer condition with the long term objective of converting to conifer during future rotation.</p>
Whitetail	<p><u>Wildlife</u> - Create a mix of aspen age-classes which will benefit deer, grouse, and other early successional species. Provide browse near deer wintering areas (sale borders Middle Beaver Winter Deer Range). Defer several nearby stands as old growth.</p> <p><u>Timber</u> - Regenerate mature and/or high risk aspen and paper birch stands through clearcutting and shelterwood cuts. Create mix of aspen/birch age-classes so stands do not all reach maturity at once in the future.</p>	<p><u>Recreation</u> - Close a portion of road system following sale completion to provide walk-in dispersed recreation opportunity (primarily hunting). Create several aspen age-classes over time to improve small and big-game hunting. Defer area near East Branch of Ontonagon River from treatment pending completion of wild/scenic river study.</p> <p><u>Transportation</u> - Utilize existing winter-standard roads for the sale. No specified road construction needed. Haul south to FR 207.</p>

Project NameObjectives

Kenton Heights

Wildlife - Sale is within Middle Beaver Winter Deer Range. Provide browse during regeneration period. Provide short-term winter browse in the form of tops and slash. Regenerate hemlock/cedar type to provide future thermal cover for deer. Crown-release of oak to improve mast production. Improve age-class diversity within the sale area.

Visual - Meet VQO of modification. This will be more than met as most of the sale units adjacent to FH-16 are thins. A shelterwood cut along FH-16 will add visual diversity.

Transportation - Utilize existing winter-standard roads for the sale. No specified work needed. Haul east to FH-16.

Recreation - Closure of road following sale completion will provide walk-in dispersed recreation opportunity (primarily hunting). Maintenance and development of long-lived species along FH-16 (hardwood, hemlock) will provide good long-term viewing opportunities for motorists.

Timber - A combination of thins, clearcuts, and shelterwood cuts. Hardwood and mixed pine units will receive thins to remove low quality material and promote growth of the best trees. Clearcuts are prescribed to regenerate mature aspen/balsam/paper birch. A shelterwood cut and scarification in mixed hemlock/cedar/white pine will regenerate thermal cover.

Dirty Bear

Wildlife - Regenerate aspen for deer browse and grouse brood habitat and provide better aspen age-class distribution. Oak will be retained to develop mast. Create 180-200 acres of temporary openings.

Visual - Meet visual quality objective of modification in the foreground of M-28. Design aspen clearcuts to blend with terrain features and reserve oak, red and white pine, some clumps of paper birch, and spruce in highway foreground. Slash disposal clause for highway zone will be in timber sale contract.

Transportation - Utilize existing roads as much as possible. Good transportation system already exists for much of this area. Create no new permanent access points off of M-28. Short, temporary spurs into clearcuts will be closed with native materials and seeded with grass and

Recreation - Manage for roaded natural recreation opportunities. Coordinate activities with snowmobile use of FR 138. Visual objectives listed above will improve aesthetics for the public traveling M-28.

Timber - Schedule series of aspen clearcuts and red pine thinnings to promote more vigorous growth and better age-class distribution. Retain and develop oak where feasible.

Soils and Watershed - Design cutting units in the vicinity of Smith Creek to mitigate potential watershed problems for the creek.

Implementation Year 1987

Management Area 1.1

Project Name	Objectives	
Dirty Bear (continued)	<p>clover when use of the spurs is completed. Construct 0.2 mile of summer-normal road to provide for long-term access into red pine stand. Obliterate (close) 1.8 miles of old roads which are not needed to meet long-term management objectives.</p>	
Drummer	<p><u>Wildlife</u> - Regenerate aspen for deer browse and to provide the range of age classes desirable for grouse brood habitat. Create 10-15 acres of temporary herbaceous openings by seeding roads and landings with a wildlife conservation mix.</p> <p><u>Visual</u> - Meet the Visual Quality Objective of Partial Retention in the foreground zone of the North Country Trail. Meet the VQO of modification elsewhere in the project area.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Closed roads will be available for walk-in hunting or ORV access. Maintain integrity of the North Country Trail.</p> <p><u>Timber</u> - Harvest overmature aspen and provide for its natural regeneration. This is part of a continuing process of breaking large areas of even-aged aspen into a more diverse age-class arrangement so that future harvests can occur at an even rate as the stands reach optimum rotation age. Existing balsam regeneration will result in some mixed aspen/balsam stands in the future.</p>
	<p><u>Transportation</u> - Construct 1.4 miles of Winter Only standard road. New roads will be closed with berms after sale activities have ended. Obliterate 0.2 mile of existing woods road not needed for long term management. Construct 1.2 miles of temporary road utilizing existing woods roads whenever feasible.</p>	
South Lodge	<p><u>Wildlife</u> - Encourage regeneration of softwood species, particularly hemlock, which will provide additional thermal cover in the Middle Branch Deer Yard. Seedbed preparation has already been completed and the crown cover must now be reduced to provide desired sunlight and temperature levels. Winter harvesting will provide a short-term source of much needed browse in the form of the tops of the harvested trees.</p> <p><u>Visual</u> - Meet the Visual Quality Objectives for Modification over the entire sale area.</p>	<p><u>Recreation</u> - Manage for a roaded natural recreation opportunity.</p> <p><u>Timber</u> - Manage for the regeneration of softwood species which will result in a future stand with a higher percentage of softwood species than the current stand composition. Conduct a seed cut by reducing crown closure to 70% of full closure. Harvest will be restricted to deep snow periods of the winters to help protect advance regeneration seedlings.</p>

Project Name	Objectives	
South Lodge (continued)	<p><u>Transportation</u> - Utilize existing Winter Only standard roads. Close roads following sale activities.</p>	
Wilski	<p><u>Wildlife</u> - Improve Middle Branch Deer yard habitat by encouraging regeneration of softwood species, particularly hemlock, to serve as future thermal cover. Seedbed preparation has already been completed and the crown cover must now be reduced to provide required light and temperature levels. Winter cutting will provide a short-term source of much needed browse in the form of tops of harvested trees.</p> <p><u>Visual</u> - Meet the visual quality objectives for partial retention in the foreground zone along the North Country Trail and modification over the rest of the sale area.</p> <p><u>Transportation</u> - Utilize existing winter only standard roads. All sale roads will be closed following completion of sale activities.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Maintain integrity of the North Country Trail.</p> <p><u>Timber</u> - Increase softwood composition in the management area by removing most hardwood from the cutting unit and encouraging the natural regeneration of softwood species. Conduct seed cut by reducing crown closure to 70% of full closure. Site preparation has already been completed. Restrict harvest to deep snow periods of the winters to help protect advance regeneration.</p>

Ten-Year Action Program

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1987								
Merry Pete	T48N-R43W S. 4,9 & 10	Veg. Mgt.	Harvest Selection	80	Bergland/143 & 160	Hdwd ST	410	
			Harvest Shelterwood	22		Sfwd ST	5	
			Harvest Improvement	175		Hdwd Prod.	425	
						Sfwd Prod.	<u>20</u>	
						Total MBF	860	
			Road Reconstruction					2.0 mi. W/SD
			Road Construction					0.6 mi. W/SD
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Poncho	T46N-R41W S. 17,18,19, 20,21,29,&30	Veg. Mgt.	Harvest Thin	667	Bessemer/119, 149 & 153	Hdwd ST	250	
			Harvest Clearcut	134		Hdwd Prod.	1,440	
						Aspen	<u>900</u>	
						Total MBF	2,590	
			Road Construction					2.3 mi. WO
<hr/>								
Mitigwaki Creek	T46N-R37W S. 26,27,34 & 35	Veg. Mgt.	Harvest Clearcut	52	Iron River/12,17	Hdwd ST	185	
			Harvest Shelterwood	33		Sfwd ST	50	
	T45N-R37W S. 3		Harvest Selection	198		Hdwd Prod.	250	
			Harvest Thin	100		Sfwd Prod.	200	
						Aspen	<u>350</u>	
						Total MBF	1,035	
			Road Reconstruction					1.5 mi. W/SD
<hr/>								
Fourth Lake	T43N-R37W S. 8 & 9	Veg. Mgt.	Harvest Selection	120	Iron River/ 107, 108	Hdwd ST	100	
						Hdwd Prod.	<u>100</u>	
							200	
			Road Reconstruction					0.5 mi. WO
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Broken Bridge	T44N-R36W S. 6 & 7	Veg. Mgt.	Harvest Selection	468	Iron River/75, 76,77,80,82	Hdwd ST	215	
			Harvest Thin	130		Hdwd Prod.	<u>935</u>	
	T44N-R37W S. 11,12,14, 15 & 16					Total MBF	1,150	
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Basswood Pit	T44N-R36W S. 20 & 29	Veg. Mgt.	Harvest Thin	75	Iron River/85,86	Sfwd ST	50	
						Sfwd Prod.	<u>250</u>	
						Total MBF	300	
			Road Construction					0.5 mi. W/SD

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 2.1 - 1987 (continued)</u>								
Tamarack River	T45N-R37W S. 31 & 32	Veg. Mgt.	Harvest Clearcut Harvest Thin	110 70	Iron River/56	Sfwd ST Sfwd Prod. Aspen Total MBF	100 685 75 860	
Road Construction								0.5 mi. W/SD
Beaver Flowage	T45N-R35W S. 30 & 31	Veg. Mgt.	Harvest Clearcut	80	Iron River/50	Sfwd ST Sfwd Prod. Total MBF	50 450 500	
Simon's Bridge	T44N-R36W S. 36 T45N-R36W S. 25 & 26	Veg. Mgt.	Harvest Selection Harvest Thin	170 94	Iron River/63,44	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Total MBF	75 150 275 100 600	
Road Construction								0.8 mi. WO
Bennan II	T43N-R35W S. 31	Veg. Mgt.	Harvest Clearcut	30	Iron River/136	Aspen Total MBF	225 225	
Otter Lake	T45N-R35W S. 22,28,32 33 & 34	Veg. Mgt.	Harvest Selection	300	Iron River/66, 48, 49	Hdwd ST Hdwd Prod. Total MBF	100 770 870	
Road Construction								0.6 mi. WO
Trout Pond	T43N-R37W S. 1	Veg. Mgt.	Harvest Clearcut	20	Iron River/110	Aspen Total MBF	90 90	
Patchwork	T44N-R35W S. 14 & 23	Veg. Mgt.	Harvest Clearcut	83	Iron River/90	Sfwd ST Hdwd Prod. Aspen Total MBF	60 40 400 500	
Road Construction								0.1 mi. WO
Defiance Creek	T44N-R35W S. 14 & 15	Veg. Mgt.	Harvest Selection Harvest Thin	450 100	Iron River/90	Hdwd ST Hdwd Prod. Total MBF	200 500 700	

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1987 (continued)								
Tote Creek	T46N-R36W S. 24 & 25	Veg. Mgt.	Harvest Selection	400	Kenton/192	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	900 50 300 250 100 1,600	
Storm	T46N-R36W S. 12 & 13 T46N-R35W S. 7 & 18	Veg. Mgt.	Harvest Clearcut Harvest Selection Harvest Thin	23 317 39	Kenton/183,185	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	650 50 450 250 200 1,600	
North Kallio	T48N-R35W S. 13,14, 23 & 24	Veg. Mgt.	Harvest Clearcut Harvest Thin	198 133	Kenton/51	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	200 50 450 250 850 1,800	
Road Construction								0.1 mi. WO
Sidnaw Branch	T48N-R35W S. 7 & 18	Veg. Mgt.	Harvest Clearcut Harvest Shelterwood Harvest Thin	41 34 553	Kenton/47	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	850 200 350 950 150 2,500	
Deer Fly	T44N-R38W S. 10,14,15, 17, & 18 T45N-R38W S. 31 & 32	Veg. Mgt.	Clearcut Selection Shelterwood Removal Thin	134 11 201 201 24	Watersmeet/128, 140, & 142	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	1,170 335 265 760 229 2,759	1.0 mi. WO .5 mi. W/SD

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1987 (continued)								
Dwarf Drumlin	T43N-R38W S. 2,3,5,6, 7,10,11,14, & 15 T44N-R38W S. 30,31 & 32 T44N-R39W S. 36	Veg. Mgt.	Clearcut	55	Watersmeet/165, 166 & 170	Hdwd ST	135	1.3 mi. W/SD
			Shelterwood	119		Sfwd ST	60	
			Removal	16		Hdwd Prod.	360	
			Thin	169		Sfwd Prod.	500	
						Aspen	300	
			Road Construction			Total MBF	1,355	
Jack Knife	T44N-R38W S. 13,14,19, 20,21,23,24, 29 & 30	Veg. Mgt.	Clearcut	221	Watersmeet/154 & 156	Hdwd ST	740	1.8 mi. W/SD 2.3 mi. W/SD
			Selection	366		Sfwd ST	250	
			Shelterwood	9		Hdwd Prod.	333	
			Thin	333		Sfwd Prod.	625	
						Aspen	427	
			Road Construction Road Reconstruction			Total MBF	2,375	
Total Management Area 2.1			Harvest Clearcut	1,181		Hdwd ST	6,180	
		Harvest Shelterwood	418		Sfwd ST	1,460		
		Harvest Selection	2,880		Hdwd Prod.	7,243		
		Harvest Improvement	175		Sfwd Prod.	5,290		
		Harvest Thin	2,487		Aspen	4,296		
		Total Harvest Acres	7,141		Total MBF	24,469		
		Road Construction					4.9 mi WO 4.7 mi W/SD	
						Total	9.6 mi	
		Road Reconstruction					0.5 mi WO 6.3 mi W/SD	
						Total	6.8 mi	

Project Name	Objectives	
Merry Pete	<p><u>Wildlife</u> - Improve game species habitat. Provide a variety of vegetation heights in in hardwood stands. Regenerate patches and stands of aspen wherever possible. Improve bear habitat.</p> <p><u>Visual</u> - Meet maximum modification or higher visual quality objective.</p> <p><u>Transportation</u> - Provide a network of dead-end roads for timber harvest and recreation. Gate or block roads needing seasonal protection. High quality roads are desirable. Improve F.R. 476.</p>	<p><u>Recreation</u> - Improve vehicle access for hunting, trapping and motorized recreation. Provide for gathering of firewood. Provide raspberries and thimbleberries. Provide roaded natural recreation opportunities.</p> <p><u>Timber</u> - Provide high quality northern hardwood sawlogs and veneer. Move the stands toward a regulated unevenaged condition. Encourage ash regeneration wherever possible. Do a minor amount of shelterwood cutting to regenerate a low quality stand to provide age-class diversity.</p>
Poncho	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for thermal cover. Retain winter thermal cover species during site preparation in clearcuts. Seed 10 acres of permanent openings. Maintain stand 32, compartment 153, as a deer travel way. Retain some den trees for cavity nesting wildlife.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct/reconstruct 2.3 miles to a winter only standard. Close roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures especially adjacent to Tenderfoot Creek. Protect the characteristics of potential wild and scenic inventory river corridors.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Design thinning cuts in northern hardwood stands on 667 acres to maintain an even-aged condition.</p>
Mitigwaki Creek	<p><u>Wildlife</u> - Regenerate 50 acres of aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Create 50 acres of temporary opening and 5 acres of permanent openings. Maintain 40 acres of old growth white pine. Protect bald eagle nesting territory through sale layout and road closure.</p> <p><u>Visual</u> - Meet partial retention VQO. Maintain large tree image in old growth white pine stand along FR 166. Design aspen final harvest enroute to Violet Lake so as to minimize visual impact.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close local roads to 4-wheel vehicles if roadbeds cannot support post-sale traffic. Provide for parking spots for dispersed recreational uses.</p> <p><u>Timber</u> - Salvage high risk white pine. Design improvement cuts in immature hardwood stands to meet partial retention visual quality objective.</p>

Implementation Year 1987

Management Area 2.1

Project Name	Objectives	
Mitigwaki Creek (continued)	<u>Transportation</u> - Utilize existing roads. Reconstruct 1.5 miles of winter/dry summer road. Close local roads if roadbeds cannot withstand post-sale traffic. Block access to bald eagle nest locations.	
Fourth Lake	<u>Wildlife</u> - Maintain hemlock sawtimber stand south of FR 106 -- DO NOT HARVEST. Create 3 acres of permanent openings.	<u>Recreation</u> - Manage for roaded natural recreation opportunities. Maintain FR 304 as a 4-wheel drive dispersed recreation driving/hunting opportunity. Close woods roads off FR 304 to provide walk-in hunting opportunities.
	<u>Visual</u> - Meet modification visual quality objective.	<u>Timber</u> - Design improvement cuts in hardwood stands to work them toward an uneven-age condition.
	<u>Transportation</u> - Utilize existing roads. Construct 0.5 miles of winter only road. Leave FR 304 open to 4x4 vehicles--block all roads off FR 304 to prevent post-sale damage to roads.	
Broken Bridge	<u>Wildlife</u> - Manage 50 acres along FH 16 with an old growth objective--specifically to provide grey squirrel habitat. Create 5 acres of permanent openings. Release oak poletimber during tree selection. Protect conifer seedling fringe adjacent to older stand near FH 16. Final harvest 3-4 acre aspen inclusions in the hardwoods to maintain an aspen component.	<u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide parking spots in front of road closures on collector roads. Provide 4x4 driving opportunities (established use) on FR 180--close all other winter roads to 4x4 vehicles and provide walking opportunities.
	<u>Visual</u> - Meet partial retention VQO. Manage 50 acres of old growth along FH 16.	<u>Timber</u> - Design improvement cuts in immature hardwood stands to work them toward an uneven-age condition. Manage selected stands with a high component of yellow birch poles even-aged. Maintain aspen inclusions by final harvesting aspen/hardwood stands".
	<u>Cultural Resources</u> - Design harvest units to protect known sites.	
Basswood Pit	<u>Wildlife</u> - Provide 2 acres of permanent openings.	
	<u>Visual</u> - Meet partial retention VQO. Minimize impact of slash and landings along FR 940.	<u>Recreation</u> - Maintain FR 940 as an established access to the South Branch of the Paint River. Prohibit use of State Recreation Trail for skidding and hauling.
	<u>Timber</u> - Improve growth of red pine stands through intermediate thinning.	

Implementation Year 1987

Management Area 2.1

Project Name	Objectives	
Basswood Pit (continued)	<p><u>Transportation</u> - Construct 0.5 miles of winter/dry summer road and leave open after the sale except as needed to protect road beds from damage.</p>	
Tamarack River	<p><u>Wildlife</u> - Regenerate 50 acres of aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Create 110 acres of temporary opening and 3 acres of permanent opening.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Protect State Recreation Trail. Leave local roads open (if post-sale traffic will not damage roadbeds) to provide dispersed recreation opportunities. Continue providing access to the Tamarack River.</p>
	<p><u>Visual</u> - Meet partial retention VQO on part of the project area and modification VQO on the remaining part of the project. Minimize visual impact of harvest along Tamarack River.</p>	<p><u>Timber</u> - Improve growth and quality of red pine stands through intermediate thinning. Convert 60 acres of high risk white pine to a combination of short rotation conifer species (jack pine) and long rotation conifer (red pine) through final harvest and planting.</p>
	<p><u>Transportation</u> - Utilize existing roads. Construct 0.5 miles of winter/dry summer roads. Obtain a permanent right-of-way over private land in order to provide access to a conifer plantation on a periodic basis.</p>	
Beaver Flowage	<p><u>Wildlife</u> - Regenerate 20 acres of aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Regenerate 35 acres of high risk conifer and regenerate short rotation conifer to provide thermal cover. Create 80 acres of temporary openings.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide drive-in access opportunities for hunting and berry picking by leaving local roads open after sale. Protect Wild and Scenic Inventory River corridor through sale layout. (Ref. Management Prescription)</p>
	<p><u>Visual</u> - Meet modification VQO.</p>	<p><u>Timber</u> - Match species to be reforested to the soils/site. Provide diversity of species by managing short and long rotation conifers and aspen types. Salvage high risk stands.</p>
	<p><u>Transportation</u> - Utilize existing roads. Obtain a temporary license over private lands for a short term access need - close after reforestation is complete. Leave local roads open to provide dispersed recreation access after the sale.</p>	
Simon's Bridge	<p><u>Wildlife</u> - Create 10 acres of permanent forest openings. Identify and protect eagle perch trees in the white pine stands.</p> <p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide walk-in access recreation opportunities by closing local roads after the sale.</p>	

Project NameObjectives

Simon's Bridge (continued)	<p><u>Visual</u> - Meet partial retention VQO. Improve foreground view into the white pine stand along FR 148 through intermediate thinning.</p> <p><u>Transportation</u> - Utilize existing roads. Improve safety of intersection of FR 738 and CR 657 (sight distance problems). Construct 0.8 miles of winter only road. Close winter only roads after sale to protect roadbeds and provide walk-in hunting opportunities.</p>	<p><u>Timber</u> - Design improvement cuts in immature hardwood stands so as to move them toward an unevenaged condition.</p>
Bennan II	<p><u>Wildlife</u> - Regenerate 30 acres of aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Create 30 acres of temporary openings.</p> <p><u>Visual</u> - Meet partial retention VQO.</p> <p><u>Transportation</u> - Utilize existing roads. Require winter operation to protect special use road down to Bennan Lake. Close temporary roads off of special use road.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Leave local roads open and close temporary roads to provide a variety of motorized and nonmotorized recreation opportunities.</p> <p><u>Timber</u> - Regenerate a mature aspen stand.</p>
Otter Lake	<p><u>Wildlife</u> - Create 5 acres of permanent forest openings.</p> <p><u>Visual</u> - Meet modification VQO. Improve foreground view into the hardwood stands along CR 137 through thinning hardwood pole stands.</p> <p><u>Transportation</u> - Utilize existing roads. Construct 0.4 miles of winter only road and reconstruct 0.2 miles of winter only road. Close these roads after the sale to protect the soft roadbeds.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close all winter only standard local roads off gravel locals and collectors to provide walk-in access recreation opportunities.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwood stands so as to move them toward an unevenaged condition.</p>
Trout Pond	<p><u>Wildlife</u> - Regenerate 20 acres of aspen for deer browse and grouse habitat and maintain aspen ecosystem.</p> <p><u>Visual</u> - Meet partial retention VQO.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide walk-in hunting opportunities by closing temporary roads after the sale. Provide parking spots at junction with FH 16.</p> <p><u>Timber</u> - Regenerate 20 acres of mixed mature aspen/low quality hardwoods to aspen.</p>

Implementation Year 1987

Management Area 2.1

Project Name	Objectives	
Trout Pond (continued)	<p><u>Transportation</u> - Coordinate with pipeline representatives to provide a safe crossing over the pipeline. Utilize existing roads and close these temporary roads after the sale.</p>	
Patchwork	<p><u>Wildlife</u> - Improve upland game bird habitat (and populations) by periodic harvest of a 150 acre mixed aspen/hardwood stand over a 20 year period.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide walk-in hunting opportunities to an intensively managed aspen ecosystem.</p>
	<p><u>Visual</u> - Meet maximum modification VQO.</p>	<p><u>Timber</u> - Begin regeneration in a mixed aspen/hardwood stand to eventually provide a diversity of age classes.</p>
	<p><u>Transportation</u> - Utilize existing roads. Reconstruct 0.1 mile of winter only road to provide parking spots for users of this dispersed recreation area. Close all roads serving the sale commensurate with this walk-in access emphasis and to protect soft roadbeds.</p>	
Defiance Creek	<p><u>Wildlife</u> - Create 5 acres of permanent forest openings. Provide denning habitat for black bear. Enhance nesting habitat for waterfowl. Regenerate a 5-10 acre inclusion of mixed aspen/low quality hardwoods to aspen.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide firewood gathering opportunities by leaving FR 954 and 927 open after the sale (gravel surfaces). Provide walk-in dispersed recreation opportunities by closing winter only roads off gravelled locals and collectors.</p>
	<p><u>Visual</u> - Meet maximum modification VQO.</p>	<p><u>Timber</u> - Improve growth and vigor of yellow birch/basswood/sugar maple stands through intermediate thinning -- long-term objective is even-aged.</p>
	<p><u>Transportation</u> - Utilize existing roads. Close all winter only local roads off gravelled collectors and locals to prevent damage to soft roadbeds.</p>	
Tote Creek	<p><u>Wildlife</u> - Retain and develop scattered oak and hemlock where feasible. Retain scattered den trees, particularly near riparian border areas. Retain large white pine as potential eagle/osprey nest trees. Protect Dog Lake eagle nest by restricting appropriate sale units to winter-only operation. Close roads into these units upon sale completion.</p>	<p><u>Recreation</u> - Manage primarily for roaded natural recreation opportunities. Provide for fuelwood gathering prior to closure of roads. Provide parking areas for dispersed recreation uses (hunting) in conjunction with road closures.</p>
	<p><u>Visual</u> - Meet visual quality objective of partial retention through selection harvest and slash treatment zones along main roads. Visual penetration and view of large trees will be enhanced through removal of small, poor quality trees in roadside zone.</p>	<p><u>Timber</u> - Combination of selection and removal cuts to promote more vigorous growth and move stands closer to desired unevenaged structure.</p>

Implementation Year 1987

Management Area 2.1

Project Name

Objectives

Tote Creek (continued)

Transportation - Use existing roads as much as possible. Little or no specified work required. Most existing roads are at least summer/dry standard and require only timber sale maintenance work.

Storm

Wildlife - Regenerate aspen in one 21-acre unit to provide browse and improve aspen age-class distribution. Crown release oak from below in all selection cut units to improve mast production. Thin hemlock from below in preparation for mechanical scarification for hemlock regeneration. Retain large white pine as potential eagle/osprey nest trees. Create several small permanent openings through landing construction. Retain scattered den trees.

Recreation - Manage primarily for roaded natural recreation opportunities. Protect and enhance developed recreation facility at Lake St. Kathryn through: 1) restricting harvest of units near campground to winter only, so as to avoid conflicts with use period, and 2) promoting growth of high quality and visually attractive trees of all species through selection cutting. Maintain or enhance visual quality of roadside zones through better visual penetration and increased visibility of large trees.

North Kallio

Wildlife - Regenerate aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Schedule winter sale activity to provide browse in the form of limbs and tops. Create 160-180 acres of temporary openings. Retain and develop oak for mast and hemlock for thermal cover where feasible.

Recreation - Manage primarily for roaded natural recreation opportunities. Winter roads will be closed to 4-wheel vehicles after sale. Provide for fuel-wood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting in conjunction with road closures.

Visual - Meet visual quality objective of partial retention. Sale is located in the background of hilly to rolling hardwood/aspen terrain. Clearcut units will be designed to blend with terrain features.

Timber - Combination of selection, thinning and removal cuts in hardwood stands to promote more vigorous growth and better age-class distribution, working more toward an even-aged condition. Scattered mature aspen/paper birch stands to be clearcut and regenerated to aspen to retain and improve age-class and species diversity.

Transportation - Utilize existing access and roads. Construction of 0.1 mile to connect existing roads will provide main haul route for sale and eliminate additional access points to the area. All roads to be winter-only standard and closed with native materials at end of operating season and when road use is completed for this sale.

Implementation Year 1987

Management Area 2.1

Project Name	Objectives	
Sidnaw Branch	<p><u>Wildlife</u> - Most of the sale is within the Sturgeon River Winter Deer Range. Improve the browse situation in the area. Some hemlock regeneration may be attempted in Stand 6 (mixed hardwood/hemlock) to perpetuate a thermal cover component in the area. Most of the hardwood acreage in the sale will be winter cut so as to provide tops for winter browse.</p> <p><u>Visual</u> - Meet VQO of modification or higher. Topography of the areas to be treated is generally quite flat. Most stands that are within viewing distance of roads in the area will be thinned or thinned/delayed removal.</p> <p><u>Transportation</u> - Utilize existing road system off of FR 192 to access area. Roads will be winter only standard, and will be closed upon sale completion.</p>	<p><u>Recreation</u> - The sale area borders the proposed Sturgeon River Wilderness Area. Stand 4, which borders the proposed area, will be thinned, resulting in minimal visual impact. The main form of recreation use for the area at present is hunting. The proposed treatments should have a favorable effect on deer and grouse numbers, so this use should be expected to continue.</p> <p><u>Timber</u> - A combination of thins, delayed removals and clearcuts. Hardwood pole stands and mixed poles/sawlogs will receive thins and/or delayed removal cuts. Mixed conifer stands will be clearcut and either naturally regenerated or planted. These treatments will increase growth and vigor of the affected stands as well as increasing species and age-class diversity.</p>
Deer Fly	<p><u>Wildlife</u> - Provide winter deer browse in compartment 142 (Taylor-Imp deer yard) and improve the quality of the thermal cover. Create permanent openings through utilization of landings in hardwood stands and pine and spruce plantations between harvest entries. Retain adequate cull/den trees in hardwood stands.</p> <p><u>Visual</u> - Maintain visual quality objective of modification along U.S. Highway 2 and Marion Lake and partial retention along FR 161.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 1.0 miles of winter only standard road, and reconstruct .5 miles winter/summer dry road.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close temporary roads to 4-wheel drive vehicles after project completion.</p> <p><u>Timber</u> - Harvest mature and high risk aspen, balsam fir and spruce stands to minimize mortality and reduce insect and disease outbreak potential. Improve stand quality through intermediate harvest cuts in stands of hardwoods. Provide for fuelwood gathering prior to road closure.</p> <p><u>Other</u> - Protect pipeline in Compartment 140.</p>

Implementation Year 1987

Management Area 2.1

Project Name

Objectives

Dwarf Drumlin

Wildlife - Regenerate aspen and aspen/spruce-fir to provide balance of aspen age classes (increase 0-10 year age class component) to benefit deer, grouse and woodcock. Maintain some thermal cover types found along creeks and drainways. Create and maintain wildlife openings utilizing landings in hardwood stands. Restrict logging to protect the heron rookery and the bald eagle nesting territory in Compartment 165.

Visual - Maintain a visual quality objective of modification along County Road 210.

Transportation - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 1.3 miles of winter/dry summer standard road.

Recreation - Manage for roaded natural recreation opportunities. Close temporary roads to 4-wheel drive vehicles after sale is closed.

Timber - Minimize timber losses to mortality, insects and disease by harvesting high risk stands. Optimize wood production by intermediate treatment of immature hardwood stands and regeneration of physically mature timber stands. Work toward the cover type composition objectives for the Management Area.

Other - A one-chain filter strip will be left along Lac Vieux Desert in Stand 37, Compartment 165, in which no logging activity will be permitted or no slash allowed. A one-chain buffer zone will be used protect the cultural resource site in Compartment 165.

Jack Knife

Wildlife - Maintain wildlife openings from landing areas. Increase winter browse adjacent to the Taylor-imp deer yard. Protect the osprey nest in Compartment 156. Protect the South Branch of the Paint River as a top quality trout fishery and for study and possible inclusion in the Wild and Scenic River System. Retain adequate cull/den trees in hardwood stands.

Visual - Meet visual quality objective of partial retention along US Highway 2.

Transportation - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 1.8 miles of winter/summer dry standard road, and 2.3 miles of reconstruction to a winter/summer dry standard.

Recreation - Manage for roaded natural recreation opportunities. Close temporary roads to 4-wheel drive vehicle use after completion of the project.

Timber - Harvest high risk and mature stands of aspen and spruce-fir to minimize mortality and reduce insect and disease outbreak potential. Improve the quality and growth rate of northern hardwood stands through use of intermediate cuts. Provide for fuelwood gathering prior to closure of roads.

Other - Protect ECS plot and characterization site in Stands 3 and 23 of Compartment 156.

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 3.1 - 1987</u>								
Adrian Creek	T48N-R37W S. 2,9,10 & 11	Veg.Mgt.	Harvest Selection	492	Kenton/29,30,40	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Total MBF	550 300 1,100 450 2,400	
Road Construction								0.7 mi. WO
Black Patch	T47N-R38W S. 26 & 27	Veg. Mgt.	Harvest Clearcut	196	Kenton/134	Hdwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	50 200 100 1,050 1,400	
Road Construction								0.4 mi. SN
<u>Total Management Area 3.1</u>			Harvest Clearcut	543		Hdwd ST	1,114	
			Harvest Selection	567		Sfwd ST	623	
			Shelterwood	68		Hdwd Prod.	2,525	
			Removal	11		Sfwd Prod.	1,884	
			Thin	88		Aspen	3,136	
			Total Harvest Acres	1,277		Total MBF	9,282	
			Road Construction					0.7 mi. WO
								0.4 mi. SN
								Total 1.1 mi.

Project NameObjectives

Adrian Creek

Wildlife - Sale area is in the Middle Beaver winter deer range. Timber harvest in the hemlock stands are designed to retain thermal cover and provide for future regeneration of hemlock. Winter sale activities will provide browse in the form of limbs and tops. Oak will be retained to develop mast. Two to three acres of permanent openings will be constructed in the hardwood areas by expanding landings used for timber harvest.

Visual - Sale is located in the background of flat to rolling hardwood/hemlock terrain. Meet or exceed visual quality objective of maximum modification.

Transportation - Use existing roads as much as possible and existing access onto FH 16. Construction of 0.7 mile to connect existing roads will provide main haul route for sale. Avoid any new creek crossings and additional access points along FH 16. All roads to be winter haul standards and closed with native materials at end of operating season and when road use is completed for this sale.

Recreation - Manage primarily for roaded natural recreation opportunities. Winter roads will be closed to 4-wheel vehicles after sale. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.

Timber - Combination of selection and removal cuts will promote more vigorous growth and better age-class distribution. Removal cut where there is advanced regeneration with scattered, overmature overstory. Hemlock stands will be thinned from below to create room for mechanical scarification for hemlock regeneration. Retain and develop oak and hemlock where feasible.

Project Name	Objectives	
Black Patch	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat and provide better age-class distribution of aspen. Create 180-200 acres of temporary openings.</p> <p><u>Visual</u> - Meet visual quality objective of maximum modification. Sale is located in background of rolling aspen terrain. Clearcuts to be designed to blend with terrain features wherever possible.</p> <p><u>Transportation</u> - Utilize existing roads as much as possible and existing access onto FR 368. Construction of 0.4 mile to summer-normal standard to connect existing roads will provide main haul route for sale, eliminate any new creek crossings, and avoid an area of clay soils. Obliterate (close) 1.0 mile of old roads which are not needed to meet long-term management objectives.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Light public use anticipated by hunters and fuelwood gatherers.</p> <p><u>Timber</u> - Design aspen clearcuts to start breaking up large contiguous area of mature aspen and regenerating it back to a vigorous young growth of aspen. Improve aspen age-class distribution in the area.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/ Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 3,2 - 1987								
South Dinky	T46N-R44W	Veg. Mgt.	Harvest Thin	145	Bessemer/129 140 & 141	Hdwd ST	40	0.4 mi. WO
	S. 12		Harvest Selection	81		Hdwd Prod.	800	
	T46N-R43W		Harvest Shelterwood	49			840	1.0 mi. WO
	S. 7, 8 & 18		Road Construction					
			Road Reconstruction					
Finnegan	T47N-R44W	Veg. Mgt.	Harvest Thin	505	Bessemer/55, 56 & 76	Hdwd ST	500	0.8 mi. WO
	S. 4, 5, 6 & 7		Harvest Clearcut	33		Hdwd Prod.	1,130	
			Road Construction			Aspen	50	0.3 mi. WO
			Road Reconstruction			Total MBF	1,680	
Hill Road	T46N-R44W	Veg. Mgt.	Harvest Thin	185	Bessemer/166, 167	Hdwd ST	60	0.5 mi. WO
	S. 23, 24, 25 & 26		Harvest Shelterwood	66		Hdwd Prod.	670	
			Harvest Clearcut	14		Aspen	20	
			Road Construction			Total MBF	750	
Twin Creek	T46N-R43W	Veg. Mgt.	Harvest Thin	285	Bessemer/193, 194	Hdwd ST	100	1.5 mi. WO
	S. 33 & 34		Harvest Clearcut	305		Hdwd Prod.	500	
	T46N-R42W					Aspen	1,500	
	S. 2, 3, 4, 10 & 11					Total MBF	2,100	
Silver Creek	T49N-R36W	Veg. Mgt.	Harvest Clearcut	26	Kenton/9	Hdwd ST	360	0.6 mi. WO
	S. 26 & 27		Harvest Selection	38		Sfwd ST	70	
			Harvest Thin	195		Hdwd Prod.	670	
			Road Construction			Sfwd Prod.	300	
			Road Reconstruction			Total MBF	1,400	
Silver Bullet	T45N-R39W	Veg. Mgt.	Clearcut	269	Watersmeet/73 74, & 77	Hdwd ST	183	1.0 mi. W/SD
	S. 2, 3, 6 & 7		Selection	56		Sfwd ST	225	
	T45N-R40W		Shelterwood	33		Hdwd Prod.	1,208	
	S. 1 & 2		Thin	549		Sfwd Prod.	670	
	T46N-R39W					Aspen	1,540	
	S. 34 & 35		Road Construction			Total MBF	3,826	
			Road Reconstruction					

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 3.2 - 1987 (continued)</u>								
Ski Pole	T45N-R38W S. 8,9 & 16	Veg. Mgt.	Clearcut	51	Watersmeet/87	Hdwd ST	200	
			Selection	54		Sfwd ST	101	
			Thin	96		Hdwd Prod.	174	
						Sfwd Prod.	175	
						Aspen	<u>350</u>	
						Total MBF	1,000	
<hr/>								
<u>Total Management Area 3.2</u>			Harvest Clearcut	698		Hdwd ST	1,443	
			Harvest Shelterwood	148		Sfwd ST	396	
			Harvest Selection	229		Hdwd Prod.	5,152	
			Harvest Thin	<u>1,960</u>		Sfwd Prod.	1,145	
			Total Harvest Acres	3,035		Aspen	<u>3,460</u>	
						Total MBF	11,596	
			Road Construction					3.8 mi. WO
								<u>1.0</u> mi. W/SD
						Total		4.8 mi.
			Road Reconstruction					<u>1.3</u> mi. WO
						Total		1.3 mi.

Project Name	Objectives	
South Dinky	<p><u>Wildlife</u> - Regenerate aspen to create a variety of age classes for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Create 49 acres of temporary openings and 4 acres of permanent openings. Retain snags and cavity trees when stands 9, 17, and 21 are harvested.</p> <p><u>Visual</u> - Meet visual quality objectives of partial retention adjacent to U.S. 2 and maximum modification elsewhere.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Reconstruct 1.0 miles to a winter only standard. Construct 0.4 miles to a winter only standard. Close roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation (hunting) in conjunction with road closures. Coordinate activities with existing snowmobile trail use.</p> <p><u>Timber</u> - Design improvement cuts on 81 acres in northern hardwood stands to work them toward an unevenaged condition in compartment 129. Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Design thinning cuts in northern hardwood stands on 145 acres to maintain an even-aged condition. Design shelterwood cuts in northern hardwood stands on 49 acres to improve age-class diversity.</p>
Finnegan	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter thermal cover. Create 10 acres of permanent openings through landing construction. Release oak by cutting adjacent trees. Reserve some den trees as habitat features for cavity nesting wildlife. Maintain a hemlock component in hardwood-hemlock stands for winter thermal cover. Release pockets of hemlock regeneration by cutting to reduce overstory crown closure.</p> <p><u>Visual</u> - Meet visual quality objectives of modification in southern end of area and maximum modification elsewhere.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Reconstruct 0.3 miles to a winter only standard. Construct 0.8 miles to a winter only standard. Close winter roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality of aspen through harvest. Design thinning cuts in northern hardwood stands on 505 acres to maintain an even-aged condition. Convert 33 acres of hardwood/aspen type to improve vegetative composition.</p>

Implementation Year 1987

Management Area 3.2

Project Name	Objectives	
Hill Road	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Create 80 acres of temporary openings and 5 acres of permanent openings. Retain some den trees for cavity nesting wildlife.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct 0.5 miles to a winter only standard. Close winter roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Design thinning cuts in northern hardwood stands on 185 acres to maintain an even-aged condition. Design shelterwood cuts in northern hardwood stands on 66 acres to improve age-class diversity. Clearcut 14 acres of aspen.</p>
Twin Creek	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter thermal cover. Retain winter thermal cover species during site preparation in clearcuts. Seed open areas to a grass/clover mixture. Create 305 acres of temporary openings and 12 acres of permanent openings. Retain some den trees in hardwood stands to provide habitat for cavity nesting wildlife.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct 1.5 miles to a winter only standard. Close winter roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Design thinning cuts in northern hardwood stands on 285 acres to maintain an even-aged condition.</p>

Project NameObjectives

Silver Creek

Wildlife - Part of the sale area is in the Sturgeon River WDR. Schedule winter sale activity to provide browse in the form of limbs and tops. Regenerate aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Create 20-30 acres of temporary openings and 2-4 acres of permanent openings by expanding landings used for timber harvest.

Visual - Meet or exceed visual quality objective of maximum modification. Sale is located in foreground through background of rolling hardwood terrain.

Transportation - Utilize existing access and roads wherever possible. Construct 0.6 mile to winter only standard augmenting present system and avoiding any new creek crossings. All roads to be winter-only standard and closed with native materials at end of operating season and when road use is completed for this sale. Obliterate (close) 0.6 mile of old roads which are not needed to meet long-term management objectives.

Recreation - Manage primarily for roaded natural recreation opportunities. Winter roads will be closed to 4-wheel vehicles after sale. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closure.

Timber - Schedule a combination of delayed removal and thinning cuts to promote more vigorous growth in immature hardwood pole timber stands and work them more toward an even-aged condition. Clearcut 26 acre hardwood/aspen stand and regenerate to aspen to retain species diversity, and retain aspen component in area.

Silver Bullet

Wildlife - Improve age class distribution and diversity throughout the area. Develop and maintain upland openings in conjunction with permanent landings in hardwood stands and spruce plantations. Protect eagle territory on northwest side of Sucker Lake (section 12) through use of buffer areas and restriction of season of logging operations.

Visual - Meet visual quality objective of modification along County Road 206 and Old Highway 45.

Transportation - Construct approximately 1.0 miles of winter/dry summer standard roads. Close temporary roads to four-wheel-drive vehicles after sale closure.

Recreation - Manage for roaded natural recreation opportunities. Close roads to 4-wheel drive vehicles after sale.

Timber - Harvest mature and high risk aspen and emphasize uneven-age management of northern hardwoods. Move area timber composition toward preferred management area composition objectives.

Other - Protect historical site in Compartment 77 during logging.

Implementation Year 1987

Management Area 3.2

Project Name	Objectives	
Ski Pole	<p><u>Wildlife</u> - Maintain hemlock and cedar inclusions on those sites with impeded drainage to maintain thermal cover for deer. Maintain landing areas in hardwood stands as upland openings for wildlife between harvest entries. Retain adequate cull/den trees in hardwood stands.</p> <p><u>Visual</u> - Meet visual quality objective of partial retention along the Middle Branch of the Ontonagon River and along the snowmobile trail. Meet visual quality objective of maximum modification elsewhere.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. A pre-roading project of 1.6 miles of winter/summer dry standard road is now under contract and completion is expected this year. Temporary roads will be closed to four-wheel-drive vehicles when project is completed.</p>	<p><u>Recreation</u> - Manage as a roaded natural area. Maintain the integrity of the snowmobile trail through payment unit restriction, scheduling, or rerouting.</p> <p><u>Timber</u> - Regenerate mature and high risk aspen and spruce-fir stands to minimize mortality and reduce potential insect and disease outbreaks. Improve quality and growth in hardwood stands through intermediate harvest cuts.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard			
<u>Management Area 4.1 - 1987</u>											
Lower Beaver	T48N-R37W S. 27,28, 29 & 30	Veg. Mgt.	Harvest Clearcut	201	Kenton/75	Hdwd ST	50				
			Harvest Thin	23		Sfwd ST	50				
						Hdwd Prod.	200				
						Sfwd Prod.	1,050				
						Aspen	<u>350</u>				
				Total MBF	1,700						
Running Bear	T50N-R37W S. 32 T49N-R37W S. 5 & 6	Veg. Mgt.	Harvest Thin	330	Ontonagon/59, 61 & 123	Sfwd ST	360				
						Hdwd Prod.	20				
						Sfwd Prod.	750				
						Aspen	<u>20</u>				
									Total MBF	1,150	
			Road Construction					0.6 mi. SN			
Bramble	T50N-R37W S. 8,16, 17 & 21	Veg. Mgt.	Harvest Clearcut	182	Ontonagon/33	Hdwd Prod.	660				
						Aspen	<u>730</u>				
						Total MBF	1,390				
			Road Construction					0.3 mi. SN			
			Road Reconstruction					1.0 mi. W/SD			
<u>Total Management Area 4.1</u>			Harvest Clearcut	383		Hdwd ST	50				
			Harvest Thin	353		Sfwd ST	410				
			Total Harvest Acres	736		Hdwd Prod.	880				
						Sfwd Prod.	1,800				
						Aspen	<u>750</u>				
						Total MBF	3,890				
			Road Construction					0.9 mi. SN			
			Road Reconstruction					1.0 mi. W/SD			

Project NameObjectives

Lower Beaver

Wildlife - Sale area is in the Middle Beaver WDR. Although mainly a jack pine sale, a couple of small aspen stands and other inclusions will be regenerated to aspen for deer browse and grouse brood habitat and to maintain an aspen ecosystem. Create 180-200 acres of temporary openings. Timber harvest in the 23 acre hemlock stand is designed to retain thermal cover and provide for future regeneration of hemlock. Oak will be retained to develop mast.

Visual - Most of sale is located in the background of flat to rolling aspen/conifer terrain. Design clearcut units to blend with terrain features wherever possible. Meet visual quality objectives of modification and maximum modification.

Transportation - There is good all weather access to the sale area by a system of sand roads already present. With the exception of a few short, temporary spurs into decking areas in some of the clearcuts there is no new road construction needed. These short spurs will be blocked with native materials and regenerated after the harvesting operations are completed.

Recreation - Manage for roaded natural recreation opportunities. Good all-weather, sand roads are used mostly by hunters and berry pickers.

Timber - Design harvest cuts to start breaking up large, contiguous area of mature/over-mature jack pine and regenerate it to longer rotation red pine. Reduce risk of insects and disease through the harvest of mature jack pine and a lesser amount of aspen. Thin one hemlock/hardwood stand from below to create room for mechanical scarification for hemlock regeneration. Retain and develop oak and hemlock where feasible.

Running Bear

Wildlife - Maintain vegetative diversity and foraging potential by reserving any oak found in the cutting units.

Visual - Meet the Visual Quality Objectives of Partial Retention in the roadside foreground zone and Modification in the remainder of the sale area.

Transportation - Construct 0.6 mile of summer normal standard road. No roads will be closed following sale activities.

Recreation - Manage for a roaded natural recreation opportunities.

Timber - Improve growing conditions in red pine plantations by thinning to recommended stocking levels. This treatment will help to maximize production of red pine sawtimber in the shortest possible rotation.

Other - Continue to provide access to pine plantations for fire management purposes.

Bramble

Wildlife - Regenerate aspen for improved grouse brood habitat and deer browse on 63 acres. Improve habitat diversity by increasing the percentage of softwood through timber type conversions.

Recreation - Manage for a roaded natural recreation opportunities.

Implementation Year 1987

Management Area 4.1

Project Name

Objectives

Bramble (continued)

Visual - manage for a Visual Quality Objective of Partial Retention in the foreground zone along Dishneau Road and a VQO of Modification elsewhere in the project area.

Timber - Harvest mature aspen and regenerate it naturally on 63 acres. Harvest low quality immature hardwoods on 76 acres and convert the stands to more productive red pine through planting.

Transportation - Utilize existing transportation system consisting primarily of summer normal standard roads. Construct 1.0 miles of winter/dry summer standard road utilizing existing road locations and 0.3 mile of new construction to a summer normal standard. The winter/dry summer standard road will be closed following harvest activities.

Ten-Year Action Program

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Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard		
Management Area 6.1 - 1987										
Cookout	T49N-R42N S. 16,20&21	Veg. Mgt.	Harvest Selection	10	Bergland/88 & 89	Hdwd ST	350	0.5 mi. W/SD 0.8 mi. W/SD		
			Harvest Improvement	220		Sfwd ST	10			
						Hdwd Prod.	300			
						Sfwd Prod.	5			
						Aspen	<u>30</u>			
						Total MBF	695			
			Road Construction					0.5 mi. W/SD		
			Road Reconstruction					0.8 mi. W/SD		
Little Trap	T50N-R42W S. 28	Veg. Mgt.	Harvest Thin	13	Bergland 23,37	Hdwd ST	170	0.2 mi. WO 0.4 mi. WO		
			Harvest Selection	87		Hdwd Prod.	140			
						Total MBF	310			
			Road Construction						0.2 mi. WO	
			Road Reconstruction						0.4 mi. WO	
Total Management Area 6.1			Harvest Selection	97			Hdwd ST		520	0.2 mi. WO <u>0.5</u> mi. W/SD 0.7 mi.
			Harvest Thin	13			Sfwd ST	10		
			Harvest Improvement	220			Hdwd Prod.	440		
			Total Harvest Acres	330			Sfwd Prod.	5		
							Aspen	<u>30</u>		
							Total MBF	1,005		
			Road Construction					0.2 mi. WO		
							Total	<u>0.5</u> mi. W/SD		
									0.7 mi.	
			Road Reconstruction					0.4 mi. WO		
							Total	<u>0.8</u> mi. W/SD		
									1.2 mi.	

Project Name	Objectives	
Cookout	<p><u>Wildlife</u> - Establish low vegetation and increase conifer cover for a small winter deer population (5-20 animals). Provide a better age class diversity and some open area for improved grouse habitat. Keep a dense canopy along Weidman and Cascade Creeks to shade the water and discourage beaver. Provide a variety of nest cavities and dying trees.</p> <p><u>Visual</u> - Increase conifer component for increased "Green" during winter. Meet partial retention and retention visual quality objective along M-64.</p> <p><u>Transportation</u> - Create a minimum transportation system consisting mostly of winter only roads. The first 0.2 miles of entrance road may be of a higher standard for decking and future recreation parking. The drainage on Weidman Creek will be removed.</p>	<p><u>Recreation</u> - Manage the area for semiprimitive nonmotorized recreation opportunities. Close roads and remove drainage structure from Weidman Creek after the sale. Protect the Gogebic Ridge Trail. Provide closed roads for cross-country skiing. Maintain an attractive road entrance to serve as a parking spot.</p> <p><u>Timber</u> - Establish rapid growth and increased age-class distribution for northern hardwoods. Encourage ash regeneration. Retain existing conifers and encourage balsam fir and hemlock regeneration. Manage to a lower basal area (60-80) anticipating a 20-30 year period between entries. Manage some low sites even-aged.</p>
Little Trap	<p><u>Wildlife</u> - Establish different levels of vegetative structure in northern hardwood stands. This is to benefit the many wildlife species that prefer uneven-aged hardwood stands. Provide a variety of natural nest cavities.</p> <p><u>Visual</u> - Meet partial retention VQO for foreground of County Road (Old 64). Encourage oak, ash, and other hardwood species for roadside fall color mixed with large conifers.</p> <p><u>Transportation</u> - Construct only short dead-end spurs. Close except for parking areas and firewood gathering at end of project.</p>	<p><u>Recreation</u> - Provide for semiprimitive nonmotorized recreation opportunities. Retain or enhance roadside beauty. Provide for firewood.</p> <p><u>Timber</u> - Improve age and size class variations working toward a larger tree atmosphere. Encourage ash and oak regeneration. Plan for extended entries (20+ years).</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 6.2 - 1987</u>								
Farce Creek	T50N-R35W S. 5,6,7 & 8	Veg. Mgt.	Harvest Thin	1,030	Ontonagon/4	Hdwd ST	1,050	
						Hdwd Prod.	700	
						Sfwd Prod.	240	
						Total MBF	1,990	
Jump	T50N-R35W S. 2,3,10 & 11 T50N-R35W S. 9 & 21	Veg. Mgt.	Harvest Clearcut	180	Ontonagon/1, 2,3 & 44	Hdwd ST	10	
						Sfwd ST	90	
						Hdwd Prod.	60	
						Sfwd Prod.	90	
						Aspen	990	
Total MBF	1,240							
Sullivan Creek	T50N-R36W S. 22,26,27, 34 & 35	Veg. Mgt.	Harvest Clearcut	30	Ontonagon/53	Hdwd ST	2,150	
			Harvest Thin	890		Hdwd Prod.	1,060	
						Total MBF	3,210	
			Road Construction					0.2 mi. W/SD
			Road Reconstruction					1.7 mi. W/SD
								1.6 mi. WO
<u>Total Management Area 6.2</u>			Harvest Thin	1,920		Hdwd ST	3,210	
			Harvest Clearcut	210		Sfwd ST	90	
			Total Harvest Acres	2,130		Hdwd Prod.	1,820	
						Sfwd Prod.	330	
						Aspen	990	
						Total MBF	6,440	
			Road Construction			Total		0.2 mi. W/SD
			Road Reconstruction					1.7 mi. W/SD
								1.6 mi. WO
						Total		3.3 mi.

Project Name	Objectives	
Farce Creek	<p><u>Wildlife</u> - Thin approximately 190 acres of hardwood-hemlock timber type to promote the growth of the hemlock and the better quality hardwoods. Cut during the winter months to provide a short-term browse supply to those deer wintering in the northwestern corner of the Sturgeon-Silver Mountain Deer Yard.</p>	<p><u>Recreation</u> - Provide semiprimitive motorized recreation opportunities. Close entire sale area transportation system to 4-wheel traffic following sale activities. Provide access to ORVs and foot traffic for hunting and other dispersed recreation uses.</p>
	<p><u>Visual</u> - Meet the Visual Quality Objective of Partial Retention in the foreground zone along the main access into the sale area and Modification in the remainder of the project area.</p>	<p><u>Timber</u> - Schedule a combination thinning and improvement cut. Most of the area is in a two-aged condition with the older age class being generally mature and of very poor quality. The primary objective of the harvest will be to remove this older age class.</p>
	<p><u>Transportation</u> - Use existing Winter Only standard roads for this project. Placement of culverts on two stream crossings will be specified. Close transportation system to 4-wheeled vehicles following sale activities.</p>	
Jump	<p><u>Wildlife</u> - Clear aspen stands to produce a source of deer browse for several years. Stands in areas of heavy winter deer use will be restricted to winter-only harvesting to provide a short-term supply of browse with the tops of the harvested trees. Regenerate aspen stands to provide suitable habitat for ruffed grouse broods. Winter only standard roads and landings will be seeded with a conservation mix and will therefore provide approximately 6-10 acres of herbaceous upland openings.</p>	<p><u>Recreation</u> - Provide semiprimitive motorized recreation opportunities. Winter only and winter/dry summer standard roads will be closed to 4-wheeled traffic. Summer normal standard roads will be opened seasonally to 4-wheeled traffic to provide limited vehicle access for hunting. Integrity of Pelkie Creek hunter walking trails will be maintained as will the existing snowmobile trail.</p>
	<p><u>Visual</u> - Meet the visual quality objective of Modification.</p>	<p><u>Timber</u> - Stands of mature and over-mature aspen will be harvested and regenerated to aspen through natural regeneration. Some stands will contain a mixture of advanced softwood regeneration and patches of residual softwoods along with the regenerated aspen.</p>
	<p><u>Transportation</u> - Use existing roads to access cutting units. Approximately 0.4 mile of temporary roads will be constructed to access those units with no existing roads nearby. Road standards are generally winter/dry summer.</p>	<p><u>Other</u> - Maintain an adequate degree of safety for public vehicles sharing use of the Prickett Dam Road and Forest Road 193 with logging traffic.</p>

Project NameObjectives

Sullivan Creek

Wildlife - Aspen inclusions within hardwood stands will be clearcut and the inclusions will be expanded by cutting beyond the edge of the inclusion to increase the amount of aspen type in the sale area. Existing and potential den trees will be retained such that 1-3 remain in the residual stand.

Visual - The foreground zone along the South Laird Road and Forest Road 1347 will be managed to meet a Visual Quality Objective of Partial Retention. The remainder of the sale area will be managed to meet a VQO of Modification.

Transportation - Existing roads will be used throughout the sale area. Reconstruction work will be necessary to improve the condition of several roads. Reconstruction to a winter/dry summer standard will be carried out on 1.9 miles of existing road and to a winter only standard on 1.6 miles of existing road.

Recreation - Provide for semiprimitive motorized recreation opportunities. Close road to 4-wheeled traffic following the project activity.

Timber - Hardwood stands will receive improvement cuts to remove the scattered overmature and low quality overstory trees and to improve the growing conditions for the residual trees. Approximately 75% of the area will be treated with management objective of even-aged and the other 25% will be managed uneven-aged.

IMPLEMENTATION YEAR TOTALS - 1987

<u>Management Practices</u>		<u>Timber Outputs</u>	<u>MBF</u>	<u>Road Construction Miles by Standard</u>		<u>Road Reconstruction Miles by Standard</u>	
Harvest Clearcut	4,401 acres	Hardwood ST	12,952	Winter only	11.7	Winter only	3.8
Harvest Shelterwood Seed	850 acres	Softwood ST	3,399	Winter/summer dry	6.6	Winter/summer dry	9.8
Harvest Selection	3,773 acres	Hardwood Prod.	19,940	Summer Normal	<u>1.3</u>	Summer Normal	<u> </u>
Thinning	7,147 acres	Softwood Prod.	12,294	Total	19.6	Total	13.6
Removal	11 acres	Aspen	<u>18,952</u>				
		Total MBF	67,537				

An additional volume of approximately 3,000-4,000 MBF of misc., small sales will also be offered during the implementation year.

ROAD CONSTRUCTION/RECONSTRUCTION PROJECTS (APPROPRIATED FUNDS) - 1987

<u>Project Name</u>	<u>Legal Desc.</u>	<u>Type of Project</u>	<u>Management Practice</u>	<u>District/Compartment</u>	<u>Mi. of Road by Standard</u>	<u>Mgmt. Area</u>
Hungry Louie	T48N-R46W S 13,14,23 T48N-R45W S 19	Preroad	Road Construction	Bessemer/27,31,32	4.0 mi.SN 1.3 mi.WO	3.2
Dorrie Creek	T47N-R37W S 19,20 & 30 T47N-R38W S 2,4 & 25	Preroad	Road Reconstruction	Kenton/132,133,138, 139 & 140	4.7 mi.SN	3.1
Curry Lake	T46N-R37W S 20,21,29 & 32 T45N-R37W S 5,6,7 & 18	Collector	Road Reconstruction	Iron River/14,15,16, 36 & 37	1.1 mi.AW	2.1, 6.1
Gardner Road	T49N-R38W S 9,10 & 11	County Collector	County Road Reconstruction	Ontonagon/88,129,130, 131 & 132	2.0 Mi AW	4.1, 9.2

Implementation Year 1987

Project Name	Objectives
Management Area 3.2 Hungry Louie	<u>Transportation</u> - Roads will access approximately 2,700 acres of predominantly northern hardwoods at an estimated cost of \$118,000. 2.2 miles of new construction and 1.8 miles of reconstruction will provide summer access to a large portion of the area. The remainder of the area will be accessed by 1.3 miles of winter only roads of which 0.9 miles will be new construction. Some roads will be closed to motorized traffic except for ORVs. The primary purpose of the roads will be to provide access for vegetative management activities. They will also provide access for recreation and fuelwood gathering.
Management Area 3.1 Dorrie Creek	<u>Transportation</u> - The roads will provide summer access to approximately 2,000 acres of hardwood and aspen/paper birch types. 3.4 miles of existing roads will be reconstructed with 1.3 miles of new construction required. Total road cost is estimated at \$52,000. The roads will provide access for recreation and fuelwood gathering in addition to the primary purpose of access for vegetative management activities.
Management Areas 2.1, 6.1 Curry Lake	<u>Transportation</u> - 1.1 miles of collector road will be reconstructed to correct safety hazards caused by poor sight distances, narrowness of the road, and a rough surface. The road has a mix of recreation and timber traffic which increases the chances of an accident occurring. The cost estimate is \$28,000 for the required work.
Management Area 4.1 Gardner Road	<u>Transportation</u> - Cooperate with Ontonagon County to upgrade the road to an all-weather standard. The road provides primary access to approximately 35,000 acres of National Forest land. The road's current condition results in hazardous driving conditions, high haul costs, and does not allow access during wet periods of the year. The Forest Service's share of the reconstruction cost will be approximately \$30,000. Work will involve road widening, ditching, horizontal and vertical realignment, cross drainage, and gravel surfacing.

TEN-YEAR VEGETATIVE MANAGEMENT AND ROAD CONSTRUCTION PROJECTS
OTTAWA NATIONAL FOREST

IMPLEMENTATION YEAR - 1988

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 1.1 - 1988</u>								
West Hide II	T49N-R40W S. 25,26, 35 & 36	Veg. Mgmt.	Harvest Clearcut	512	Bergland/104	Hdws ST	300	
						Hdwd Prod.	1,280	
						Aspen	1,920	
						Total MBF	3,500	
			Road Construction					1.3 mi. W/SD
			Road Reconstruction					1.9 mi. W/SD
Cute Creek		Veg. Mgt.	Harvest Clearcut	21	Kenton/34	Sfwd ST	150	
			Harvest Shelterwood	76		Hdwd Prod.	50	
			Harvest Thin	147		Sfwd Prod.	700	
						Aspen	200	
						Total MBF	1,100	
			Road Construction					0.2 mi. WO
East Dolph		Veg. Mgt.	Harvest Clearcut	70	Kenton/78, 79, & 96	Hdwd ST	100	
			Harvest Selection	44		Hdwd Prod.	200	
			Harvest Thin	53		Sfwd Prod.	50	
						Aspen	250	
						Total MBF	600	
Corn	T49N-R39W S. 25,26, & 35	Veg. Mgt.	Harvest Clearcut	190	Ontonagon/144	Sfwd ST	130	
						Hdwd Prod.	280	
						Sfwd Prod.	150	
						Aspen	760	
						Total MBF	1,320	
			Road Construction					1.4 mi. WO
<u>Total Management Area 1.1</u>			Harvest Clearcut	793		Hdwd ST	400	
			Harvest Shelterwood	76		Sfwd ST	280	
			Harvest Selection	44		Hdwd Prod.	1,810	
			Harvest Thin	200		Sfwd Prod.	900	
			Total Harvest Acres	1,113		Aspen	3,130	
						Total MBF	6,520	
			Road Construction					1.6 mi. WO
			Road Reconstruction					1.9 mi. W/SD

Ten-Year Action Program

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Project Name	Objectives	
West Hide II	<p><u>Wildlife</u> - Maintain an extensive aspen ecosystem for deer, grouse, and other wildlife and plant species that prefer an early successional condition. Increase temporary and permanent openings, berries, grasses, and brush.</p> <p><u>Visual</u> - Meet maximum modification VQO. Provide a variety of stand ages and species including open area and brush.</p> <p><u>Transportation</u> - Provide for seasonal pickup and 4x4 access. Provide a system of temporary roads to aspen clearcuts. Most roads will be winter only and blocked to vehicle use after serving the sale. The main road will be summer dry and gated.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Improve hunting opportunities. Provide more roads for walking and seasonal vehicle access.</p> <p><u>Timber</u> - Provide fast growing quality aspen on aspen sites and hardwood stands with large components of oak, ash, birch, and conifer species on hardwood sites.</p> <p><u>Other</u> - Protect soils and water quality. The area has many small drainages.</p>
Cute Creek	<p><u>Wildlife</u> - Sale is within Middle Branch Ontonagon WDR. Winter harvest to provide short-term browse in the form of tops. Clearcut aspen to provide browse near cover areas. A minor amount of permanent openings will be constructed by expanding landings used for timber harvest. Retain and develop oak where possible. Several nearby stands are designated as old growth.</p> <p><u>Visual</u> - Meet maximum modification VQO. Treatments along Gardner Road will increase visual variety and result in enhanced view into red pine stands.</p> <p><u>Transportation</u> - Sale is winter-only operable. A network of existing roads will be adequate to access most of the sale. Roads will not be improved beyond a winter-haul standard. Most roads will be closed with native materials at end of operating season and when road use is completed for this sale.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Close winter roads after sale completion and provide parking for walk-in access for hunters.</p> <p><u>Timber</u> - Combination of red pine thins and regeneration cuts in spruce, Tamarack and balsam/ aspen stands. Objective is to improve growth and quality of treated stands, and to regenerate spruce, tamarack and aspen on appropriate sites.</p>
East Dolph	<p><u>Wildlife</u> - Retain and develop oak and hemlock where feasible. Retain scattered den trees in hardwood treatments. Create better aspen age-class diversity. Maintain existing permanent openings. Provide short-term browse (tops) through winter harvest (area is adjacent to Spargo Creek and Middle Beaver Winter Deer Ranges).</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Winter roads will be closed to 4-wheel vehicles after sale. Provide for fuelwood gatherings prior to road closures. Provide parking area for dispersed recreation uses (hunting and berry-picking) in conjunction with road closures. Area receives only very light use at present.</p>

Project Name	Objectives	
East Dolph (continued)	<p><u>Visual</u> - Meet modification VQO. Area is not near any major roads and receives only light use at present. Visual impact will be very minor due to small sale size and low clearcut acreage.</p>	<p><u>Timber</u> - Combination of hardwood thins, selection cuts and aspen clearcuts. Hardwood treatments will result in improved growth and quality of crop trees. Clearcuts will regenerate overmature aspen and improve aspen age-class diversity.</p>
	<p><u>Transportation</u> - Existing winter-standard roads will be utilized and closed upon sale completion. No new road construction will be necessary.</p>	
Corn	<p><u>Wildlife</u> - Increase age-class diversity and improve habitat for grouse by breaking up large blocks of mature and overmature aspen into smaller units of various age classes. Create 6-8 acres of upland herbaceous openings by seeding landings and temporary roads with a wildlife conservation mix.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. System roads will be open available to ORV use following the timber sale. Dispersed recreation opportunities, mainly hunting, will be increased.</p>
	<p><u>Visual</u> - Meet the visual quality objective of Modification throughout the sale area.</p>	<p><u>Timber</u> - Harvest approximately 190 acres of mature and overmature aspen and manage for natural regeneration of aspen on the cutover areas.</p>
	<p><u>Transportation</u> - Construct 1.4 miles of Winter Only standard road. Close all roads to 4-wheeled vehicle traffic following sale activities, except where access to the private lands is needed.</p>	<p><u>Other</u> - Sale is just outside the west boundary of the Middle Branch Ontonagon River proposed Wild and Scenic River Inventory Study Area.</p>

Ten-Year Action Program

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/ Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1988								
Cousin Jack	T49N-R43W S.34 & 35	Veg. Mgt.	Harvest Improvement	468	Bergland/131	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Total MBF	525 60 920 25 2,600	2.9 mi. W/SD 0.6 mi. W/SD
			Road Reconstruction Road Construction					
Little Giant	T47N-R44W S.33,34 & 35 T46N-R44W S.3,4 & 10	Veg. Mgt.	Harvest Thin	575	Bessemer/94 95, 127, & 142	Hdwd ST Hdwd Prod. Aspen Total MBF	400 1,200 1,000 2,600	1.6 mi. WO 0.6 mi. WO
			Road Construction Road Reconstruction					
Stagecoach	T46N-R42W S 21,22, 23 & 26	Veg Mgt	Harvest Thin Harvest Clearcut	298 138	Bessemer/147, 157	Hdwd ST Hdwd Prod. Aspen Total MBF	200 630 600 1,430	2.0 mi. WO
			Road Construction					
Plymouth	T45N-R44W S 13,14, 23 & 24	Veg Mgt	Harvest Selection Harvest Clearcut	45 11	Bessemer/214	Hdwd Prod. Aspen Total MBF	230 60 290	0.2 mi. W/SD
			Road Construction					
White City	T46N-R42W S 12	Veg Mgt	Harvest Clearcut	78	Bessemer/120	Aspen Total MBF	470 470	
			Road Construction					
Sparkle IV	T46N-R42W S 31, 32 T45N-R42W S 5 & 6	Veg Mgt	Harvest Thin	373	Bessemer/182	Hdwd ST Hdwd Prod. Total MBF	300 850 1,150	1.0 mi. W/SD
			Road Construction					

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 2.1 - 1988 (continued)</u>								
Osprey	T45N-R44W S 3,4,10, 15, 16 & 22	Veg Mgt	Harvest Thin	670	Bessemer/206, 211, 212, 243, 244	Hdwd ST Hdwd Prod. Total MBF	450 <u>1,550</u> 2,000	1.0 mi W/SD
			Road Construction					
Ketchum Lake	T46N-R36W S 23,27,29 & 34	Veg. Mgt.	Harvest Shelterwood Harvest Selection	79 324	Iron River/44, 51, 53, 62	Hdwd ST Hdwd Prod. Total MBF	100 <u>750</u> 850	0.5 mi WO
			Road Construction					
Pendleton Creek	T43N-R36N S 30, 31	Veg. Mgt.	Harvest Selection	155	Iron River/132	Hdwd ST Hdwd Prod. Total MBF	70 <u>230</u> 300	0.7 mi WO
			Road Construction					
Divide	T45N-R37W S 27 & 28	Veg Mgt.	Harvest Selection	150	Iron River/55	Hdwd ST Hdwd Prod Total MBF	50 <u>250</u> 300	0.1 mi WO
			Road Construction					
Cooks Meadow	T44N-R37W S 25 & 36	Veg Mgt	Harvest Selection	120	Iron River/99	Hdwd ST Hdwd Prod Total MBF	25 <u>225</u> 250	0.1 mi WO
			Road Construction					

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1988 (continued)								
Basswood Ridge	T44N-R36W S 14, 15, 21, 22, 23, 26 & 28	Veg Mgt	Harvest Clearcut	39	Iron River/73, 85, 86, 87	Hdwd ST	300	1.4 mi WO
			Harvest Selection	607		Hdwd Prod.	700	
			Harvest Thin	186		Sfwd Prod.	400	
			Road Construction			Aspen	300	
						Total MBF	1,700	
Lomark	T45N-R35W S 28	Veg Mgt	Harvest Clearcut	65	Iron River/48	Aspen	500	
						Total MBF	500	
Haywire North	T48N-R35W S 20, 21 & 29	Veg Mgt	Harvest Clearcut	176	Kenton/85	Hdwd Prod.	100	
						Aspen	850	
						Total MBF	950	
Haywire Pine	T48N-R35W S 9, 20, 29 & 30	Veg Mgt	Harvest Thin	191	Kenton/85	Sfwd ST	150	
						Sfwd Prod.	400	
						Total MBF	550	
Coontail Camp	T47N-R35W S 1 & 12	Veg Mgt	Harvest Clearcut	120	Kenton/88, 120	Hdwd ST	200	
			Harvest Selection	180		Sfwd ST	50	
			Road Construction			Hdwd Prod.	300	
						Sfwd Prod.	250	
						Aspen	700	
						Total MBF	1,500	0.3 mi W/SD
Clear Lake	T46N-R37W S 16, 21 & 28	Veg Mgt	Harvest Clearcut	19	Kenton/198	Hdwd ST	250	
			Harvest Selection	89		Hdwd Prod.	650	
			Harvest Thin	188		Sfwd Prod.	50	
			Road Construction			Aspen	150	
						Total MBF	1,100	0.7 mi SN

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 2.1 - 1988 (continued)</u>								
Perch Corner	T47N-R35W S 3 & 10	Veg Mgt	Harvest Thin	352	Kenton/ 90	Hdwd ST	850	
			Harvest Selection	151		Sfwd ST	50	
						Hdwd Prod.	700	
						Sfwd Prod.	50	
			Road Construction			Total MBF	1,600	0.5 mi WO
Old Farm	T46N-R37W S 9, 10, 15, 16 & 17	Veg Mgt	Harvest Clearcut	111	Kenton/177	Hdwd ST	420	
			Harvest Thin	200		Sfwd ST	120	
						Hdwd Prod.	170	
						Sfwd Prod.	340	
						Aspen	150	
			Road Construction			Total MBF	1,200	0.5 mi WO
LaCrosse	T46N-R36W S 10, 11 & 15	Veg Mgt	Harvest Clearcut	8	Kenton/182	Hdwd ST	300	
			Harvest Selection	146		Hdwd Prod.	250	
			Harvest thin	40		Sfwd Prod.	50	
			Road Construction			Total MBF	600	0.2 mi W/SD
East Perch	T46N-R35W S 23 & 24	Veg Mgt	Harvest Selection	277	Kenton/189	Hdwd ST	650	
						Sfwd ST	50	
						Hdwd Prod.	350	
						Sfwd Prod.	50	
						Total MBF	1,100	
Full Moon	T47N-R35W S 9, 10, & 16	Veg Mgt	Harvest Clearcut	33	Kenton/117, 118	Hdwd ST	850	
			Harvest Thin	480		Sfwd ST	50	
						Hdwd Prod.	400	
						Sfwd Prod.	300	
			Road Construction			Total MBF	1,600	1.0 mi W/SD

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 2.1 - 1988 (continued)</u>								
Peckerwood	T47N-R36W S 18,19,20	Veg Mgt	Harvest Clearcut	35	Kenton/127,128	Hdwd ST	1,500	
			Harvest Shelterwood	15		Sfwd ST	200	
			Harvest Selection	110		Hdwd Prod.	650	
			Harvest Thin	545		Sfwd Prod.	600	
						Aspen	150	
						Total MBF	3,100	
			Road Construction					3.0 mi W/SD
			Road Reconstruction					1.0 mi W/SD
Elbow	T47N-R36W S 4,5,8	Veg Mgt	Harvest Selection	350	Ontonagon/96	Hdwd ST	500	
						Hdwd Prod.	280	
						Aspen	440	
			Road Construction				1,220	1.5 mi W/SD
Webstur	T49N-R36W S 5,6,7 T49N-R37W S 12,13	Veg Mgt	Harvest Selection	770	Ontonagon/95	Hdwd ST	1,860	
						Hdwd Prod.	500	
						Aspen	480	
						Total MBF	2,840	
			Road Reconstruction					0.9 mi W/SD
			Road Reconstruction					1.5 mi W/SD
Slapjack	T49N-R36W S 4,9,10	Veg Mgt	Harvest Clearcut	150	Ontonagon/97,98, 100	Hdwd ST	90	
						Hdwd Prod.	280	
						Aspen	750	
						Total MBF	1,120	
			Road Construction					0.2 mi W/SD
Courtship	T50N-R37W S 3,4,10	Veg Mgt	Harvest Clearcut	130	Ontonagon/7	Hdwd ST	50	
						Sfwd ST	80	
						Hdwd Prod.	590	
						Sfwd Prod.	120	
						Aspen	220	
						Total MBF	1,060	
			Road Reconstruction					1.0 mi SN

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1988 (continued)								
Paint Springs		Veg Mgt	Harvest Clearcut	282	Watersmeet/139, 157, 159	Hdwd ST	1,600	1.0 mi. W/SD 2.0 mi. WO
			Harvest Selection	349		Sfwd ST	300	
			Harvest Shelterwood	67		Hdwd Prod.	1,800	
			Harvest Thin	764		Sfwd Prod.	1,900	
						Aspen	1,800	
						Total MBF	6,000	
			Road Construction					
Duck Creek	T44N-R39W S 4,7,8,9, 16,17 & 18	Veg Mgt	Harvest Clearcut	296	Watersmeet/146, 147	Hdwd ST	960	0.5 mi. W/SD 1.0 mi. WO
			Harvest Selection	133		Sfwd ST	330	
			Harvest Shelterwood	108		Hdwd Prod.	1,750	
			Harvest Thin	363		Sfwd Prod.	600	
						Aspen	350	
						Total MBF	3,990	
			Road Construction					
Sharptail Lake	T44N-R39W S 23,24, 25 & 26	Veg Mgt	Harvest Clearcut	158	Watersmeet/152	Hdwd ST	40	1.0 mi. W/SD
			Harvest Shelterwood	48		Sfwd ST	670	
			Harvest Thin	301		Hdwd Prod.	250	
			Harvest Removal	7		Sfwd Prod.	1,500	
						Aspen	1,050	
						Total MBF	3,510	
			Road Construction					
Total Management Area 2.1			Harvest Clearcut	2,044		Hdwd ST	12,540	
			Harvest Selection	3,956		Sfwd ST	2,110	
			Harvest Improvement	468		Hdwd Prod.	16,555	
			Harvest Shelterwood	317		Sfwd Prod.	6,635	
			Harvest Thin	5,526		Aspen	10,020	
			Total Harvest Acres	12,311		Total MBF	47,860	
			Road Construction					10.4 mi. WO 13.0 mi. W/SD 7 mi. SN
							Total	24.1
			Road Reconstruction					0.6 mi. WO 4.8 mi. W/SD 1.0 mi. SN
							Total	6.4 mi.

Ten-Year Action Program

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Implementation Year 1988

Management Area 2.1

Project Name	Objectives	
Cousin Jack	<p><u>Wildlife</u> - Improve game species habitat and provide several vegetative layers in hardwood stands. Provide some hardwood species variety with ash, oak, and yellow birch being preferred species. Increase open area, berries, and grasses. Encourage beaver except at roadsides.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Improve road access for high clearance vehicles, ATV's, snowmobiles, and walking. Improve hunting and trapping opportunities. Improve access to the North Country Trail parking area along-side FR 789. Provide recreational firewood and berries.</p>
	<p><u>Visual</u> - Meet maximum modification VQO or higher.</p>	<p><u>Timber</u> - Move hardwood stands rapidly into a sawlog size class and condition. Increase species variety. Establish stands of various ages. Strive for ash, oak, and yellow birch regeneration.</p>
	<p><u>Transportation</u> - Improve roads for recreational vehicles (ATV's, snowmobiles, cycles, and pickup trucks). Protect seasonal roads as needed. Local roads will dead-end to discourage some use.</p>	
Little Giant	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter cover. Seed open areas to a grass/clover mixture. Create 195 acres of temporary openings and 10 acres of permanent openings. Feature oak by releasing individual stems. Retain some den trees to provide habitat for cavity nesting wildlife species.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures. Protect the characteristics of potential wild and scenic inventory river corridors.</p>
	<p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest of overmature stands. Design selection cuts in northern hardwood stands on 160 acres to maintain an unevenaged condition. Design improvement cuts on 415 acres of northern hardwood stands to work them toward an unevenaged condition. Clearcut 195 acres of aspen.</p>	<p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p>
	<p><u>Transportation</u> - Utilize existing access and roads as much as possible. Reconstruct 0.6 miles to a winter only standard. Construct 1.6 miles to a winter only standard. Close winter and winter/dry summer roads to 4-wheel vehicle access after harvest.</p>	

Project NameObjectives

Stagecoach

Wildlife - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter cover. Retain winter thermal cover species during site preparation in clearcuts. Seed open areas to a grass/clover mixture. Create 138 acres of temporary openings and 8 acres of permanent upland openings. Provide for travelways to pipelines. Promote small clearcut areas in hardwood stands to increase aspen component.

Timber - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Clearcut 138 acres of aspen. Design thinning cuts in northern hardwood stands on 298 acres to maintain an even-aged condition.

Transportation - Utilize existing access and roads as much as possible. Construct 2.0 miles to a winter only standard. Close roads to 4-wheel vehicle access after harvest.

Recreation - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures. Coordinate activities with existing snowmobile trail use.

Visual - Meet visual quality objectives of maximum modification.

Plymouth

Wildlife - Regenerate aspen for deer browse and grouse brood habitat on small acreages. Create 11 acres of temporary openings and 1 acre of permanent upland opening.

Timber - Design improvement cuts on 45 acres in northern hardwood stands to work them toward an unevenaged condition. Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Clearcut 11 acres of aspen. Decrease acres of short rotation species to promote management of unevenaged hardwoods in the future.

Transportation - Utilize existing access and roads as much as possible. Construct 0.2 miles to a winter/dry summer standard. Close new roads to 4-wheel access after harvest.

Recreation - Manage for roaded natural recreation opportunities. Provide for fuelwood gathering prior to closure of roads especially for those living in the Eel Lake and Moraine Lake Area. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.

Visual - Meet visual quality objectives of partial retention in the foreground near Eel Lake. Provide for slash treatment over entire sale area.

Implementation Year 1988

Management Area 2.1

Project Name	Objectives	
White City	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter cover. Retain thermal cover species during site preparation in clearcuts. Seed open areas to a grass/clover mixture. Create 78 acres of temporary openings and 3 acres of permanent upland openings.</p> <p><u>Timber</u> - Reduce mortality in the aspen type through harvest and regeneration.</p> <p><u>Transportation</u> - Utilize existing access and roads on private lands to eliminate the need for road construction.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p>
Sparkle IV	<p><u>Wildlife</u> - Regenerate small aspen areas for deer browse and grouse brood habitat. Increase the aspen ecosystem within hardwood stands. Retain hemlock and cedar for winter cover. Seed open areas to a grass/clover mixture. Create 15-20 acres of temporary openings and 3 acres of permanent upland openings.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Design thinning cuts in northern hardwood stands on 373 acres to maintain an evenaged condition. Provide for small clearcut aspen areas within hardwood stands to promote aspen.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct 1.0 miles to a winter/dry summer standard. Close new roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close new roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p>
Osprey	<p><u>Wildlife</u> - Create 15 acres of permanent upland openings. Retain some den trees as habitat for cavity nesting wildlife species.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Design thinning cuts in northern hardwood stands on 670 acres to maintain an evenaged condition.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter and winter/dry summer roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures. Protect the characteristics of potential wild and scenic inventory river corridors.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p>

Project Name	Objectives	
Osprey (continued)	<p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct 1.0 miles to a winter/dry summer standard. Close new roads to 4-wheel vehicle access after harvest.</p>	
Ketchum Lake	<p><u>Wildlife</u> - Create 15 acres of permanent upland forest openings. Regenerate low quality hardwoods near winter deer range and manage on a short rotation basis to provide increased browse.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter only local roads after the sale to provide walk-in dispersed recreation opportunities (hunting, hiking).</p>
	<p><u>Visual</u> - Meet Modification VQO.</p>	<p><u>Timber</u> - Regenerate low quality hardwoods through shelterwood seed cutting. Design improvement cuts in immature hardwood stands so as to move them toward an unevenaged condition.</p>
	<p><u>Transportation</u> - Utilize existing roads. Construct 0.5 miles of winter only standard roads. Block after sale to protect soft roadbeds.</p>	
Pendleton Creek	<p><u>Wildlife</u> - Create 5 acres of permanent upland forest openings.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Leave FR 302 open to provide hunting access to a young aspen ecosystem and to waterfowl hunting on Circle Lake. Close winter only roads off FR 302 to provide walk-in hunting opportunities.</p>
	<p><u>Visual</u> - Meet modification VQO.</p>	<p><u>Timber</u> - Design improvement cuts in immature hardwood stands so as to move them toward an unevenaged condition.</p>
	<p><u>Transportation</u> - Use existing roads. Reconstruct 0.5 miles of winter only standard roads and construct 0.2 miles of winter only standard roads. Block these local roads to protect soft roadbeds after the sale.</p>	
Divide	<p><u>Wildlife</u> - Create 2 acres of permanent upland forest openings. Crown release northern red oak sawtimber and poles to improve mast production.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide a combination of motorizedd and nonmotorized recreation opportunities by blocking some roads after the sale and by leaving some open that would not receive post sale damage.</p>
	<p><u>Visual</u> - Meet modification VQO.</p>	<p><u>Timber</u> - Design improvement cuts in immature hardwoods to work them toward an unevenaged condition.</p>

Project Name	Objectives	
Divide (continued)	<p><u>Transportation</u> - Utilize existing roads. Reconstruct 0.1 mile of winter only standard roads to correct an erosion problem. Close roads that will not handle post-sale traffic. Leave other roads open if damage will not occur.</p>	
Cooks Meadow	<p><u>Wildlife</u> - Identify and manage hardwood stands as old growth along FH 16. Maintain gray squirrel populations along FH 16.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide parking spots in front of road closure on FH 16 and the Basswood Road. Provide firewood gathering opportunities along FH 16 and Basswood Road.</p>
	<p><u>Visual</u> - Meet retention VQO. Manage hardwoods along FH 16 with an old growth objective.</p>	<p><u>Timber</u> - Design improvement cuts in immature hardwoods so as to work them toward an unevenage condition.</p>
	<p><u>Transportation</u> - Utilize existing roads. Construct 0.1 mile of winter only standard road. Close after the sale to protect the roadbed.</p>	
Basswood Ridge	<p><u>Wildlife</u> - Create 32 acres of permanent upland forest openings. Regenerate 39 acres of aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Create 39 acres of temporary openings.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide nonmotorized recreation opportunities by closing local roads after the sale. Provide firewood gathering opportunities after the sale along FR 151 and 341.</p>
	<p><u>Visual</u> - Meet modification VQO.</p>	<p><u>Timber</u> - Design improvement cuts in immature hardwood stands to work them toward an unevenage condition. Improve growth and quality of white pine and hardwood stands through thinnings.</p>
	<p><u>Transportation</u> - Utilize existing roads. Construct 1.0 miles of winter only standard roads. Reconstruct 0.4 miles of winter only standard roads. Protect special use roads through road location and design. Close winter only roads to prevent damage to the roadbeds.</p>	
Lomark	<p><u>Wildlife</u> - Regenerate 65 acres of aspen for deer browse and grouse brood habitat and maintain aspen type. Create 65 acres of temporary opening.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide walk-in access hunting opportunities through closure of temporary roads.</p>
	<p><u>Visual</u> - Meet modification VQO.</p>	<p><u>Timber</u> - Regenerate mature aspen stands.</p>
	<p><u>Transportation</u> - Utilize existing roads. Close and obliterate all temporary roads.</p>	

Project Name	Objectives	
Haywire North	<p><u>Wildlife</u> - Increase aspen age-class diversity to benefit deer, grouse, and other early successional species. Retain and develop oak component wherever possible for mast production. Retain viable pine/spruce patches for species diversity and for thermal cover.</p> <p><u>Visual</u> - Meet modification VQO. Regenerate aspen along FR 192 to add visual variety. Terrain is basically flat.</p> <p><u>Transportation</u> - Utilize existing road system wherever possible. A minor amount of temporary road construction will be necessary into clearcut units. Close all roads upon sale completion.</p>	<p><u>Recreation</u> - Manage primarily for roaded natural recreation opportunities. Main form of recreation in area is hunting. Create a mix of aspen age-classes to improve deer and grouse habitat. Close roads to provide walk-in access for hunting.</p> <p><u>Timber</u> - Clearcut mixed aspen/hardwood stands to increase age-class diversity in area. Retain oak and viable pine/spruce patches. Retain needed aspen acreage in a management area comprised mainly of northern hardwoods.</p>
Haywire Pine	<p><u>Wildlife</u> - Maintain aspen type by regenerating over-mature stand. Maintain landings created through sale harvest as permanent upland openings (2-4 acres). Create 20-30 acres of temporary openings.</p> <p><u>Visual</u> - Meet VQO of partial retention along main roads and modification elsewhere. Red pine thinning comprises the majority of roadside treatment. This will increase visual penetration and enhance view of larger trees. Aspen clearcut is small and will add to visual variety.</p> <p><u>Transportation</u> - There is good all-weather access to the sale area by a system of sand roads already present. No new permanent road construction will be necessary.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities, mainly hunting and berry-picking.</p> <p><u>Timber</u> - Primarily red pine thinning, with a small amount of aspen clearcut acres. Thins will allow for increased growth potential on red pine crop trees for more rapid sawtimber production. Clearcut to regenerate over-mature aspen and create an additional age-class.</p>
Coontail Camp	<p><u>Wildlife</u> - Regeneration of aspen/fir types will create age-class diversity and provide browse and broad-leaved vegetation for deer summer range. Retain and develop oak and hemlock in hardwood types wherever possible. Retain scattered den trees. Protect riparian travel/cover areas along the Perch River.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Winter roads will be closed to 4-wheel vehicles after sale. Provide for fuelwood gathering prior to closure of roads. Close proximity to Watton/Sidnaw area should result in fairly heavy fuelwood utilization. Provide parking areas for dispersed recreation uses (hunting) in conjunction with road closures.</p>

Project Name	Objectives	
Coontail Camp (continued)	<p><u>Visual</u> - Meet VQO of partial retention near the Perch River and modification elsewhere. Access to the area is limited, and treatments will not have a major visual impact.</p> <p><u>Transportation</u> - Access will be from the north via FR 358. The winter-standard road heading south from the end of FR 358 will be used and a series of short spurs will be constructed off of that into some of the cutting units. Close spur roads when cutting and hauling are completed. Road system currently exists on the private block in the S 1/2 of Section 12; this land is a proposed acquisition.</p>	<p><u>Timber</u> - Regenerate overmature aspen/balsam fir stands and selectively cut mixed hardwood pole/sawlog stands to increase growth and quality.</p>
Clear Lake	<p><u>Wildlife</u> - Scattered den trees will be retained. Oak and hemlock will be retained and developed wherever possible. Maintain existing permanent upland openings after the sale. Several nearby stands have been designated as old growth.</p> <p><u>Visual</u> - Increase visual penetration into stands along FR 166 through thinning. Retain healthy hemlock and paper birch, for visual variety. Meet VQO of partial retention.</p> <p><u>Transportation</u> - Use existing roads as much as possible. Construct 0.7 mile of summer-normal road for long-term access into main hardwood area.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Maintain long-lived species (maple-hemlock) along FR 166 so as to minimize impacts from disturbance and provide good fall color viewing.</p> <p><u>Timber</u> - Thin hardwood pole stands to increase growth and quality. Perform selection cuts in mixed pole/sawlog stands. Convert low quality mixed maple/birch/aspen stand to aspen through clearcutting.</p>
Perch Corner	<p><u>Wildlife</u> - Retain and develop oak and good quality black cherry wherever possible. Retain scattered den trees, particularly near riparian areas. Designate several stands near sale as old growth.</p> <p><u>Visual</u> - Meet VQO of modification. Thinnings and selection cuts will enhance view into stands from FR 136 and produce larger trees faster than if left unthinned.</p> <p><u>Transportation</u> - Majority of roads will be winter-only standard. Existing roads will be utilized wherever possible and closed upon sale completion.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Maintain and develop long-lived species (mainly sugar maple) along main roads for fall viewing.</p> <p><u>Timber</u> - Thin hardwood pole stands and perform selection cuts in mixed pole/sawlog stands to increase growth and begin developing unevenaged structure and quality.</p>
Old Farm	<p><u>Wildlife</u> - Protect osprey nest in Stand 42. Guidelines for osprey nest protection will be followed in sale design and allowable contract operating period.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Allow fuelwood collection from certain areas after sale closure. Maintain and develop</p>

Project Name	Objectives	
Old Farm (continued)	<p>Clearcuts will allow declining aspen stands to be regenerated, retaining the type. Any oak within hardwood treatments will be retained.</p> <p><u>Visual</u> - Meet VQO of partial retention. Most treatment blocks in this sale are small and scattered over a large area. This will result in increased visual variety. Hardwood thins will improve visual penetration from FR 366.</p> <p><u>Transportation</u> - Utilize existing road system wherever possible. Construction of 0.5 mile of roads will be short spurs to connect existing roads, provide for long-term access into hardwood areas and eliminate creek crossings. All roads to be winter-haul standards and closed with native materials at end of operating season and when road use is completed for this sale.</p>	<p>hardwood stands along FR 366 for fall color viewing. Provide parking areas for dispersed recreation uses (hunting) in conjunction with road closures.</p> <p><u>Timber</u> - Combination of hardwood thins and delayed removals and aspen/conifer clearcuts. Hardwood treatments will result in increased growth of crop trees and better overall stand quality. Clearcuts will naturally regenerate mature aspen/conifer stands, most of which are also spruce-budworm damage.</p>
LaCrosse	<p><u>Wildlife</u> - Create young aspen age-class for browse and habitat for early-successional species. Retain scattered den trees in hardwoods. Retain and develop oak and hemlock components where possible especially Stand 8 and Stand 12. Require summer logging in Stand 8 to obtain scarification for oak regeneration. Designate several nearby stands for old growth.</p> <p><u>Visual</u> - Meet VQO of modification. Combination of thins and small clearcut blocks along FR 142 and FR 139 will increase visual variety. Use landscape design techniques to enhance appearance of clearcut blocks.</p> <p><u>Transportation</u> - Utilize existing road system as much as possible. Some short spurs will need to be constructed. Obliterate unneeded portions of existing roads. Majority of sale is summer-operable.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Good all-weather roads will remain open and are used mostly by hunters and berry pickers.</p> <p><u>Timber</u> - Combination of clearcuts, thins and selection cuts. Hardwood and red pine stands to be thinned or selectively cut; aspen and jack pine to be clearcut. Treatments will increase growth and vigor of affected stands, as well as increasing quality of hardwood stands.</p>
East Perch	<p><u>Wildlife</u> - Provide browse in form of tops (winter sale). Retain scattered den trees. Create small openings through landing expansion and/or small clearcut patches in areas of low quality timber. Designate several nearby stands as old growth.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Protect nearby snowmobile trail and coordinate with sale haul route to avoid conflicts. Maintain and develop long-lived species (hardwood/hemlock) along FR 145 so as to minimize visual impacts and enhance fall roadside viewing.</p>

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Management Area 2.1

Project Name	Objectives	
East Perch (continued)	<p><u>Visual</u> - Meet VQO of partial retention along FR 145 and modification elsewhere, through uneven-aged silviculture and special slash disposal measurs along main roads.</p> <p><u>Transportation</u> - Majority of sale will be winter-only operable due to soil conditions and winter deer range coordination. Existing road system will be adequate for most of sale. Winter roads will be closed upon sale completion.</p>	<p><u>Timber</u> - Perform selection cut to improve growth, quality, and age-class structure.</p>
Full Moon	<p><u>Wildlife</u> - Regenerate selected fir stands to provide future thermal cover. Retain and develop oak and hemlock where possible. Maintain landings used during sale as permanent upland openings. Leave scattered den trees, particularly near riparian areas. Place several wood duck nest boxes in appropriate areas after sale.</p> <p><u>Visual</u> - Meet VQO of modification and maximum modification. There is a large amount of open pasture-land on private tracts in the area at present, so small clearcuts will easily blend with the characteristic landscape. Hardwood treatments will serve to increase visual penetration from FR 136 and FR 357.</p> <p><u>Transportation</u> - Forest Roads 357, 136, and 544 provide good access to the general area needing treatment. There is also an existing network of brushed-over old roads that will be utilized to the extent possible. Construction of some additional, short spur roads will likely be needed to provide short and long-term access into some of the hardwood areas.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities, including hunting, berry-picking and auto touring.</p> <p><u>Timber</u> - Combination of clearcuts in mixed fir/spruce/hardwood types and thins/delayed removal cuts in hardwood types. Clearcuts will regenerate overmature and budworm-damaged fir stands to a combination of species. Hardwood treatments will improve growth and quality of affected stands.</p>
Peckerwood	<p><u>Wildlife</u> - Retain and develop hemlock wherever feasible for thermal cover. Sale is within Spargo Creek Winter Deer Range. Provide short-term browse (tops) for wintering deer. Retain scattered den trees.</p> <p><u>Visual</u> - Meet or exceed VQO of modification and partial retention. Limited access to the area and mostly partial cutting of stands will produce minimal visual impact.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities, such as, hunting, berry picking, and fuelwood gathering.</p> <p><u>Timber</u> - Combination of thinning, delayed removal, selection and shelterwood cuts in hardwood and hemlock types to promote more vigorous growth and better age-class distribution. Retain and develop oak and hemlock where feasible.</p>

Project Name	Objectives	
Peckerwood (continued)	<p><u>Transportation</u> - Utilize existing roads as much as possible. Construction/reconstruction of approximately 3.0 miles of roads to summer-normal standard will be necessary to provide for short and long-term access. Avoid major crossings of Spargo and Stony Creeks.</p>	<p><u>Soils and Watershed</u> - Design cutting units in the vicinity of Spargo and Stony Creeks to mitigate potential watershed problems.</p>
Elbow	<p><u>Wildlife</u> - Create 3-5 acres of permanent wildlife openings by seeding landings following sale activities.</p> <p><u>Visual</u> - Meet the visual quality objectives for partial retention in the foreground zone of the system roads in the sale area and for modification in the remainder of the area. Maintain visual integrity of the North Country Trail, which is to the south of the project.</p> <p><u>Transportation</u> - Utilize existing roads. Reconstruct 1.0 Winter/Summer Dry and construct an additional 3.0 miles of Winter/Summer Dry standard road. All roads will be closed to 4-wheeled traffic following sale activities.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities.</p> <p><u>Timber</u> - Improve the stocking levels and stand structure on approximately 350 acres of northern hardwoods. Long-term management objective for these stands is uneven-aged structure although they are generally in an evenaged condition now.</p>
Webstur	<p><u>Wildlife</u> - Maintain suitable habitat conditions for cavity nesting species by retaining 3-5 den trees or potential den trees per acre. Provide 10-15 acres of permanent upland openings in the form of log landings constructed during timber harvesting.</p> <p><u>Visual</u> - Meet the visual quality objectives for Partial Retention in the foreground zone along South Laird Road and along the North Country Trail. Maintain a higher proportion of large sawlog trees in these zones where feasible. Meet VCO of modification in the middleground and background zones of the project area.</p> <p><u>Transportation</u> - Utilize existing roads whenever possible. Approximately 0.9 mile will be reconstructed to a Winter/Summer Dry standard and an additional 1.5 miles will be constructed to the same standard. Roads will be closed to 4-wheeled vehicles after the sale except as provided for under Recreation Objectives.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Provide seasonal access to the area by opening selected system roads to public 4-wheeled vehicles in the late summer and fall for hunting.</p> <p><u>Timber</u> - Improve stand quality and begin to adjust stand structure towards an unevenaged condition on approximately 770 acres of northern hardwoods. Maintain as many quality sawtimber sized trees as possible while still providing for an economically feasible harvest.</p>

Implementation Year 1988

Management Area 2.1

Project Name	Objectives	
Slapjack	<p><u>Wildlife</u> - Improve age-class diversity in the Management Area by providing approximately 150 acres of additional 0-10 year age class stands. Increase species diversity by converting approximately 40 acres of hardwood to spruce.</p> <p><u>Visual</u> - Meet the visual quality objectives for modification in the foreground zone along Forest Road 196 and for maximum modification in the remainder of the sale area. Clearcuts along Forest Road 196 will be designed to minimize the amount of seen area within the limitations of the topography and timber stand sizes and shapes.</p> <p><u>Transportation</u> - Utilize existing roads and construct 0.2 mile of additional Winter/Summer Dry standard road to access the cutting units. Roads will be closed to public 4-wheeled vehicle use following the timber sale.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. System roads will be open to ORV use following the timber sale.</p> <p><u>Timber</u> - Clearcut approximately 70 acres of mature aspen and manage for natural regeneration of aspen on those acres. Clearcut approximately 40 acres of low quality northern hardwoods and manage for natural regeneration of hardwoods and aspen. Long term management goal is to convert the stand to aspen. Clearcut approximately 40 acres of low quality northern hardwoods and convert to spruce through planting.</p>
Courtship	<p><u>Wildlife</u> - Improve grouse habitat by creating additional acreage of 0-10 year age-class in the aspen type.</p> <p><u>Visual</u> - Meet the visual quality objectives of partial retention in the foreground zones throughout the sale area and for Modification in the middle-ground and background zones.</p> <p><u>Transportation</u> - Utilize existing roads. Reconstruct approximately 1.0 mile to a Summer Normal standard. Long term system roads will be left open to public vehicle use following the timber sale activities. Provide for protection of Courtney Lake Road from damage due to log hauling traffic in excess of the road's designed limits.</p>	<p><u>Recreation</u> - Provide for roaded natural recreation opportunities. Maintain or enhance the integrity of the Old Grade Ski Trail. Minimize adverse impacts on the nearby Courtney Lake Campground and the access road to the campground.</p> <p><u>Timber</u> - Harvest approximately 130 acres of mature and overmature aspen and manage for the natural regeneration of aspen on those acres.</p> <p><u>Other</u> - Maintain safe access for the public to Courtney Lake Campground.</p>

Project Name	Objectives	
Paint Springs	<p><u>Wildlife</u> - Improve age class distribution of aspen and aspen/spruce-fir stands. Increase permanent upland opening acreage by utilizing landings as wildlife openings between harvest entries. Increase temporary upland opening acreage through regeneration cutting. Protect riparian areas along Taylor Creek and the Paint River. Retain adequate cull/den trees in hardwood stands.</p> <p><u>Visual</u> - Maintain the integrity of the water influenced landscape around Muskeg Lake. Meet the visual quality objective of partial retention along US Highway 2.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long term management of the area. Construct approximately 3.0 miles of winter/dry summer standard road.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close tempoary roads to motorized vehicles after project is completed. Protect the Paint River corridor for study and possible inclusion into the Wild and Scenic River System.</p> <p><u>Timber</u> - Minimize volume loss to decay and mortality by harvesting high risk stands. Improve the quality and growth rate of northern hardwood stands through intermediate and regeneration cuts. Reduce the potential for insect and disease outbreaks by regenerating overmature and high risk stands.</p>
Duck Creek	<p><u>Wildlife</u> - Regenerate aspen to improve age class distribution and provide winter browse for adjacent Duck Lake deer yard. Maintain landings in hardwood stands as permanent wildlife openings between harvest entries. Retain adequate cull/den tree in hardwood stands for cavity nesting species.</p> <p><u>Visual</u> - Meet the visual quality objective of partial retention along U.S. Highway 45 and modification through remainder of sale area.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will faciliate short and long term management of the area. Construct approximately 1.0 miles of winter only and 0.5 miles of winter/summer dry standard roads. Close temporary roads to four-wheel vehicles following project completion.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Maintain and enhance visual quality along the cross-country ski trail and the snowmobile trail which run through both compartments. Coordinate harvest activities with ski and snowmobile trail use to minimize conflicts.</p> <p><u>Timber</u> - Regenerate aspen and spruce-fir stands to minimize loss to mortality and decrease chance of insect or disease outbreak. Improve quality and growth rate of hardwood stands through intermediate harvest cuts. Convert designated hardwood stands to conifers to move toward the desired vegetation composition for this management area. Provide for fuelwood gathering prior to closure of sale area roads.</p>

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Project Name	Objectives	
Sharptail Lake	<p><u>Wildlife</u> - Regenerate aspen for deer browse, grouse brood habitat, to improve age class distribution, and to maintain the aspen ecosystem. Maintain landings in hardwood stands and red and white pine plantations as wildlife openings between harvest entries.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Improve existing access to fishing sites on Scout and Sharptail Lakes. Close temporary roads to 4-wheel vehicles upon project completion.</p>
	<p><u>Visual</u> - Maintain visual quality objectives of partial retention along County Road 210 and modification through remainder of sale area.</p>	<p><u>Timber</u> - Regenerate aspen and spruce-fir stands to minimize loss to decay and mortality and decrease the potential for insect or disease outbreak. Regenerate sparse and low quality pine stands to take full advantage of the site potential for growth and productivity. Improve quality and growth rate in hardwood and pine stands through intermediate harvest cuts. Provide for fuelwood gathering prior to closure of temporary roads.</p>
	<p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long term management of the area. Construct approximately 1.0 miles of winter/summer dry standard roads. Close temporary roads to 4-wheel drive vehicles following completion of sale.</p>	

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 3.1 - 1988								
Pot Hole	T46N-R38W S 10, 11, 12 13 & 14	Veg Mgt	Harvest Clearcut	68	Kenton/175	Hdwd ST	550	0.3 mi. W/SD
			Harvest Selection	40		Sfwd ST	50	
			Harvest Thin	192		Hdwd Prod.	300	
						Sfwd Prod.	50	
						Aspen	150	
			Road Construction			Total MBF	1,100	
West Branch	T46N-R37W S 5 T47N-R37W S 32	Veg Mgt	Harvest Thin	231	Kenton/142	Hdwd ST	100	
						Sfwd ST	200	
						Hdwd Prod.	200	
						Sfwd Prod.	600	
						Total MBF	1,100	
Big Rock	T45N-R39W S 8 & 17 T46N-R39W S 10, 14, 15, 19, 28 & 33	Veg Mgt	Harvest Clearcut	276	Watersmeet/31, 45, 57, 92	Hdwd ST	160	1.0 mi. W/SD 2.0 mi. WO
			Harvest Shelterwood	60		Sfwd ST	109	
			Harvest Thin	216		Hdwd Prod.	495	
						Sfwd Prod.	1,122	
						Aspen	1,006	
			Road Construction			Total MBF	2,892	
Total Management Area 3.1			Harvest Clearcut	344		Hdwd ST	810	1.3 mi. W/SD 2.0 mi. WO
			Harvest Selection	40		Sfwd ST	359	
			Harvest Thin	639		Hdwd Prod.	995	
			Harvest Shelterwood	60		Sfwd Prod.	1,772	
			Total Harvest Acres	1,083		Aspen	1,156	
			Road Construction			Total MBF	5,092	

Implementation Year 1988

Management Area 3.1

Project Name	Objectives	
Pothole	<p><u>Wildlife</u> - Regenerate aspen to retain cover type and species diversity within a hardwood-dominated area. Retain and develop oak and hemlock where possible. Retain scattered den trees in hardwood types. Create 2-4 acres of permanent upland openings by expanding landings used for timber harvest and 30-50 acres of temporary openings.</p> <p><u>Visual</u> - Meet or exceed VQO of modification. Treatments along FR 173 are thins or selection cuts. Treatment of these stands will increase visual penetration from FR 173 into dense pole stands and enhance view of larger trees.</p> <p><u>Transportation</u> - Access will be off of FR 173 for the northern sale units and FR 169 for the southern units. Existing roads will be utilized where possible. Construction of 0.3 mile of short winter/summer dry spurs may be necessary for short and long-term access into the hardwood area.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Area receives very light use other than hunters and fuelwood gatherers.</p> <p><u>Timber</u> - Combination of hardwood thins and selection cuts, aspen/fir clearcuts to be naturally regenerated, and a small red pine thin. Clearcuts will serve to maintain aspen/fir types and provide temporary openings in an area dominated by northern hardwoods. Thins and selection cuts will increase growth and quality of affected stands.</p>
West Branch	<p><u>Wildlife</u> - Several small openings will be created through landing expansion and/or creating small clearcut patches in areas of low quality timber. Scattered den trees will be retained. Several nearby stands designated as old growth.</p> <p><u>Visual</u> - Meet or exceed VQO of modification. Intermediate treatments plus slash treatment along roads will have minimal, if any, visual impact.</p> <p><u>Transportation</u> - Utilize existing road system as much as possible. Little, if any, additional construction needed.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide parking spots for dispersed recreation use (hunters and fishermen, mainly) in conjunction with roads and landings used for sale.</p> <p><u>Timber</u> - Combination of red pine and hardwood thins. Treatments will increase growth and quality of affected stands.</p>
Big Rock	<p><u>Wildlife</u> - Maintain landings in hardwood stands as permanent upland openings between harvest entries. Maintain conifer clumps as thermal cover for deer. Retain adequate cull/den trees for cavity nesting species in hardwood stands. Establish temporary openings through clearcuts.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Maintain or enhance the visual quality around Paulding Pond campground.</p>

Project NameObjectives

Big Rock (continued)

Visual - Meet visual quality objective of partial retention along U.S. Highway 45 and County Road 206, and maximum modification through remainder of project area.

Transportation - Construct portions of the transportation system which will facilitate short and long term management of the area. Construct approximately 1.0 mile of winter/summer dry and 2.0 miles of winter only standard road. Temporary roads will be closed to 4-wheel drive vehicle use following sale closure.

Timber - Regenerate stands of mature and high risk aspen and spruce-fir to minimize loss to mortality and reduce chance of disease or insect outbreaks. Improve quality and growth rate of hardwood and red pine stands through use of intermediate harvest cuts. Provide opportunity for fuelwood gathering prior to road closure.

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 3.2 - 1988								
East Mill	T50N-R40W S 4,9,10	Veg Mgt	Harvest Thin	500	Ontonagon/19	Hdwd ST	200	1.2 mi W/SD
						Hdwd Prod.	200	
						Aspen	870	
			Road Construction			Total MBF	1,270	
Tradition Creek	T49N-R36W S 16,21,22	Veg Mgt	Harvest Clearcut	16	Ontonagon/116, 117	Hdwd ST	780	0.5 mi W/SD 2.0 mi W/SD
			Harvest Shelterwood	55		Hdwd Prod.	490	
			Harvest Selection	61		Aspen	100	
			Harvest Thin	310		Total MBF	1,370	
						Road Construction		
			Road Reconstruction					
Blair Creek	T46N-R40W S 17,20, 32	Veg Mgt	Harvest Clearcut	15	Watersmeet/42, 63	Hdwd ST	635	.5 mi W/SD 1.5 mi WO
			Harvest Shelterwood	67		Hdwd Prod.	1,500	
			Harvest Selection	142		Sfwd Prod.	790	
			Harvest Thin	399		Total MBF	2,925	
						Road Construction		
Total Management Area 3.2			Harvest Clearcut	31		Hdwd ST	1,615	1.5 mi WO 2.2 mi W/SD 2.0 mi W/SD
		Harvest Shelterwood	122		Hdwd Prod.	2,190		
		Harvest Selection	203		Sfwd Prod.	790		
		Harvest Thin	1,209		Aspen	970		
		Total Harvest Acres	1,565		Total MBF	5,565		
			Road Construction					
			Road Reconstruction					

Project Name

Objectives

East Mill

Wildlife - Maintain habitat for cavity nesting species by providing for the retention of 1-3 den trees or potential den trees per acre. Log landings will create 10-15 acres of additional permanent upland openings.

Visual - Meet the visual quality objectives of modification in the foreground zones along the system roads and for maximum modification elsewhere in the project area.

Transportation - Construct an additional 1.2 miles of Winter/Summer Dry standard road to go with existing system roads which will access the sale. Roads will be closed to public 4-wheeled vehicles following the timber sale except as specified for Recreation Objectives.

Recreation - Manage to provide roaded natural recreation opportunities. System roads will be left open to 4-wheeled vehicles on a seasonal basis for hunting and fuelwood gathering access.

Timber - Remove the mature and low quality overstory and thin the younger growing stock on approximately 500 acres of northern hardwoods. Long-term management objectives for these hardwood stands is to maintain an evenaged structure.

Tradition Creek

Wildlife - Maximize age-class and timber type diversity with a variety of cutting and management schemes in the project area.

Visual - Meet the Visual Quality Objectives of Modification throughout the project area.

Transportation - Reconstruct 2.0 miles of existing road to a Winter/Summer Dry standard and construct 0.5 mile of road to the same standard. These roads may be closed to 4-wheeled traffic following the sale.

Recreation - Provide for roaded natural recreation opportunities. Roads will be open to ORV use and foot travel following the sale.

Timber - Clearcut approximately 16 acres of mature aspen and manage for natural regeneration of aspen. Conduct a shelterwood seed cut on approximately 55 acres of hemlock sawtimber to initiate natural regeneration of hemlock. Manage approximately 60 acres of northern hardwoods for unevenaged structure with a selection cut. Remove the mature and low quality overstory and thin the growing stock in the younger age class on approximately 310 acres of northern hardwoods.

Implementation Year 1988

Management Area 3.2

Project Name	Objectives	
Blair Creek	<p><u>Wildlife</u> - Provide winter browse adjacent to Choate deer yard. Maintain thermal cover for deer by maintaining existing hemlock clumps and encouraging hemlock reproduction. Protect water quality in Blair and Two Mile Creeks (trout feeder streams). Maintain landings in hardwood stands as permanent upland openings between harvest entries.</p> <p><u>Visual</u> - Meet visual quality objective of modification along County Road 206 and maximum modification through the remainder of the project area.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long term management of the area. Construct 1.0 miles of winter/summer dry and 0.5 miles of winter only standard roads. Temporary roads will be closed following completion of the sale.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close temporary roads to 4-wheel drive vehicles after project completion.</p> <p><u>Timber</u> - Regenerate mature and high risk aspen and spruce-fir stands to minimize loss to mortality and reduce chance of insect or disease outbreak. Improve quality and growth rate of northern hardwoods stands through use of intermediate harvest cuts. Provide for fuelwood gathering prior to closure of system roads.</p> <p><u>Other</u> - Protect the cultural resource site in Compartment 42.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard	
<u>Management Area 4.1 - 1988</u>									
North Ridge	T44N-R35W S 7 T44-R36W S 12,25	Veg Mgt	Harvest Selection	188	Iron River/72, 96	Hdwd ST	75	0.5 mi WO	
			Harvest Thin	269		Sfwd ST	75		
					Hdwd Prod.	750			
					Sfwd Prod.	500			
			Road Reconstruction		Total MBF	1,400			
Upper Beaver		Veg Mgt	Harvest Clearcut	154	Kenton/59	Hdwd ST	100	0.2 mi W/SD	
			Harvest Shelterwood	68		Sfwd ST	100		
			Harvest Thin	140	Hdwd Prod.	300			
					Sfwd Prod.	400			
					Aspen	1,100			
			Road Construction		Total MBF	2,000			
Ellis Creek	T49N-R38W S 13,14 23,24, 25,26	Veg Mgt	Harvest Clearcut	265	Ontonagon/128	Sfwd ST	140	0.5 mi SN	
						Sfwd Prod.	190		
					Hdwd Prod.	350			
					Aspen	1,360			
			Road Construction		Total MBF	2,040			
<u>Total Management Area 4.1</u>			Harvest Clearcut	419		Hdwd ST	175	0.2 mi W/SD 0.5 mi SN 0.5 mi WO	
			Harvest Shelterwood	68		Sfwd ST	315		
			Harvest Selection	188		Hdwd Prod.	1,400		
			Harvest Thin	400		Sfwd Prod.	1,090		
			Total Harvest Acres	1,084		Aspen	2,460		
					Total MBF	5,440			
			Road Construction						
			Road Reconstruction						

Project Name	Objectives	
North Ridge	<p><u>Wildlife</u> - Create 10 acres of permanent forest openings.</p> <p><u>Visual</u> - Meet modification VQO.</p> <p><u>Transportation</u> - Utilize existing roads. Reconstruct 0.5 miles of winter only standard road. Maintain traffic on gravelled local roads. Close winter only spurs off gravelled locals to protect roadbeds.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide a combination of motorized and nonmotorized recreation opportunities by leaving gravelled local roads open and by closing winter only local roads. Provide firewood gathering opportunities off gravelled roads.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwoods so as to work them to an uneven-aged condition. Improve growth and quality of white pine and hardwood stands through intermediate thinning. Salvage high risk white pine sawtimber.</p>
Upper Beaver	<p><u>Wildlife</u> - Increase aspen/fir and hardwood age-class diversity to benefit deer, grouse, and other wildlife species. Scattered den trees will be retained in hardwood treatment for cavity nesting species. Create 2-4 acres of permanent openings by expanding decking areas and 150-200 acres of temporary openings.</p> <p><u>Visual</u> - Meet VQO of modification. The proposed treatments are in the background and will have minimal visual impact due to limited access to the area.</p> <p><u>Transportation</u> - There is good all-weather access to most of the sale area by a system of sand roads already present. Construction of 0.1-0.2 mile of summer-normal road will probably be necessary for short and long-term access into Stand 21 - hardwood. A few short temporary spurs into decking areas in some of the clearcuts will be necessary. These will be blocked and seeded after use.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Dispersed recreational activities, such as hunting and berry picking, are the major uses and are expected to continue.</p> <p><u>Timber</u> - Combination of aspen/fir clearcuts to be regenerated naturally, hardwood shelterwood seed cut, and red pine thinning. Clearcuts will regenerate overmature/budworm-damaged stands and shelterwood cut will begin regenerating a low quality hardwood stand.</p>
Ellis Creek	<p><u>Wildlife</u> - Improve grouse and deer habitat by increasing aspen age-class diversity. Provide herbaceous wildlife openings by seeding temporary roads and landings with a wildlife conservation mix, including clover and trefoil.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Maintain a degree of remoteness during the fall hunting season by closing the area to 4-wheel vehicle traffic. Maintain the integrity of the North Country Trail where it passes through the project area.</p>

Project Name

Objectives

Ellis Creek (continued)

Visual - Meet the visual quality objective of partial retention in the foreground zone of the North Country Trail and for modification in the remainder of the project area.

Transportation - Utilize existing roads and construct an additional 0.5 mile of Summer Normal standard road. Access is to be controlled at the beginning of Forest Road 437 subject to prescribed wildlife objectives.

Timber - Harvest approximately 260 acres of mature and overmature aspen and provide for natural regeneration of aspen following the harvest.

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 6.1 - 1988								
Fisher Lake	T46N-R37W S 31 & 32 T45N-R37W S 6	Veg Mgt	Harvest Selection	662	Iron River/15, 37	Hdwd ST Hdwd Prod. Total MBF	100 <u>1,100</u> 1,200	0.8 mi WO 0.5 mi WO
			Road Construction Road Reconstruction					

Implementation Year 1988

Management Area 6.1

Project Name	Objectives
Fisher Lake	<p><u>Wildlife</u> - Create 6 acres of permanent forest openings.</p> <p><u>Visual</u> - Meet partial retention VQO. Improve foreground view into hardwood stands along FR 164 by reducing stocking levels. Treat slash along FR 164 commensurate with partial retention VQO.</p> <p><u>Transportation</u> - Utilize existing roads. Control purchaser's use of existing woods roads so as to achieve a total road density of less than 2 miles/square mile. Reconstruct 0.5 miles of winter only standard road. Construct 0.8 miles of winter only standard road. Close all roads off of FR 164.</p>
	<p><u>Recreation</u> - Manage for semiprimitive normotorized recreation opportunities. Close all roads off of FR 164 after the sale commensurate with the management area objective.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwoods so as to work them toward an unevenaged condition.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 6.2 - 1988</u>								
Plateau	T50N-R35W S 30 & 31 T49N-R35W S 6 T49N-R36W S 1	Veg Mgt	Harvest Clearcut	220	Ontonagon/50, 102, 103	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	30 20 290 20 970 1,330	
			Road Construction					0.2 mi W/SD

Implementation Year 1988

Management Area 6.2

Project Name	Objectives
Plateau	<p><u>Wildlife</u> - Improve grouse brood and deer habitat by increasing aspen age class diversity and by providing short term browse sources. Create 4-5 acres of temporary herbaceous openings by seeding landings and temporary roads with a wildlife conservation mix.</p> <p><u>Visual</u> - Meet the visual quality objective of retention along the North Country Trail and partial retention in the foreground zone along Forest Roads 193 and 939. Design aspen clearcuts along these roads to minimize the seen area of the openings. Meet the VQO of modification in the remainder of the project area. Design cutting units with the middleground view from Silver Mountain in mind.</p> <p><u>Transportation</u> - Utilize existing system roads and construct an additional 0.2 mile of Winter/Summer Dry standard road. Close all roads to public 4-wheel traffic following the sale.</p> <p><u>Recreation</u> - Manage to provide semiprimitive motorized recreation opportunities. All roads will be closed to 4-wheeled vehicles following the sale.</p> <p><u>Timber</u> - Clearcut approximately 220 acres of mature and overmature aspen and manage for the natural regeneration of aspen.</p>

IMPLEMENTATION YEAR TOTALS - 1988

<u>Management Practice</u>		<u>Timber Outputs</u>		<u>Road Construction Miles by Standard</u>		<u>Road Reconstruction Miles by Standard</u>	
Harvest clearcut	3,851 acres	Hardwood St	15,670 MBF	Winter only	16.3	Winter only	1.6
Harvest shelterwood seed	643 acres	Softwood St	3,084 MBF	Winter/summer dry	18.2	Winter/summer dry	8.7
Harvest selection	5,093 acres	Hardwood Prod	24,340 MBF	Summer normal	<u>1.2</u>	Summer normal	<u>1.0</u>
Thinning	7,983 acres	Softwood Prod	11,207 MBF	Total	35.7	Total	11.3
Improvement	468 acres	Aspen St & Prod	<u>18,706</u> MBF				
		Total	73,007 MBF				

An additional volume of approximately 3,000-4,000 MBF of misc., small sales will also be offered during the implementation year.

ROAD CONSTRUCTION AND RECONSTRUCTION PROJECTS (APPROPRIATED FUNDS) - 1988

Project Name	Legal Desc.	Type of Project	Management Practice	District/Compartments	Mi. of Road By Standard	Mgmt. Area
FR 148	T45N-R37W S 23 & 24 T45N-R36W S 25,26, 27,28, 29 & 30	Collector	Road Construction	Iron River/41,53, 54 & 60	7.8 mi AW	2.1
FR 149	T44N-R37W S 12 & 14 T44N-R36W S 1,2,3, 4, 7 & 8 T44N-R35W S 6	Collector	Road Reconstruction	Iron River/61,62,64, 73,74,75,76,77 & 82	8.3 mi AW	2.1, 9.2
West Branch	T45N-R44W S 18,19,30, 31 & 32	Preroad	Road Reconstruction	Bessemer/170,171	1.5 mi SN 1.7 mi W/SD	3.2
Avalanche	T45N-R38W S 4,5,6 7,8 & 9 T50N-R38W S 31 & 32 T50N-R39W S 36	Preroad	Road Reconstruction	Ontonagon/67,68,87 & 89	2.8 mi W/SD	1.1
Woodtick	T50N-R40W S 16 & 21	Preroad	Road Reconstruction	Ontonagon/23,76	0.7 mi WO 3.2 mi W/SD	3.2
Gardner Road	T49N-R38W S 21,28, 33 & 34	County Collector	Road Reconstruction	Ontonagon/145,146, 147	2.0 mi AW	1.1,4.1
Lake Ottawa	T43N-R36W S 35 & 36 T42N-R36W S 1 & 2	Preroad	Road Construction	Iron River/137	3.2 mi W/SD	2.1

Ten-Year Action Program

VI E-75

Project Name	Objectives
Management Area 2.1 FR 148	<u>Transportation</u> - FR 148 provides direct access to approximately 5,000 acres of National Forest land and provides a through route to many additional acres. The majority of the use is generated by vegetative management activities with additional dispersed recreation traffic. A lack of proper drainage, the rough road surface and the narrow width of the road all contribute to the safety hazards confronting the road's users and to the increased haul costs for timber harvest activities. The 7.8 miles of road reconstruction will correct these deficiencies at an estimated cost of \$160,000.
Management Area 2.1, 9.2 FR 149	<u>Transportation</u> - FR 149 is a collector road that provides direct access to approximately 4,000 acres of National Forest land for vegetative management activities and dispersed recreation use. It also is a main haul route to FH 16. The existing condition of the roadway presents hazards to the mixed traffic using the road. The road is narrow with no turnouts and the surface is very rough with boulders protruding through. The road is difficult to maintain and user costs are high due to its condition. The reconstruction of 8.3 miles of road will correct these deficiencies at an estimated cost of \$170,000.
Management Area 3.2 West Branch	<u>Transportation</u> - The proposed roads will access approximately 2,600 acres of northern hardwoods, aspen, and conifers. 2.5 miles of existing roads will be reconstructed, 1.3 miles to a summer-normal standard and 1.2 miles to a winter/dry summer standard. Also, 0.7 miles of new road construction consisting of 0.2 miles of summer-normal and 0.5 miles of winter/dry summer is planned. While the roads will provide access for recreation and fuelwood gathering, their main purpose is to provide access for vegetative management activities. The estimated cost will be \$69,000.
Management Area 1.1 Avalanche	<u>Transportation</u> - 2.8 miles of road built to a winter/dry summer standard are needed to access 4,500 acres of northern hardwoods, aspen and conifers. Most of the roads will be built on existing locations. The road's primary purpose will be for vegetative management activities but they will also provide access for fuelwood gathering and dispersed recreation. The estimated cost is \$32,000. All roads will be closed to all but ORV motorized use.
Management Area 3.2 Woodtick	<u>Transportation</u> - The project will improve access to approximately 2,000 acres of National Forest land. The majority of the work will consist of improving existing roadways. The estimated cost is \$35,000.
Management Area 1.1, 4.1 Gardner Road	<u>Transportation</u> - This is a continuation of the cooperative project with Ontonagon County from FY 87. It will complete the upgrading of the entire road to an all-weather standard. The Forest Service's share of the reconstruction cost is estimated at \$30,000.
Management Area 2.1 Lake Ottawa	<u>Transportation</u> - The project will provide access to approximately 1,000 acres of predominantly northern hardwoods. The 3.2 miles of road will be constructed to a winter/dry summer standard with the majority of the work on new locations. The roads will be blocked upon completion of timber harvest activities to discourage motorized use. The estimated road cost is \$26,000.

TEN-YEAR VEGETATIVE MANAGEMENT AND ROAD CONSTRUCTION PROJECTS
OTTAWA NATIONAL FOREST

IMPLEMENTATION YEAR - 1989

<u>Project Name</u>	<u>Legal Desc.</u>	<u>Type of Project</u>	<u>Management Practice</u>	<u>Acres</u>	<u>District/Compartment</u>	<u>Timber Outputs</u>	<u>MBF</u>	<u>Mi. of Road by Standard</u>
<u>Management Area 1.1 - 1989</u>								
Emanual East	T48N-R38W S 23 & 26	Veg Mgt	Harvest Clearcut Harvest Shelterwood Harvest Thin	115 17 144	Kenton/71	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	50 50 300 300 700 1,400	
Easy Pickin's	T48N-R38W S 27,33, 34 & 35	Veg Mgt	Harvest Clearcut	199	Kenton/69, 70	Hdwd Prod. Sfwd Prod. Aspen Total MBF	100 200 1,300 1,600	
Kitchie Road	T47N-R36W S 5 & 6	Veg Mgt	Harvest Clearcut	186	Kenton/78, 96, 97	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	50 50 300 250 550 1,200	
Lucky Shot	T48N-R37W S 36	Veg Mgt	Harvest Shelterwood Harvest Thin	192 120	Kenton/78	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Total MBF	300 50 400 200 950	
Darling Creek	T49N-R38W S 30	Veg Mgt	Harvest Thin	86	Ontonagon/144	Sfwd ST Sfwd Prod. Hdwd Prod. Aspen Total MBF	30 210 20 40 300	
			Road Construction			Total MBF		0.6 mi W/SD

Ten-Year Action Program

VI E-77

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 1.1 - 1989 (continued)</u>								
Avalanche	T50N-R39W S 36 T50N-R38W S 31 T49N-R38W S 6	Veg Mgt	Harvest Clearcut	327	Ontonagon/67,68	Sfwd ST Hdwd ST Sfwd Prod. Hdwd Prod. Aspen Total MBF	110 60 180 510 <u>1,510</u> 2,370	0.5 mi WO
			Road Construction					
Bear Den	T49N-R38W S 29,32, 33	Veg Mgt	Harvest Clearcut Harvest Shelterwood Harvest Thin	51 152 108	Ontonagon/146	Sfwd ST Hdwd ST Sfwd Prod. Hdwd Prod. Total MBF	160 480 380 <u>250</u> 1,270	
<u>Total Management Area 1.1</u>			Harvest Clearcut Harvest Shelterwood Harvest Thin Total Harvest Acres	878 361 <u>499</u> 1,738		Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	940 450 1,880 1,720 <u>4,100</u> 9,090	0.5 mi WO 0.6 mi W/SD
			Road Construction					

Project NameObjectives

Emanuel East

Wildlife - A portion of the project is within the middle Branch Ontonagon Winter Deer Range. Regenerate small aspen blocks near thermal cover areas to produce a good supply of short-term browse (tops). Regenerate hemlock to provide for future thermal cover needs. Release oak in hardwood thins to increase mast production.

Visual - Meet VQO of partial retention along Gardner Road and maximum modification elsewhere. Schedule thinning treatments along Gardner Road.

Transportation - Most of the area is accessible via existing roads off the Gardner Road. A right-of-way across private would be desirable in order to access Stand 20, but may not be necessary. Close the system of winter roads in the area upon completion of timber sale use.

Recreation - Provide for roaded natural recreation opportunities. Maintain long-lived hardwood types along Gardner Road for fall color viewing. Provide for fuelwood gathering prior to closure of roads. Provide parking areas for dispersed recreation uses (hunting) in conjunction with road closures.

Timber - Combination of thins/delayed removal cuts in mixed hardwood types, clearcuts in aspen types, and low quality maple in favor of good quality oak, ash and maple. Naturally regenerate mature aspen. Regenerate hemlock and cedar through a shelterwood cut and scarification.

Soils and Watershed - Design cutting units in the vicinity of Trout Creek and Emanuel Creek to avoid potential watershed problems.

Easy Pickin's

Wildlife - Regenerate aspen for deer browse and grouse brood habitat and provide better age-class distribution of aspen. Create 180-200 acres of temporary openings. Designate several nearby stands as old growth. Retain selected large pine as potential raptor nest trees. Schedule winter sale activity to provide browse in the form of limbs and tops.

Visual - Meet VQO of partial retention along Trout Creek and modification elsewhere. Most of the clearcuts will be a considerable distance from main roads and will be well dispersed, so overall visual impact will be very minimal.

Transportation - Winter-only operable due mainly to heavy soils. Use existing roads; no new road construction is necessary. The only access to the area is across private land, so right-of-way acquisition will be necessary.

Recreation - Manage for roaded natural recreation opportunities. Area receives only light use, mainly hunting, due to limited access. Close winter roads after project to provide good walk-in hunting opportunities.

Timber - Design sale to disperse aspen clearcuts and start breaking up large contiguous area of mature aspen and regenerating it back to a vigorous young growth of aspen. Improve aspen age-class distribution in the area.

Soils and Watershed - Design cutting units in the vicinity of Trout Creek to avoid potential watershed problems.

Kitchie Road

Wildlife - The project is within the Spargo Creek Winter Deer Range. Schedule winter harvest to provide short-term browse in the form of tops. Regenerate clearcuts to provide longer-term browse near cover areas. Maintain permanent openings and create 100-130 acres of temporary openings.

Visual - Meet VQOs of modification/maximum modification. Utilize landscape design techniques to blend cut areas with natural terrain.

Implementation Year 1989

Management Area 1.1

Project Name	Objectives	
Kitchie Road (continued)	<p><u>Timber</u> - Harvest and naturally regenerate mature fir, aspen and birch types. Create desired age-class diversity in the area.</p>	<p><u>Transportation</u> - Utilize existing winter roads to access the majority of the project area. Schedule winter sale activity due to soils, winter deer range and aesthetic considerations.</p>
Lucky Shot	<p><u>Wildlife</u> - Retain and release oak and hemlock in hardwood treatments. Regenerate hemlock in Stand 59 for future thermal cover. Provide short-term browse (tops) for deer through winter harvest of most units (project is in Middle Beaver Winter Deer Range). Maintain existing permanent forest openings. Designate several nearby stands as old growth.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel drive vehicles after sale. Provide for fuelwood gathering prior to closure of roads. Proximity to town of Kenton should result in fairly high demand for the available fuelwood. Maintain hardwood/hemlock stands along FH-16 for fall color viewing. Provide parking areas for dispersed recreation uses (hunting) in conjunction with road closures.</p>
	<p><u>Visual</u> - Meet VQO of modification. Increase visual penetration and enhance view of larger trees along FH-16.</p>	<p><u>Timber</u> - Perform shelterwood seed cut and mechanical scarification under hemlock to obtain hemlock/yellow birch regeneration. Thin mixed hardwood pole/sawlog stands to increase quality and growth of residual trees.</p>
	<p><u>Transportation</u> - Area is easily accessible using existing winter roads off of FH-16 and FR 412. Restrict operation in most of the area to winter. Close winter roads upon completion of management activities.</p>	
Darling Creek	<p><u>Wildlife</u> - Maintain any oak or black cherry which may be found in the stands to be harvested. Create 2-3 acres of permanent upland openings.</p>	<p><u>Recreation</u> - Manage the area to provide roaded natural recreation opportunities. Roads will be available for ORV use following sale activities.</p>
	<p><u>Visual</u> - Meet the visual quality objectives of modification in the foreground zones along the system roads and for maximum modification elsewhere in the project area.</p>	<p><u>Timber</u> - Improve growing conditions and increase sawlog growth by reducing stocking levels on approximately 60 acres of red and white pine sawtimber sized stands.</p>
	<p><u>Transportation</u> - Construct 0.6 mile of Winter/Summer Dry standard road in addition to the existing roads available to provide access to the project area. Leave roads open to public vehicle use following the sale.</p>	
Avalanche	<p><u>Wildlife</u> - Improve age-class diversity in the aspen type to provide enhanced habitat for grouse broods by increasing the proportion of 0-10 year age group. Provide additional areas of available browse within a heavily used winter yarding area through clear-cutting. Provide short-term browse supply through winter harvesting within the Middle Branch deer yard.</p>	<p><u>Recreation</u> - Manage the area for roaded natural recreation opportunities. Roads may be closed to 4-wheeled vehicle traffic but open to ORV traffic.</p>

Project Name	Objectives	
Avalanche (continued)	<p><u>Visual</u> - Meet a visual quality objective of modification in the foreground zone of the system roads and maximum modification elsewhere.</p> <p><u>Transportation</u> - Utilize existing roads along with preconstructed winter/dry summer standard roads to provide access for harvesting. Construct a minor amount of additional low standard road in conjunction with the timber sale. Close entire system to 4-wheeled traffic following harvesting activities.</p>	<p><u>Timber</u> - Harvest approximately 327 acres of overmature aspen and provide for natural regeneration of the stands back to aspen.</p>
Bear Den	<p><u>Wildlife</u> - Provide for natural regeneration of cedar and hemlock on approximately 150 acres to improve the quality of the thermal cover in the middle Branch deer yard. Provide a short-term winter food supply for deer by harvesting during the winter months.</p> <p><u>Visual</u> - Manage the area to meet Visual Quality Objectives for Modification in the foreground zone of the system roads and for Maximum Modification elsewhere in the project area.</p> <p><u>Transportation</u> - Use existing roads to provide Winter Only access to the project area. Protect the roads and the soil and water resource by closing roads to 4-wheeled traffic following sale activities.</p>	<p><u>Recreation</u> - Manage to provide roaded natural recreation opportunities. Provide ORV access into the project area.</p> <p><u>Timber</u> - Increase stocking levels for softwood sawtimber species by initiating natural regeneration in the understory of approximately 150 acres. Improve growing conditions and stand quality by thinning approximately 100 acres of northern hardwoods. Increase aspen composition by clearcutting approximately 50 acres of aspen/northern hardwood type and managing for natural regeneration of aspen.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1989								
Crosscut Creek	T48N-R44W S 4,8,9, 10 & 16	Veg Mgt	Harvest Clearcut	55	Bergland/148, 149,152, & 153	Hdwd ST	1,020	
			Harvest Thinning	73		Sfwd ST	40	
			Harvest Improvement	216		Hdwd Prod.	1,100	
			Harvest Shelterwood	10		Sfwd Prod.	70	
			Harvest Selection	468		Aspen	930	
						Total MBF	3,160	
			Road Reconstruction					2.6 mi W/SD
			Road Construction					1.6 mi W/SD
Gillis	T47N-R42W S 19,30, 31,32 T47N-R43W S 24,25, 26,36	Veg Mgt	Harvest Selection	926	Bessemer/86,93, 94	Hdwd ST	460	
			Harvest Clearcut	53		Hdwd Prod.	1,850	
						Total MBF	2,310	
			Road Construction					3.2 mi WO
			Road Reconstruction					1.2 mi WO
Pipeline	T46N-R43W S 12 & 13 T46N-R42W S 18	Veg Mgt	Harvest Thin	139	Bessemer/144	Hdwd ST.	230	
			Harvest Selection	103		Hdwd Prod.	800	
			Harvest Clearcut	40		Aspen	95	
				282		Total MBF	1,125	
			Road Construction					0.4 mi.WO
Frog Pond	T46N-R35W S 29 & 32	Veg Mgt	Harvest Shelterwood	30	Iron River/4	Hdwd ST	75	
			Harvest Selection	160		Hdwd Prod.	400	
						Total MBF	475	
Lake Ottawa	T43N-R36W S 35 & 36 T43N-R36W S 1 & 2	Veg Mgt	Harvest Selection	500	Iron River/137, 136, 138	Hdwd ST	100	
						Hdwd Prod.	900	
						Total MBF	1,000	
			Road Construction					1.7 mi.WO
Caboose	T44N-R37W S 9	Veg Mgt	Harvest Clearcut	40	Iron River/80	Sfwd ST	50	
						Sfwd Prod.	250	
						Total MBF	300	

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1989 (continued)								
South Side	T46N-R38W S 22 & 23	Veg Mgt	Harvest Clearcut Harvest Thin	106 301	Kenton/201, 202	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	600 100 900 600 400 2,600	2.0 mi. WO
			Road Construction					
Jackalope	T48N-R35W S 16,17, 21 & 22	Veg Mgt	Harvest Clearcut Harvest Shelterwood Harvest Thin	162 24 37	Kenton/55	Hdwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	100 250 50 800 1,200	
Lone Wolf	T49N-R36W S 6 T49N-R37W S 1	Veg Mgt	Harvest Thin	390	Ontonagon/94	Hdwd ST Hdwd Prod. Aspen Total MBF	550 400 110 1,060	1.0 mi. W/SD
			Road Construction					
Wiggle Creek	T49N-R36W S 4	Veg Mgt	Harvest Clearcut Harvest Thin	45 150	Ontonagon/97	Hdwd ST Hdwd Prod. Aspen Total MBF	340 200 340 880	
Red Robyn	T43N-R38W S 2,3 T44N-R38W S 34,35	Veg Mgt	Harvest Clearcut	121	Watersmeet/167	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Total MBF	8 8 155 771 1,022	
Green Beenie	T45N-R38W S 17,18, 19,20, 21,28, 29,30	Veg Mgt	Harvest Clearcut Harvest Shelterwood Harvest Removal Harvest Selection Harvest Thin	62 90 123 260 615	Watersmeet/120	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	1,918 61 566 336 531 3,412	2.5 mi. W/SD
			Road Construction					

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard	
Management Area 2.1 - 1989 (continued)									
South Side	T46N-R38W S 22 & 23	Veg Mgt	Harvest Clearcut	106	Kenton/201, 202	Hdwd ST	600	2.0 mi.WO	
			Harvest Thin	301		Sfwd ST	100		
						Hdwd Prod.	900		
						Sfwd Prod.	600		
						Aspen	400		
						Total MBF	2,600		
			Road Construction						
Jackalope	T48N-R35W S 16,17, 21 & 22	Veg Mgt	Harvest Clearcut	162	Kenton/55	Hdwd ST	100		
			Harvest Shelterwood	24		Hdwd Prod.	250		
			Harvest Thin	37		Sfwd Prod.	50		
						Aspen	800		
						Total MBF	1,200		
Lone Wolf	T49N-R36W S 6 T49N-R37W S 1	Veg Mgt	Harvest Thin	390	Ontonagon/94	Hdwd ST	550	1.0 mi.W/SD	
							Hdwd Prod.		400
						Aspen	110		
						Total MBF	1,060		
			Road Construction						
Wiggle Creek	T49N-R36W S 4	Veg Mgt	Harvest Clearcut	45	Ontonagon/97	Hdwd ST	340		
			Harvest Thin	150		Hdwd Prod.	200		
						Aspen	340		
						Total MBF	880		
Red Robyn	T43N-R38W S 2,3 T44N-R38W S 34,35	Veg Mgt	Harvest Clearcut	121	Watersmeet/167	Hdwd ST	8		
							Sfwd ST		8
						Hdwd Prod.	155		
						Sfwd Prod.	771		
						Total MBF	1,022		
Green Beenie	T45N-R38W S 17,18, 19,20, 21,28, 29,30	Veg Mgt	Harvest Clearcut	62	Watersmeet/120	Hdwd ST	1,918	2.5 mi.W/SD	
			Harvest Shelterwood	90		Sfwd ST	61		
			Harvest Removal	123		Hdwd Prod.	566		
			Harvest Selection	260		Sfwd Prod.	336		
			Harvest Thin	615		Aspen	531		
						Total MBF	3,412		
			Road Construction						

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 2.1 - 1989 (continued)								
Sago Lake	T43N-R38W	Veg Mgt	Harvest Clearcut	90	Watersmeet/158, 168, 169	Hdwd ST	1,271	1.5 mi. W/SD
	S 1,2,11		Harvest Removal	51		Sfwd ST	192	
	12		Harvest Selection	406		Hdwd Prod.	1,890	
	T44N-R38W		Harvest Thin	802		Sfwd Prod.	245	
	S 24,25, 26,35,36					Aspen	519	
		Road Construction			Total MBF	4,117		
Braken Lake	T44N-R39W	Veg Mgt	Harvest Clearcut	146	Watersmeet/153, 143	Hdwd ST	542	2.0 mi.W/SD
	S 1, 12		Harvest Shelterwood	47		Sfwd ST	122	
	13		Harvest Removal	284		Hdwd Prod.	573	
	T44N-R38W		Harvest Thinning	32		Sfwd Prod.	607	
	S 6 & 7					Aspen	343	
	T46N-R38W					Total MBF	2,197	
	S 26,27 34	Road Construction						
Total Management Area 2.1			Harvest Clearcut	1,160		Hdwd ST	8,855	
			Harvest Shelterwood	201		Sfwd ST	1,323	
			Harvest Selection	4,606		Hdwd Prod.	13,484	
			Harvest Thin	3,366		Sfwd Prod.	4,079	
			Harvest Improvement	216		Aspen	5,318	
			Total Harvest Acres	9,549		Total MBF	33,059	
		Road Construction						8.9 mi. WO
								9.6 mi. W/SD
						Total		18.5 mi. WO
		Road Reconstruction						1.2 mi. WO
								2.6 mi. W/SD
						Total		3.8 mi.

Implementation Year 1989

Management Area 2.1

Project Name	Objectives	
Crosscut Creek	<p><u>Wildlife</u> - Increase the variety of within stand vegetative heights to increase habitat variety. Increase openings, brush, berries, and grasses.</p>	<p><u>Recreation</u> - Provide roaded natural recreation opportunities. Provide low standard roads for snowmobile, ATV, and walking use. Allow for access to private ownerships.</p>
	<p><u>Visual</u> - Meet partial retention VQO.</p>	<p><u>Timber</u> - Provide hardwood sawlogs and quickly move pole size trees into sawlog size classes. Increase species variety. Increase between stand age variations.</p>
	<p><u>Transportation</u> - Obtain access into the area via a cooperative road agreement. Allow but do not encourage public vehicle use. Provide a summer dry road system for vegetative management. Block or gate local roads.</p>	
Gillis	<p><u>Wildlife</u> - Create 53 acres of temporary openings and 15 acres of permanent openings.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close roads to 4-wheel drive vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p>
	<p><u>Timber</u> - Improve growth and quality of northern hardwood stands through commercial harvest. Design selection cuts in northern hardwood stands on 155 acres to maintain an unevenaged condition. Design improvement cuts on 771 acres of northern hardwood stands to work them toward an unevenaged condition. Clearcut 53 acres of aspen.</p>	<p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p>
	<p><u>Transportation</u> - Utilize existing access and roads as much as possible. Reconstruction 1.2 miles to a winter only standard. Construct 3.2 miles to a winter only standard. Close roads to 4-wheel drive vehicle access after harvest.</p>	
Pipeline	<p><u>Wildlife</u> - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter thermal cover. Retain winter thermal cover species during site preparation in clearcuts. Seed open areas to a grass/clover mixture. Create 40 acres of temporary openings and 10 acres of permanent upland openings. Provide for old growth adjacent to Nelson Creek.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p>

Project Name	Objectives	
Pipeline (continued)	<p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest and regeneration. Design thinning cuts in northern hardwood stands on 139 acres to maintain an even-aged condition. Design improvement cuts on 103 acres of northern hardwood stands to work them toward an uneven-aged condition.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct 0.4 mile to a winter only standard. Close roads to 4-wheel vehicle access after harvest.</p>	<p><u>Visual</u> - Meet visual quality objectives of partial retention adjacent to US-2 and maximum modification elsewhere. Manage hardwood stands adjacent to US-2 unevenaged.</p>
Frog Pond	<p><u>Wildlife</u> - Create 5 acres of permanent forest openings. Regenerate 30 acres of low quality hardwood adjacent to thermal cover in winter deer range. Create 30 acres of temporary openings. Identify and manage 15 acres of hardwood as old growth.</p> <p><u>Visual</u> - Meet modification VQO. Improve foreground view into hardwoods along CR 137 by reducing stand density.</p> <p><u>Transportation</u> - Utilize existing roads. Close all winter only roads off of CR 137 to prevent damage to the roadbeds.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide walk-in dispersed recreation opportunities by closing winter only roads off CR 137.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwoods to work them toward an uneven-age condition. Regenerate a low quality hardwood stand through shelterwood seed cutting.</p>
Lake Ottawa	<p><u>Wildlife</u> - Provide non-game song bird habitat.</p> <p><u>Visual Quality</u> - Enhance visual quality and meet a VQO of partial retention. Produce large trees (improved foreground view). Improve view into the forest (improved middleground view). Improve view of lakes (improved background view).</p> <p><u>Transportation</u> - Construct the minimum density and standard road system to facilitate timber removal. Utilize existing woods roads as road or skid trails. minimize new approaches to CR 101. Block all winter only standard roads after the project to emphasize nonmotorized uses.</p>	<p><u>Recreation</u> - Manage for a variety of recreation experiences in a roaded natural environment. Continue to provide a range "difficulty" on the cross-country ski trail. Schedule harvest activities to minimize the impact of vegetative management on the recreation users.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwood stands to work them toward an uneven-aged condition. Desired future condition includes an increased diameter objective (28" DBH), more large trees per acre than standard, and less frequent entry (20 years).</p> <p><u>Cultural Resource</u> - Conduct an intensive survey in this sensitive area to determine the presence of historic and/or pre-historic sites.</p>

Project Name	Objectives	
Caboose	<p><u>Wildlife</u> - Regenerate 40 acres of aspen for deer browse and grouse brood habitat. Create 40 acres of temporary opening.</p> <p><u>Visual</u> - Meet modification VQO.</p> <p><u>Transportation</u> - Utilize existing road (FR 180). Leave FR 180 open due to established dispersed recreation use. Close temporary roads at junction with FR 180.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide a combination of walk-in and motorized recreation opportunities by leaving FR 180 open to the east side of the project area.</p> <p><u>Timber</u> - Regenerate a low quality mixed white pine, aspen, spruce, hardwood stand to aspen.</p>
Stateline	<p><u>Wildlife</u> - Create 3 acres of permanent forest openings.</p> <p><u>Visual</u> - Meed modification VQO.</p> <p><u>Transportation</u> - Use existing roads. Construct 0.3 miles of winter only road. Block after sale to prevent damage to the soft roadbed.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide walk-in recreation opportunities by closing woods roads at FR 101.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwood stands so as to work them toward an evenage condition.</p>
Timber Lake	<p><u>Wildlife</u> - Create 7 acres of permanent forest openings. Regenerate 2-3 acre inclusions of mixed hardwoods/aspen to aspen. Conform with osprey territory plan (Timber Lake Nest).</p> <p><u>Visual</u> - Meet partial retention VQO. Keep all logging slash off walking trail. Utilize KV funding to finance any post sale needs. Manage all hardwood stands under the unevenage system.</p> <p><u>Transportation</u> - Utilize existing roads. Construct 1.0 miles of winter only road. Block after use to provide nonmotorized recreation opportunities.</p>	<p><u>Recreation</u> - Provide nonmotorized recreation opportunities in a roaded natural setting. Protect walking trail to Timber Lake (trophy trout lake) by not permitting use during the sale. Discourage ATV use on trail by deferring marking adjacent to parking lot at trailhead.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwood stands so as to work them toward an unevenage condition.</p>
Landlock	<p><u>Wildlife</u> - Create 4 acres of permanent forest openings.</p> <p><u>Visual</u> - Meet modification VQO.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwood stands to work them towards an unevenage condition.</p>

Project Name	Objectives	
Landlock (continued)	<u>Transportation</u> - Obtain temporary license to harvest the 120 acres. Long-term objective is to exchange out of these three forties.	
Pine	<u>Wildlife</u> - Create 10 acres of permanent forest openings.	<u>Recreation</u> - Manage for roaded natural recreation opportunities. Leave roads open after the sale to provide dispersed camping spots along FH 16.
	<u>Visual</u> - Meet partial retention VQO. Enhance foreground views by improving views into the thinned stand. Utilize KV funds to remove conifer sapling screen in ditchline of FH 16.	<u>Timber</u> - Salvage blister rust infected white pine sawlogs trees. Improve growth and quality of white pine stands through intermediate thinning.
	<u>Transportation</u> - Coordinate with FH 16 reconstruction project to provide the side entrances needed to access the sale. Leave roads open after the sale --- soils will allow post sale traffic.	
Elmwood North	<u>Wildlife</u> - Create 54 acres of permanent forest openings. Regenerate 20 acres of aspen for deer browse and grouse brood habitat and maintain aspen ecosystem. Create 20 acres of temporary opening.	<u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide nonmotorized recreation opportunities by closing winter only roads off gravelled collectors and locals. Provide firewood gathering opportunities after the project.
	<u>Visual</u> - Meet modification VQO.	<u>Timber Management</u> - Design improvement cuts in immature hardwood stands to move them toward an unevenaged condition. Increase growth and quality of evenage hardwood stands through intermediate thinning. Regenerate 20 acres of mature aspen.
	<u>Transportation</u> - Utilize existing roads. Construct 0.3 miles of winter only road. Block all winter roads to prevent damage to roadbeds.	
Goblin Creek	<u>Wildlife</u> - The project is within the Deadman Swamp Winter deer range. Winter harvest to provide short-term browse (tops). Scattered clearcuts will provide additional browse near cover areas. Retain and develop hemlock where feasible. Retain scattered den trees. Create 2-4 acres of permanent openings by expanding log landings and create 180-220 acres of temporary openings.	<u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel vehicles after sale. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.

Implementation Year 1989

Management Area 2.1

Project Name	Objectives	
Goblin Creek (continued)	<p><u>Visual</u> - Meet VQO of maximum modification. Area is difficult to access and most treatments are partial cuts, so visual impact will be minimal.</p>	<p><u>Timber</u> - Primarily thins and selection cuts in hardwood types. A few scattered clearcuts in aspen, fir and low quality hardwood types. Increase growth and quality of partial-cut stands, and regenerate mature/low quality stands to increase Productivity and create new age-classes.</p>
South Side	<p><u>Transportation</u> - Construct the main access road under a separate road contract. Some additional, short spur road construction will be necessary for short and long-term access into the hardwood areas. These will mostly be winter roads that will be closed upon sale completion.</p> <p><u>Wildlife</u> - Leave scattered den trees, particularly near riparian zones. Maintain existing permanent forest openings. Designate several nearby stands as old growth. Retain existing and potential raptor nest trees. Schedule winter harvest activities to provide browse in the form of slash tops. Create 2-4 acres of permanent openings by expanding log landings and create 80-100 acres of temporary openings.</p> <p><u>Soils and Watershed</u> - Design cutting units in the vicinity of Deadman Creek to avoid potential watershed problems.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close winter roads to 4-wheel vehicles after sale. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p>
Jackalope	<p><u>Wildlife</u> - Retain aspen type through natural regeneration and create new aspen age-class. Begin regenerating some hemlock for future thermal cover. Retain and develop oak where feasible. Retain scattered den trees in hardwood treatment. Maintain existing permanent openings and create 140-160 acres of temporary openings.</p> <p><u>Visual</u> - Meet VQO of partial retention along FR 192 and FR 191 and modification elsewhere. Clearcuts are quite dispersed and mostly in the background. Use landscape design techniques as appropriate to meet VQOs. Designate slash disposal zones along FRs 191 and 192.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Provide parking spots for hunters, berry-pickers and fuelwood gatherers in conjunction with road closures.</p> <p><u>Timber</u> - Combination of clearcuts in aspen/birch types, a hardwood overstory removal cut, and a hemlock shelterwood seed cut. Clearcuts will naturally regenerate mature, slow-growing aspen/birch stands. Hemlock cut plus scarification to regenerate hemlock. Hardwood treatment will remove low quality, overstory hardwood to release understory poles.</p>

Project Name	Objectives	
Jackalope (continued)	<p><u>Transportation</u> - Most portions of project can be accessed directly from adjacent collector roads (FRs 191, 192 227, 408). Other existing woods roads will be used as much as possible to access remaining cutting units.</p>	
Lone Wolf	<p><u>Wildlife</u> - Maintain suitable habitat for cavity nesting species by providing for the retention of 3-5 den trees or potential den trees per acre within the cutting units. Log landings will provide 3-5 acres of permanent openings following the sale.</p> <p><u>Visual</u> - Meet the Visual Quality Objectives for Modification in the foreground zone along Forest Road 558 and for Maximum Modification elsewhere in the project area.</p> <p><u>Transportation</u> - Construct approximately 1.0 miles of Winter/Summer Dry standard local road to provide long-term access to the sale area. May close some system roads to 4-wheeled public traffic following harvest activities.</p>	<p><u>Recreation</u> - Provide roaded natural recreation opportunities. System roads will be open to ORV users following sale activities.</p> <p><u>Timber</u> - Improve stocking and stand quality while directing stand structure and age-class distribution towards an unevenaged condition on approximately 390 acres of northern hardwood sawtimber stands.</p>
Wiggle Creek	<p><u>Wildlife</u> - Improve age-class diversity within the Management Area by increasing the amount of 0-10 year age group, which is currently deficient. Maintain 1-3 den trees or potential den trees per acre in partially cut hardwood stands. Hardwood cuttings will yield 2-3 acres of long-term openings in the form of log landings.</p> <p><u>Visual</u> - Meet the visual quality objectives of partial retention in the foreground zone along the North Country Trail. Maintain a "big tree" appearance in the northern hardwood stands along the trail. Design clearcut units to minimize seen area of openings. Meet the VQO's for Modification in the remainder of the project area.</p>	<p><u>Recreation</u> - Provide roaded natural recreation opportunities. Maintain the integrity of the North Country Trail where it passes through or adjacent to cutting units. Close most roads to public traffic following sale activities.</p> <p><u>Timber</u> - On approximately 45 acres of aspen and aspen/hardwood stands clearcut the mature and low quality timber and manage for the natural regeneration of aspen. On approximately 70 acres of northern hardwood sawtimber stands improve growing conditions and stand quality by thinning to recommended levels. Manage these acres for a long-term objective of even-aged management with an emphasis on mid-tolerant species such as yellow birch. On approximately 80 acres of northern hardwood sawtimber improve the stand quality and move stand structure towards a future goal of uneven-aged management with an improvement cut.</p>
	<p><u>Transportation</u> - Utilize existing roads of a Winter/Summer Dry standard. Close most roads to 4-wheeled traffic following the sale.</p>	

Implementation Year 1989

Management Area 2.1

Project Name	Objectives	
Red Robyn	<p><u>Wildlife</u> - Create temporary openings through regeneration cutting. Improve age class distribution and maintain the aspen ecosystem. Temporarily increase feeding and hiding cover for white-tailed deer.</p> <p><u>Visual</u> - Meet visual quality objective of maximum modification.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. Limit temporary road construction to that amount necessary to efficiently harvest the sale.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close temporary roads to 4-wheel vehicles after project completion.</p> <p><u>Timber</u> - Harvest mature and high risk aspen, balsam fir and spruce to minimize mortality and reduce insect and disease outbreak potential. Provide for fuelwood gathering prior to road closure.</p>
Green Beenie	<p><u>Wildlife</u> - Maintain landings in hardwood stands as permanent wildlife openings. Retain adequate cull/den trees in hardwood stands. Improve age class distribution of aspen/spruce-fir type. Provide temporary upland opening acreage through clearcutting aspen/spruce-fir stands. Protect the riparian area along Marion Creek.</p> <p><u>Visual</u> - Meet visual quality objective of partial retention in the viewshed of Marion Lake and the campground as well as along FR 161 south of Marion Lake. Maintain the character of the timber stands within a sight distance of the campground.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 2.5 miles of winter/summer dry standard road.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Harvest potential "hazard" trees in and around Marion Lake campground in conjunction with this project. Close temporary roads to 4-wheel vehicle use after completion of project.</p> <p><u>Timber</u> - Harvest high risk and mature stands of aspen and spruce-fir to minimize mortality and reduce insect and disease outbreak potential. Improve the quality and growth rate of northern hardwood stands through use of regeneration and intermediate cuts. Provide for fuelwood gathering prior to closure of roads.</p>
Sago Lake	<p><u>Wildlife</u> - Maintain landings in hardwood stands as permanent wildlife openings. Retain adequate cull/den trees in hardwood stands. Improve age class distribution of aspen/spruce-fir type. Provide temporary upland opening acreage through clearcutting aspen/spruce-fir stands. Protect the riparian area along the Paint River.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close temporary roads to 4-wheel drive vehicle use after completion of project. Protect the Paint River corridor for study and possible inclusion in the Wild and Scenic River System.</p>

Project Name	Objectives	
Sago Lake (continued)	<p><u>Visual</u> - Maintain a visual quality objective of maximum modification in the area except within the viewshed of the Paint River where modification is the objective.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 1.5 miles of winter/summer dry standard road.</p>	<p><u>Timber</u> - Harvest high risk and mature stands to minimize decay and mortality and to reduce insect and disease outbreak potential. Improve the quality and growth rate of northern hardwood stands and red pine plantations through regeneration and intermediate cuts. Provide for fuelwood gathering prior to closure of roads.</p>
Braken Lake	<p><u>Wildlife</u> - Improve age class distribution of aspen and aspen/spruce-fir stands. Increase upland opening acreage by utilizing landings as wildlife openings between harvest entries. Protect riparian areas along McGinty Creek and Suns Lake. Retain adequate cull/den trees in hardwood stands.</p> <p><u>Visual</u> - Maintain the integrity of the water influenced landscape around Suns Lake.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 2.0 miles of winter/dry summer standard road.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close temporary roads to motorized vehicles after project is completed.</p> <p><u>Timber</u> - minimize volume loss to decay and mortality by harvesting high risk stands. Improve the quality and growth rate of northern hardwood stands through intermediate cuts. Reduce the potential for insect and disease outbreaks by regenerating mature and overmature stands.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 3.1 - 1989								
Dorrie Creek	T47N-R37W S 19,20 & 30 T47N-R38W S 24 & 25	Veg Mgt	Harvest Clearcut Harvest Thin	118 517	Kenton/132, 133, 139	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	500 150 1,300 250 800 3,000	
County Corner	T47N-R37W S 31 & 32 T46N-R37W S 5 & 6 T47N-R38W S 36	Veg Mgt	Harvest Clearcut Harvest Shelterwood Harvest Selection Harvest Thin	263 11 22 215	Kenton/140	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	150 50 1,100 900 1,100 3,300	
			Road Construction					2.0 mi. SN
Pickle Pond	T47N-R39W S 13,14, 15,22 & 23	Veg Mgt	Harvest Clearcut Harvest Thinning	77 140	Watersmeet/3 46	Hdwd ST Sfwd ST Hdwd Pulp Sfwd Pulp Aspen Total MBF	89 13 239 305 652 1,298	
			Road Construction					1.3 mi. W/SD
Green Beenie	T45N-R38W S 4,5, & 9 T46N-R38W S 32 & 33	Veg Mgt	Harvest Clearcut Harvest Thin	67 17	Watersmeet/80	Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	43 8 652 38 741	
			Road Construction				Total	0.1 mi. W/SD
Braken Lake	T46N-R38W S 29,20, 31 T46N-R39W S 25	Veg Mgt	Harvest Clearcut Harvest Thin	154 14	Watersmeet/55	Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	39 58 471 534 1,102	
			Road Construction					0.5 mi. W/SD

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Total Management Area 3.1</u>			Harvest Clearcut	679		Hdwd ST	739	
			Harvest Shelterwood	11		Sfwd ST	295	
			Harvest Selection	22		Hdwd Prod.	2,705	
			Harvest Thin	903		Sfwd Prod.	2,578	
			Total Harvest Acres	1,615		Aspen	3,124	
						Total MBF	9,441	
			Road Construction					1.9 mi. W/SD
								2.0 mi. SN
							Total	3.9 mi.

Implementation Year 1989

Management Area 3.1

Project Name	Objectives	
Dorrie Creek	<p><u>Wildlife</u> - Retain and develop oak and hemlock wherever feasible. Designate several nearby stands as old growth. Retain scattered den trees in hardwood treatments. Retain aspen stands through natural regeneration and create new age-classes. Maintain existing acreage of permanent upland openings. Protect raptor nest trees.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Hunting is the major recreational use at present, along with fuelwood collection, due to the close proximity to Trout Creek. Access provided by the sale will allow these activities to continue and perhaps increase slightly.</p>
	<p><u>Visual</u> - Meet VQO of partial retention. Most of the viewable portion of the treatment area along main roads will be thins or selection cuts, which will have minimal visual impact. Slash reduction measures will be incorporated in the timber sale contract along main roads to further reduce any negative impacts. Adjacent private tracts have open pastureland intermixed throughout so clearcuts that are visible should blend well with the characteristic landscape.</p>	<p><u>Timber</u> - Combination of thins and selection cuts in hardwood types and clearcuts in aspen/paper birch types. The hardwood treatments will improve growth and quality of residual trees. The clearcuts will regenerate mature and slow-growing aspen/birch and improve age-class diversity in area.</p>
	<p><u>Transportation</u> - Preconstruction/reconstruction of main access roads are planned to tie existing roads together into a reasonable road system that can be used to serve this area. Existing roads will be used as much as possible. Old woods roads no longer needed will be obliterated (closed).</p>	
County Corner	<p><u>Wildlife</u> - Regenerate aspen to retain species and provide better age-class diversity. Regenerate hemlock stand for future thermal cover. Retain and develop oak and hemlock inclusions where feasible in hardwood areas. Retain scattered den trees. Maintain existing permanent openings and create 2-4 acres of additional permanent upland openings as well as 220-250 acres of temporary openings.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Most system roads will remain open and provide access for hunters, berry-pickers, and fuelwood gatherers.</p>
	<p><u>Visual</u> - Meet VQO of maximum modification. Majority of treatments within viewing distance of roads are hardwood thins, so visual impact will be slight. Most of the sale area is in the background of rolling, hardwood terrain.</p>	<p><u>Timber</u> - Combination of hardwood thins and selection cuts, red pine thins, jack pine and aspen clearcuts, and a hemlock shelterwood seed cut. Partial cuts will increase growth and quality of residual trees. Clearcuts will regenerate mature stands and improve age-class and species diversity. Hemlock treatment will regenerate hemlock through shelterwood cutting and scarification.</p>

Project Name	Objectives	
County Corner (continued)	<p><u>Transportation</u> - Use existing roads as much as possible. Construct 2-3 miles of summer-normal roads to connect existing roads to provide short and long-term access to the area and eliminate any new creek crossings. Obliterate old woods roads which are no longer needed.</p>	<p><u>Soils and Watershed</u> - Design cutting units in the vicinity of the West Branch Jumbo River to avoid potential watershed problems.</p>
Pickle Pond	<p><u>Wildlife</u> - Improve age class distribution of aspen and aspen/spruce-fir stands. Retain adequate cull/den trees in hardwood stands. Increase upland opening acreage by utilizing landings as wildlife openings between harvest entries. Provide temporary openings through clearcutting. Protect riparian area along Sucker Creek.</p> <p><u>Visual</u> - Meet a modification to maximum modification visual quality objective in the viewshed of Highway 45. Meet modification visual quality objective along FR 181.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close all roads to 4-wheel drive vehicles after project is completed.</p> <p><u>Timber</u> - Minimize volume loss to decay and mortality by harvesting high risk stands. Improve the quality and growth rate of northern hardwood stands and red pine plantations through intermediate cuts. Reduce the potential for insect and disease outbreaks by regenerating high risk, mature and overmature stands.</p>
Green Beenie	<p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long term management of the area. Construct approximately 1.3 miles of winter/dry summer standard road.</p> <p><u>Wildlife</u> - Improve age class distribution of short rotation conifer types. Create temporary openings through clearcutting. Maintain landings in hardwood stands and red pine plantations as permanent wildlife openings between harvest entries.</p> <p><u>Visual</u> - Meet a modification to maximum modification visual quality objective in the project area.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close temporary roads to motorized vehicles after project is completed. Protect the Middle Branch of the Ontonagon River Corridor for study and possible inclusion in the Wild and Scenic River System.</p> <p><u>Timber</u> - minimize volume loss to decay and mortality by harvesting and regenerating mature and high risk stands. Improve the quality and growth rate of hardwood stands and red pine plantations through intermediate cuts. Reduce the potential for insect and disease outbreaks by regenerating high risk, mature and overmature stands.</p>
	<p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long term management of the area. Construct approximately 0.1 miles of winter/dry summer standard road.</p>	

Project NameObjectives

Braken Lake

Wildlife - Improve age class distribution of aspen and aspen/spruce-fir stands. Protect riparian areas along Interior Creek.

Visual - Maintain a modification to maximum modification visual quality objective along FR 172.

Transportation - Construct portions of the transportation system which will facilitate short and long term management of the area - construct approximately 0.5 miles of winter/dry summer standard road.

Recreation - Manage for roaded natural recreation opportunities. Close temporary roads to motorized vehicles after project is completed.

Timber - minimize volume loss to decay and mortality by harvesting high risk stands. Improve the quality and growth rate of red pine stands through intermediate cuts. Reduce the potential for insect and disease outbreaks by regenerating high risk, mature and overmature stands.

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 3.2 - 1989								
Hungry Louie	T48N-R46W S 12,13,14, 23 & 24	Veg Mgt	Harvest Thin	252	Bessemer/27, 32	Hdwd ST	470	
			Harvest Selection	192		Hdwd Prod.	1,220	
			Harvest Shelterwood	95		Aspen	1,010	
			Harvest Clearcut	174		Total MBF	2,700	
		Road Construction						0.6 mi W/SD
		Road Reconstruction						0.7 mi WO
								2.7 mi W/SD
								0.4 mi WO
<hr/>								
County 527	T46N-R41W S 33	Veg Mgt	Harvest Thin	75	Bessemer/187	Hdwd ST	40	
			Harvest Selection	29		Hdwd Prod.	250	
			Harvest Clearcut	13		Total MBF	290	
<hr/>								
Tenderfoot West	T45N-R42W S 1,2 & 12	Veg Mgt	Harvest Thin	175	Bessemer/192	Hdwd ST	130	
						Hdwd Prod.	340	
						Total MBF	470	
		Road Construction						0.3 mi.WO
		Road Reconstruction						0.6 mi.WO
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Crossroads	T46N-R44W S 27,28 & 33	Veg Mgt	Harvest Thin	303	Bessemer/172, 173	Hdwd ST	30	
						Hdwd Prod.	720	
						Total MBF	750	
		Road Construction						0.4 mi.WO
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Chaser	T49N-R36W S 18,19 & 20	Veg Mgt	Harvest Selection	208	Ontonagon/119	Hdwd ST	380	
			Harvest Thin	150		Hdwd Prod.	360	
						Sfwd Prod.	70	
						Aspen	140	
						Total MBF	950	
		Road Construction						1.2 mi.W/SD

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
Management Area 3.2 - 1989 (continued)								
Woodtick	T50N-R40W S 15,16, 17,20,21	Veg Mgt	Harvest Clearcut	560	Ontonagon/22, 23,76,77	Sfwd ST Hdwd ST Sfwd Prod. Hdwd Prod. Aspen Total MBF	90 310 150 930 2,450 3,930	0.5 mi. WO
			Road Construction					
Irish	T50N-R40W S 2,3, 10,11	Veg Mgt	Harvest Clearcut	231	Ontonagon/18, 19	Sfwd ST Sfwd Prod. Hdwd Prod. Aspen Total MBF	140 200 310 1,160 1,810	1.5 mi. WO
			Road Construction					
Hemlock Lake	T46N-R40W S 29,30, 31,32	Veg Mgt	Harvest Clearcut Harvest Removal Harvest Selection Harvest Shelterwood Harvest Thin	54 436 67 202 169	Watersmeet/63, 64,97	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	726 111 752 674 564 2,827	1.0 mi. W/SD
			Road Construction					
Total Management Area 3.2			Harvest Clearcut	1,032		Hdwd ST	2,086	
			Harvest Selection	496		Sfwd ST	341	
			Harvest Thin	1,124		Hdwd Prod.	4,882	
			Harvest Shelterwood	297		Sfwd Prod.	1,094	
			Total Harvest Acres	2,949		Aspen	5,324	
						Total MBF	13,727	
			Road Construction					3.4 mi. WO
			Road Reconstruction					2.8 mi. W/SD
								1.0 mi. WO
								2.7 mi. W/SD

Project Name Objectives

Hungry Louie

Wildlife - Regenerate aspen for deer browse and grouse brood habitat. Maintain the aspen ecosystem. Retain hemlock and cedar for winter cover. Seed open areas to a grass/clover mixture. Create 269 acres of temporary openings and 10 acres of permanent openings. Retain some den trees for cavity nesting wildlife.

Recreation - Manage for roaded natural recreation opportunities. Provide for fuelwood gathering prior to closure of roads. Provide parking areas for dispersed recreation uses (hunting) in conjunction with road closures.

Timber - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality in the aspen type through harvest. Design improvement cuts on 192 acres of northern hardwood stands to work them toward an unevenaged condition. Design thinning cuts in northern hardwood stands on 252 acres to maintain an evenaged condition. Design shelterwood cuts in northern hardwood stands on 95 acres to improve age-class diversity. Clearcut and regenerate 174 acres of aspen.

Visual - Meet visual quality objectives of maximum modification.

Transportation - Utilize existing access and roads as much as possible. Reconstruct 2.7 miles to a winter/dry summer standard and 0.4 miles to winter only standard. Construct 0.6 miles to a winter/dry summer standard and 0.7 miles to a winter only standard. Close roads to 4-wheel vehicle access after harvest.

County 527

Wildlife - Regenerate aspen for deer browse and grouse brood habitat. Increase the aspen ecosystem. Retain hemlock and cedar for winter cover. Retain winter thermal cover species during site preparation in clearcuts. Seed open areas to a grass/clover mixture. Create 13 acres of temporary openings and 2 acres of permanent openings.

Recreation - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures. Protect the status of potential wild and scenic river corridors (Cisco Branch).

Timber - Improve growth and quality of northern hardwood stands through a commercial harvest. Reduce mortality of aspen through harvest. Design thinning cuts in northern hardwood stands on 75 acres to maintain an evenaged condition. Design improvement cuts on 29 acres of northern hardwood stands to work them toward an unevenaged condition. Clearcut 13 acres of northern hardwoods for conversion to aspen.

Visual - Meet visual quality objectives of maximum modification.

Transportation - Utilize existing access and roads as much as possible. Close roads to 4-wheel vehicle access after harvest to prevent damage to roadbeds.

Implementation Year 1989

Management Area 3.2

Project Name	Objectives	
Tenderfoot West	<p><u>Wildlife</u> - Seed open areas to a grass/clover mixture. Create 5 acres of permanent openings.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Design thinning cuts in northern hardwood stands on 175 acres to maintain an evenaged condition.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Reconstruct 0.6 miles to a winter only standard. Construct 0.3 miles to a winter only standard. Close roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide for fuelwood gathering prior to closure of roads. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures.</p> <p><u>Visual</u> - Meet visual quality objectives of maximum modification.</p>
Crossroads	<p><u>Wildlife</u> - Create 3 acres of permanent upland openings. Retain some den trees as habitat for cavity nesting wildlife.</p> <p><u>Timber</u> - Improve growth and quality of northern hardwood stands through a commercial harvest. Design thinning cuts in northern hardwood stands on 303 acres to maintain an evenaged condition.</p> <p><u>Transportation</u> - Utilize existing access and roads as much as possible. Construct 0.4 miles to a winter only standard. Close roads to 4-wheel vehicle access after harvest.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities. Close roads to 4-wheel vehicles after use. Provide parking area for dispersed recreation uses (hunting) in conjunction with road closures. Coordinate activities with existing snowmobile trail use.</p> <p><u>Visual</u> - Meet visual quality objective of maximum modification.</p>
Chaser	<p><u>Wildlife</u> - Provide for cavity nesting species by retaining 3-5 den trees or potential den trees per acre in the harvested stands. Create 4-6 acres of permanent openings by utilizing log landings following the sale.</p>	<p><u>Recreation</u> - Manage to provide roaded natural recreation opportunities. Make roads available for ORV use following harvest activities. Close roads to 4-wheeled vehicle traffic.</p>

Ten-Year Action Program

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Project Name	Objectives	
Chaser (continued)	<p><u>Visual</u> - Meet visual quality objective of partial retention in the foreground zones along system roads. Meet the VQO of modification in the middleground and background zones of the sale area. Also, consider possible seen areas from the North Country Trail which is in close proximity to the northern end of the project area.</p>	<p><u>Timber</u> - Improve growing conditions and stand quality by thinning approximately 150 acres of northern hardwoods. Long-term management objective for these acres is to maintain an evenaged stand condition. On approximately 150 acres of northern hardwoods conduct a selection cut to initiate regeneration and maintain an uneven-aged stand condition. On approximately 50 acres of northern hardwood/hemlock timber type initiate reproduction and maintain an uneven-aged stand condition by conducting a selection cut. Maintain highest component of hemlock possible to maximize diversity within the project area.</p>
	<p><u>Transportation</u> - Construct 1.2 miles of Winter/Dry Summer standard road. Close roads to 4-wheeled vehicle traffic following harvest activities, except some selected local roads may be opened seasonally to public traffic.</p>	
Woodtick	<p><u>Wildlife</u> - Begin breaking up large blocks of overmature, evenage aspen into smaller units which, in the future, will form a variety of age classes instead of just the one or two as it does now. Improved age class diversity will provide improved habitat for grouse broods. Landings and temporary roads will provide 10-15 acres of short-term openings.</p>	<p><u>Recreation</u> - Manage to provide roaded natural recreation opportunities. System roads will be open to ORV traffic following harvest activities.</p>
	<p><u>Visual</u> - Meet the visual quality objective of modification in the foreground zone along the system roads and for Maximum Modification elsewhere in the project area.</p>	<p><u>Timber</u> - Clearcut approximately 560 acres of overmature aspen and manage for natural regeneration of aspen following the harvest. Maximize area in this first cut by designing cutting units as close to the 40 acre limit as possible.</p>
	<p><u>Transportation</u> - Long-term access will be provided by existing and preconstructed dry summer standard roads. Construct a minor amount of additional low standard road in conjunction with the timber sale. Close most roads to 4-wheeled vehicles following the sale.</p>	
Irish	<p><u>Wildlife</u> - Improve grouse brood habitat by increasing age-class diversity in the aspen type through clearcutting. Approximately 230 acres of overmature aspen will be converted to the 0-10 age grouping by the harvest. Seed roads and landings with a wildlife conservation mix to create another 5-10 acres of temporary herbaceous openings.</p>	<p><u>Recreation</u> - Manage to provide roaded natural recreation opportunities.</p>

Implementation Year 1989

Management Area 3.2

Project Name	Objectives	
Irish (continued)	<p><u>Visual</u> - Manage the foreground zones along the system roads to meet a visual quality objective of modification. Meet the VQO of maximum modification elsewhere in the project area.</p> <p><u>Transportation</u> - Utilize existing roads and construct an additional 1.5 miles of Winter Only standard road. Close most roads to 4-wheeled vehicle traffic following harvest activities.</p>	<p><u>Timber</u> - Harvest approximately 230 acres of overmature aspen and provide for natural regeneration of aspen.</p>
Hemlock Lake	<p><u>Wildlife</u> - Maintain hemlock and cedar inclusions on those sites with impeded drainage to maintain thermal cover for deer. Maintain landing areas in hardwood stands as permanent upland openings for wildlife between harvest entries. Retain adequate cull/den trees in hardwood stands.</p> <p><u>Visual</u> - Meet visual quality objective of partial retention along the Middle Branch of the Ontonagon River, and maximum modification elsewhere.</p> <p><u>Transportation</u> - Construct portions of the transportation system which will facilitate short and long-term management of the area. Construct approximately 1.0 mile of winter/dry summer standard road. Temporary roads will be closed to 4-wheel drive vehicles when project is completed.</p>	<p><u>Recreation</u> - Manage for roaded natural recreation opportunities.</p> <p><u>Timber</u> - Regenerate mature and high risk aspen and spruce-fir stands to minimize mortality and reduce potential insect and disease outbreaks. Improve quality and growth in northern hardwood stands through regeneration and intermediate harvest cuts.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard		
<u>Management Area 6.1 - 1989</u>										
Mallard Tower	T45N-R37W S 7, 17 & 18	Veg Mgt	Harvest Selection	60	Iron River/36, 37,39	Hdwd ST	50	0.2 mi.WO		
			Harvest Thin	146		Hdwd Prod.	300			
						Sfwd Prod.	250			
						Total MBF	600			
			Road Construction							
Braken Lake	T46N-R38W S 25,35, 36	Veg Mgt	Harvest Clearcut	14	Watersmeet/52	Hdwd ST	5	0.2 mi.WO		
			Harvest Thin	14		Sfwd ST	5			
						Hdwd Prod.	26			
						Sfwd Prod.	63			
						Aspen	47			
						Total MBF	146			
			Road Construction							
<u>Total Management Area 6.1</u>			Harvest Clearcut	14			Hdwd ST	55	0.2 mi.WO	
			Harvest Selection	60			Sfwd ST	5		
			Harvest Thin	160			Hdwd Prod.	326		
			Total Harvest Acres	234			Sfwd Prod.	313		
						Aspen	47			
						Total MBF	746			
			Road Construction							

Implementation Year 1989

Management Area 6.1

Project Name	Objectives	
Mallard Tower	<p><u>Wildlife</u> - Open the overstory up in a 30 acre hardwood pole stand to stimulate development of the balsam seedling understory-long term objective is thermal cover. Release oak mast trees during thinning. Create 4 acres of permanent forest openings.</p> <p><u>Visual</u> - Meet partial retention VQO. Enhance foreground views by improving views into hardwood stands along FR 163 and red pine stands along FR 163 and 164.</p> <p><u>Transportation</u> - Utilize existing roads. Construct 0.2 miles of winter only standard road. Close all local roads off collectors commensurate with recreation objectives. Protect special use road through Stand 23.</p>	<p><u>Recreation</u> - Manage for semiprimitive nonmotorized recreation opportunities. Close all local roads after the sale.</p> <p><u>Timber</u> - Design improvement cuts in immature hardwood stands to move them toward an uneven-aged condition. Increase growth and quality of red pine pole stands through thinning.</p>
Braken Lake	<p><u>Wildlife</u> - Improve age class distribution of aspen and aspen/spruce-fir stands. Increase upland opening acreage by utilizing landings as wildlife openings between harvest entries. Protect riparian areas around Coral Lake. Retain adequate cull/den trees in hardwood stands. Provide temporary openings through clearcuts.</p> <p><u>Visual</u> - Maintain the integrity of the water influenced landscape around Coral Lake.</p> <p><u>Transportation</u> - Utilize the existing transportation system.</p>	<p><u>Recreation</u> - Manage for semiprimitive nonmotorized recreation opportunities. Close all roads to motorized vehicles after project is completed.</p> <p><u>Timber</u> - minimize volume loss to decay and mortality by harvesting high risk stands. Improve the quality and growth rate of northern hardwood stands through intermediate cuts. Reduce the potential for insect and disease outbreaks by regenerating high risk, mature and overmature stands.</p>

Project Name	Legal Desc.	Type of Project	Management Practice	Acres	District/Compartment	Timber Outputs	MBF	Mi. of Road by Standard
<u>Management Area 6.2 - 1989</u>								
River Hill II	T49N-R41W S 15,16, 20,21, 29, 30 & 31	Veg Mgt	Harvest Clearcut	704	Bergland/95, 97,115, 137	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	70 210 250 270 <u>2,650</u> 3,450	
Sandwich	T49N-R35W S 3 T50N-R35W S 27,34, 35	Veg Mgt	Harvest Selection Harvest Shelterwood Harvest Thin	30 223 191	Ontonagon/106	Hdwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	950 390 70 <u>230</u> 1,640	Road Reconstruction 1.6 mi.W/SD
Jeremiad	T50N-R37W S 13,23, 24	Veg Mgt	Harvest Clearcut	168	Ontonagon/36	Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	60 90 230 120 <u>670</u> 1,170	Road Reconstruction 1.6 mi.WO
Big Game	T49N-R35W S 5 T50N-R35W S 32,33	Veg Mgt	Harvest Clearcut	89	Ontonagon/105	Hdwd ST Hdwd Prod. Aspen Total MBF	30 170 <u>370</u> 570	
<u>Total Management Area 6.2</u>			Harvest Clearcut Harvest Selection Harvest Shelterwood Harvest Thin Total Harvest Acres	961 30 223 <u>191</u> 1,405		Hdwd ST Sfwd ST Hdwd Prod. Sfwd Prod. Aspen Total MBF	1,110 300 1,040 460 <u>3,920</u> 6,830	Road Reconstruction 1.6 mi.W/SD 1.6 mi.WO

Project Name	Objectives	
River Hill II	<p><u>Wildlife</u> - Maintain a large portion of the existing aspen ecosystem by clear cutting and naturally regenerating to aspen. Some areas provide for a variety of plant species to include hardwoods and conifers. Increase upland openings, temporary openings, brush, berries, and grass. Provide old growth to meet viable population needs.</p> <p><u>Visual</u> - Meet maximum modification VQO.</p> <p><u>Transportation</u> - Provide winter access only. Do not provide passenger vehicle access except on first one and a half miles of FR 466.</p>	<p><u>Recreation</u> - Provide a semiprimitive motorized environment designed to enhance hunting, trapping, and recreational cabin use. Create a low motorized vehicle use condition that allows for desired ATV and snowmobile access for established and desirable recreation activities. Provide quality hunting to include waterfowl.</p> <p><u>Timber</u> - Increase growth of quality aspen sawlogs and pulp. Provide some quality hardwoods.</p>
Sandwich	<p><u>Wildlife</u> - Maintain suitable habitat for cavity nesters by retaining 3-5 den trees or potential den trees per acre. Restrict harvesting activities where they would disrupt eagle nesting along Prickett Lake.</p> <p><u>Visual</u> - Meet the visual quality objectives for modification throughout the project area.</p> <p><u>Transportation</u> - Utilize existing roads and reconstruct approximately 1.6 miles to a Winter/Summer Dry standard. Close most roads to public 4-wheeled traffic following the sale.</p>	<p><u>Recreation</u> - Manage to provide semiprimitive motorized recreation opportunities. Close most system roads to 4-wheeled traffic following the sale.</p> <p><u>Timber</u> - Conduct a selection cut on approximately 30 acres of northern hardwood sawtimber to maintain an unevenaged stand structure. On approximately 220 acres of mature and low quality northern hardwood sawtimber carry out a shelterwood seed cut to initiate natural regeneration of northern hardwood species. On approximately 190 acre of immature northern hardwoods improve stand quality and direct structure towards an uneven-aged condition with an improvement cut.</p>
Jeremiad	<p><u>Wildlife</u> - Improve age-class diversity in the Management Area by providing approximately 170 acres of additional 0-10 year age class aspen. Provide 5-10 acres of temporary herbaceous openings by seeding landings and roads with a wildlife conservation seed mix.</p> <p><u>Visual</u> - Meet visual quality objective of modification in the foreground zones along system roads in the project area and for maximum modification in the remainder of the area.</p>	<p><u>Recreation</u> - Manage to provide semiprimitive motorized recreation opportunities. Make system roads available for ORV use following sale activities.</p> <p><u>Timber</u> - Harvest approximately 170 acres of mature and overmature aspen. Manage for natural regeneration of aspen on the harvested areas.</p>

Implementation Year 1989

Management Area 6.2

Project Name	Objectives
Jeremiad (continued)	<u>Transportation</u> - Utilize existing woods roads. Approximately 1.6 miles will require reconstruction to a winter only standard. Close most roads to 4-wheeled traffic following harvest activities.
Big Game	<u>Wildlife</u> - Provide improved age-class diversity by converting mature aspen stands to 0-10 year age group aspen. Provide 2-3 acres of temporary herbaceous openings by seeding landings and temporary roads with a wildlife conservation mix.
	<u>Visual</u> - Meet visual quality objective of modification throughout the project area.
	<u>Transportation</u> - Utilize existing winter only and winter/summer dry standard roads. Close system roads to public 4-wheeled traffic following harvest activities.
	<u>Recreation</u> - Manage to provide semiprimitive motorized recreation opportunities. Close most system roads to 4-wheeled traffic following the sale.
	<u>Timber</u> - Clearcut approximately 90 acres of mature aspen and manage for the natural regeneration of aspen.

IMPLEMENTATION YEAR TOTALS - 1989

Management Practice		Timber Outputs	Road Construction Miles by Standard	Road Reconstruction Miles by Standard
Harvest Clearcut	4,724	Hardwood ST 13,785	Winter only 13.0	Winter only 3.8
Harvest Shelterwood Seed	1,093	Softwood ST 2,714	Winter/summer dry 14.9	Winter/summer dry 6.9
Harvest Selection	5,214	Hardwood Prod. 24,317	Summer normal 2.0	Summer normal
Improvement	216	Softwood Prod. 10,244	Total 29.9	Total 10.7
Thinning	6,243	Aspen St & Prod. 21,833		
		72,893		

An additional volume of approximately 3,000-4,000 MBF of misc., small sales will also be offered during the implementation year.

Ten-Year Action Program

VI E-109

ROAD CONSTRUCTION AND RECONSTRUCTION PROJECTS (APPROPRIATED FUNDS) - 1989

Project Name	Legal Desc.	Type of Project	Management Practice	District/Compartments	Mi. of Road By Standard	Mgmt. Area
FR 101	T42N-R36W S 5 T42N-R37W S 1,2 T43N-R36W S 31,32 T43N-R37W S 26,35	Collector	Road Reconstruction	Iron River/130,131, 132,133,141,142	5.7 mi. AW	2.1
FR 139	T46N-R36W S 2,3,10, 15,21,28, 29,30 T47N-R36W S 23,26,35	Collector	Road Reconstruction	Iron River/9,10,11 Kenton/125,126,148, 149,160,161,162,163, 182	13.0 mi. AW	2.1,4.2,9.2
Yondota	T46N-R43W S 5,6 T47N-R43W S 31,32	Preroad	Road Construction	Bessemer/106,128,141	1.3 mi. SN 2.4 mi. W/SD	2.1
Norwich Road	T50N-R41W S 13,24,25, 35,36	County Collector	Road Reconstruction	Bergland/28,29,30, 31,61,62,69	3.8 mi. AW	3.2,6.1
Stoney Creek	T47N-R37W S 24,25 T47N-R36W S 30,31,32, 33,34	Collector	Road Reconstruction	Kenton/179,180,194, 195,196	6.0 mi. AW	2.1,4.2

Implementation Year 1989

Project Name	Objectives
Management Area 2.1 FR 101	<u>Transportation</u> - Reconstruction of 5.7 miles of collector road to an all-weather standard. The existing road is narrow, rutted and incapable of supporting heavy truck traffic. This condition combined with the mix of logging and recreation traffic creates a hazardous condition. The reconstruction will correct these deficiencies at an estimated cost of \$91,000.
Management Areas 2.1 4.2,9.2 FR 139	<u>Transportation</u> - Reconstruction and relocation of approximately 13.0 miles of collector road is needed to correct safety and excessive haul cost problems. The existing road is narrow with insufficient sight distances and its alignment is unacceptable for a major collector road with a mix of logging and recreation traffic. The estimated cost of reconstruction is \$191,000.
Management Area 2.1 Yondota	<u>Transportation</u> - The project will access approximately 1,300 acres of northern hardwoods. Of the 3.7 miles of road needed, approximately 1.5 miles will be on existing location with the remainder new construction. The primary objective of the road is to provide access for vegetative management activities but they will also provide access for fuelwood gathering and dispersed recreation activities. The estimated cost of the project is \$60,000.
Management Areas 3.2,6.1 Norwich Road	<u>Transportation</u> - Upgrade the road to an all weather standard in cooperation with Ontonagon County. The road is a major collector road that also directly accesses approximately 5,000 acres of National Forest land. The existing road is rutted, poorly drained and will not support truck traffic during wet periods of the year. The work will involve widening, ditching, cross-drainage and gravel surfacing. The Forest Service share of the cost is estimated at \$60,000.
Management Areas 2.1,4.2 Stoney Creek	<u>Transportation</u> - Reconstruction will correct vertical and horizontal alignment deficiencies which create safety hazards for road users. The road is a main haul route. The estimated cost of the corrective work is \$120,000.

TEN-YEAR VEGETATIVE MANAGEMENT AND ROAD CONSTRUCTION PROJECTS
OTTAWA NATIONAL FOREST

Implementation Years 1990-1996

Management Practice	Average Annual Acres	Timber Outputs	Average Annual MCF	(MBF)	Average Annual Mi of Road by Standard
<u>Management Area 1.1</u>					
Harvest clearcut	835	Hdwd ST	67	(362)	
Harvest selection	94	Sfwd ST	41	(221)	
Harvest shelterwood	164	Hdwd prod	132	(838)	
Harvest removal	14	Sfwd prod	114	(724)	
Harvest thinning	<u>54</u>	Aspen	<u>693</u>	<u>(3,985)</u>	
Total Harvest	1,161	Total	1,047	(6,130)	
Road construction					1.4 mi. WO 0.3 mi. W/SD <u>0.6</u> mi. SN 2.3 mi.
				Total	
<u>Management Area 2.1</u>					
Harvest clearcut	1,302	Hdwd ST	699	(3,775)	
Harvest selection	2,243	Sfwd ST	1,163	(6,280)	
Harvest shelterwood	581	Hdwd prod	2,690	(17,082)	
Harvest removal	171	Sfwd prod	654	(4,153)	
Harvest thinning	<u>232</u>	Aspen	<u>1,627</u>	<u>(9,355)</u>	
Total Harvest	4,529	Total	6,833	(40,645)	
Road construction					4.9 mi. WO 3.2 mi. W/SD <u>5.3</u> mi. SN 13.4 mi.
				Total	
<u>Management Area 3.1</u>					
Harvest clearcut	433	Hdwd ST	87	(470)	
Harvest selection	67	Sfwd ST	195	(1,053)	
Harvest shelterwood	66	Hdwd prod	203	(1,289)	
Harvest removal	14	Sfwd prod	38	(241)	
Harvest thinning	<u>167</u>	Aspen	<u>316</u>	<u>(1,817)</u>	
Total Harvest	747	Total	839	(4,870)	
Road construction					0.3 mi. WO 1.5 mi. W/SD <u>1.2</u> mi. SN 3.0 mi.
				Total	

Management Practice	Average Annual Acres	Timber Outputs	Average Annual MCF	(MBF)	Average Annual Mi of Road by Standard
<u>Management Area 3.2</u>					
Harvest clearcut	748	Hdwd ST	249	(1,345)	
Harvest selection	439	Sfwd ST	123	(664)	
Harvest shelterwood	276	Hdwd prod	539	(3,423)	
Harvest removal	114	Sfwd prod	118	(749)	
Harvest thinning	<u>244</u>	Aspen	<u>472</u>	<u>(2,714)</u>	
Total Harvest	1,821	Total	1,501	(8,895)	
Road construction					1.6 mi. WO 0.8 mi. W/SD <u>1.1 mi. SN</u> 3.5 mi.
				Total	
<u>Management Area 4.1</u>					
Harvest clearcut	800	Hdwd ST	65	(351)	
Harvest selection	45	Sfwd ST	324	(1,750)	
Harvest shelterwood	133	Hdwd prod	363	(2,305)	
Harvest removal	14	Sfwd prod	178	(1,130)	
Harvest thinning	<u>220</u>	Aspen	<u>492</u>	<u>(2,829)</u>	
Total Harvest	1,212	Total	1,422	(8,365)	
Road construction					0.4 mi. WO 0.7 mi. W/SD <u>1.5 mi. SN</u> 2.6 mi.
				Total	
<u>Management Area 4.2</u>					
Harvest clearcut	371	Hdwd ST	29	(157)	
Harvest selection	14	Sfwd ST	71	(383)	
Harvest shelterwood	-	Hdwd prod	43	(273)	
Harvest removal	14	Sfwd prod	43	(273)	
Harvest thinning	<u>43</u>	Aspen	<u>229</u>	<u>(1,317)</u>	
Total Harvest	442	Total	415	(2,403)	
Road construction					0.4 mi. W/SD <u>0.3 mi. SN</u> 0.7 mi.
				Total	

Management Practice	Average Annual Acres	Timber Outputs	Average Annual MCF	(MBF)	Average Annual M ₁ of Road by Standard
<u>Management Area 6.1</u>					
Harvest clearcut	198	Hdwd ST	168	(907)	
Harvest selection	237	Sfwd ST	43	(232)	
Harvest shelterwood	71	Hdwd prod	408	(2,590)	
Harvest removal	14	Sfwd prod	50	(318)	
Harvest thinning	<u>32</u>	Aspen	<u>126</u>	<u>(725)</u>	
Total Harvest	552	Total	795	(4,940)	
Road construction					0.8 mi. WO 0.2 mi. W/SD <u>0.3</u> mi. SN
				Total	1.3 mi.
<u>Management Area 6.2</u>					
Harvest clearcut	401	Hdwd ST	85	(459)	
Harvest selection	139	Sfwd ST	61	(329)	
Harvest shelterwood	68	Hdwd prod	186	(1,181)	
Harvest removal	14	Sfwd prod	10	(64)	
Harvest thinning	<u>98</u>	Aspen	<u>425</u>	<u>(2,444)</u>	
Total Harvest	720	Total	767	(4,477)	
Road construction					1.6 mi. WO 0.4 mi. W/SD <u>0.3</u> mi. SN
				Total	2.3 mi.

Plan Appendix F

Recreation Opportunity Spectrum

Explanation

Appendix F describes the framework used to stratify National Forest System lands into classes of outdoor recreation opportunity environments.

Recreation
Opportunity
Spectrum

While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of providing the opportunities for obtaining these experiences. By managing the natural resource setting and the activities that occur within it, the manager is providing the opportunities for recreation experiences to take place. Therefore, for both the manager and the recreationist, recreation opportunities can be expressed in terms of three principal components: the activities, the setting, and the experience.

For management and conceptual convenience, possible mixes or combinations of activities, settings, and probable experience opportunities have been arranged along a spectrum, or continuum. This continuum is called the Recreation Opportunity Spectrum (ROS) and is divided into six classes (Figure F.1). The six classes, or portions along the continuum, and the accompanying class names have been selected and conventionalized because of their descriptiveness and utility in land and resource management planning and other management applications.

Figure F.1
Recreation Opportunity Spectrum

Recreation Opportunity Spectrum					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban

Each recreation opportunity class is defined in terms of its combination of activity, setting, and experience opportunities (Table F.1).

Table F.1
Recreation Opportunity Spectrum
Activity, Setting, and Experience Opportunities

ROS Activity Characterization*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
<p><u>Land Based</u></p> <p>Viewing Scenery Hiking and Walking Horseback Riding Tent Camping Hunting Nature Study Mountain Climbing</p> <p><u>Water Based</u></p> <p>Canoeing Other Watercraft (non motorized use) Swimming Fishing</p> <p><u>Snow and Ice Based</u></p> <p>Snowplay X Country Skiing/Snowshoeing</p>	<p><u>Land Based</u></p> <p>Viewing Scenery Automobile (off road use) Motorcycle and Scooter Use Specialized Landcraft Use Aircraft Use Hiking and Walking Horseback Riding Camping Hunting Nature Study Mountain Climbing</p> <p><u>Water Based</u></p> <p>Boating (powered) Canoeing Sailing Other Boating Swimming Diving (skin or scuba) Fishing</p> <p><u>Snow and Ice Based</u></p> <p>Ice and Snowcraft Use Skiing Downhill Snowplay X Country Skiing/Snowshoeing</p>	<p><u>Land Based</u></p> <p>Viewing Scenery Viewing Activities Viewing Works of Human Kind Automobile (includes off road use) Motorcycle and Scooter Use Specialized Landcraft Use Train and Bus Touring Aircraft Use Aerial Trams and Lifts Use Hiking and Walking Bicycling Horseback Riding Camping Picnicking Resort and Commercial Services Use Resort Lodging Recreation Cabin Use Hunting Nature Studies Mountain Climbing Gathering Forest Products Interpretive Services</p> <p><u>Water Based</u></p> <p>Tour Boat and Ferry Use Boat (Powered) Canoeing Sailing Other Watercraft Use Swimming and Waterplay Diving (skin and scuba) Waterskiing and Water Sports Fishing</p> <p><u>Snow and Ice Based</u></p> <p>Ice and Snowcraft Use Ice Skating Sledding and Tobogganing Downhill Skiing Snowplay X Country Skiing/Snowshoeing</p>	<p><u>Land Based</u></p> <p>Viewing Scenery Viewing Activities Viewing Works of Human Kind Automobile (includes off road use) Motorcycle and Scooter Use Train and Bus Touring Aircraft Use Aerial Trams and Lifts Use Hiking and Walking Bicycling Horseback Riding Camping Picnicking Resort and Commercial Services Use Resort Lodging Recreation Cabin Use Hunting Nature Studies Gathering Forest Products Interpretive Services Team Sports Participation Individual Sports Participation Games and Play Participation</p> <p><u>Water Based</u></p> <p>Tour Boat and Ferry Use Boat (Powered) Canoeing Sailing Other Watercraft Use Swimming and Waterplay Diving (skin and scuba) Waterskiing and Watersports Fishing</p> <p><u>Snow and Ice Based</u></p> <p>Ice and Snowcraft Use Ice Skating Sledding and Tobogganing Downhill Skiing Snowplay X Country Skiing/Snowshoeing</p>		

*These activities (from RI M FSH 2309 11) are illustrative only. Specific additions or exception of activities within a ROS class may occur depending upon local forest situations.

Table F.1 (continued)

ROS Setting Characterization*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Area is characterized by essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human induced restrictions and controls. Motorized use within the area is not permitted.	Area is characterized by a predominantly natural or natural appearing environment of moderate-to large size. Interaction between users is low but there is often evidence of other users. The area is managed in such a way that minimum on site controls and restrictions may be present but are subtle. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural appearing environment of moderate-to large size. Concentration of users is low but there is often evidence of other users. The area is managed in such a way that minimum on site controls and restrictions may be present but are subtle. Motorized use is permitted.	Area is characterized by predominantly natural-appearing environments with moderate evidences of the sights and sounds of man. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate but with evidence of other users prevalent. Resource modification and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.	Area is characterized by a substantially urbanized environment although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans on site are predominant. Large numbers of users can be expected both on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

This table is for descriptive purposes only. Use the five specific ROS class delineation criteria given in Table 2 to identify the actual areas to which these descriptions apply.

ROS Experience Characterization*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Extremely high probability of experiencing isolation from the sights and sounds of humans in dependence, closeness to nature, tranquility, and self reliance through the application of woodsman and outdoor skills in an environment that offers a high degree of challenge and risk.	High but not extremely high probability of experiencing isolation from the sights and sounds of humans in dependence, closeness to nature, tranquility and self reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk.	Moderate probability of experiencing isolation from the sights and sounds of humans in dependence, closeness to nature, tranquility and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk. Opportunity to have a high degree of interaction with the natural environment. Opportunity to use motorized equipment while in the area.	About equal probability to experience affiliation with other user groups and for isolation from sights and sound of humans. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities associated with more primitive type of recreation are not very important. Practice and testing of outdoor skills might be important. Opportunities for both motorized and non motorized forms of recreation are possible.	Probability for experiencing affiliation with individuals and groups is prevalent as is the convenience of sites and opportunities. These factors are generally more important than the setting of the physical environment. Opportunities for wild land challenges, risk taking and testing of outdoor skills are generally unimportant except for specific activities like downhill skiing for which challenge and risk-taking are important elements.	Probability for experiencing affiliation with individuals and groups is prevalent as is the convenience of sites and opportunities. Experiencing natural environments having challenges and risks afforded by the natural environment, and the use of outdoor skills are relatively unimportant. Opportunities for competitive and spectator sports and for passive uses of highly human influenced parks and open spaces are common.

*These experiences are highly probable outcomes of participating in recreation activities in specific recreation settings.

The physical, social, and managerial setting components used to identify or establish the Recreation Opportunity Class for all areas of the Forest are shown on Tables F.2 through F.6. The characteristics of each of these three components of the setting affect the kind of experience the recreationist will most probably realize from using the area.

Table F.2
Recreation Opportunity Spectrum
Remoteness Criteria

Remoteness Criteria*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
An area designated at least 3 miles from all roads, railroads or trails with motorized use	An area designated at least 1/2-mile but not further than 3 miles from all roads, railroads or trails with motorized use, can include the existence of primitive roads and trails if usually closed to motorized use	An area designated within 1/2-mile of primitive roads or trails used by motor vehicles, but not closer than 1/2-mile from better than primitive roads.	An area designated within 1/2-mile from better than primitive roads, and railroads	No distance criteria	No distance criteria

*The criteria can be modified to conform to natural barriers and screening or other relevant features of local topographic relief and vegetative cover. This fits the criteria to the actual Forest landscape

Table F.3
Recreation Opportunity Spectrum
Size Criteria

Size Criteria					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
5,000 acres*	2,500 acres**	2,500 acres	No size criteria	No size criteria	No size criteria

*May be smaller if contiguous to Semi-Primitive Nonmotorized Class
**May be smaller if contiguous to Primitive Class

Table F.4
Recreation Opportunity Spectrum
Evidence of Humans Criteria

Evidence of Humans Criteria					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Setting is essentially an unmodified natural environment. Evidence of humans would be unnoticed by an observer wandering through the area.	Natural* setting may have subtle modifications that would be noticed but not draw the attention of an observer wandering through the area.	Natural* setting may have moderately dominant alterations but would not draw the attention of motorized observers on trails and primitive roads within the area.	Natural* setting may have modifications which range from being easily noticed to strongly dominant to observers within the area. However from sensitive ** travel routes and use areas these alterations would remain unnoticed or visually subordinate.	Natural* setting is culturally modified to the point that it is dominant to the sensitive travel route observer. May include pastoral agricultural intensively managed wildland resource landscapes or utility corridors. Pedestrian or other slow moving observers are constantly within view of culturally changed landscape.	Setting is strongly structure dominated. Natural or natural appearing elements may play an important role but be visually subordinate. Pedestrian and other slow moving observers are constantly within view of artificial enclosure of spaces.
Evidence of trails is acceptable but should not exceed standard to carry expected use.	Little or no evidence of primitive roads and the motorized use of trails and primitive roads.	Strong evidence of primitive roads and the motorized use of trails and primitive roads.	There is strong evidence of designed roads and/or highways.	There is strong evidence of designed roads and/or highways.	There is strong evidence of designed roads and/or highways and streets.
Structures are extremely rare.	Structures are rare and isolated.	Structures are rare and isolated.	Structures are generally scattered remaining visually subordinate or unnoticed to the sensitive travel route observer. Structures may include power lines, microwave installations, micro wave installations and so on.	Structures are readily apparent and may range from scattered to small dominant clusters including power lines, microwave installations, local ski areas, minor resorts and recreation sites.	Structures and structure complexes are dominant and may include major resorts and marinas, national and regional ski areas, towns, industrial sites, condominiums or second home developments.

*In many southern and eastern forests what appears to be natural landscapes may in actuality have been strongly influenced by humans. The term *natural-appearing* may be more appropriate in these cases.

**Sensitivity level 1 and 2 travel routes from Visual Management System USDA Handbook 461

Table F.5
 Recreation Opportunity Spectrum
 Social Setting Criteria

Social Setting Criteria*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Usually less than 6 parties per day on trails and less than 3 parties visible at campsite	Usually 6 -15 parties per day encountered on trails and 6 or less visible at campsites	Low to moderate contact frequency	Frequency of contact is Moderate to High on roads. Low to Moderate on trails and away from roads	Frequency of contact is Moderate to High in developed sites on roads and trails and water surfaces. Moderate away from developed sites	Large numbers of users onsite and in nearby areas

* These criteria apply during the typical recreation use season. Peak days may exceed these limits.
 * Specific numbers must be developed to meet regional or local conditions

Table F.6
 Recreation Opportunity Spectrum
 Managerial Setting Criteria

Managerial Setting Criteria					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
On site regimentation is low with controls primarily off site	On site regimentation and controls present but subtle	On site regimentation and controls present but subtle	On site regimentation and controls are noticeable but harmonize with the natural environment	Regimentation and controls obvious and numerous largely in harmony with the man made environment	Regimentation and controls* obvious and numerous

Controls can be physical (such as barriers) or regulatory (such as permits)

The Recreation Opportunity Spectrum provides a framework for stratifying and defining classes of outdoor recreation opportunity environments. As conceived, the spectrum has application to all lands regardless of ownership or jurisdiction. Its use in the National Forest System will facilitate the consideration, determination, and implementation of the recreation management role.