Chapter 2: Comparison of Alternatives

2.1 Introduction

This chapter describes:

- how a range of alternatives was developed,
- alternatives analyzed in detail, including monitoring,
- alternatives considered but not analyzed in detail, and
- alternatives by activities, effects and accomplishment of the purpose and need.

In accordance with the National Environmental Policy Act, a No Action Alternative (Alternative 1) is included in this analysis. This alternative is intended to serve as a control showing the environmental and social effects of taking no action, as well as to provide the deciding officer the option of taking no action at this time.

If there are unresolved issues about effects, alternatives are developed. Alternatives are used to provide the responsible official with choices for avoiding or minimizing effects. The purpose and need for action sets the range of alternatives since all alternatives must in some way meet the purpose and need.

2.2 Development of a Range of Alternatives

The implementation guidelines (40 CFR 1500) developed by the Council on Environmental Quality require that an environmental review must "...rigorously explore and objectively evaluate all reasonable alternatives.' The courts have established that this direction does not mean that every conceivable alternative must be considered, but that selection and discussion of alternatives must permit a reasoned choice and foster informed public participation and decision-making.

To meet the purpose and need for the Devil Trout project, the interdisciplinary team developed a proposed action, which was included in the November 2005 Scoping Report. Based on additional field reviews and new information, the team slightly modified the proposed action to make it feasible to implement, which is explained on page 2-2 in the Alternative 2 section.

Public comments received on the scoping report were used to identify significant issues (listed in Chapter 1 of this EA). A significant issue was used to develop an alternative that would create more young aspen providing adequate habitat for game species such as ruffed grouse, moose and white-tailed deer.

When developing alternatives, the interdisciplinary team also identified standard management requirements and mitigation measures to minimize impacts on resources from the activities proposed in the action alternatives. Standard management requirements include Forest Service policies, Forest Plan Standards and Guidelines, and Minnesota Forest Resource Council Forest Management Guidelines. Where needed on

individual units, site-specific mitigation measures are identified to further reduce effects of management activities.

The Devil Trout Environmental Assessment analyzes the effects of three alternatives in detail and four alternatives not in detail. These seven alternatives provide an adequate range of alternatives and disclose the effects of the actions, provide adequate information on the tradeoffs between resources, and meet the direction in the Forest Plan.

2.3 Alternatives Considered in Detail

Alternative 1: No Action

In this alternative, the proposed action would not take place, and there would be no new management actions proposed at this time. Existing management actions such as timber sales or road projects would be allowed to continue. Natural succession processes would take place. Current road use would continue. Selection of this alternative would not preclude future management actions in the project area.

Alternative 2: Proposed Action

The proposed action sent out for public comment in November, 2005 was revised slightly after further examination. Minor changes were made such as 42 acres of Partial Cut 30 BA was changed to Seed Tree Cut, to better fit vegetation management needs.

This alternative was developed to achieve the purpose and need for action in the Devil Trout Project Area. It will create young age class, increase acres of white pine and spruce, and increase within-stand diversity, thereby moving towards landscape ecosystem objectives for the Mesic Birch-Aspen-Spruce Fir LE and the Management Indicator Habitats (MIH) within the project area through harvesting and other vegetative management techniques such as planting.

Harvesting through clear cutting, partial cutting, and seed tree harvest followed by planting white pine, white spruce, and tamarack would be the primary tools used to restore conifers to the project area.

Harvesting treatments such as clearcutting and partial cutting will be used followed up by interplanting white pine and white spruce along the Gunflint Trail and Trout Lake Road in order to maintain or enhance scenic quality along those travel routes.

Additional sites will receive some form of competition control (mechanical, management-ignited fire, or both) to minimize understory brush which will reduce hazardous fuels in urban interface areas and along the Gunflint Trail.

Another action in this alternative includes the commercial thinning of red pine and white spruce stands which would control the stocking density in red pine and white spruce

plantations shortening the time necessary to provide managers with the options involving large pine and spruce, whether for timber, aesthetics, wildlife, or seed source.

Connected road management actions for this alternative would result in using 1 mile of unclassified road as temporary access which would be decommissioned after harvest activities are completed, construct 1.7 miles of temporary road which would be decommissioned after harvest activities are completed, and use 0.9 miles of unclassified road which would be converted to National Forest System Road Operational Maintenance Level (OML) 2 which ATV, snowmobile and other motorized recreation vehicles generally would be allowed on these roads.

Alternative 3

This alternative was developed in response to comments received during the public scoping process. This alternative will create more young aspen and paper birch through clearcutting mature aspen and birch typed stands and utilizing the natural regeneration for foraging for species such as ruffed grouse, moose, and other species benefiting from early successional deciduous habitat.

The alternative includes all of the treatments from Alternative 2 with an additional 1000 stand acres of clearcut and 800 acres of mechanical pile and burning.

Connected road management actions for this alternative would include utilizing approximately 5.5 miles of temporary road for access and decommissioning 0.6 miles of OML 2.

2.4 Alternatives Considered But Eliminated From Detailed Study

Alternative 4. Forest Health

Alternative Description
MFI recommends that the districts propose and analyze an alternative that would improve forest health. This alternative recommends harvesting 4,931 acres. This alternative would provide for approximately 35 million board feet of timber, significant economic activity for the region, and improve forest health and wildlife habitat. Review of their data shows that the average age of these stands is well beyond recommended rotation ages. For most species the average age is 2 times the forest plan recommended rotation age (Forest Plan, p.2-21).

MFI also performed an analysis of acres greater/equal to 60 years of age for the present condition and ten years into the future (2015) following proposed harvests identified in the scoping document and MFI's proposed alternative. Presently the project area has 19,709 acres of forests equal/greater than 60 years of age. Following ten years after project implementation in the scooping document the district would have 19,853 acres equal/greater than 60 years. MFI's proposed alternative would have approximately

15,700 acres of forests equal/greater than 60 years in 2015. This data shows that the proposed activities identified in the scoping documentation do not address the overmature forest condition in the project area.

Rationale
This alternative was not analyzed further because it does not meet the purpose and need and it is unreasonable within the context of the 2004 Forest Plan.

This alternative would create almost 20% in the young age class in the MBA LE across the project area. The purpose of this project is to create 2-7% in young age class. The size of this project, i.e. number of acres treated, is limited in part due to limited time, budget and resources. While landscape ecosystem objectives for MBA LE call for 10% in the young age class across the entire landscape ecosystem, this scope of this project is 2-7% in young. Additional young age class may or may not be created in this area in the future.

This alternative would not be consistent with the Forest Plan for numerous reasons. Landscape ecosystem objectives for MBA LE call for 10% in the young age class across the entire landscape ecosystem; amount of young in a project area will vary. Landscape ecosystem objectives for Lowland Conifer LE's call for 4% in the young; this alternative would create 16% in the young age class in lowland conifers. It is not reasonable to expect this area to have substantially more young than the landscape ecosystem objective because the Candidate Research Natural Area Management Area (MA), Recreation in a Scenic Landscape MA, and the Eligible Wild, Scenic, and Recreational Rivers MA inside the project area limits or removes the option to harvest timber. In addition, the project area includes a large mature upland forest patch of maple that would be desired in the long term to meet spatial objectives.

The alternative proposes harvesting in the CRNA (compartment 211 stands 9 and 51) which is prohibited under the Forest Plan (FP pg. 2-21). The alternative proposes harvesting stands that have not reached the Culmination of Mean Annual Increment (CMAI) for some stands such as in Table 2.1:

Table 2.1 Examples of Proposed Stands Below Culmination of Mean Annual Increment

Compartment	Stand	Age
148	51	0
204	44	0
112	21	11
193	13	8
148	63	0

Alternative 5. Maximize Aspen Regeneration

Alternative Description:
As a non-profit conservation group dedicated to the needs of ruffed grouse, woodcock, and other species that require young deciduous forest habitats, we encourage you to

consider an alternative that maximizes aspen regeneration to type through the use of clearcutting with reserves prescriptions and minimizes the short- and long-term conversion of aspen to other forest types through the use of even-aged management, underplanting, excessive residual levels and other actions that reduce aspen sucker density. This density is a critical habitat feature for grouse, woodcock, snowshoe hares, moose and many early-successional songbirds.

Please specify that whenever possible the 6-12 live trees per acre in aspen regeneration units be clumped, rather than scattered throughout the stand. This will increase their wildlife value, maintain them on-site longer and maximize aspen regeneration for grouse, woodcock, hares and other wildlife.

Rationale:
This alternative is in part a duplicate within the existing range of alternatives and in part not consistent with the purpose and need for the project and so was not analyzed further. Alternative 3 was developed to address the issue of amount of young forest for game habitat. It provides approximately 1600 acres of young aspen/birch regeneration with an additional 125 acres white spruce and 100 acres of white pine/aspen. In addition, in some stands in Alternative 3 reserve trees would be clumped in legacy patches and scattered trees would not be left throughout the unit.

The scope of this project, defined in the purpose and need, is to have 2-7% of the project area in the young age class. Creating more young age class than that would not meet the purpose and need.

Alternative 6. No clearcutting, restore forest types without logging

Alternative Description
The Sierra Club opposes commercial logging on all federally owned forests, but supports some logging programs that serve non-commercial, ecological purposes (e.g. restoring forest types toward RNV). We participate in the administrative process to provide substantive comments on identified project areas as well as encourage the Forest Service to significantly reduce commercial logging in our national forests to better achieve long-term wildlife and habitat protection and sustained recreational opportunities.

The agency must meet its statutory obligation and give meaningful and unbiased consideration to all reasonable alternatives, which specifically include the no-action alternative, no-clearcut alternative, and alternatives that generally seek to restore forest types to their range of natural variation without using logging techniques.

Rationale
This alternative was not analyzed further because it does not meet the purpose and need and it is unreasonable within the context of the 2004 Forest Plan.

The commenter referred to a "statutory obligation" to consider a no-clearcut alternative, yet no such obligation exists. Regulations require consideration of the no action alternative and a range of alternatives but there is no requirement to analyze a no-clearcut alternative.

The purpose and need for this project includes creating young age class to meet landscape ecosystem and MIH objectives in the Forest Plan. While young age class can be created using prescribed fire or harvest, the Record of Decision for the Forest Plan says will use

The Forest Plan states that clearcutting will be a management tool that will be utilized across the forest and that timber harvest will be the primary tool for reaching vegetative objectives and the effects of this management have been disclosed in the Forest Plan FEIS.

Alternative 7. Fire Buffers

The National Visitor Use Monitoring report suggests that most forest users were satisfied with the appearance and management of the forest under the 1986 Plan (which emphasized clearcutting). We feel that more areas along the Gunflint could be clearcut, so long as residuals were clumped and reserve areas planted to longer-lived species. Aspen clearcuts regenerate quickly back into forest and attractive wildlife visitors enjoys viewing.

Large patches were indeed common in this area as the historic fire and disturbance regimes would indicate. However, catastrophic fires rarely resulted in mixed stands, such as those being emphasized in this project. Stand-replacing fires occurred relatively frequently, resulting in nearly pure stands of early-successional fire-dependant species like aspen and jack pine.

With regard to stands along the Gunflint Trail, we appreciate the need to maintain visual quality while balancing the need for fire protection. We would like to point out the fact that aspen forests are very fire resistant. Rather than increasing the component of fire-carrying conifers within this corridor, perhaps the District should consider creating large patches of fire buffering aspen. These stands will also attract wildlife that the public desires to see, like moose, deer, grouse, wolves and lynx. Conifers could be provided in clumps by planting in riparian areas, reserves, legacy patches and narrow visual buffers. Rick Horton, Ruffed Grouse Society

Response: It is true the 1986 Forest Plan encouraged more clearcutting but not along roads that were classified as highly scenic such as the Gunflint Trail. In fact the most of the stands we have proposed to be partial-cut in this proposal were left behind as visual buffers which are now comprised of decadent aspen falling apart. Clear-cutting and regenerating those aspen stands we have proposed to partial-cut along the Gunflint will not meet the short-term or the long-term visual objectives. As discussed in the Devil Trout scoping proposal, our objective in those stands along the Gunflint Trail and Trout Lake road is to maintain a reasonable short-term quality of scenery by retaining some of

the aspen and other species and planting long lived species such as white pine to insure a better long-term quality of scenery. If those stands proposed to be partial-cut and planted with long-lived species were clearcut and regenerated back to aspen both the short-term and the long-term visual effects would not meet the publics needs.

The fire regime for aspen/birch/spruce/fir was one of mixed severity. In areas where spruce and balsam fir were not a significant component, fire burned as a surface fire that killed most, but not all the stand elements. Many areas of pure hardwoods or moist sites may be skipped all together. In areas where conifer was a significant component, fire burned in the crowns occasional with high intensity. (Heinselman 1996) Mixed fires occurred in landscapes with higher proportions of early successional deciduous species, whereas in conifer-dominated areas severe crown fires killed all or most of structural layers (Bergeron et al. 1998). This means that fires did burn with high severity in some areas and lower severity in other areas. The result was, pure or mixed, even-aged stands at different stages of recovery after fire.

Conifer stands did exist on the landscape historically mixed with hardwood stands. In areas where fire did not spread, hardwood stands would have converted to spruce/fir between 150-200 years. Following is Table 2.2 showing the historic versus current vegetation for the project area. It does show that hardwoods currently are found in much higher proportions on the landscape than historically and spruce-fir is currently less than what historically would have occurred.

Table 2.2 Historic vs. Current Vegetation for Devils Trout

Vegetation	Historic %	Current %	Difference %
Regeneration	30	20	-20
Mid-Seral Hardwoods	32	60	30
Spruce Fir	35	14	-43
Pine	3	5	25

Not all aspen stands are fire resistant. Young aspen stands are fairly fire resistant. However, after about 25 years of age, the balsam fir begins to encroach in these stands. By the time they are 50 years old, most aspen stands have a significant amount of balsam in the understory. By the time they are 70 years of age, they have enough balsam to be considered a fuels hazard. Older aspen stands that have the balsam accumulation can support high severity, crown fire events. The balsam serves as a ladder fuel for fires to carry through the crowns of trees. Historically, fire would have removed a majority of the balsam that exists in aspen/birch stands because it would have burned up the seed source. Therefore, historically, aspen/birch stands were more fire resistant than what we see today. However, with the lack of fire on the landscape, aspen/birch stands will continue to be a fuels hazard unless we can remove the balsam and the seed source. In contrast, red and white pine forests support a low intensity fire regime. Fires that burn with low intensity in the understory stands are much easier for suppression personnel to control. Therefore, red and white pine is desirable from a fuel hazard reduction and fire risk stand point.

2.5 Description of Treatments and Monitoring

Table 2.3 describes the treatment types and activities proposed in this project. Table 2.4 lists the proposed monitoring strategy that accompanies the activities proposed in this document.

These treatments and activities entail the use of standard management requirements that apply to all alternatives and all treatment units. Standard management requirements are taken from established Forest Service policies, Forest Plan standards and guidelines, certain Minnesota Forest Resources Council (MFRC) Forest Management Guidelines, and federal laws and regulations. Standard management requirements are designed to limit or avoid potential adverse effects even before a proposed action or alternative is developed. They are automatically taken into consideration during the analysis of each alternative. Standard management requirements are listed in Appendix C.

If adverse effects that could be avoided were identified during this analysis, a site-specific mitigation measure was developed to ensure protection of the resource. Appendix D lists the mitigations that will be employed in individual treatment units. Application of some of these mitigation measures may reduce the number of treatment acres in some units.

Table 2.3. Description of Treatments

Treatment	Description
Primary Treatments	
Clearcut	A timber harvest method in which all or almost all of the merchantable timber is removed in one cutting, and the stand age would be reset to zero. The objective of this treatment is to remove all but 6-12 trees per acre and fully expose the site for the development of a new age class. This treatment usually favors shade intolerant species such as jack pine, aspen, or paper birch. Reserve trees are left according to standard management requirements for wildlife and diversity. In clearcuts larger than 20 acres a minimum of 5% of the stand will be retained in legacy patches of live trees, where no harvest would occur. Where possible the legacy patches should be greater than two acres in size.
Partial Cut Harvest	A timber harvest in which a portion of the merchantable timber is removed in one cutting. The objectives of partial cuts are to either convert a stand from hardwood to conifer or to establish a two-aged stand. There will be two types of partial cutting used in this project.
Partial Cut 30BA (Lower Residual)	Treatment includes harvesting some trees while leaving others to provide sufficient shade that will retard the aspen regeneration and create a microenvironment suitable for natural and artificial conifer regeneration. 30-40 square feet of basal area per acre of tree species that most represent the stand will be reserved, also including reserve trees left according to standard management requirements for wildlife and diversity. This treatment usually favors long lived tree species and the age of the stands receiving this treatment will be reset to zero.

Table 2.3. Description of Treatments

Treatment	Description
Partial Cut 70BA (Higher Residual)	Treatment includes harvesting some trees while leaving others to provide sufficient shade that will retard the aspen regeneration and create a microenvironment suitable for natural and artificial conifer regeneration. 50-70 square feet of basal area per acre of tree species that most represent the stand will be reserved, also including reserve trees left according to standard management requirements for wildlife and diversity. This treatment usually favors long lived tree species and is used to create a more uneven aged forest. After receiving this treatment the stands data will remain at the current stand age.
Shelter Wood Cut	A timber harvest method in which 80% of the merchantable timber is removed, leaving 20% of a preferred species evenly throughout the cut, utilizing the species left uncut for seed production
Seed tree Cut (Harvest)	A treatment method in which an area is clear-cut except that certain trees, called seed trees, are left standing singly or in groups for the purpose of furnishing seed to restock the harvested area.
Seed Tree Clumping	The removal of all the mature timber from an area in one cut, except for leaving a number of ¼ acre clumps of mature timber throughout the stand and reserve trees left according to standard management requirements for wildlife and diversity. The objective of this treatment is to regenerate the stand through natural seeding created through the ¼ acre mature clumps. This treatment usually favors shade intolerant species such as paper birch. The age of the stands receiving this treatment will be reset to zero.
Thinning	The objective of thinning is to remove some trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water and sunlight. In addition, thinning utilizes material that would normally be lost due to natural stand mortality. Trees designated for harvest would generally be ones exhibiting slower growth rates, signs of insects or disease infestations, overcrowding (where crowns are touching) or damage from either natural disturbances or previous management. Access strips (approximately 14 ft. wide placed approximately 30 ft apart) would be needed and all trees within these strips would be removed to allow machinery to move through the stand and would be used for access in future treatments.
Variable Thinning	The objective of variable thinning is to remove some trees in a stand in order to increase structural and compositional diversity. Remaining trees will grow faster due to reduced competition for nutrients, water and sunlight. This technique would utilize leave islands (or groupings) of trees and designate different basal area objectives in different portions of each stand. Variable thinning would primarily favor the retention of red pine trees along with other species that are different from the dominant forest type. Retention of birch, cedar, and other hardwoods will improve habitat for cavity nesters and provide foraging habitat for birds.
Release	The selection and release of a desirable species by removing the adjacent competing vegetation. The objective of this treatment is to reduce over-crowding of young planted trees and to reduce mortality and competition for nutrients, water and sunlight for the desired species.

Table 2.3. Description of Treatments

Treatment	Description
Mechanical Fuels Reduction	The understory hazardous fuels are removed from a stand with mechanical means. The understory hazardous fuels include dead and down material and ladder fuels. The understory fuels may be piled and burned, crushed, chopped, or removed with mechanical equipment. The overstory of the stand will be left undisturbed. The objective of mechanical fuel reduction projects is to reduce the understory hazardous fuels of the designated stands. Removing the understory fuels reduces the risk of a wildfire being able to spread into the canopy of a forest and spread as a crown fire.
Hand Pile and Burn	The understory fuels will be piled by hand crews and burned under appropriate weather conditions. The overstory of the stand will be left undisturbed. The objective is to reduce understory hazardous fuels that have accumulated.
Broadcast Burn	A broadcast burn is a fire that is allowed to burn over the entire unit. Burn intensity varies over the treatment unit depending on vegetation, fuels, and topography. The purpose of the broadcast burns within this project area is to improve wildlife habitat. The prescribed burn will reduce the accumulated grass and shrub layer and put nutrients back into the soil to promote new growth of grass and shrub which have a higher nutrient content for wildlife.
Secondary Treatments	
Mechanical Site Preparation	The objective of this treatment is to reduce vegetation and slash and expose mineral soil. This eliminates competition for light, water and nutrients for the newly seeded or planted trees.
Pruning	The removal of the lower and infected limbs of young white pine. The objective of this treatment is to reduce or prevent the infestation of white pine blister rust (fungal disease). White pine blister rust infects young white pine generally by entering needles on the lower shared branches of white pine. It then travels through the branch to the trunk of the main stem, where it then kills the tree above that branch.
Mechanical Pile and Burn	The fuels created by logging, such as tree tops and slash will be mechanically piled and burned under appropriate weather conditions. The leave trees or islands of the stand will be left undisturbed. The objective is to reduce the hazardous fuels created by harvesting.
Under Burn	A low intensity fire that burns beneath the canopy of live, standing timber. The primary objective of underburns is to reduce hazardous fuels in the understory. The fire removes material that is considered a fuel ladder that could potentially spread fire from the ground fuels into the crown of standing live timber. The understory materials that would be removed include small down, dead, woody material. Underburns also kill shrubs and most young trees that compete with the overstory canopy vegetation. Some live trees may be burned during understory burns, but the objective is to maintain the forest cover. Following the burn, the stand would consist of a standing forest that is open underneath.
Interplanting	Planting that occurs after a timber harvest method such as a Partial Cut 30BA residual, Partial Cut 70BA residual, or Seed Tree Clumping. Planting 200-400 seedlings per acre, 10'x10' or

Table 2.3. Description of Treatments

Treatment	Description
	14'x15' spacing under a partial canopy of mature timber. The objective of this planting method is to increase within stand diversity by utilizing natural regeneration along with the desired planted species.
Plant	Planting that occurs after a timber harvest method such as Clearcut with Reserves. Planting a desired species at approximately 400-600 seedlings per acre in a 8'x9' spacing in a fully open canopy.
Transportation Management	
Forest System Roads	The objective of these classified roads is to provide long term access to an area. They may be used in the project and will also be needed in the future to access the area for recreation, timber harvest or other administrative need. Each road is assigned an Objective Maintenance Level (OML) which indicates the standard of maintenance and often indicates whether the road is open or closed to vehicular traffic. OML 2 roads are open for use by high clearance vehicles.
Temporary Roads	The objective of these roads is to provide short term access. Once the need for access has expired, the road will be obliterated. All temporary roads needed to access harvest units will be obliterated and allowed to return to a more natural state once reforestation objectives have been met. The following actions will occur where appropriate: ▪ Culverts and temporary bridges will be removed. ▪ Stream crossings will be returned to a more natural state by returning the crossing to the approximate original contour and by stabilizing the crossing banks through re-vegetation. ▪ Original drainages will be reopened to and water diversions from roadbeds will be provided. ▪ Water bars will be constructed on temporary roads or skid trails in areas with steep slopes. Areas at risk for erosion will be seeded. ▪ Windrows of slash or rock along temporary roads will be flattened or spread out. ▪ Where available nearby small balsam and spruce will be transplanted into road bed and one cubic yard and larger rocks (embedded 1/3 of their depth), stumps, and slash will be randomly placed on the seen part of the road to ensure that passage does not seem feasible and is not attempted. Cuts and fills will be re-contoured to pre-road condition. At the access point off the main road, the original ditch will be restored.
Decommission	Unclassified roads planned for decommissioning shall meet the standard management requirements for closure of the temporary road.

Table 2.4. Monitoring of Treatments

Harvest and Site Preparation Areas

Table 2.4. Monitoring of Treatments

Objective	Ensure that the mitigation measures and provisions in contracts are implemented.
Methods	Visual inspection of treatment stands.
Frequency	Treatment areas would be visited on a regular basis during the length of the contract.
Responsibility	Timber Management Assistant, Silviculturalist
Sensitive Species	
Objective	Monitor known dwarf bilberry populations for Northern blue butterfly use
Methods	Complete butterfly surveys during the adult flight period.
Frequency	Survey at least once between one to three years after treatment.
Responsibility	District Biologist
Prescribed Burns	
Objective	Ensure standard management requirements and mitigation measures are followed.
Methods	Complete a Prescribed Burn Evaluation that documents how mitigations measures are followed.
Frequency	During and after each burn.
Responsibility	Fire Planner/Burn Boss
Fuels Reduction Treatments	
Objective	Ensure objectives for fuels reduction are met.
Methods	Fuel loading measurements.
Frequency	Before and after treatment.
Responsibility	Fuels Planner
Non-Native Invasive Species	
Objective	Avoid or minimize an increase in the extent of non-native plant infestation in the project area.
Methods	Monitor harvest units and newly constructed roads after harvest, site prep, or construction to determine if invasive plants have colonized areas where management activities have occurred.
Frequency	Between year one and year three following the sale
Responsibility	Forest Plant Ecologist
Temporary Roads	
Objective	Monitor to ensure that temporary roads are constructed/rehabilitated/obliterated after completion of treatment activities.
Methods	Inspect temporary road locations as they are being built, during treatments, between treatments, and after they are closed to determine if additional protection/rehabilitation efforts are needed.
Frequency	Inspect all temporary road locations that are more than ¼ mile in length.
Responsibility	Timber Management Assistant, Zone Engineer, Monitoring Crew
Forest Composition/Regeneration	
Objective	Ensure that minimum stocking standards are met in each forest type for artificial and natural regeneration treatments including the interplanting of white pine. Procedures and standards are located in the Forest Service Reforestation Handbook 2409.26b.
Methods	Natural and artificial regeneration areas would be surveyed for the number of acceptable trees/acre using Regional Guidelines. Stands planted to red and white pine would be checked for pruning and release need.

Table 2.4. Monitoring of Treatments

Frequency	Stocking surveys would be conducted after the 1st and 3rd growing season following reforestation treatment. Stands not expected to reach regional stocking standards after the 5th growing season would be evaluated for a replant. Units meeting minimum stocking standards would be certified by year 5. Release and pruning needs would be evaluated at the time of stocking surveys, every other year for 10 years and after 10 years every 5 years until the branches are 9 ft. off the ground.
Responsibility	Zone Silviculturalist and Reforestation Technician

2.6 Comparison of Alternatives and Effects

Comparison of Acres of Proposed Treatments

The following tables allow for a comparison of the three alternatives presented in this EA. Table 2.5 shows the acres of the proposed primary treatments, intermediate treatments, and lists acres and species proposed for reforestation. Table 2.6 shows proposed transportation management activities.

Table 2.5 Comparison of the Activities Proposed Under Each Alternative, Acres are Stand Acres by Forest Type and Alternative.*

Primary Treatments	Forest Type	Alt. 1	Alt. 2	Alt. 3
Clearcut with Reserves	Aspen	0	371	1082
	Aspen/White Spruce/Balsam Fir	0	76	334
	Paper Birch	0	125	125
	Balsam Fir	0	0	47
Seed Tree Cut	Aspen	0	42	42
Seed Tree Clumping	Paper Birch	0	31	31
Shelterwood Cut	Paper Birch	0	76	76
Partial Cut 30BA	Aspen	0	321	321
Partial Cut 70BA	Aspen	0	173	173
	Aspen/White Spruce/Balsam Fir	0	14	14
Thinning	White Spruce/ Balsam Fir	0	19	19
	Red Pine	0	30	30
	White Spruce/Balsam Fir/Aspen	0	10	10
Variable Thinning	Red Pine	0	81	81
Release	White Spruce	0	40	40
	White Pine	0	14	14
Mech. Fuels Reduction	Red Pine	0	27	27
Hand Pile And Burn	Red Pine	0	20	20
	Aspen	0	94	94
	Aspen/White Spruce/Balsam Fir	0	11	11
Broadcast Burn	Lowland Brush	0	87	87
	Aspen/White Spruce/Balsam Fir	0	30	30
	Total	**0**	**1,692**	**2,708**

Secondary Treatments	Forest Type	Alt. 1	Alt. 2	Alt. 3
Prune	White Pine	0	14	14
Mechanical Pile And Burn	Red Pine	0	30	30
	Aspen	0	654	1292
	Paper Birch	0	201	201
	Aspen/White Spruce/Balsam Fir	0	89	266
Under burn	Red Pine	0	77	77
	Aspen	0	202	202
	Aspen/White Spruce/Balsam Fir	0	11	11
Mechanical Site Preparation	Aspen	0	717	717
	Paper Birch	0	232	232
	Total	**0**	**2,227**	**3,042**
Reforestation	**Tree Species**	**Alt. 1**	**Alt. 2**	**Alt. 3**
Natural/Artificial Regeneration (Interplanting)**	White Spruce, White Pine, Tamarack	0	116	116
	White Spruce, White Pine	0	108	108
	White Pine	0	408	408
	Yellow Birch, White Pine, W. Spruce	0	173	173
Artificial Regeneration (Planting)***	White Spruce	0	125	125
Natural Regeneration	Aspen	0	176	540
	Paper Birch	0	76	443
	Aspen/White Spruce/Balsam Fir	0	89	234
	Total	**0**	**1,271**	**2,147**

*All acres shown are estimates based on stand acres. Actual treated acres would be less than the numbers shown due to legacy patches, reserve islands, and other factors.
** A portion of the acres with interplanting would be released and/or pruned. Based on the results of monitoring and to the degree in which the planted species is being affected vegetation competing with the planted species would be removed and/or if blister rust or white pine weevil is present it will be pruned. Also based on monitoring a portion of the acres interplanted would have some type of treatment to protect the pine from deer such as bud caps, or spraying deer repellent.
*** Based on the results of monitoring and to the degree in which the planted species is being affected vegetation competing with the planted species would be removed

Table 2.6. Comparison of the Road Activities Proposed Under Each Alternative

Transportation System	Alt 1	Alt 2	Alt 3
Miles Temp. Access, use existing unclassified road	0	1	1
Miles Temp. Access, reuse grown in route	0	0	1.5
Miles Temp. Access, new construction	0	1.7	5.7
Total Miles Temporary Access	**0**	**2.7**	**7.2**
Miles NFSR-convert from unclassified road	0	.9	.9
Total Miles of additional NFSR and SU	**0**	**0.9**	**0.9**
Decommission unclassified road	0	1	1
Decommission NFSR – OML2	0	0	.6
Total Decommission	**0**	**1.0**	**1.6**

Comparison of Effects of Proposed Treatments by Issue

Early Successional Species

The tables below indicate the differences between the alternatives of habitat acres for the indicator species white-tailed deer and moose; and ruffed grouse. Alternative 3 creates the largest amount of foraging habitat for deer and moose, and the largest amount of seedling-open from MIH 4 for grouse when compared to Alternative 1 and the proposed Alternative 2. Alternative 1 provides the largest amount of thermal cover habitat than the proposed Alternative 2 and Alternative 3.

Table 2.7. Indicators for White-tailed Deer and Moose

	Existing Condition	Alternative 1	Alternative 2	Alternative 3
Foraging Habitat in acres*	7,651	4,974	5,797	6,623
Thermal Cover in acres**	6,161	7,446	7,203	7,156

* Acres of aspen types (MIH 4) <25 years old.
** Vegetation that protects animals from winter weather.

Table 2.8. Indicators for Ruffed Grouse

	Existing Condition	Alternative 1	Alternative 2	Alternative 3
Total Habitat in acres	18,851	17,878	17,900	17948
Seedling Open (0-9 yrs.) in acres	1,087	219	1,026	2,058
Sapling Pole (10-49 yrs.) in acres	6,674	7,674	7,663	7,674

* MIH 4

Comparison of How Alternatives Meet Purpose and Need

1. **To create young age class, increase acres of white pine and spruce and increase within-stand diversity, thereby moving towards landscape ecosystem objectives for Mesic Birch-Aspen-Spruce Fir LE.**

Alternative 1 (no action), in the Mesic Birch/Aspen/Spruce-Fir LE, the Superior National Forest's succession model indicates there would be and increase in the Spruce-Fir forest type, but knowing the existing presence of spruce within those stands where the succession model indicated the Spruce-Fir type would be created naturally it would be primarily comprised of balsam fir, a species much shorter lived than spruce. Under the

No Action Alternative there would be no increase in acres of white pine forest type throughout the project area and there would also be a decrease in the acres of paper birch forest type.

Under the Action Alternatives 1 and 2, in the Mesic Birch/Aspen/Spruce-Fir LE, there would be an increase in the number of acres of White Pine, Spruce-Fir, and Paper Birch forest types through planting and natural seeding after harvesting. Under both Action Alternatives the amount of acres of Aspen forest type would decrease through the planting of white pine and white spruce.

*Table 2.9. Vegetation Composition Within the Mesic Birch/Aspen/Spruce-Fir LE of the Devil Trout Area in 2006 (Existing Condition) and by Alternative in 2014.**

Upland Forest Type	2006	2014		
	Existing Condition	Alt 1 No Action	Alt 2	Alt 3
Jack Pine	421	421	421	421
Red Pine	653	653	653	653
White Pine	440	440	544	534
Mixed Pines	58	58	58	58
Spruce-Fir	3,119	3,815	3,688	3,650
Lowland Black Spruce	69	69	69	69
Northern Hardwoods	1,664	1,664	1,664	1,664
Aspen	16,433	15,836	15,974	15,591
Paper Birch	2,141	2,042	1,927	2,358
Total Acres:	**24,998**	**24,998**	**24,998**	**24,998**

Table 2.10. Age Class Composition within the Mesic Birch/Aspen/Spruce-Fir LE in 2006 (Existing Condition) and by Alternative in 2014.

Age Class	2006	2014		
	Existing Condition	Alt. 1	Alt.2	Alt. 3
0-9	1,392	396	1,428	2,455
10-49	8,911	10,741	10,485	10,498
50-79	5,379	2,458	2,350	1,683
80-99	7,409	7,945	7,483	7,108
100+	1,907	3458	3,252	3,254
Total Acres:	**24,998**	**24,998**	**24,998**	**24,998**

Alternative 1 (no action), in the Mesic Birch/Aspen/Spruce-Fir LE, the acres of young forest (0-9 year age class), would drop substantially from the existing condition by the year 2014. Both of the Action Alternatives would increase the amount of young forest, with Alternative 3 contributing the most. Harvest methods such as clearcutting, partial cutting with retention of 30BA, shelter wood, and seed tree harvests would be the tool used to create young forest.

In all of the Alternatives in the Mesic Birch/Aspen/Spruce-Fir LE, the age class 50-79 would decrease substantially, although alternative 3 would reduce it the most.

In all of the Alternatives in the Mesic Birch/Aspen/Spruce-Fir LE, old forest (age class 100+) would increase substantially, although alternative 1 (no action) would contribute the most according to the succession model, although it would only be slightly higher than the two action alternatives.

Table 2.11. Change of Tree Species Diversity Compared to Objectives for the Mesic Birch/Aspen/Spruce-Fir Landscape Ecosystem.

Species	Forest Plan Objective	Alt 1	Alt 2 (No Action)	Alt 3
Jack Pine	Maintain	Maintain	Maintain	Maintain
Red Pine	Increase	Maintain	Maintain	Maintain
White Pine	Increase	Maintain	Increase	Increase
Spruce	Increase	Increase	Increase	Increase
Aspen	Decrease	Decrease	Decrease	Decrease
Paper Birch	Increase	Decrease	Decrease	Increase
Balsam Fir	Decrease	Increase	Decrease	Decrease

2. Promote spatial patterns that more closely emulate the patterns that would result from natural disturbance processes and improve interior forest conditions.

Both action alternatives would maintain or improve the interior forest conditions of the existing mature patches through actions such as partial harvesting and interplanting long lived tree species listed in Table 2.5. Where those actions are proposed the patches are comprised primarily of decadent aspen and paper birch, currently falling apart and are succeeding to mostly balsam fir and brush, with very little long-lived tree species present.

Both action alternatives would also create larger patches of young forest that would have less fragmentation, consolidating the smaller existing patches. These young patches would be created through harvesting techniques such as clearcutting, partial cut, seed tree harvest, and shelter wood harvest listed in Table 2.5.

Alternative 1 would not improve the interior forest conditions within the stands proposed under the action alternatives. As the forest ages, decadent aspen, birch, and fir would begin to fall apart reducing the resistance to natural disturbances such as wind, fire, insects and disease and converting to a younger age class; thus, reducing their structure and function.

The Table 2.12 displays the changes in large mature upland patches from proposed actions and succession. It indicates that Alternative 1 would contribute 1 patch more than the action alternatives, greater than 300 acres within the project area. Table 2.12 shows all alternatives meet the Forest Plan's guideline for Spatial Zone 2 "maintain a minimum of 54,400 acres of mature and older upland forest patches greater than 300 acres" (LRMP, S-VG-7, pg 2-27).

Table 2.12. MIH 13: Acres and number of large (>300 acres) mature upland patches and percent change in 2014 compared to existing condition in 2006*

Upland Mature Patch Class	Existing Condition	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
PROJECT AREA-ZONE 2	2006	2014		
# of >300-acre patches	5	6	5	5
Total patch acres	12,508	11,489	10,778	10,200
FORESTWIDE ZONE 2				
# of >300-acre patches	38	38	38	37
Total patch acres	63,359	66,016	65,605	64,727

3. Maintain wildlife species diversity by moving towards the Management Indicator Habitat (MIH) Objectives of creating young aspen-birch (MIH 4), young upland spruce-fir (MIH 6) and young red and white pine (MIH 7).

MIH's are identified in the Forest Plan to represent the types, ages, amounts, and function of habitats within Landscape Ecosystems (LE) for evaluating a broad spectrum of species. Landscape ecosystems usually cover a broader geographic area than a project area such as Devil Trout and therefore, landscape ecosystem analyses occur at the landscape-level. At the project-level, MIH's may or may not meet FP objectives. The use of MIH's assumes that, in general, there is a correlation between amount of habitat and potential species populations.

The effects to MIHs within the portion of the Mesic Birch Aspen Spruce Fir (MBASF) LE occurring in the project area are presented in Table 2.13. MIH 4, 6 and 7 will be addressed because their objectives assist in maintaining wildlife species diversity while the other MIH's would affect minimal amounts of habitat.

Table 2.13. Management Indicator Habitats for the Mesic Birch Aspen Spruce Fir Landscape Ecosystem within the Devil Trout Project Area.

Management Indicator Habitat (MIH)	**2006 Devil Trout Existing Condition**		**Condition in 2014**					
			Alternative 1		**Alternative 2**		**Alternative 3**	
	Acres	**%***	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
MIH 1: Upland Forest								
Young	1,389	6	393	2	1,425	6	2,452	10
Pole	8,876	36	10,706	43	10,450	42	10,463	42
Mature	7,080	28	4,125	17	4,018	16	3,351	13
Old/Old Growth/Multi-aged	7,589	30	9,704	39	9,035	36	8,663	35
Total Acres:	24,934	100	24,928	100	24,928	100	24,928	100
MIH 2: Upland Deciduous Forest								
Young	1,108	5	240	1	1,047	5	2,079	11
Pole	6,772	33	7,773	40	7,762	40	7,773	40
Mature	5,687	28	3,290	17	3,182	16	2,515	13

Management Indicator Habitat (MIH)	2006 Devil Trout Existing Condition		Condition in 2014					
			Alternative 1		Alternative 2		Alternative 3	
	Acres	%*	Acres	%	Acres	%	Acres	%
Old/Old Growth/Multi-aged	6,677	33	8,239	42	7,573	39	7,246	37
Total Acres:	20,244	100	19,542	100	19,564	100	19,613	100
MIH 3: Northern Hardwood and Oak Forest								
Young	21	1	21	1	21	1	21	1
Pole	99	6	99	6	99	6	99	6
Mature	1,380	83	1,297	78	1,297	78	1,297	78
Old/Old Growth/Multi-aged	1,664	10	247	15	247	15	247	15
Total Acres:	3,164	100	1664	100	1664	100	1664	100
MIH 4: Aspen-Birch and Mixed Aspen-Conifer Forest								
Young	1,087	6	219	1	1,026	6	2,058	11
Pole	6,674	36	7,674	43	7,663	43	7,674	43
Mature	4,306	23	1,993	11	1,885	11	1,218	7
Old/Old Growth/Multi-aged	6,514	35	7,992	45	7,326	41	6,998	39
Total Acres:	18,581	100	17,878	100	17,900	100	17,948	100
MIH 5: Upland Conifer Forest								
Young	281	6	153	3	378	3	373	7
Pole	2,104	45	2,933	54	2,933	54	2,690	50
Mature	1,394	30	836	16	836	16	836	16
Old/Old Growth/Multi-aged	912	19	1,465	27	1,461	27	1,417	27
Total Acres:	4,691	100	5387	100	5608	100	5316	100
MIH 6: Upland Spruce-Fir Forest								
Young	148	5	85	2	203	6	210	6
Pole	1,372	44	2,138	56	1,894	51	3,649	52
Mature	1,071	35	513	13	513	14	513	14
Old/Old Growth/Multi-aged	526	16	1,079	29	1,079	29	1,032	28
Total Acres:	3,117	100	3,815	100	3,689	100	5,404	100
MIH 7: Red and White Pine Forest								
Young	133	12	69	6	175	14	163	13
Pole	637	55	701	61	698	56	701	56
Mature	322	28	323	28	323	26	323	26
Old/Old Growth/Multi-aged	59	5	59	5	56	4	59	5
Total Acres:	1,151	100	1,152	100	1,252	100	1,246	100
MIH 8: Jack Pine Forest								
Young	0	0	0	0	0	0	0	0
Pole	95	23	95	23	95	23	95	23
Mature	0	0	0	0	0	0	0	0
Old/Old Growth/Multi-aged	327	77	327	77	327	77	327	77
Total Acres:	422	100	422	100	422	100	422	100
MIH 9: Lowland Black Spruce Tamarack Forest								
Young	3	4	3	4	3	4	3	4
Pole	34	49	34	49	34	49	34	49
Mature	27	39	24	35	24	35	24	35
Old/Old Growth/Multi-aged	5	7	8	12	8	12	8	12
Total Acres:	69	100	69	100	69	100	69	100

Management Indicator Habitat (MIH)	2006 Devil Trout Existing Condition		Condition in 2014					
			Alternative 1		Alternative 2		Alternative 3	
	Acres	%*	Acres	%	Acres	%	Acres	%
MIH 10: Upland Mature Riparian Forest								
Young	96	5	93	4	153	7	218	10
Pole	435	21	633	30	632	30	632	30
Mature	601	29	253	12	244	12	200	10
Old/Old Growth/Multi-aged	962	45	1,110	54	1,060	51	1,040	50
Total Acres:	2,094	100	2,089	100	2,089	100	2,090	100

*Percentages may add to more than 100% due to rounding errors.

MIH 4: There would be a decrease in the total acres of the aspen birch and mixed aspen-conifer forest in MIH 4 when compared to the existing condition. The amount of young and pole size forest would increase in both Action Alternatives 2 and 3 due to harvest and the regeneration of treatments. The amount of mature and old/old growth forest would decrease under all alternatives due to harvest treatments and succession.

MIH 6: There would be an overall increase in total acres of spruce-fir forest in MIH 6. The amount of young and pole size forest would increase substantially under all alternatives due to harvest and regeneration of treatments. The amount of mature forest would decrease under all alternatives, while the amount of old/old growth forest would increase.

MIH 7: Overall, Alternative 2 would have the largest increase in red and white pine forest in MIH 7. Their would be similar increases in the amount of young and pole size forests under the Action Alternatives 2 and 3; as there would be similar decreases in the amount of mature and old/old growth forests under these two alternatives.

4. Maintain or improve habitat for threatened and endangered species and their prey.

Alternatives 2 and 3 would improve eagle nesting habitat by planting 149 acres of white pine within one quarter mile of fish-bearing lakes and streams over 20 acres in size for future nesting habitat. Alternatives 2 and 3 would also improve browse for moose and beaver, wolf prey species, by improving marsh and shrub-carr habitat and increasing young aspen browse. Alternative 2 would create about 1000 acres of moose browse and Alternative 3 would create about 2050 acres of moose browse. The potential competitive advantage of coyotes and bobcats compared to lynx would not change because road and snow-compacted trail densities would remain within 0.02 miles per square mile of existing conditions under all alternatives. Under no action, little would be done to improve the habitat for threatened and endangered species habitat.

5. Improve marsh and shrub habitat for wildlife

In Alternative 1, there would be no prescribed burning and an important disturbance regime, to which the wet meadow/carr ecosystem is adapted, would not occur. Shrubs would continue to age and decline, providing limited forage for moose and beaver. Sedges would continue to increase the thatch layer and the diversity of plant species would remain low.

Using prescribed fire in Alternatives 2 and 3 would return an important disturbance regime to the wet meadow/carr ecosystem. Approximately 88 acres of lowland brush and sedges on the edge of Northern Light Lake would be burned in both Alternatives 2 and 3. Only one to two of the proposed five areas would be burned in any year, providing cover throughout the year in remaining wet meadow/carr areas for wildlife. Burning will reduce thatch and stimulate sedge growth, increase the level of nutrients in young shrub stems, and increase plant species diversity.

6. Reduce hazardous fuels in urban interface areas and along the Gunflint Trail.

Under both action alternatives, reduction of hazardous fuels would occur. Alternative 3 meets the purpose and need of reducing hazardous fuels better than Alternative 2 because it treats more acres of high risk areas. Alternative 3 treats 908 acres additional acres of hazardous fuels than Alternative 2 (see table 2.14). Alternative 3 also treats more acres in the high fire hazard category than under alternative 2 (see table 2.15).

Alternative 3 treats areas in closer proximity to urban interface areas than alternative 2. Alternative 3 has treatments that are near the Devil's Track River, along the Gunflint Trail, northeast of Devil's Track Lake, and near Mink and Kimball Lakes. Alternative 2 only treats the areas along the Gunflint Trail and near Mink and Kimball Lakes.

Both alternatives treat some low fuel hazard and risk areas, thus preventing fuel accumulations from occurring in the near future. Both alternatives treat equal acres hazardous fuels within a wildland urban interface (WUI) area identified within the Cook County Community Wildfire Protection Plan, thus meeting the goals of that plan. Under no action, fuels would continue to accumulate throughout the project area.

Table 2.14 Acres of Hazardous Fuels Treated

Alt 1	Alt 2	Alt 3
0	1298	2206

Table 2.15 Percentage of Hazard Class Being Treated

	Alt 1	Alt 2		Alt 3	
Low	0%	2%	(393 acres)	3%	(503 acres)
Moderate	0%	19%	(928 acres)	24%	(1198 acres)
High	0%	7%	(370 acres)	20%	(1008 acres)

7. Improve and maintain condition class in the Mesic Birch/Aspen/Spruce/Fir LE by moving condition class 2 acres to condition class 1.

Both alternatives improve condition class across the Mesic Birch/Aspen/Spruce/Fir LE. Alternative 3 meets the goal of improving condition class within the LE better because it treats more acres of condition class 2 than alternative 2 (see table 2.17) Alternative 3 treats an additional 1017 acres of condition class 2 than alternative 2. Both alternatives treat some acres in condition class 1, which maintains those areas in condition class 1 and prevents them from moving into condition class 2 in the near future.

Table 2.16 Acres of Improved Condition Class

Alt 1	Alt 2	Alt 3
0	1691	2708

Table 2. 17 Acres of Condition Class Being Treated

	Alt 1	Alt 2	Alt 3
CC 1	0	259	259
CC 2	0	1432	2449
CC 3	0	0	0

Condition Class 1 (CC 1): Within historic conditions.
Condition Class 2 (CC 2): Moderately departed from historic conditions.
Condition Class 3 (CC 3): Severely departed from historic conditions

8. Reintroduce fire to red and white pine stands that are beyond their fire return interval.

Under both action alternatives, fire would be reintroduced to red and white pine stands that are beyond their fire return interval. Both alternative 2 and alternative 3 treat the same acres of red and white pine stands (234 acres) with prescribed fire. The 234 acres represents 41% of the red and white pine stands within the project area. Under no action, fire would continue to be absent in red and white pine stands in the project area beyond its normal fire return interval.

9. Control stocking density in red pine and white spruce plantations.

Alternatives 2 and 3 would control stocking density on approximately140 stand acres in red pine and white spruce plantations. In the short term, thinning would reduce the number of stems per acre and crown closure. The average diameter would remain the same or increase, since the largest trees would usually be retained. As a result of thinning operations, some understory trees and shrubs would be lost. However, increased sunlight reaching the forest floor would likely increase young tree and shrub regeneration.

Under no action, little would be done to control stocking density in red pine and white spruce plantations, the stand canopies would remain closed, limiting crown development

and understory sunlight. Growth rates would continue to decline and individual trees would die from the lack of adequate light, nutrients, and growing space.

By maintaining more optimal stocking conditions (for diameter growth) over time, the trees in those stands proposed for thinning would achieve larger dimensions in less time than they would in the No Action alternative. A diameter increase of two inches per decade would be a reasonable prediction. At that rate, 12 inch d.b.h. trees would increase to 20 inches in a period of forty years. To contrast, unthinned trees would probably grow at a rate of about 1 inch per decade and take eighty years to achieve similar dimensions (Lundgren, Allen L. 1981).

Thinning would shorten the time necessary to provide managers with the options involving large pine and spruce, whether for timber, aesthetics, wildlife, or seed source. The trees remaining to achieve largest size would eventually provide at least localized areas of the large pine and spruce component once more common on this landscape.

10. Provide timber products.

The No Action (Alternative 1) would not provide timber products from this area at this time. It does not preclude providing timber products in the future. Alternative 2 would provide approximately 7.8 MMBF and Alternative 3 would provide approximately 16.2 MMBF. Harvesting the timber stands proposed in an action alternative now offers immediate economic return to federal and local governments and to the timber industry. Harvesting in Alternative 2 or 3 would be a continuation of the economic returns from harvest similar to the return in the past 10 years in the project area. Further discussion of economic impacts is presented in Appendix E.

11. Maintain or enhance scenic quality along the Gunflint Trail and Trout Lake Road.

The Gunflint Trail, Trout Lake Road, lakes with recreation access, recreation trails, and the Kimball Lake campground are frequently visited areas in the project area where people come to enjoy the scenery. The Forest Plan identifies these areas as having High Scenic Integrity Objectives. Most of the stands included in the Devils Trout project are in decline (dead and dying) and do pose a threat to long term scenic quality in the area. There is a need to increase long lived species, create healthy forest and add variety to the landscape.

Under the No Action alternative (Alternative 1), there would be no planting or seeding in these declining forest stands. It is possible that these stands will, through natural succession, eventually regain the desired big-tree appearance containing a diversity of long-lived tree species. However, it will likely take much longer for the forest to regain this desired condition than under either of the action alternatives.

Under Alternative 2 and Alternative 3, harvest will occur in the stands mentioned above. Visitors will notice a reduction in the amount of mature trees, though many of the

harvests occurring in the project area will be "partial harvests" and will retain a certain amount of trees in the stand. These partial cuts, along with other harvest prescriptions which leave a higher density of trees adjacent to the road, will mitigate the short-term effects of associated with harvests and will maintain the short-term scenic quality in the area. The long-term scenic quality in the project area will improve as a result of the reforestation activities common to both of the action alternatives. Planting and seeding of desired species will occur after site preparation activities have created improved growing conditions. Future generations of visitors will enjoy views of a forest containing a diversity of long-lived species.

Under Alternative 3, harvest prescriptions along Pine Mountain Road will create large patches of young forest. As a result, it is likely that visitors will notice a decrease in the short-term scenic quality along this not-as-frequently traveled road. Standard management requirements and mitigation measures will serve to minimize the short term effects on views from the road and from the snowmobile trail.