

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Introduction

This chapter describes and compares the alternatives considered for the McCaslin Project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative (e.g., even-aged regeneration harvests vs. intermediate thinnings) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (e.g., the amount of fragmentation resulting from even-aged regeneration harvests vs. intermediate thinnings).

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2.2 Alternatives Considered in Detail

As a result of comments received from the public and Forest Service specialists, the Forest Service developed 5 alternatives, including the No Action (Alt. 1) and Proposed Action (Alt. 2).

The Proposed Action (Alternative 2) was developed by the Forest Service to move the area toward desired conditions identified in the Nicolet National Forest Plan. Other opportunities to improve fish and wildlife habitat and to increase public knowledge of heritage resources were also included in this proposal. The Forest Service submitted these proposals to interested members of the public and to other agencies for comment.

Interior Habitat Alternative: Some respondents were concerned the proposal would cause too much fragmentation of interior forest (Issue # 1.7.3). Alternative 3 was developed to achieve the purpose and need while reducing the changes to forest interior habitat. This alternative would favor longer-lived species. Roading would be reduced and wildlife opening maintenance would not occur. Design features that reduce effects to interior habitat, such as winter logging, would be increased.

Aspen Emphasis Alternative: Some respondents were concerned that aspen has been steadily declining in Wisconsin since the turn of the century (included in issue 1.7.1, Vegetation). Alternative 4 was developed to achieve the purpose and need while maintaining and enhancing aspen and other young forest types throughout the area. Under this alternative, aspen stands at rotation age would be widely regenerated. In some areas, to counteract the ongoing loss of aspen types through succession, stands of other types with an aspen component would be converted to aspen. In concert with this, existing wildlife openings would be maintained, and prescribed underburns would be included to maintain or enhance young forest conditions.

Hybrid Alternative: Alternative 5 was developed to address both the interior forest and aspen issues. Within the project area is a shift in landtype associations. The northern half of the project area is typified by finer-textured soils that currently support a larger proportion of northern hardwood forests in large blocks. The southern half of the area contains coarser soils and supports a larger variety of forest types in smaller patches. Because of this difference, some areas are better suited for interior forest and others for aspen forest. Therefore, in developing Alternative 5, the IDT tried to identify activities that would maintain or enhance the large block northern hardwood types to the north while looking for ways to maintain or enhance aspen or young forest conditions in consolidated areas within the southern portion of the area. Other vegetation and road management activities were identified that would be consistent with the general theme of this alternative.

Table 2-1 gives a quick comparison of alternative actions:

Table 2-1: Comparison of Alternative Actions					
	Alt. 1	Alt. 2 PFA	Alt. 3 Interior	Alt. 4 Aspen	Alt. 5 Hybrid
Tot. Acres Harvested	0	8,688	6,913	8,842	8,554
Tot. stands harvested	0	219	134	229	209
Acres selection harvest	0	4,686	4,989	3,788	4,706
Acres thinning	0	2,611	1,911	2,521	3,094
Acres clearcut	0	1,099	0	2,260	596
Acres overstory removal	0	231	0	215	117
Acres shelterwood	0	28	13	58	41
Estimated volume (MMBF)	0	42.8	28.6	49.1	39.4
Miles new system road	0	3.0	0	4.0	2.9
Miles existing road reconstructed	0	14.3	1.2	11.0	6.6
Miles of roads closed and kept on system	0	1.2	2.2	2.2	2.2
Miles of roads closed/ decommissioned	0	22.1	30.4	26.4	27.6
Acres of release work	0	314	314	314	314
Acres of oak underburn	0	119	0	119	119
Acres site grassland burning	0	53	18	53	53
Acres planted, seeded	0	374	288	159	276
Acres wildlife opening maintenance	0	188	0	188	128
Stream habitat improvement	No	Yes	Yes	Yes	Yes
Plant fruit shrubs	No	Yes	Yes	Yes	Yes
Archaeological Evaluation and Interpretation	No	Yes	Yes	Yes	Yes

Figure 2-1 gives a graphical comparison of the amount and type of timber harvest by alternative. “O.R.” and “SW” are abbreviations for overstory removal and shelterwood.

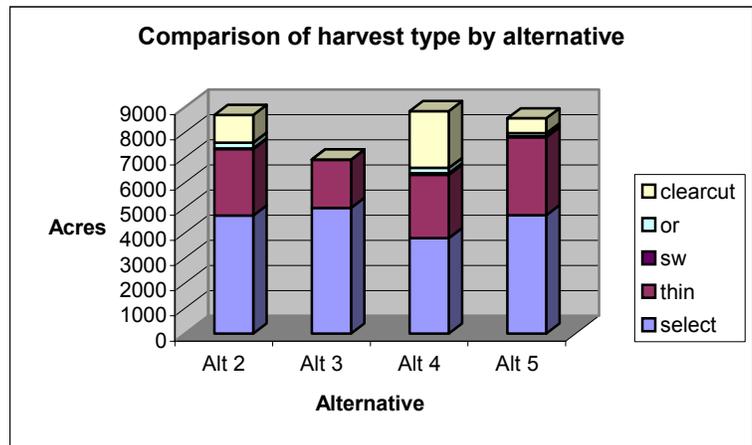


Figure 2-1: Comparison of Harvests by Alternative

Alternative 1

No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. None of the proposed actions, such as timber harvests, prescribed burns, planting, or roadwork (other than ongoing maintenance) would be implemented to accomplish project goals.

Alternative 2

The Proposed Action

Based on the opportunities and needs outlined in the Purpose and need for Action Section, the Forest Service proposes the following actions in the McCaslin Project Area (all amounts are approximate (+/- 10%)): Detailed maps and tables can be found in Appendices C and A at the end of this document.

Table 2-2: Alternative 2 Actions	
Timber Harvest (8,655 acres tentatively scheduled for 2003-2008)	
<ul style="list-style-type: none"> 4686 acres of selection harvests 2611 acres of thinning 1099 acres of clearcut harvests 	<ul style="list-style-type: none"> 231 acres of overstory removal harvests 28 acres of shelterwood harvests
Road Management (2003-2008)	
<ul style="list-style-type: none"> Construct 1.7 miles of Traffic Service Level C Roads. These are single lane roads that allow cautiously driven 2-wheel-drive passenger cars. Construct 1.3 miles of Traffic Service Level D Roads. These are lower standard single lane logging roads that generally require 4-wheel-drive vehicles. Reconstruct 12.3 miles to Traffic Service Level C standards. Reconstruct 2.0 miles to Traffic Service Level D standards. Reopen 6.0 miles of existing closed roads to access treatment areas. These are Traffic Service Level D roads that would be closed again following the activities. Close and reclassify approximately 1.2 miles of roads as Class 2 System Roads. This means that they would be kept closed, but reopened periodically (usually 10 year intervals) for management actions. Close and remove from the Chequamegon-Nicolet's classified road system approximately 22.1 miles of roads. These decommissioned roads would be rehabilitated and seeded (where needed), and permanently closed. There are other actions that would concurrently occur as a result of implementing the proposed actions identified above including trucks hauling logs, gravel, and heavy equipment over some of the roads in the project area. 	
Stand Tending and Reforestation (2003-2010)	
<ul style="list-style-type: none"> Hand release 314 acres of young plantations. Underburn, with low-intensity prescribed fire, 119 acres to reduce brushy competition in fire-tolerant stands. Prescribed burn 53 acres with moderate to high-intensity fire to encourage the regeneration of early successional fire-adapted species or maintain open conditions for composition objectives. Plant/seed 374 acres of white pine, white spruce, butternut and eastern hemlock in the understories of existing stands in 20 locations. Thin the overstory of 160 acres to provide favorable conditions for butternut and hemlock regeneration. Hemlock areas would be thinned to about 60% crown closure and butternut areas would be thinned to about 30% crown closure or would receive small canopy gaps (No hemlock or butternut would be cut in these areas unless they are at high risk of imminent death). Construct temporary fence on 111 acres (within the same overstory thinning areas as above) to provide protection of young butternut and hemlock regeneration from deer browsing. These fences would be removed when the trees outgrow browse height. 	
Erosion Control Work (2003-2008)	
<ul style="list-style-type: none"> Reconstruct, including erosion work, 50 feet of trail in the area of the dispersed campsite at Lincoln Lake. Reconstruct, including erosion work, 100 feet of trail in the area of the dispersed campsite at Knowles Dam. Stabilize 100 feet of bank on the North Branch of the Oconto River (south side of the Knowles Dam site). 	
Fish/Wildlife Habitat Maintenance and Improvement Projects (2003-2008)	
<ul style="list-style-type: none"> Fell 25 trees along the shorelines of Lincoln Lake and the North Branch of the Oconto River. Remove in-stream debris (½ mile), place brush bundles, logs, and deflectors (500 feet) in portions of the North Branch Oconto River, Knowles Creek, an unnamed tributary to Knowles Creek, and Mosquito Creek Construct osprey nesting platform in an existing snag located adjacent to Bluegill Creek Impoundment. Hand release 141 acres in 97 wildlife openings using brush cutters. Mow 31 acres in 26 wildlife openings. Burn 16 acres in 2 wildlife openings (included in the prescribed burning figures listed in Need #2). Plant native fruit-bearing shrubs in 7 acres of selected wildlife openings to enhance foraging opportunities. 	
Archaeological Evaluation and Interpretation Projects (2003-2013)	
<ul style="list-style-type: none"> Evaluate the 26 sites through low impact excavation and sampling strategies. Protect the 26 sites from project activities until evaluation is complete. Prepare and submit a nomination of eligibility for listing in the National Register of Historical Places (NRHP) to the State Historic Preservation Office sites for any of the 26 sites that appear to meet NRHP eligibility criteria. Construct interpretive signs, benches, and up to 50 feet of trail at the 4 sites. 	

Alternative 3

Interior Habitat Emphasis

Alternative 3 includes the following actions (all amounts are approximate (+/- 10%)). Detailed maps and tables can be found in Appendices C and A at the end of this document.

Table 2-3: Alternative 3 Actions
Timber Harvest (6,913 acres tentatively scheduled for 2003-2008)
<ul style="list-style-type: none"> • 4,989 acres of selection harvests • 1,911 acres of thinning • 13 acres of shelterwood harvests
Road Management (2003-2008)
<ul style="list-style-type: none"> • Reconstruct 0.6 miles to Traffic Service Level C standards. • Reconstruct 0.6 miles to Traffic Service Level D standards. • Reopen approximately 6.0 miles of existing closed roads to access treatment areas. These are Traffic Service Level D roads that would be closed again following the activities. • There are other actions that would concurrently occur as a result of implementing this alternative, including trucks hauling logs, gravel, and heavy equipment over some of the roads in the project area. • Close and reclassify 2.2 miles of roads as Class 2 System Roads. This means that they would be kept closed, but reopened periodically (usually 10 year intervals) for management actions. • Close and remove from the Chequamegon-Nicolet’s classified road system 30.4 miles of roads. These decommissioned roads would be rehabilitated and seeded (where needed), and permanently closed. • There are other actions that would concurrently occur as a result of implementing the proposed actions identified above including trucks hauling logs, gravel, and heavy equipment over some of the roads in the project area.
Stand Tending and Reforestation (2003-2010)
<ul style="list-style-type: none"> • Hand release 314 acres of young plantations. • Prescribed burn 18 acres with moderate to high-intensity fire to rejuvenate a permanent grassland near the Knowles Creek Impoundment. • Plant/seed 288 acres of white pine, white spruce, butternut and eastern hemlock in the understories of existing stands in 17 locations. • Thin the overstory of 160 acres to provide favorable conditions for butternut and hemlock regeneration. Hemlock areas would be thinned to about 60% crown closure and butternut areas would be thinned to about 30% crown closure or would receive small canopy gaps (No hemlock or butternut would be cut in these areas unless they are at high risk of imminent death). • Construct temporary fence on 111 acres (within the same overstory thinning areas as above) to provide protection of young butternut and hemlock regeneration from deer browsing. These fences would be removed when the trees outgrow browse height.
Erosion Control Work (2003-2008)
<ul style="list-style-type: none"> • Reconstruct, including erosion work, 50 feet of trail in the area of the dispersed campsite at Lincoln Lake. • Reconstruct, including erosion work, 100 feet of trail in the area of the dispersed campsite at Knowles Dam. • Stabilize 100 feet of bank on the North Branch of the Oconto River (south side of the Knowles Dam site).
Fish/Wildlife Habitat Maintenance and Improvement Projects (2003-2008)
<ul style="list-style-type: none"> • Fell 25 trees along the shorelines of Lincoln Lake and the North Branch of the Oconto River. • Remove in-stream debris (½ mile), place brush bundles, logs, and deflectors (500 feet) in portions of the North Branch Oconto River, Knowles Creek, an unnamed tributary to Knowles Creek, and Mosquito Creek • Construct osprey nesting platform in an existing snag located adjacent to Bluegill Creek Impoundment. • Plant native fruit-bearing shrubs in 7 acres of selected wildlife openings to enhance foraging opportunities.
Archaeological Evaluation and Interpretation Projects (2003-2013)
<ul style="list-style-type: none"> • Evaluate the 26 sites through low impact excavation and sampling strategies. • Protect the 26 sites from project activities until evaluation is complete. • Prepare and submit a nomination of eligibility for listing in the National Register of Historical Places (NRHP) to the State Historic Preservation Office sites for any of the 26 sites that appear to meet NRHP eligibility criteria. • Construct interpretive signs, benches, and up to 50 feet of trail at the 4 sites.

Alternative 4

Aspen emphasis

Alternative 4 includes the following actions (all amounts are approximate (+/- 10%)): Detailed maps and tables of proposed treatments can be found in Appendices C and A.

Table 2-4: Alternative 4 Actions
Timber Harvest (8,842 acres tentatively scheduled for 2003-2008)
<ul style="list-style-type: none"> • 3,788 acres of selection harvests • 2,521 acres of thinning • 2,260 acres of clearcut harvests • 215 acres of overstory removal harvests • 58 acres of shelterwood harvests
Road Management (2003-2008)
<ul style="list-style-type: none"> • Construct 1.7 miles of Traffic Service Level C Roads. These are single lane roads that allow cautiously driven 2-wheel-drive passenger cars. • Construct 2.3 miles of Traffic Service Level D Roads. These are lower standard single lane logging roads that generally require 4-wheel-drive vehicles. • Reconstruct 8.7 miles to Traffic Service Level C standards. • Reconstruct 2.3 miles to Traffic Service Level D standards. • Reopen 6.0 miles of existing closed roads to access treatment areas. These are Traffic Service Level D roads that would be closed again following the activities. • There are other actions that would concurrently occur as a result of implementing this alternative, including trucks hauling logs, gravel, and heavy equipment over some of the roads in the project area. • Close and reclassify 2.2 miles of roads as Class 2 System Roads. This means that they would be kept closed, but reopened periodically (usually 10 year intervals) for management actions. • Close and remove from the Chequamegon-Nicolet’s classified road system 26.4 miles of roads. These decommissioned roads would be rehabilitated and seeded (where needed), and permanently closed.
Stand Tending and Reforestation (2003-2010)
<ul style="list-style-type: none"> • Hand release 314 acres of young plantations. • Underburn, with low-intensity prescribed fire, about 119 acres to reduce brushy competition in fire-tolerant stands. • Prescribed burn 53 acres with moderate to high-intensity fire to rejuvenate a permanent grassland near the Knowles Creek Impoundment. • Plant/seed 159 acres of white pine, white spruce, butternut and eastern hemlock in the understories of existing stands in 14 locations. • Thin the overstory of 160 acres to provide favorable conditions for butternut and hemlock regeneration. Hemlock areas would be thinned to about 60% crown closure and butternut areas would be thinned to about 30% crown closure or would receive small canopy gaps (No hemlock or butternut would be cut in these areas unless they are at high risk of imminent death). • Construct temporary fence on 111 acres (within the same overstory thinning areas as above) to provide protection of young butternut and hemlock regeneration from deer browsing. These fences would be removed when the trees outgrow browse height.
Erosion Control Work (2003-2008)
<ul style="list-style-type: none"> • Reconstruct, including erosion work, 50 feet of trail in the area of the dispersed campsite at Lincoln Lake. • Reconstruct, including erosion work, 100 feet of trail in the area of the dispersed campsite at Knowles Dam. • Stabilize 100 feet of bank on the North Branch of the Oconto River (south side of the Knowles Dam site).
Fish/Wildlife Habitat Maintenance and Improvement Projects (2003-2008)
<ul style="list-style-type: none"> • Fell 25 trees along the shorelines of Lincoln Lake and the North Branch of the Oconto River. • Remove in-stream debris (½ mile), place brush bundles, logs, and deflectors (500 feet) in portions of the North Branch Oconto River, Knowles Creek, an unnamed tributary to Knowles Creek, and Mosquito Creek • Construct osprey nesting platform in an existing snag located adjacent to Bluegill Creek Impoundment. • Hand release 141 acres in 97 wildlife openings using brush cutters. • Mow 31 acres in 26 wildlife openings. • Burn 16 acres in 2 wildlife openings (included in the prescribed burning figures above). • Plant native fruit-bearing shrubs in 7 acres of selected wildlife openings to enhance foraging opportunities.
Archaeological Evaluation and Interpretation Projects (2003-2013)
<ul style="list-style-type: none"> • Evaluate the 26 sites through low impact excavation and sampling strategies. • Protect the 26 sites from project activities until evaluation is complete. • Prepare and submit a nomination of eligibility for listing in the National Register of Historical Places (NRHP) to the State Historic Preservation Office sites for any of the 26 sites that appear to meet NRHP eligibility criteria. • Construct interpretive signs, benches, and up to 50 feet of trail at the 4 sites.

Alternative 5

Hybrid Alternative (Interior and Aspen Emphasis)

Alternative 5 includes the following actions (all amounts are approximate (+/- 10%)): Detailed maps and tables of proposed treatments can be found in Appendices C and A.

Table 2-5: Alternative 5 Actions	
Timber Harvest (8,554) acres tentatively scheduled for 2003-2008	
<ul style="list-style-type: none"> 4,706 acres of selection harvests 3,094 acres of thinning 596 acres of clearcut harvests 	<ul style="list-style-type: none"> 117 acres of overstory removal harvests 41 acres of shelterwood harvests
Road Management (2003-2008)	
<ul style="list-style-type: none"> Construct 0.5 miles of Traffic Service Level C Roads. These are single lane roads that allow cautiously driven 2-wheel-drive passenger cars. Construct 2.4 miles of Traffic Service Level D Roads. These are lower standard single lane logging roads that generally require 4-wheel-drive vehicles. Reconstruct 1.8 miles to Traffic Service Level C standards. Reconstruct 4.8 miles to Traffic Service Level D standards. Reopen 6.0 miles of existing closed roads to access treatment areas. These are Traffic Service Level D roads that would be closed again following the activities. Close and reclassify 2.2 miles of roads as Class 2 System Roads. This means that they would be kept closed, but reopened periodically (usually 10 year intervals) for management actions. Close and remove from the Chequamegon-Nicolet's classified road system 26.4 miles of roads. These decommissioned roads would be rehabilitated and seeded (where needed), and permanently closed. There are other actions that would concurrently occur as a result of implementing this alternative, including trucks hauling logs, gravel, and heavy equipment over some of the roads in the project area. 	
Stand Tending and Reforestation (2003-2010)	
<ul style="list-style-type: none"> Hand release 314 acres of young plantations. Underburn, with low-intensity prescribed fire, about 119 acres to reduce brushy competition in fire-tolerant stands. Prescribed burn 53 acres with moderate to high-intensity fire to rejuvenate a permanent grassland near the Knowles Creek Impoundment. Plant/seed 276 acres of white pine, white spruce, butternut and eastern hemlock in the understories of existing stands in 17 locations. Thin the overstory of 160 acres to provide favorable conditions for butternut and hemlock regeneration. Hemlock areas would be thinned to about 60% crown closure and butternut areas would be thinned to about 30% crown closure or would receive small canopy gaps (No hemlock or butternut would be cut in these areas unless they are at high risk of imminent death). Construct temporary fence on 111 acres (within the same overstory thinning areas as above) to provide protection of young butternut and hemlock regeneration from deer browsing. These fences would be removed when the trees outgrow browse height. 	
Erosion Control Work (2003-2008)	
<ul style="list-style-type: none"> Reconstruct, including erosion work, 50 feet of trail in the area of the dispersed campsite at Lincoln Lake. Reconstruct, including erosion work, 100 feet of trail in the area of the dispersed campsite at Knowles Dam. Stabilize 100 feet of bank on the North Branch of the Oconto River (south side of the Knowles Dam site). 	
Fish/Wildlife Habitat Maintenance and Improvement Projects (2003-2008)	
<ul style="list-style-type: none"> Fell 25 trees along the shorelines of Lincoln Lake and the North Branch of the Oconto River. Remove in-stream debris (½ mile), place brush bundles, logs, and deflectors (500 feet) in portions of the North Branch Oconto River, Knowles Creek, an unnamed tributary to Knowles Creek, and Mosquito Creek Construct osprey nesting platform in an existing snag located adjacent to Bluegill Creek Impoundment. Hand release 81 acres in 97 wildlife openings using brush cutters. Mow 31 acres in 26 wildlife openings. Burn 16 acres in 2 wildlife openings (included in the prescribed burning figures listed in Need #2). Plant native fruit-bearing shrubs in 7 acres of selected wildlife openings to enhance foraging opportunities. 	
Archaeological Evaluation and Interpretation Projects (2003-2013)	
<ul style="list-style-type: none"> Evaluate the 26 sites through low impact excavation and sampling strategies. Protect the 26 sites from project activities until evaluation is complete. Prepare and submit a nomination of eligibility for listing in the National Register of Historical Places (NRHP) to the State Historic Preservation Office sites for any of the 26 sites that appear to meet NRHP eligibility criteria. Construct interpretive signs, benches, and up to 50 feet of trail at the 4 sites. 	

2.3 Mitigation Measures and Design Features

Responding to concerns about potential resource impacts, the Forest Service developed the following mitigation measures and design features to be used as part of the action alternatives. Some of these mitigation measures, such as timing restrictions to protect rare and endangered species or buffer areas to protect heritage resources, would only be implemented in specific areas where the Forest Service has identified a known presence. However, specific locations of such mitigation measures are not listed in the Appendix A tables. This is to protect the sites from illegal poaching, which is an ongoing concern on the forest.

Protection of Soil and Water Quality

- A. Avoid skidding on slopes with gradients greater than 30 percent. This would be limited in sale layout and design and further controlled in timber sale administration.
- B. Limit heavy equipment operations during excessively wet weather. Harvesting equipment will be used during conditions when soils are not saturated. Timber sale administrators will monitor soil conditions through inspections. Do not operate wheeled or tracked harvesting equipment within 50 feet of the ordinary high water mark of streams and lakes, except on roads or at stream crossings. This would be overseen primarily by the Timber Sale Administrator and would prevent detrimental compaction and soil movement.
- C. All exposed mineral soil from timber sale, road construction and road reconstruction activities will be revegetated, naturally or artificially, within two growing seasons, to establish ground cover that prevents soil erosion. If artificial revegetation is needed, a pre-approved, weed-free mix would be used.
- D. Designate the location of water diversion structures for constructed trails, roads, landings, skid trails, and wildlife openings when it is determined that erosive water runoff may take place. Utilize erosion control practices outlined in the Soil and Water Conservation Handbook (FSH 2509.22, and Wisconsin's Forestry Best Management Practices for Water Quality, (Pub. Number FR093, WDNR). This would be done by the Timber Sale Administrator and would prevent erosion and sedimentation.
- E. Erosion prevention structures for trails, roads, skid trails, and other disturbed areas would be constructed during the same growing season with mulching and seeding where necessary (see p.34, Wisconsin BMP's). This would be overseen primarily by the Timber Sale Administrator and would prevent soil loss and sedimentation.
- F. If road construction across a wetland area is necessary, the requirements listed on page 49 of the State BMP publication would be utilized to minimize impacts to water quality and wetland vegetation. This would be overseen primarily by an Engineering representative and would prevent or minimize impacts to wetlands.

Protection of sensitive plants

- G. Ground-disturbing activities will not occur within 250 feet of known locations of the following plant species: goblin fern (*Botrychium mormo*), blunt-lobed grapefern (*Botrychium oneidense*), Mingan's moonwort (*Botrychium minganense*) and Braun's Holly Fern (*Polystichum braunii*) plants, would not occur within 250 feet. The extent of *B. mormo* populations will be determined by a Botanist, Biologist, Ecologist, or other qualified observers (technicians or contractors) designated by a Botanist, Biologist, or Ecologist.
- H. In suitable habitat that extends beyond a 250 feet from a goblin fern (*B. mormo*), blunt-lobed grapefern (*Botrychium oneidense*), Mingan's moonwort (*Botrychium minganense*) or Braun's holly fern (*Polystichum braunii*) population, site disturbing activities would occur only during frozen

ground conditions, and a minimum canopy closure of 70% would be maintained. The extent of suitable habitat would be identified by a botanist, biologist, ecologist, or another qualified observer.

Conservation of sensitive tree species

- I. To conserve potentially disease-resistant butternut trees, the following guidelines would be used: 1) Trees with more than 70% live crown and with less than 20% circumference of the stem and root flares affected by butternut canker would be retained; 2) Dead or declining trees may be salvaged or retained for wildlife values (depending on condition of wood); 3) Butternut trees free of cankers with at least 50% live crown that are growing among diseased trees would be retained. These trees may be canker resistant and have value for propagation by grafting or for future breeding.
- J. To protect future seed sources of American elms, this species would not be marked for harvest except for skidding, access, or safety reasons.
- K. To protect hemlock as important seed sources, no mature hemlock would be identified for harvest, except for skidding, access, or safety reasons. This would be implemented during sale layout and design, as well as during timber sale administration.
- L. In stands where yellow birch is a minor component, harvest guidelines would be established to protect or enhance the development of this species. Thinnings in mixed hardwood stands would be designed to reduce competition to yellow birch from more dominant hardwoods. This would be implemented during sale layout and design, as well as during timber sale administration.

Protection of Threatened, Endangered or Sensitive Bird Species

- M. Bald eagle breeding areas will be managed and protected utilizing the following direction in the Northern States Bald Eagle Recovery Plan (1983): (1) from 0 to 330 feet from the nest tree, all land use activities will be excluded except those necessary to protect nest sites; (2) from 330 to 660 feet from the nest tree, land use activities will be permitted when there will be no significant changes to the landscape. Activities such as intermediate harvest, rehabilitation of permanent openings, and pruning may occur from August 1 to February 15. Clearcutting, land clearing, and construction activities will not be permitted in this area. Specific management activities may be initiated in this zone to ensure the continued presence of nest and roost trees, e.g., planting white pine and maintaining existing subcanopy white pine; and (3) from 660 to 1320 feet from the nest tree, site disturbing land use activities will not be permitted from February 15 to August 1 (when justified, this zone may be extended beyond 1320 feet).
- N. Active and historic red-shouldered hawk or goshawk nest sites would be buffered with a minimum size of 20 acres. This area may be larger to retain territory productivity and to include adjacent historic territories in high quality habitat. All land use activities will be excluded except those necessary to protect active and/or historic nest sites for as long as the stand is suitable habitat. Harvest treatments in the adjacent area would maintain 80% crown cover and no clearcuts would take place within 300 feet of nest sites.
- O. Activities within designated red-shouldered hawk or goshawk territories would be minimized between February 15 and August 1. No timber harvest operations would take place in these areas during this time.
- P. To avoid impacts to nesting loons, no timber harvest activities would take place between March 15 and August 1 in areas that have known nesting activity.
- Q. To avoid impacts to nesting ospreys, the following measures would be used: 1) All land use activities will be excluded from 0 to 330 feet from active osprey nests; 2) Land use activities which make no significant change in the landscape will be permitted within the 330 to 660 foot zone around an osprey nest. Activities such as thinning, permanent opening maintenance, and pruning, may occur from August 1 to March 15. Clearcutting, land clearing, and construction

activities will not be permitted within this zone; 3) Site disturbing land use activities will not be permitted within a zone 660 to 1320 feet from osprey nest from an March 15 to August 1; 4) Between March 15 and August 1, Forest Service roads and trails within 1320 feet of a nest site will normally be closed to vehicular traffic (or relocated). This requirement may be waived if no feasible alternatives exist and use can be justified.

Protection of Cultural and Heritage Values

- R. The following measures would be used to protect heritage resource sites: 1) No timber harvesting or road construction would be allowed on any known cultural resource site. Existing roads through a site may be used, but no additional soil disturbance beyond the edge of the existing road would be allowed. This would be monitored through the heritage resource paraprofessional and through sale administration. No sites would be used as landings for harvested timber or for storage of equipment or machinery used in harvesting unless approved by the Forest Archaeologist. No equipment used in reforestation would be allowed on the sites.
- S. Harvest operations would post signs alerting recreationists of logging activities. This would be included in the timber sale contract and ensured during implementation by the Timber Sale Administrator.
- T. Log landing, main skid trails, and temporary road locations would be approved by the Timber Sale Administrator to prevent impacts on soils, heritage resources and other sensitive sites.
- U. Reserve all snags unless they pose a safety concern. To ensure public safety, prescriptions should not exceed 10 snags per acre. The largest snags are the most desirable for retention.

In addition to the mitigation measures and design features common to all action alternatives, a number of additional stand-specific mitigation measures were identified. These are listed below and are included in the stand treatment tables, which can be found in Appendix A.

- V. To avoid rutting and compaction impacts to soils, harvesting activities would be restricted to frozen ground conditions during the winter or during the dry season when soils are not saturated. This would be included as part of the timber sale contract and enforced by the Timber Sale Administrator.
- W. To avoid rutting and compaction impacts to soils, harvesting activities would be restricted to frozen ground conditions. This would be included as part of the timber sale contract and enforced by the Timber Sale Administrator.
- X. Slash, including tops, branches and unmerchantable material would be left in place to maintain long-term soil nutrient status in clearcut harvests located on Vilas Sand ecological land types. A Timber Sale Administrator would monitor slash treatments through regular sale inspections.
- Y. At a minimum, Wisconsin Best Management Practices for Riparian Management Zones (RMZs) (pp. 18-20, Pub. Number FR093, WDNR) would be implemented in treatment areas that are adjacent to lakes or streams. These practices are as follows: **A) For Lakes and Navigable Perennial Streams**, in which the RMZ is a strip of land beginning at the ordinary high-water mark and extending a minimum of 100 feet landward: 1) No wheeled or tracked harvesting equipment would be allowed within 50 feet of the ordinary high-water mark except on roads or at stream crossings; 2) Selective harvesting (if any harvesting) would be used within the RMZ to promote long-lived tree species; 3) Harvesting within the RMZ would leave at least 60 square feet of basal area in trees 5 inches DBH (diameter at breast height) and larger, evenly spaced (an emphasis would be placed on developing trees 12 inches DBH and larger in these areas). **B) For Navigable Intermittent Streams**, in which the RMZ is a strip of land beginning at the ordinary high water mark and extending a minimum of 35 feet landward: 1) Wheeled or tracked harvesting equipment would be allowed within 15 feet of the ordinary high-water mark only when the ground is frozen or dry; 2) Selective harvesting (if any harvesting) would be used within the RMZ to promote long-

lived tree species; 3) Harvesting within the RMZ would leave at least 60 square feet of basal area in trees 5 inches DBH (diameter at breast height) and larger, evenly spaced. **C) For Non-Navigable Streams**, in which the RMZ is a strip of land beginning at the ordinary high water mark and extending a minimum of 35 feet landward: 1) Wheeled or tracked harvesting equipment would be allowed within 15 feet of the ordinary high-water mark only when the ground is frozen or dry.

These measures would be applied to the stands as listed in the tables found in Appendix A and also to any additional riparian areas that might be identified during project implementation.

- Z. On north and east sides of specified upland stands, maintain at least 90 ft²/acre of basal area within 66 feet of adjacent conifer lowlands to prevent moisture shock to sensitive plants. This would be done during sale layout and design.
- AA. On some portions of the snowmobile trails, timber hauling would occur. Harvesting operations could change the traditional use of the trail for snowmobiling on a temporary basis. Restrictions would be placed on harvest operations to not allow timber hauling from Friday noon until Sunday at midnight and also no hauling between Christmas Day and New Year's Day to reduce dual use of the trails during heavy snowmobile use periods. Trails with logging truck caution signs would be posted where simultaneous trail/road use by snowmobiles and logging trucks cannot be avoided. Snowmobile clubs and timber sale operators would be reminded about safety. This would be included in the timber sale contract and ensured during implementation by the Timber Sale Administrator.
- BB. To protect snow conditions and maintain sufficient shade along snowmobile trails, some trees would be retained on the south and west sides of specified stands for a distance of at least one tree length from the trails.
- CC. Minimize simultaneous (unsafe) use of snowmobile trails by snowmobiles and logging trucks. Where possible, emphasize harvesting and hauling during snow-free periods when soil conditions are not wet or temporarily reroute the trail or logging road.
- DD. Remove slash and debris from the trail clearing (5 feet from the edge of the trail) as timber sale operations proceed.
- EE. The decking of logs along inside snowmobile trail curves would be prohibited. This would prevent safer operating conditions for snowmobilers where visibility could be obscured by log decks.
- FF. Satisfactory trail conditions would be maintained by requiring timber sale operators to retain at least 4 inches of packed snow on the trail surface when plowing snow for logging truck use.
- GG. Timber harvesting adjacent to retention travel routes and use areas would require the following mitigation measures: 1) Insure that timber harvesting activities are not readily visible from Highways 32 and Oconto County F, thorough slash treatment, and sufficient number of reserve trees and reserve islands would help meet this requirement; 2) Remove logging slash for a distance of 10 feet from the edge of the road clearing. Lop and scatter logging slash to within two feet of the ground for 90 feet beyond the removal zone; 3) Insure that roadside ditches and other disturbed areas are revegetated (naturally or artificially) as soon as possible after use. This would be laid out during timber sale design, included in the timber sale contract, and ensured during implementation by the Timber Sale Administrator.
- HH. Timber harvesting adjacent to partial retention travel routes and use areas would require the following mitigation measures: 1) Lop and scatter logging slash to within two feet of the ground for a distance of 100 feet from road clearing; 2) Insure that roadside ditches and other disturbed areas are revegetated (naturally or artificially) as soon as possible after use. This would be included in the timber sale contract and ensured during implementation by the Timber Sale Administrator to reduce visual impacts.

- II. Proposed road construction and reconstruction, located within Modification visual quality objective areas, would require the following mitigation measures: 1) All stumps would be scattered outside the road clearing limits; 2) Minimize road construction visual quality impacts when locating new roads within modification areas by the use of an irregular layout which avoids straight line views; 3) Utilize appropriate slash disposal and seeding measures for road construction and reconstruction within modification areas. This would be included in the timber sale contract and ensured during implementation by the Timber Sale Administrator to reduce visual impacts.
- JJ. To allow for better visibility and safety during harvest operations, 100-200 foot temporary back-in spurs would be constructed in specified locations along local roads.
- KK. Within clearcuts and overstory removal cuts, reserve groups of trees 1/8 to one acre for clearcuts, and 1/2 acres for overstory removal cuts, at the rate of one group for every ten acres cut. Where groups aren't practical, individual reserve trees may be left in accordance with Nicolet Forest Plan Supplement 18. Reserve trees would be located by timber sale layout and marking crews.
- LL. To reduce fragmentation effects caused by road activities, the following design features would be included: 1) Where possible, reduce road densities through closure, decommissioning, or obliteration; 2) Maintain roads at the lowest standard needed for access and maintain minimum clearance width for projected traffic use; 3) Where possible, maintain a closed or nearly closed canopy over the road corridor; 4) Minimize soil disturbance during road construction, reconstruction, or maintenance; 5) Maintain or restore natural hydrologic conditions along roadways.

2.4 Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of the purpose and need of this project, duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

Emphasize conversions of white pine, white spruce, red pine, and red oak

A review of the McCaslin Area revealed that there were considerable differences between the Desired Future Conditions (DFC's) and existing conditions of these types in certain Management Areas (MA's). Actions to convert stands and move the area towards these specific DFC's were considered, but eliminated from detailed study for the following reasons: 1) When viewed at larger scales, existing conditions for many of these types were fairly close to DFC's. Parts of the McCaslin Area contain concentrations of spruce and pine plantations that are not representative of the rest of the Lakewood/Laona District. Where District-wide conditions are more similar to the DFC's, there is less of a need to convert these specific areas; 2) Some of the MA's of concern are relatively small areas in which the presence of or lack of a plantation skews the current composition percentages; 3) Large investments of money and labor were made to establish these plantations. Only now are they beginning to produce the intended outputs of wood fiber. To harvest the stands before they reach economic maturity and labor-intensively convert them to other desired types wasn't seen as fiscally prudent. By deferring the conversions until after economic maturity, we could later move toward the DFCs while realizing the return on investment.

No harvest restoration-only alternative

One respondent requested that the Forest Service consider an alternative with a restoration emphasis that does not include commercial timber harvest. This alternative is not being analyzed in detail because it does not meet the scope of the Purpose and Need identified in Chapter 1 (see section 1.3). One of the key purposes of the project is to use timber sales as the primary method for making desired changes to forest vegetation. While the Forest Service could develop an alternative that includes only such activities as planting, riparian

restoration, and prescribed burning, it would be at an unreasonable cost and effort and would not meet this key purpose of the project (stated in section 1.3). Wherever reasonable, achieving the purpose and need without timber harvest is incorporated into all action alternatives analyzed in detail.

Ban commercial logging on National Forests.

One respondent asked the Forest Service to consider an alternative that would manage the area in accordance with HR 1396, the National Forest Protection and Restoration Act, which is a bill in Congress that would end commercial timber harvest on the National Forests. The Forest Service, the Chequamegon-Nicolet National Forest, and the Lakewood-Laona Ranger Districts continue to provide multiple use management of natural resources, including recreation, water, timber, wildlife and forage in accordance with existing laws and management direction. Actions taken in this area must be consistent with the Nicolet Forest Plan and other laws and direction governing the management of National Forest System lands. This EIS presents a range of alternatives that meets the purpose and need statements and the desired future conditions set forth in the Nicolet National Forest Plan. Changing national policy and direction is outside the scope of this proposal. Finally, the No Action Alternative is also partially responsive since it wouldn't include any commercial timber harvesting.

No logging activities; let private lands provide timber.

Alternative 1 would result in similar effects as a "no harvest alternative". However, a "no harvest alternative" would not meet the purpose and need for action for this project since it would not fulfill the need to use timber sales as the primary method for making desired changes to the forest vegetation.

No logging; Use reusable and recycled pallets.

Alternative 1 would result in similar effects as a "no harvest alternative", but the Forest Service has no control over the use of reusable and recycled pallets and so this would not be a reasonable alternative.

Ban all exports of wood fiber from eastern National Forests.

Current laws and policy allow the export of wood from eastern National Forests. This project is limited to proposals of land management activities within the McCaslin project area on the Chequamegon-Nicolet National Forest. These proposals must adhere to current laws, policies, and management direction. Changing that direction is a much larger issue and would not be within the purpose and need for the McCaslin Project.

Increase use of recycled paper

As an agency, we try to use more recycled paper, but this, in itself, would not meet the land management direction or the purpose of and need for action in the McCaslin area.

2.5 Comparison of Alternatives

The following tables provide a concise summary of the effects that would result from the implementation of each alternative.

Table 2.5-1 Summary of Forest Stocking and Diversity Objectives by Alternative

Objective	Indicator	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Reduce crowding in stands/	Acres thinning	0	2,644	1,911	2,521	3,094
Increase diversity in hardwood stands	Acres selection harvest	0	4,686	4,989	3,788	4,706
	Acres underplanting/natural seeding	0	374	288	159	276

Tables 2.5-2 through 2.5.4 Summary of Forest Composition Outcomes by Alternative

Table 2.5-2: Desired Future Conditions, Existing Conditions, and outcomes for MA 1.1/1.2: Mixed forests with a large aspen component (4638 acres)

Vegetative Type	Lakewood Portion (values in percentages)						
	DFC	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Hardwoods	13	12.4	12.4	14.8	12.4	10.0	13.2
White Birch	8	7.8	7.8	4.7	7.8	6.9	6.0
Aspen	63	48.3	48.3	49.1	48.3	52.2	49.4
Vegetative Type	Laona Portion (values in percentages)						
	DFC	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
White Spruce	1	18.4	18.4	18.4	18.4	15.0	18.4
Hardwoods	37	27.7	27.7	27.7	29.8	24.5	37.2
Aspen	52	48.6	48.6	48.6	46.4	55.2	39.1

Table 2.5-3: Desired Future Conditions, Existing Conditions, and outcomes for MA 3.1/3.2: Even-aged hardwood forests managed for large sawtimber (13,945 acres)

Vegetative Type	Lakewood Portion (values in percentages)						
	DFC	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Hardwoods	32	29.4	29.4	31.6	30.2	25.6	30.6
White Birch	4	3.0	3.0	1.7	3.0	2.7	2.7
Aspen	28	49.4	49.4	49.1	48.6	54.1	49.2
Vegetative Type	Laona Portion (values in percentages)						
	DFC	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
White Spruce	8	33.4	33.4	33.4	33.4	28.6	33.4
Hardwoods	23	21.9	21.9	21.9	22.9	15.5	22.9
Aspen	20	32.6	32.6	32.6	31.6	43.8	31.6

Table 2.5-4: Desired Future Conditions, Existing Conditions, and outcomes for MA 4.1/4.2: Upland softwood forest managed for pulpwood and sawtimber (2,954 acres)

Vegetative Type	Laona Portion (values in percentages)						
	DFC	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
White Spruce	2	2.1	2.1	2.1	2.1	3.4	2.1
Hardwoods	53	66.0	66.0	66.2	67.2	61.5	68.7
Aspen	29	23.6	23.6	23.4	22.4	26.8	20.9

Table 2.5-5: Aspen Age Class Distribution by Alternative

	0-10 Year Age Class	11-20 Year Age Class	21-30 Year Age Class	31-40 Year Age Class	41+ Year Age Class
Recommended %	20	21	19	17	23
Existing %	6	18	19	29	28
Alternative 1 %	1	16	21	32	31
Alternative 2 %	17	16	21	32	14
Alternative 3 %	1	16	22	32	29
Alternative 4 %	30	14	19	28	9
Alternative 5 %	10	16	22	33	19

Table 2.5-6: Comparison of Outcomes for Wildlife and Fisheries Resources by Alternative

Objective	Indicator	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Maintain Species Viability	TES Key Findings	No impacts	No impacts on any Federally-listed species			
	RFSS Key findings	No impacts	Possible impacts to individuals, but unlikely to cause trend for Federal Listing: <ul style="list-style-type: none"> Goshawk Red shouldered hawk Swainson’s thrush Cerulean warbler Goblin fern Blunt-lobed grape fern American ginseng Beneficial impact to butternut.	Possible impacts to individuals, but unlikely to cause trend for Federal Listing: <ul style="list-style-type: none"> Goshawk Red shouldered hawk Swainson’s thrush Cerulean warbler Goblin fern Blunt-lobed grape fern American ginseng Beneficial impact to butternut.	Possible impacts to individuals, but unlikely to cause trend for Federal Listing: <ul style="list-style-type: none"> Goshawk Red shouldered hawk Swainson’s thrush Cerulean warbler Goblin fern Blunt-lobed grape fern American ginseng Beneficial impact to butternut.	Possible impacts to individuals, but unlikely to cause trend for Federal Listing: <ul style="list-style-type: none"> Goshawk Red shouldered hawk Swainson’s thrush Cerulean warbler Goblin fern Blunt-lobed grape fern American ginseng Beneficial impact to butternut.
Maintain existing wildlife openings	Acres / number of features	0	<ul style="list-style-type: none"> 188 acres upland openings maintained 1 osprey platform 7 acres shrub planting 	<ul style="list-style-type: none"> 0 acres upland openings maintained 1 osprey platform 7 acres shrub planting 	<ul style="list-style-type: none"> 188 acres upland openings maintained 1 osprey platform 7 acres shrub planting 	<ul style="list-style-type: none"> 128 acres upland openings maintained 1 osprey platform 7 acres shrub planting
Improve aquatic structure in selected lakes and streams	structures	0	<ul style="list-style-type: none"> 25 tree drops ½ mile debris removal 500 feet brush bundles, logs 	<ul style="list-style-type: none"> 25 tree drops ½ mile debris removal 500 feet brush bundles, logs 	<ul style="list-style-type: none"> 25 tree drops ½ mile debris removal 500 feet brush bundles, logs 	<ul style="list-style-type: none"> 25 tree drops ½ mile debris removal 500 feet brush bundles, logs

Table 2.5-7: Ranking of comparison between selected population estimates by Alternative

Species	Alt 1		Alt 2		Alt 3		Alt 4		Alt 5	
	Ranking Population	% Change								
Barred owl	1*	14.3	2*	7.7	2*	7.7	2*	7.7	1*	14.3
Blackburnian warbler	1	14.5	4	8.0	2	11.5	5	1.3	3	9.8
Black-throated green warbler	1	17.1	4	11.4	2	14.3	5	5.6	3	14.1
Common Raven	1*	3.2	3	0.6	1*	3.2	4	0.0	2	2.2
Chestnut sided warbler	5	(-18.2)	2	(-17.3)	4	(-18.0)	1	(-16.3)	3	(-17.7)
Ovenbird	5	(-2.2)	4	1.8	1	2.4	3	2.0	2	2.1
Pine warbler	1	21.4	2	(-2.4)	5	(-9.2)	3	(-2.9)	4	(-6.0)
Pileated woodpecker	1	7.5	2*	5.1	2*	5.1	3	0.7	2*	5.1
Red-eyed vireo	1	6.3	4	3.7	2	6.1	5	2.4	3	4.9
Scarlet Tanager	4	(-3.7)	2	(-2.6)	3	(-3.2)	1	(-1.8)	2	(-2.6)
Golden-winged warbler	1*	4.7	4	(-78.7)	1*	4.7	3	(-6.7)	2	1.0

* = same value as another alternative

ND = no difference between alternatives

% change = percent change from current conditions

Table 2.5-8 Ranking Comparison of Selected MIS habitat acres by Alternative

Species	Alt 1		Alt 2		Alt 3		Alt 4		Alt 5	
	Ranking Habitat Acres	% Change								
Barred owl	1	11.3	3	8.4	2*	8.5	4	4.0	2*	8.5
Blackburnian warbler	1	28.6	4	19.1	2	26.9	3	11.9	3	23.3
Black-throated green warbler	1	28.0	5	19.2	2	26.4	4	12.9	3	23.2
Common Raven	1	0.5	4	0.3	3	0.4	4	0.3	2	0.4
Chestnut sided warbler	ND	0.0								
Ovenbird	1*	0.9	1*	0.9	1*	0.9	2	0.7	1*	0.9
Pine warbler	3	(-4.9)	2	(-4.5)	5	(-15.1)	1	(-4.6)	4	(-9.8)
Pileated woodpecker	1	5.9	3	4.1	2	4.1	4	1.4	2	4.1
Red-eyed vireo	ND	0.0								
Scarlet Tanager	ND	0.0								
Golden-winged warbler	ND	0.0								

Table 2.5-10 Landscape Pattern Indicators

Indicator	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Acres Interior Habitat	13,974	12,737	13,967	11,900	13,579
Acres edge-affected habitat	20,685	21,922	20,693	22,760	21,081
Miles of edge	854.6	869.2	857.2	851.1	845.5

Table 2.5-11: Road Management Indicators

Objective	Indicator	Alt 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Provide needed access for harvest actions	Miles new system road	0	3.0	0	2.9	2.2
	Miles existing road reconstructed	0	14.3	1.2	11.0	6.6
Close and maintain needed low-use roads for long-term access	Miles of roads closed and kept on system	0	1.2	2.2	2.2	2.2
Close roads no longer needed for access or management	Miles of roads closed/ decommissioned	0	22.3	30.8	26.7	27.9

Table 2.5-12: Existing and Resulting Open Road Densities and Comparison to Forest Plan Objectives

MA	DFC	Existing Cond.	Alt 1	% Change	Alt 2	% Change	Alt 3	% Change	Alt 4	% Change	Alt 5	% Change
1.1	≤ 4	4.34	4.34	0	3.96	-9%	3.88	-11%	3.94	-9%	3.92	-10%
3.1	≤ 4	3.18	3.18	0	3.14	0%	2.95	-7%	2.95	-7%	2.95	-7%
4.1	< 4	6.08	6.08	0	6.08	0%	5.63	-7%	5.91	-3%	5.78	-5%
1.2	≤ 2	1.58	1.58	0	1.58	0%	1.46	-8%	1.51	-4%	1.46	-8%
3.2	≤ 2	2.96	2.96	0	2.66	-10%	2.35	-11%	2.57	-13%	2.49	-6%
4.2	≤ 2	4.27	4.27	0	4.20	-2%	4.05	-5%	4.09	-4%	4.08	-4%
8.1		3.33	3.33	0	3.01	-10%	2.91	-13%	3.01	-10%	3.01	-10%
9.1		5.84	5.84	0	5.84	0%	5.84	0%	5.84	0%	5.84	0%
Overall Ranking				5th		4th		1st		3rd		2nd

Table 2.5-13 : Economic Outcomes by Alternative

Objective	Indicator	Alt 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Provide wood products (as per LRMP, pp.19-35)	Commercial Timber Volume (in million board feet)	0	44.4	30.5	51.4	40.9
Provide economic efficiency	Net Present Value	\$0	\$1,934,549	\$1,532,781	\$2,041,476	\$1,840,357
	Benefit Cost Ratio	0	2.37	2.45	2.18	2.38
Generate income and employment in local communities	Payments to Counties	\$0	\$940,740	\$712,803	\$1,059,817	\$886,154
	Income Generated	\$0	\$44,788,500	\$30,451,735	\$51,896,919	\$40,942,207
	Jobs Created/Sustained	0	737	501	854	674