

Attachment 1

Treatment Codes, Design Criteria and Site Specific Information

Treatment Codes

Table 1-1 contains the treatment codes and definitions for the various vegetation treatments. The codes are used in Table 1-3.

Table 1-1. Treatment Codes and Definitions	
Regeneration treatments - Creating young forest through even-aged harvest treatments	
CCR	Clearcut with Reserves: The harvesting of essentially all trees in a stand, producing a fully exposed microclimate for the development of a new age class and an even-aged stand. Regeneration can be from natural seeding, direct seeding, planted seedlings, or existing regeneration. Reserve trees are retained to attain goals other than regeneration, but are not enough to become the featured stand or to create a two-aged stand.
ST	Seed Tree: A method of even-aged management in which the mature trees are removed from an area in one harvest except that certain trees, called seed trees, are left standing singly or in groups, for the purpose of furnishing seed to help regenerate the stand. Generally, seed trees are not removed following establishment of regeneration. More trees are usually retained than under a clearcut with reserve harvest method.
PC 30	Partial Cut 30: A harvesting system that retains at least 30 square feet basal area. This harvest method facilitates reaching a desired stand condition in terms of structure and age while producing volume. This is similar to a shelterwood harvest. An even-aged regeneration method where the cutting of most trees leaves those needed to produce sufficient shade to produce a new age class in a moderated environment. Trees retained at the time of harvest may be removed after regeneration is established.
2A	2 age cut: The harvesting of approximately half of the trees within a stand. This method may involve harvesting one tree species in order to encourage regeneration of a more desired species; the end result is basically a two age structure.
Intermediate treatments - Improving stand conditions through intermediate harvest treatments	
PC 60	Partial Cut 60: A method of management that retains approximately 60 square feet of basal area. This harvest creates a multi-aged stand and gradually reestablishes old forest and old-growth forest age classes and vegetative growth stages, while providing a variety of tree ages and different vegetation layers within the same community.
TH	Thinning: An intermediate harvest where trees are removed to provide growing conditions for remaining trees. This method is generally used in immature and mature red and white pine stands to reduce stand density of trees primarily to improve growth and/or form, enhance forest health, or recover potential mortality. Some thinned areas would also include small group openings to improve structure within treated area.
VT	Variable Thinning: An intermediate harvest where some trees are removed to provide improved growing conditions for remaining trees. This method is generally used in immature and mature red and white pine patches greater than 100 acres in size. This treatment removes trees with minimal impact to the existing main canopy closure in order to continue to provide interior forest habitat. Harvest would maintain a 60% crown closure.
CG	Campground vegetation treatment: Intermediate vegetation treatments in a campground setting. May involve minimal harvest (using light equipment) or non harvest activities to improve scenic quality of views and trails with partial removal of trees, planting long-lived species, hazard tree removal, and reduction of fuels.

Restoring stand conditions through a variety of treatments	
BB	Prescribed Fire/Broadcast Burn: The intentional use of fire to accomplish specific resource objectives under prescribed conditions and circumstances. A broadcast burn is a fire that is allowed to burn over the entire stand to reduce hazardous fuels or to create desirable habitat conditions. Burn intensity varies depending on vegetation, fuels, and topography.
HP	Hand Pile: Crews would pile understory fuels by hand and burn the piles under appropriate conditions. The overstory of the stand would be undisturbed. The objective is to reduce an accumulation of hazardous fuels in the understory.
NHR	Non-harvest Restoration: Actions that would create conditions for either existing or desired species to grow and may include removing less desirable species, creating ground disturbance to enhance natural regeneration, creating conditions for existing desired trees to grow, and planting and/or seeding desired tree species to offset the natural breaking up of older stands. Actions may also include biomass removal.
NHRB	Non-harvest restoration – brushing
NHRF	Non-harvest restoration - prescribed fire
NHRC	Non-harvest restoration – crushing
NHRR	Non-harvest restoration – release
NHRU	Non-harvest restoration – under planting
PB	Pile Burn: Fuels created by logging, such as tree tops and slash would be mechanically piled and burned under appropriate weather conditions. Reserved trees would be left undisturbed. The objective is to reduce the fuels left after harvesting.
REL	Release desired vegetation from undesired competing vegetation
UB	Under Burn: A low intensity controlled fire that burns beneath the canopy of live trees. The primary objective of under burns is to reduce hazardous fuels in the understory. Small down, dead and woody material along with shrubs and young trees would generally be burned.
Reforestation Activities	
NR	Natural Regeneration: A plant community established through a naturally-occurring process such as seeding, sprouting, or suckering.
SP	Site preparation where a variety of techniques could be used
SP-Mec	Site preparation using mechanical equipment
SP-UB	Site preparation using prescribed fire
P	Plant: Supplemental planting followed by species to be planted. For example – PJP - plant jack pine
DP	Diversity Plant: Planting 100-300 trees per acre in clumps or scattered throughout the stand that is generally being regenerated. Involves tree species such as white pine, tamarack, northern white cedar, white spruce, and black spruce. The purpose is to increase tree species diversity to create conditions more representative of native vegetation communities. DP is followed by the species code for species to be planted.
SD	Seed: Seeding of specific tree species. The type of seed is identified by the species code.
CV	Conversion: Activities taken to change a stand from one forest type to another more desirable forest type. Usually applied in even-aged management stands, the conversion may be preceded by actions to prepare the site for planting. Site preparation activities may include mechanical, hand, or burning actions to remove logging debris, followed by planting or seeding desired tree species. After trees are planted, additional actions may be taken to release the planted trees from competing undesirable vegetation. CV is followed by the species code.

Planting Codes			
Code	Species	Code	Species
JP	Jack Pine	WC or CD	Northern White Cedar
RP	Red Pine	WP	White Pine
WS	White Spruce	BS	Black Spruce

Design Criteria

Table 1-2 contains the codes that are used in Table 1-3 to identify site-specific design criteria that will be implemented as part of the Glacier Project. The design criteria are based on information in Attachment 4 Operational Standards and Guidelines.

Table 1-2. Codes for site-specific design criteria.	
Season of Harvest	
ws	Conduct mechanized management activities during frozen ground or normal dry conditions.
w	Conduct mechanized management activities during frozen ground conditions
as	No restrictions on season of operation.
Soils Design Criteria	
CMS	Moist soils which are susceptible to compaction, rutting and displacement: ELTs 1 & 3. Avoid areas of moist soils or conduct mechanized management activities during frozen ground conditions or during normal dry period.
CWS	Wet soils which are susceptible to compaction rutting and displacement: ELTs 2, 4 & 6. Avoid wetlands or conduct management activities during frozen ground conditions.
CVW	Very wet soils which are susceptible to compaction rutting and displacement due to continuous saturated conditions: ELT 5. Avoid wetlands or conduct management activity during frozen ground conditions. Poorly decomposed organic soils have the potential for nutrient removal. No activity permitted for the purpose of timber production. When conducting prescribed burns minimize the loss of the forest floor by igniting only when the Build Up Index (BUI) is 50 or less, adjust ignition timing and firing patterns and take site conditions into consideration (i.e. vegetation type, number of days since precipitation, wind, air temperature, humidity and fuel loadings).
CNR	Potential loss of forest floor and removal of nutrients from the sited due to thin surface organic layer over boulders or very shallow soils: ELTs 12 & 18 No activity permitted for the purpose of timber production. When conducting prescribed burns minimize loss of forest floor by igniting only when the Build Up Index (BUI) is 50 or less, adjust ignition timing and firing patterns and take site conditions into consideration (i.e. vegetation type, number of days since precipitation, wind, air temperature, humidity and fuel loadings).

Soils Design Criteria continued	
CFN	Potential loss of forest floor and/or removal of nutrients from site due to thin surface organic layer and coarse textured soils: ELTs 8, 9 & 11. Retain and/or return distributed slash or woody debris and, where appropriate, retain stumps and bark on site. Consider extended rotation. When conducting prescribed burns minimize loss of forest floor by igniting only when the Build Up Index (BUI) is 50 or less, adjust ignition timing and firing patterns and take site conditions into consideration (i.e. vegetation type, number of days since precipitation, wind, air temperature, humidity and fuel loadings).
CSP	Potential erosion from slopes >18%: ELTs 8, 9, 10, 11, 13, 14, 16 & 17. On slopes greater than 18% confine operations to the lower end of slopes and avoid creating long uninterrupted equipment paths that could channel water and erode soil. Bracke scarification is not allowed when slopes exceed 18%. Shearing would take place on frozen ground. On slopes greater than 35% management activities would be designed to employ equipment and techniques that minimize operations on these slopes.
CFT	Fine textured soils that will retain water long enough to create temporarily saturated soil which would be susceptible to compaction, rutting and displacement: ELTs 10, 14, & 15. Avoid areas of fine-textured soils or conduct mechanized management activities during frozen ground conditions or during normal dry period.
CSS	Shallow soils susceptible to nutrient loss due to thin surface organic layer and shallow soil depth: ELTs 16 & 17. Avoid areas of shallow soils or conduct mechanized management activities during frozen ground conditions or during normal dry period. When conducting prescribed burns minimize loss of forest floor by igniting only when the Build Up Index (BUI) is 50 or less, adjust ignition timing and firing patterns and take site conditions into consideration (i.e. vegetation type, number of days since precipitation, wind, air temperature, humidity and fuel loadings).
Heritage Resources Design Criteria	
A	Site within unit will have a 66-foot flagged buffer prior to project implementation.
B	Unsurveyed shoreline will be surveyed prior to project implementation.
Recreation and Scenery Design Criteria	
R-1	Recreation concerns (minimize impacts to recreation resource) See Attachment 4 G-REC-2
R-2	Dual Use of Roads. See Attachment 4 Glacier-RTL-1
G-SC-1	Scenery concern. Follow direction in Attachment 4.

Wildlife and Plants Design Criteria	
RT-BO	Harvest units adjacent to large lowland areas would generally have reserve areas and trees concentrated along the wetland boundary (within 200 yards) to maintain potential nesting trees for boreal owl. Retain some large aspen capable of producing nesting cavities if present.
RT-TTW	In even-aged jack pine and upland mixed conifer regeneration harvests, retain 6-10 jack pine per acre either scattered or in clumps where ecologically appropriate, to provide foraging habitat for three-toed woodpeckers. Jack pine reserve trees can count toward the reserve tree design criteria above. Where not enough jack pine occurs, upland black spruce may be substituted. For the remainder of the reserve trees follow design criteria for reserve trees.
RT-BE	In harvest units within ¼ mile of lakes and streams suitable for bald eagle foraging, all super-canopy red and white pine trees should be retained where possible.
RT-OSF	In the “remainder zone” of conifer units, maintain 10-20% canopy cover for quality olive-sided flycatcher habitat where possible.
RT-NG	In conifer thinning stands, maintain deciduous trees, especially aspen where possible.
RT-CL	Retain 5 ac or greater patches in harvested stands for lynx denning habitat
RP1	Avoid the population of montane yellow-eyed grass in unit 83-27 by leaving a 50 foot buffer around the population
RP2	Avoid the population of few-flowered spike rush in unit 14-034 by leaving a 50 foot buffer around the population
RP3	For the large-leaved sandwort population in unit 79-21, minimize ground disturbance from logging equipment in the population and do not deposit slash on the population
RP4	For the least moonwort population adjacent to unit 78-10 and in and along FR181H, do not deck the logs or deposit slash on the population and ensure that use of FR181H is during frozen ground conditions.
RP5	Avoid the population of Lapland buttercup in unit 95-37 by leaving a 50-foot buffer around the population
RP6	For unit 14-046, avoid cutting the Canada yew in the unit during release activities.
NRRI	Protect NRRI bird plot center tree from harvest if possible.

Wildlife and Plants Design Criteria, continued	
SR-BE	Restrict harvest and associated activities during the bald eagle nesting period, when nests are active. Activities should not occur between February 15 and October 1.
SR-NG	Mitigate smoke and brushing activities, if necessary from impacting goshawk site during nesting season (march 1-Aug 30)
SR-BTBW	In order to protect nesting black-throated blue warblers, harvest unit between August 15 and May 15 (outside of nesting season)
Non-native Invasive Design Criteria	
WEED1	For non-native invasive plant occurrences: either re-locate skid trails, temporary roads, or landings if infested and use would be in growing season, OR treat (e.g. mow or pull) before use if use would be in growing season. Non-native invasive plant occurrences located within 50 feet of treatment units would be mowed before mechanical site preparation occurs.
WEED2	Treat Siberian peabush infestation prior to construction of winter road.

Site Specific Information

Table 1-3 displays the units that will be treated, including the primary and secondary treatments and any reforestation activities that will be taken. The table also shows how the Operational Standards and Guidelines in Attachment 4 will be implemented on a site-specific basis.

Table 1-3

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
001-003	17	Paper Birch	NHRR		UPWP		CSP, CSS	B			
001-011	3	Jack Pine	NHRR				CWS, CSP, CSS				
001-012	35	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CWS, CSP, CSS				
001-016	98	Upland Black Spruce or Black Spruce/Jack Pine	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS				
001-018	28	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CWS, CNR, CSP, CSS				
001-019	16	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CSP, CSS				
001-020	34	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CNR, CSP, CSS				
001-022	27	Jack Pine	NHRR				CWS, CNR, CSP, CSS				
001-036	6	Quaking Aspen	NHRR	NHRU	UPWPWS		CSP, CSS				
001-037	32	Aspen/White Spruce/Balsam Fir	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS	B			
001-038	23	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS				
001-039	5	Jack Pine	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS				
001-040	16	Paper Birch	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS				
001-041	20	Jack Pine	NHRR	NHRU	UPWPWS		CNR, CSP, CSS				
001-042	22	Jack Pine	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS				
001-043	2	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CNR				
002-008	4	Jack Pine	NHRR	NHRU			CWS, CSP, CSS	B			
002-013	17	Jack Pine	NHRR	NHRU			CWS, CSP, CSS	B			
002-017	8	Jack Pine	NHRR	NHRU			CWS, CSP, CSS	B			
002-019	11	Jack Pine	NHRR	NHRU			CWS, CSP, CSS	B			
002-021	11	Jack Pine	NHRR	NHRU			CWS, CSP, CSS				
002-023	8	Jack Pine	NHRR	NHRU			CSP, CSS				
002-025	8	Quaking Aspen	CCR	REL	CVJP	as	CFT, CSP, CSS			RT-BE	
002-026	12	Jack Pine	CCR	REL	DPWPWS	w	CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-TTW	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
002-055	1	Jack Pine	NHRR	NHRU			CSP, CSS				
002-056	4	Jack Pine	NHRR	NHRU			CSP, CSS	B			
002-061	2	Jack Pine	NHRR	NHRU			CWS, CSP, CSS				
002-068	1	Jack Pine	NHRR	NHRU			CSP, CSS				
002-089	2	Jack Pine	CCR	REL	DPWPWS	ws	CSP, CSS			RT-TTW	
002-091	1	Jack Pine	NHRR	NHRU			CSP, CSS				
002-095	2	Jack Pine	CCR	REL	DPWPWS	as	CWS, CFT, CSP, CSS		R-1, R-2, G-SC-1	RT-TTW	Weed1
003-001	13	Quaking Aspen	NHRR	NHRU			CSP, CSS				
003-002	46	Quaking Aspen	NHRR	NHRU			CMS, CNR, CSP, CSS		R-1, R-2, G-SC-1		
003-003	10	Quaking Aspen	NHRR	NHRU			CSP, CSS				
003-004	103	Quaking Aspen	NHRR	NHRU			CMS, CSP, CSS		R-1, R-2, G-SC-1		
003-005	14	Quaking Aspen	NHRR	NHRU	UPWPWS		CMS, CSP, CSS		R-1, R-2, G-SC-1		
003-006	134	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS		R-1, R-2, G-SC-1		
003-007	18	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CSP, CSS		R-1, R-2, G-SC-1		
003-009	55	Quaking Aspen	NHRU	NHRR			CMS, CWS, CNR, CSP, CSS		R-1, R-2, G-SC-1	SR-BTBW	
003-014	13	Quaking Aspen	PC30		DPWPRPWS	ws	CWS, CNR, CSP, CSS				Weed1
003-017	56	Quaking Aspen	PC30		DPWPRPWS	ws	CWS, CVW, CNR, CSP, CSS				
003-021	59	Quaking Aspen	CCR	REL	CVJP	w	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE	
003-022	21	Black Spruce	CCR	REL	SDBS	w	CWS, CNR, CSP, CSS		R-1, R-2, G-SC-1		
003-023	11	Quaking Aspen	HP	PB			CWS, CSP, CSS		R-1, R-2, G-SC-1		
003-024	12	Paper Birch	CCR	REL	CVJP	ws	CMS, CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BE	
003-026	11	Quaking Aspen	NHRR	NHRU			CSP, CSS		R-1, R-2, G-SC-1		
003-027	31	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CWS, CSP, CSS		R-1, R-2, G-SC-1		
003-028	76	Jack Pine	NHRR	NHRU			CWS, CSP, CSS		R-1, R-2, G-SC-1		
003-032	78	Jack Pine	NHRR				CWS, CNR, CSP, CSS				
003-036	8	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS				
003-037	132	Quaking Aspen	NHRR	NHRU	UPWPWS		CMS, CWS, CNR, CSP, CSS		R-1		

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
003-039	72	Quaking Aspen	NHRU	NHRR			CWS, CNR, CSP, CSS		R-1		
003-044	43	Quaking Aspen	NHRR				CWS, CSP, CSS		R-1		
003-074	12	Jack Pine	NHRR	NHRU			CSP, CFT	A,B			
003-076	42	Quaking Aspen	PC30	UB	DPWPRPWS	ws	CWS, CVW, CNR, CSP, CSS		G-SC-1		Weed1
003-077	17	Quaking Aspen	PC30		DPWPRPWS	ws	CMS, CWS, CSP, CSS		R-1, R-2, G-SC-1		Weed1
003-079	17	White Pine	NHRR				CWS, CSP, CSS				
003-080	23	Jack Pine	CCR	REL	NR	w	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-TTW	
003-081	20	Jack Pine	NHRR				CWS, CSP, CSS				
003-082	9	Jack Pine	CCR		NR	w	CWS, CNR, CSP, CSS			RT-BE, RT-TTW	
003-085	46	Jack Pine	CCR		NR	w	CWS, CSP, CSS			RT-BE, RT-TTW, RT-OSF	
003-087	26	Quaking Aspen	PC30		DPWPRPWS	ws	CMS, CWS, CSP, CSS		R-1, R-2, G-SC-1		
003-093	10	Jack Pine	NHRR				CSP, CSS				
003-095	3	Quaking Aspen	CCR	REL	CVJP	ws	CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BE	
003-100	4	Paper Birch	CCR	REL	CVJP	w	CWS, CSP, CFT			RT-BE	
003-101	81	Jack Pine	NHRR				CWS, CSP, CSS				
003-106	21	Quaking Aspen	NHRU		UPWPWS		CWS, CSP, CSS		G-SC-1		
003-107	90	Quaking Aspen	NHRR	NHRU			CWS, CSP, CSS				
003-111	11	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS		G-SC-1		
003-113	5	Quaking Aspen	NHRR	NHRU			CSS, CSP		G-SC-1		
003-115	5	Quaking Aspen	NHRR	NHRU	UPWP		CSP, CSS				
004-001	30	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CVW, CNR, CSP, CSS				
004-002	21	Quaking Aspen	PC60		UPRPWP	ws	CWS, CVW, CNR, CSP, CSS				
004-003	66	Quaking Aspen	PC30	REL	CVJP	ws	CWS, CVW, CSP, CSS				
004-006	11	Jack Pine	PC30	REL	NR	w	CWS, CSP, CSS			RT-TTW	
004-007	31	Quaking Aspen	NHRR				CWS, CSP, CSS				
004-008	15	Quaking Aspen	PC30	REL	CVJP	ws	CWS, CSP, CSS				
004-009	12	Paper Birch	NHRR				CWS, CSP, CSS				
004-011	20	Quaking Aspen	PC30	REL	CVJP	ws	CWS, CSP, CSS				Weed1
004-014	18	Aspen/White Spruce/Balsam Fir	NHRR	REL	SPJP		CSP, CSS				
004-016	126	Red Pine	VT	SP-UB		ws	CWS, CSP, CFT, CSS			RT-NG	Weed1
004-017	18	Quaking Aspen	PC60		UPWPRP	ws	CWS, CSP, CFT, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
004-018	5	Upland Black Spruce or Black Spruce/Jack Pine	NHRR	NHRU			CSP, CFT, CSS				
004-019	34	Quaking Aspen	NHRR	NHRU	UPWP		CWS, CVW, CNR, CSP, CSS				
004-020	9	Quaking Aspen	CCR	REL	CVJP	ws	CSP, CSS				
004-021	15	Paper Birch	CCR	REL	CVJP	ws	CWS, CNR, CSP, CSS				
004-022	21	Upland Black Spruce or Black Spruce/Jack Pine	CCR	REL	CVJP	ws	CWS, CNR, CSP, CSS			RT-TTW	
004-024	33	Upland Black Spruce or Black Spruce/Jack Pine	CCR	REL	CVJP	ws	CWS, CSP, CSS			RT-BE, RT-TTW	
004-026	29	Quaking Aspen	CCR	REL	CVJP	ws	CWS, CSP, CSS			RT-BE	
004-034	9	Jack Pine	PC30	REL	NR	ws	CWS, CSP, CSS			RT-TTW	
004-038	24	Quaking Aspen	PC30	REL	CVJP	ws	CSP, CSS				
004-040	40	White Spruce/Balsam Fir/Norway Spruce	NHRR				CWS, CSP, CSS				
004-041	42	Red Pine	VT	SP-UB		ws	CVW, CSP, CSS			RT-NG	
004-043	12	Red Pine	NHRR				CWS, CSP, CSS				
004-044	9	Red Pine	NHRR				CWS, CSP, CSS				
004-045	36	Red Pine	NHRR				CWS, CSP, CSS				
004-093	64	Quaking Aspen	CCR	REL	CVRPWP	ws	CSP, CSS				Weed1
005-002	11	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU	UPWSWP		CWS, CVW, CSP, CFT, CSS				
005-004	14	Quaking Aspen	NHRR	NHRU	UPWSWP		CVW, CSP, CSS				
005-005	39	Quaking Aspen	PC60	REL	NR	ws	CNR, CSP, CSS		R-1	RT-BE	
005-006	7	Quaking Aspen	NHRR	NHRU			CNR, CSP, CSS		R-1		
005-011	16	Quaking Aspen	NHRR				CWS, CSP, CSS		R-1		
005-014	6	Paper Birch	NHRR				CWS, CSP, CSS				
005-015	7	Black Ash/American Elm/Red Maple	NHRR				CWS, CSP, CSS				
005-028	2	Open	PB								
005-031	8	White Pine	2A	UB		ws	CMS, CWS, CSP, CSS				
005-033	20	Quaking Aspen	NHRC	NHRF	NHRU	ws	CMS, CSP, CSS			SR-BE	
005-034	30	Quaking Aspen	PC60	NHRF	UPWPRP	ws	CMS, CWS, CSP, CSS			SR-BE	
005-035	16	Quaking Aspen	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS		R-1	SR-BE	
005-048	10	Black Ash/American Elm/Red Maple	NHRR				CWS, CNR, CSP, CSS		R-1		
005-050	27	Northern White Cedar	NHRR	NHRU	UPCD		CWS, CSP, CSS				
005-052	5	Northern White Cedar	NHRR	NHRU	UPNWC		CWS, CSP, CSS				
005-057	55	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CSP, CSS				
005-059	11	White Spruce/Balsam Fir/Norway Spruce	NHRR				CNR, CSP, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
005-060	4	Balsam Fir/Aspen/Paper Birch	NHRR				CSP, CSS				
006-001	15	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CMS, CSP, CSS				
006-003	32	Black Ash/American Elm/Red Maple	NHRR	NHRU			CWS, CSP		R-1		
006-004	10	Jack Pine	NHRR	NHRU			CSP, CSS				
006-005	8	Jack Pine	NHRR	NHRU			CWS, CSP, CSS				
006-018	26	Quaking Aspen	NHRR	NHRU			CNR, CSP, CFT, CSS		R-1		
006-020	53	Quaking Aspen	NHRR	NHRU			CWS, CSP, CSS				
006-021	10	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CMS, CSP, CSS				
006-032	8	Paper Birch	PC60		UPWPWS	ws	CSP, CSS		R-1	RT-BE	Weed1
006-035	13	Quaking Aspen	NHRR	NHRU			CVW, CSP, CSS				
006-038	92	Quaking Aspen	NHRR	NHRU			CWS, CVW, CNR, CSP, CSS		R-1		
006-045	8	Paper Birch	ST		DPWPWS	ws	CSP, CSS				Weed1
006-049	1	Open	NHRR	NHRU			CSP, CSS				
006-050	12	Quaking Aspen	NHRR	NHRU			CWS, CSP, CSS				
007-001	15	Quaking Aspen	CCR		NR	ws	CWS, CVW, CSP, CSS			RT-BE	Weed1
007-002	43	Quaking Aspen	CCR		NR	ws	CWS, CVW, CSP, CSS			RT-BE	
007-006	23	Quaking Aspen	CCR	REL	CVJP	w	CMS, CSP, CFT, CSS			RT-BE	Weed1
007-015	3	Quaking Aspen	CCR	REL	CVJP	w	CSP, CFT, CSS			RT-BE	
007-016	37	Quaking Aspen	CCR	REL	CVJP	w	CWS, CSP, CFT, CSS			RT-BE	
007-017	39	Quaking Aspen	CCR	REL	CVJP	w	CWS, CVW, CNR, CSP, CFT, CSS			RT-BE, RT-OSL	
007-018	12	Quaking Aspen	CCR	REL	CVJP	w	CVW, CNR, CSP, CSS			RT-BE	
007-022	20	Quaking Aspen	CCR	REL	CVJP	w	CVW, CSP, CSS				
007-028	35	Quaking Aspen	CCR	REL	CVJP	w	CWS, CSP, CSS				
007-033	15	Quaking Aspen	NHRR	NHRU			CWS, CNR, CSP, CSS				
007-035	6	Quaking Aspen	NHRU	NHRR	UPWPWS	ws	CNR, CSP, CSS				
007-041	27	Quaking Aspen	NHRR				CWS, CSP, CSS				
007-062	8	Open	PB				CSP, CFT, CSS			RT-BE	
007-074	33	Quaking Aspen	CCR	REL	CVJP	w	CWS, CVW, CSP, CSS			RT-BE	
007-076	17	Quaking Aspen	NHRR	NHRU	UPWPWS	ws	CSP, CSS			RT-BE	Weed1
007-077	11	Quaking Aspen	NHRR	NHRU	UPWPWS		CSP, CSS				
008-007	19	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU			CWS, CSP, CSS				
008-011	23	Paper Birch	NHRR				CWS, CSP, CSS				
008-017	73	Quaking Aspen	NHRR	NHRU			CWS, CSP, CSS				
008-020	28	Jack Pine	NHRR	NHRU			CWS, CSP, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
008-026	17	Paper Birch	NHRR	NHRU	UPWPWS		CWS, CSP, CFT		R-1		
009-010	13	Quaking Aspen	NHRR		UPWPRP		CNR, CSP, CSS				
009-011	10	Quaking Aspen	NHRR	NHRU			CVW, CSP				
009-026	1	Lowland Brush	NHRR	NHRU			CVW, CSP, CSS				
009-037	10	Quaking Aspen	CCR		DPWPWS	ws	CWS, CNR, CSP, CSS				Weed1
010-002	9	Quaking Aspen	CCR		NR	w	CWS, CNR, CSP, CSS				
010-013	12	Paper Birch	CCR		NR	w	CVW, CSP, CSS			RT-BE	
010-022	45	Paper Birch	ST		DPWSWP	w	CWS, CVW, CSP, CSS				
010-024	25	Aspen/White Spruce/Balsam Fir	PC30		DPWPWS	w	CWS, CVW, CSP, CSS				Weed1
010-025	6	Quaking Aspen	NHRU		UPWPWS		CWS, CNR, CSP, CSS				
010-028	5	Aspen/White Spruce/Balsam Fir	PC30		DPWPWS	w	CWS, CVW, CSP, CSS			RT-OSF	Weed1
010-061	21	Quaking Aspen	CCR		NR	w	CWS, CVW, CSP, CSS			RT-BE	
011-027	51	White Pine	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS				
011-028	15	Aspen/White Spruce/Balsam Fir	NHRC	NHRF	NHRU	ws	CWS, CNR, CSP, CSS			SR-BTBW	
011-029	58	White Pine	NHRF	UB			CWS, CNR, CSP, CSS		R-1		
011-030	9	Quaking Aspen	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS			SR-BTBW	
011-031	10	Aspen/White Spruce/Balsam Fir	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS			SR-BTBW	
011-032	58	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CSP, CSS				
011-034	35	Aspen/White Spruce/Balsam Fir	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS			SR-BTBW	
011-035	11	Black Ash/American Elm/Red Maple	UB	NHRU	NHRR	w	CWS, CNR, CSP, CSS			RT-BE	
011-036	59	Aspen/White Spruce/Balsam Fir	PC60	UB	DPRPWP	w	CWS, CSP, CSS			SR-BTBW	
011-037	12	Quaking Aspen	NHRC	NHRF	NHRU	w	CSP, CSS			SR-BTBW	
011-038	40	Paper Birch	NHRC	NHRF	NHRU	w	CWS, CSP, CSS			SR-BTBW	
011-039	8	Jack Pine	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS				
011-041	21	Aspen/White Spruce/Balsam Fir	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS			SR-BTBW	
011-042	28	Balsam Fir/Aspen/Paper Birch	NHRC	NHRF	NHRU	ws	CWS, CSP, CSS			SR-BTBW	
011-043	37	Northern White Cedar	UB	NHRU	NHRR	w	CWS, CSP, CSS				
011-044	8	Mixed Swamp Conifer	UB	NHRU	NHRR	w	CWS, CSP, CSS				
011-045	89	Aspen/White Spruce/Balsam Fir	PC60	UB	DPRPWP	w	CWS, CVW, CSP, CSS		R-1	RT-OSF, SR-BTBW	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
012-001	13	Open	NHRB			w	CWS, CSP, CFT, CSP, CSS			RT-BE	
012-003	8	Northern White Cedar	NHRR	NHRU			CWS				
012-009	31	Paper Birch	ST		DPWPWS	w	CWS, CSP, CSS				
012-014	27	Paper Birch	ST		DPWPWS	w	CMS, CSP, CSS				
012-024	36	Quaking Aspen	NHRR	NHRU	UPWPWS		CMS, CWS, CSP, CSS				
012-030	14	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CSP, CFT, CSS				
012-033	5	Lowland Brush	NHRB			w	CWS, CSP, CFT, CSS			RT-BE	
012-034	16	Lowland Brush	NHRB			w	CWS, CSP, CFT, CSS			RT-BE	
012-039	7	Open	NHRB			w	CWS, CSP, CFT				
012-043	42	Paper Birch	ST		DPWPWS	w	CWS, CSP, CFT, CSS			RT-BE	
012-044	48	Paper Birch	ST		DPWPWS	ws	CMS, CWS, CNR, CSP, CSS				
012-052	22	Paper Birch	ST		DPWSWP	w	CMS, CWS, CSP, CSS				
012-053	8	Paper Birch	ST		DPWSWP	w	CWS, CSP, CSS				
012-054	33	Paper Birch	ST		DPWSWP	w	CMS, CWS, CSP, CSS				
013-001	9	Lowland Brush	NHRB			w	CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BE	
013-003	6	Quaking Aspen	NHRR	NHRU	UPWP		CWS, CSP				
013-004	19	Lowland Brush	NHRB			w	CWS, CSP			RT-BE	
013-005	8	Lowland Brush	NHRB			w	CWS, CSP, CFT		R-1, R-2, G-SC-1	RT-BE	
013-006	8	Lowland Brush	NHRB			w	CWS, CSP, CFT		R-1, R-2, G-SC-1	RT-BE	
013-009	13	Quaking Aspen	NHRR	NHRU	UPWP		CWS, CSP, CFT		R-1, R-2, G-SC-1		
013-012	70	Aspen/White Spruce/Balsam Fir	NHRR	NHRU	UPWP		CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1		
013-013	3	Paper Birch	NHRR	NHRU	UPWP		CSP, CFT		R-1, R-2, G-SC-1		
013-014	13	Paper Birch	TH		UPWSWP	ws	CWS, CSP, CFT			RT-BE	
013-018	1	Paper Birch	PC60		UPWSWP	w	CSP, CSS				
013-037	32	Jack Pine	SP-MEC		P	ws	CMS, CFN, CSP				
014-001	29	Paper Birch	PC60		UPWSWP	w	CWS, CSP, CSS			RT-BE	
014-003	13	Aspen/White Spruce/Balsam Fir	PC60		UPWSWP	w	CMS, CWS, CSP, CSS				
014-004	6	Paper Birch	PC60		UPWSWP	w	CSP, CSS				
014-005	19	Balsam Fir/Aspen/Paper Birch	PC60		UPWSWP	w	CMS, CWS, CSP, CSS				
014-007	29	Paper Birch	PC60		UPWSWP	w	CMS, CWS, CNR, CSP, CFT, CSS			RT-BE	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
014-009	6	Balsam Fir/Aspen/Paper Birch	PC60		UPWSWP	w	CWS, CNR, CSP, CFT, CSS			RT-BE	
014-010	15	Paper Birch	PC60		UPWSWP	w	CMS, CWS, CNR, CSP, CSS				
014-011	11	Aspen/White Spruce/Balsam Fir	PC60		UPWSWP	w	CMS, CWS, CSP, CFT, CSS			RT-BE, RT-OSF, SR-BE	
014-012	34	Paper Birch	NHRU		UPWSWP		CWS, CSP, CSS			SR-BE	
014-013	26	Aspen/White Spruce/Balsam Fir	PC60		UPWSWP	w	CMS, CWS, CSP, CFT, CSS			RT-BE, RT-OSF	
014-014	10	Balsam Fir/Aspen/Paper Birch	PC60		UPWSWP	w	CNR, CSP, CFT, CSS			RT-BE	
014-015	12	Paper Birch	PC60		UPWSWP	w	CWS, CNR, CSP, CSS			RT-BE	
014-017	8	Paper Birch	PC60		UPWSWP	w	CWS, CNR, CSP, CSS				
014-018	78	Aspen/White Spruce/Balsam Fir	NHRR	NHRU	UPWSWP		CMS, CWS, CNR, CSP, CFT, CSS				
014-021	10	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU	UPWSWP		CWS, CNR, CSP, CSS				
014-027	22	Quaking Aspen	NHRR		UPWSWP		CNR, CSP, CFT, CSS				
014-034	17	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CVW, CSP, CSS			RP2	
014-044	3	Northern White Cedar	NHRR				CWS, CSP, CSS				
014-046	18	Northern White Cedar	NHRR				CWS, CSP, CSS			RP6	
015-017	9	Quaking Aspen	NHRR	NHRU			CWS, CSP, CSS				
015-023	16	Aspen/White Spruce/Balsam Fir	NHRR	NHRU	UPWP		CWS, CSP, CSS				
015-028	8	Quaking Aspen	PC30		DPWPWS	ws	CMS, CSP, CFT			RT-BE	
015-029	5	Aspen/White Spruce/Balsam Fir	PC30		DPWPWS	ws	CMS, CWS, CSP, CFT			RT-BE	
015-030	9	Aspen/White Spruce/Balsam Fir	HP	PB	UPWPWS		CMS, CSP, CFT		R-1, R-2		Weed1
015-031	6	Quaking Aspen	PC30		DPWPWS	ws	CMS, CSP, CFT, CSS		R-1, R-2	RT-BE	
015-032	9	Aspen/White Spruce/Balsam Fir	HP	PB	UPWPWS		CSP, CFT		R-1, R-2		
015-033	2	Quaking Aspen	HP	PB	UPWPWS		CMS, CSP, CFT				
015-034	3	Quaking Aspen	PC30		DPWPWS	ws	CMS, CSP, CFT, CSS		R-1	RT-BE	
015-035	4	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CSP, CSS				
022-001	12	Quaking Aspen	NHRR	NHRU	UPWPWS		CMS, CWS, CNR, CSP, CSS				
022-006	23	White Pine	VT	REL		ws	CWS, CNR, CSP, CSS			RT-NG	
022-013	1	Quaking Aspen	NHRU		UPWPWS		CWS, CSP, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
022-017	14	White Pine	NHRR				CWS, CNR, CSP, CSS				
022-019	10	Upland Black Spruce or Black Spruce/Jack Pine	NHRR	NHRU	UPWP		CWS, CNR, CSP, CSS				
022-021	9	Red Pine	NHRR				CWS, CNR, CSP, CSS				
022-024	3	Quaking Aspen	NHRU				CWS, CSP, CSS				
022-025	12	Quaking Aspen	NHRU				CWS, CNR, CSP, CSS				
022-042	45	Aspen/White Spruce/Balsam Fir	SP		SDJP		CNR, CSP, CSS		R-1		
022-043	1	Aspen/White Spruce/Balsam Fir	SP		SDJP		CSP, CSS		R-1		
022-045	25	Aspen/White Spruce/Balsam Fir	CCR	REL	CVJP		CNR, CSP, CSS			RT-BE	
022-046	22	Aspen/White Spruce/Balsam Fir	CCR	REL	CVJP		CNR, CSS			RT-BE	
022-047	15	Quaking Aspen	CCR	REL	CVJP		CNR, CSS			RT-BE	
022-048	28	Quaking Aspen	CCR	REL	CVJP		CWS, CNR, CSS		R-1, R-2	RT-BE	
022-049	49	Jack Pine	CCR	REL	NR		CWS, CNR, CSP, CSS		R-1, R-2	RT-BE, RT-TTW	
022-052	19	Balsam Fir/Aspen/Paper Birch	CCR	REL	CVJP		CWS, CNR, CFN, CSP, CSS		R-1, G-SC-1	RT-BE	
022-053	20	Quaking Aspen	SP		SDJP		CWS, CNR, CFN, CSP, CSS		R-1		
022-055	3	Aspen/White Spruce/Balsam Fir	CCR	REL	CVJP		CWS, CSS		R-1, G-SC-1	RT-BE	
022-056	18	Quaking Aspen	CCR	REL	CVJP		CWS, CSS		R-1, G-SC-1	RT-BE	
022-060	14	Aspen/White Spruce/Balsam Fir	NHRR		UPWPWS		CWS, CNR, CSP, CSS				
022-061	11	Aspen/White Spruce/Balsam Fir	NHRR		UPWPWS		CWS, CNR, CSP, CSS				
022-062	21	Aspen/White Spruce/Balsam Fir	NHRR	NHRU	UPWPWS		CWS, CNR, CSP, CSS				
022-063	3	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CWS, CNR, CSP, CSS				
022-064	11	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CWS, CNR, CSP, CSS				
022-070	19	Jack Pine	NHRR	NHRU			CMS, CWS, CNR, CSP, CSS				
022-071	104	Quaking Aspen	NHRU	NHRR			CWS, CNR, CSP, CSS				
022-088	3	Quaking Aspen	PC60	REL	UPWPWS,SDJP	ws	CSP, CSS			RT-BE	
022-091	11	Quaking Aspen	NHRR		UPWPWS		CNR, CSP, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
022-093	9	Quaking Aspen	CCR	REL	CVJP		CSS			RT-BE	
022-094	26	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CMS, CWS, CSP, CSS				
022-096	9	Northern White Cedar	NHRR				CWS, CSP, CSS				
022-098	16	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CSP, CSS		R-1		
022-107	1	Aspen/White Spruce/Balsam Fir	CCR	REL	CVJP		CSS		R-1	RT-BE	
022-111	6	Quaking Aspen	NHRR		UPWSWP		CWS, CFN, CSP				
022-121	3	Quaking Aspen	CCR	REL	CVJP		CWS, CSP, CSS		R-1	RT-BE	
022-127	1	Aspen/White Spruce/Balsam Fir	CCR	REL	CVJP		CWS, CSS		R-1	RT-BE	
022-130	1	Quaking Aspen	NHRR	NHRU			CMS, CSP, CFT				
022-135	14	Quaking Aspen	NHRR				CMS, CWS, CSP, CFT				
022-136	2	Quaking Aspen	NHRR	NHRU			CMS, CSP, CFT				
022-137	3	Quaking Aspen	NHRR				CMS, CSP, CFT				
022-138	12	Quaking Aspen	NHRR				CMS, CSP, CFT				
062-001	55	Paper Birch	NHRC	NHRF	NHRU	ws	CWS, CNR, CSP, CFT, CSS	B			
062-002	30	Quaking Aspen	2A	UB	CVWPWS	ws	CWS, CSP, CFT, CSS			RT-BE, RT-BO	
062-010	17	Quaking Aspen	NHRR				CWS, CSP, CFT, CSS				
062-011	82	Quaking Aspen	PC60	REL	NR	w	CMS, CWS, CSP, CFT, CSS			RT-BE, RT-BO	
062-013	56	Red Pine	TH	REL		w	CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BE, RT-NG, RT-BO	
062-019	33	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CSS			RT-BO	
062-020	14	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS			RT-BO	
062-024	24	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS			RT-BO	
062-026	46	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS			RT-BO	
062-029	15	Quaking Aspen	CCR	REL	NR	w	CSP, CFT, CSS			RT-BO	
062-033	71	Quaking Aspen	NHRR				CWS, CSP, CFT, CSS	A			
062-034	43	Quaking Aspen	NHRR				CWS, CSP, CFT, CSS				
062-040	40	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS			RT-BO	
062-047	13	Aspen/White Spruce/Balsam Fir	PC60	REL	NR	w	CMS, CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BE, RT-OSF, RT-BO	
062-049	13	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS		R-1	RT-BO	
062-051	31	Quaking Aspen	CCR	REL	NR	ws	CWS, CSP, CFT		R-1, R-2, G-SC-1	RT-BO	
062-057	9	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BO	
062-061	25	Quaking Aspen	CCR	REL	NR	w	CMS, CWS, CSP, CFT		R-1	RT-BO	
062-069	19	Paper Birch	ST	SP	NR	w	CWS, CSP, CSS			RT-BO	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
062-082	25	Aspen/White Spruce/Balsam Fir	NHRC	NHRF	NHRU	ws	CNR, CSP, CFT, CSS	B			
062-083	27	Quaking Aspen	NHRR				CMS, CWS, CSP, CFT, CSS				
063-001	32	White Pine	VT	SP-UB		ws	CMS, CWS, CSP, CSS			RT-BE, RT-NG	
063-003	49	Quaking Aspen	PC60	REL	NR	ws	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO	
063-004	17	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CSS			RT-BO	
063-006	46	Quaking Aspen	PC60	REL	UPWPRPWS	ws	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO, SR-BE	
063-014	9	Quaking Aspen	CCR	REL	NR	w	CWS, CNR, CSP, CSS		R-1, R-2, G-SC-1	RT-BO	
076-098	22	Quaking Aspen	CCR		NR	w	CWS, CNR, CSP, CSS			RT-BO	
076-100	6	Upland Black Spruce or Black Spruce/Jack Pine	TH			w	CWS, CSP, CSS			RT-BE, RT-NG	
076-103	6	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS		R-1	RT-BO	
076-104	8	Quaking Aspen	NHRR	NHRU			CWS, CSP, CSS		R-1		
076-106	11	Red Pine	TH			w	CWS, CSP, CSS			RT-BE, RT-NG	
076-108	28	Quaking Aspen	CCR		NR	w	CWS, CNR, CFN, CSP, CSS			RT-BE, RT-BO	
076-110	21	Quaking Aspen	PC30		DPWPRP	ws	CSP, CSS		R-1, R-2, G-SC-1	RT-BO	
076-112	11	Quaking Aspen	PC30		DPWPRP	ws	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BO	
095-062	52	Quaking Aspen	NHRR			w	CWS, CSP, CFT, CSS				
095-076	25	Quaking Aspen	NHRR	NHRB			CWS, CSP, CSS			RT-CL	
095-082	31	Red Pine	NHRR			w	CWS, CNR, CSP, CSS				
063-019	50	Quaking Aspen	PC30		DPWPRPWS	w	CWS, CVW, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO	
063-021	51	Upland Black Spruce or Black Spruce/Jack Pine	PC60		NR	w	CWS, CSP, CSS			RT-BO	
063-022	53	Quaking Aspen	CCR	REL	CVJP	w	CWS, CNR, CSP, CSS			RT-BO	
063-023	9	Quaking Aspen	CCR		CVJP	w	CWS, CNR, CSP, CSS			RT-BO	
063-026	76	Quaking Aspen	PC30		DPWPRPWS	w	CWS, CVW, CNR, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO	Weed1
063-030	31	Quaking Aspen	PC30		DPWPRPWS	w	CWS, CFN, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO	
063-034	81	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CMS, CWS, CFN, CSP, CSS		R-1	SR-BE	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
063-036	14	Quaking Aspen	NHRR				CMS, CWS, CSP, CSS	A, B		SR-BE	
063-041	17	Quaking Aspen	PC30		DPWP	ws	CWS, CSP, CSS			RT-BO	
063-043	16	Quaking Aspen	PC30	REL	DPWP	ws	CWS, CSP, CSS		R-1	RT-BE, RT-BO	Weed1
063-047	7	Quaking Aspen	NHRR				CSP, CSS				
063-049	20	Quaking Aspen	PC30		DPWPRPWS	w	CWS, CSP, CSS			RT-BE, RT-BO	
063-052	22	Aspen/White Spruce/Balsam Fir	PC60	REL	UPWPRPWS	ws	CWS, CSP, CSS	A	R-1, R-2, G-SC-1	RT-BE, RT-BO, SR-BE	
063-053	14	Aspen/White Spruce/Balsam Fir	PC60	REL	NR	ws	CMS, CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO, SR-BE	
063-054	38	Quaking Aspen	VT	SP-UB		ws	CMS, CWS, CSP, CSS			RT-BE, RT-NG, RT-BO, SR-BE	
063-055	12	Paper Birch	PC60	REL	NR	w	CMS, CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-BO, SR-BE	
063-056	71	Red Pine	VT	SP-UB		ws	CMS, CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-NG, RT-BO	Weed1
063-057	36	Red Pine	NHRR				CMS, CWS, CNR, CSP, CSS	A, B		RT-NG	
064-001	15	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CWS, CSP, CSS				
064-010	53	Quaking Aspen	PC30		DPWPRPWS	w	CWS, CVW, CSP, CSS		R-1, R-2, G-SC-1	RT-BO	
064-014	70	Quaking Aspen	CCR		CVJP	w	CWS, CVW, CNR, CSP, CSS		R-1, R-2, G-SC-1	RT-BO	
064-018	10	Quaking Aspen	CCR		CVJP	w	CWS, CNR, CSP, CSS			RT-BO	
064-025	17	Quaking Aspen	CCR		CVJP	w	CWS, CSP, CSS			RT-BO	
064-027	9	Quaking Aspen	NHRR				CWS, CSP, CSS				
064-031	10	Quaking Aspen	NHRR				CWS, CNR, CSP, CSS				
064-034	16	Quaking Aspen	NHRR				CWS, CSP, CFT, CSS				
064-039	19	Quaking Aspen	PC30	REL	DPWP	ws	CMS, CWS, CSP, CFT, CSS			RT-BE	
064-044	40	Quaking Aspen	PC30		NR	w	CMS, CWS, CSP, CFT, CSS		R-1	RT-BE, RT-BO	
064-048	6	Quaking Aspen	NHRR				CWS, CSP, CSS	B			
064-050	19	Quaking Aspen	NHRR	NHRU	UPWPWS		CWS, CFN, CSP				
064-075	14	Quaking Aspen	CCR	REL	CVJP	w	CWS, CSP, CSS	B	R-1, R-2, G-SC-1	RT-OSF, RT-BO	
064-076	6	Upland Black Spruce or Black Spruce/Jack Pine	CCR	REL	CVJP	w	CWS, CSP, CSS			RT-TTW, RT-OSF, RT-BO	
064-077	19	Quaking Aspen	PC30	REL	DPWP	ws	CWS, CSP, CSS			RT-BO	
065-004	13	Quaking Aspen	PC30	REL	DPWP	ws	CWS, CNR, CSP, CSS			RT-BE, RT-BO	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
065-008	12	Quaking Aspen	PC30		DPWP	ws	CWS, CNR, CSP, CFT, CSS			RT-BE, RT-BO	
065-010	34	Quaking Aspen	PC30		DPWP	ws	CWS, CNR, CSP, CSS			RT-BE, RT-BO	
065-013	16	Quaking Aspen	PC30	REL	DPWP	ws	CWS, CNR, CSP, CSS			RT-BO	
065-015	3	Quaking Aspen	CCR	REL	DPWP	w	CWS, CSP, CSS			RT-BO	
065-017	3	Quaking Aspen	PC30		DPWP	w	CWS, CSP, CSS			RT-BO	
065-019	1	Quaking Aspen	NHRR	REL			CWS, CSP, CSS				
065-021	8	White Pine	NHRR	REL			CWS, CSP, CSS				
065-022	7	Paper Birch	PC30	SP-MEC	NR	ws	CSP, CSS			RT-BE, RT-BO	
065-024	5	Paper Birch	ST	SP-MEC	NR	ws	CWS, CSP, CSS			RT-BE, RT-BO	
065-026	7	White Pine	NHRR				CWS, CSP, CSS				
065-027	26	White Pine	TH			w	CWS, CSP, CSS			RT-BE, RT-NG, RT-BO	
065-032	10	Quaking Aspen	PC60	REL	UPWP	ws	CWS, CSP, CSS			RT-BE, RT-BO	
065-033	5	Quaking Aspen	NHRR				CWS, CSP, CSS				
065-035	1	Quaking Aspen	PC60	REL	UPWP	ws	CMS, CWS, CSP, CSS			RT-BO	
065-037	29	Quaking Aspen	NHRR	NHRU	UPWP		CWS, CSP, CSS				
065-038	9	Quaking Aspen	PC30		DPWP	w	CWS, CSP, CSS			RT-BO	
065-040	37	Quaking Aspen	PC30		DPWP	w	CWS, CNR, CSP, CSS			RT-BE, RT-BO	
065-042	5	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS				
065-043	39	Quaking Aspen	PC30		DPWP	ws	CWS, CSP, CSS			RT-BE, RT-BO	
065-048	6	Paper Birch	PC30	SP-MEC	NR	ws	CSP, CSS			RT-BE	
065-049	16	Paper Birch	PC30	SP-MEC	NR	ws	CWS, CSP, CSS			RT-BE	
065-050	25	Quaking Aspen	PC60	REL	UPWP	ws	CMS, CWS, CSP, CSS			RT-BE	Weed1
065-051	15	Paper Birch	PC30	SP-MEC	NR	ws	CWS, CSNP, CFT, CSS			RT-BE	
065-056	17	Quaking Aspen	PC30		DPWP	w	CMS, CWS, CSP, CSS			RT-BO	
065-057	13	Quaking Aspen	PC30		DPWP	ws	CWS, CSP, CSS			RT-BE	
065-058	49	Quaking Aspen	PC30		DPWP	ws	CWS, CNR, CSP, CSS			RT-BE, RT-BO	
065-059	10	Quaking Aspen	PC60		UPWP	w	CMS, CSP, CSS			RT-BO	
073-007	50	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CSP, CSS	B			
074-002	5	Jack Pine	CCR		SDJP	ws	CVW, CNR, CSP, CSS			RT-TTW	
074-003	8	Jack Pine	CCR		SDJP	ws	CVW, CNR, CSP, CSS			RT-TTW	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
074-006	29	Upland Black Spruce or Black Spruce/Jack Pine	CCR		CVJP	w	CWS, CVW, CNR, CSP, CSS			RT-TTW, RT-OSF	
074-008	5	Jack Pine	CCR		SDJP	w	CWS, CSP, CSS			RT-TTW	
074-009	75	Jack Pine	CCR		SDJP	w	CMS, CWS, CVW, CNR, CSP, CSS			RT-TTW	Weed1
074-012	28	Quaking Aspen	PC60		UPWPJP	w	CWS, CSP, CSS			RT-BO	
074-021	57	Jack Pine	PC30		NR	w	CWS, CNR, CSP, CSS			RT-TTW	
074-022	44	Quaking Aspen	CCR		CVJP	w	CMS, CWS, NR, CSP, CSS				
074-026	37	Aspen/White Spruce/Balsam Fir	CCR		CVJP	w	CWS, CNR, CSP, CSS				Weed1
074-027	63	Quaking Aspen	CCR		DPWPWS	w	CMS, CWS, CNR, CSP, CSS				Weed1
074-031	43	Quaking Aspen	PC60		UPWP	w	CWS, CFN, CSP, CSS			RT-BO	
074-032	11	Balsam Fir/Aspen/Paper Birch	PC60	REL	NR	w	CWS, CFN, CSP, CSS			RT-BO	
074-034	67	Quaking Aspen	PC30		DPWPWS	w	CMS, CWS, CSP, CSS				
074-035	65	Quaking Aspen	CCR		DPWPWS	w	CMS, CWS, CNR, CSP, CSS				
074-036	63	Quaking Aspen	CCR		DPWPWS	w	CMS, CWS, CNR, CSP, CSS				
074-040	104	Balsam Fir/Aspen/Paper Birch	CCR		CVJP	w	CWS, CNR, CSP, CSS	A		RT-OSF	
074-043	56	Quaking Aspen	CCR		CVJP	w	CWS, CNR, CSP, CSS				
074-045	38	Paper Birch	ST	SP	DPWPWS	w	CWS, CNR, CFN, CSP, CSS			RT-BE	
074-046	50	Jack Pine	CCR		NR	w	CWS, CFN, CSP, CSS			RT-BE, RT-TTW, RT-OSF	
074-047	8	Quaking Aspen	CCR		DPWPWS	w	CWS, CFN, CSP, CSS			RT-BE	
074-048	33	Quaking Aspen	NHRR				CWS, CFN, CSP, CSS	A, B			
074-050	35	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS				
075-001	36	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CFN, CSP, CSS	B			
075-002	5	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CNR, CFN, CSP				
075-003	26	Quaking Aspen	NHRU	REL	UPWPWS		CWS, CSP, CSS	B			
075-014	9	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
075-016	16	Aspen/White Spruce/Balsam Fir	CCR		NR	w	CWS, CSP, CSS			RT-BE, RT-OSF, RT-BO	
075-018	9	Paper Birch	ST	SP	NR	w	CSP, CSS			RT-BE, RT-BO	
075-022	7	Red Pine	TH			w	CSP			RT-NG, RT-BO	
075-023	41	Aspen/White Spruce/Balsam Fir	CCR		NR	w	CMS, CWS, CFN, CSP, CSS	A		RT-BE, RT-OSF, RT-BO	
075-030	20	Aspen/White Spruce/Balsam Fir	CCR		NR	w	CMS, CWS, CFN, CSP, CSS			RT-OSF, RT-BO	
075-034	48	Quaking Aspen	PC30		CVWP	w	CWS, CSP, CSS			RT-BE, FT-BO	
075-035	38	Quaking Aspen	PC30		NR	w	CWS, CSP, CSS	B		RT-BE, RT-BO	
075-037	31	Quaking Aspen	PC30		CVWP	w	CWS, CSP, CSS			RT-BE, RT-BO	
075-052	17	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS				
075-053	33	Quaking Aspen	PC30		CVJP	w	CMS, CWS, CSP, CSS			RT-BO	
075-061	3	Aspen/White Spruce/Balsam Fir	PC60		NR	ws	CWS, CFN, CSP, CSS			RT-BE, RT-BO	
075-062	17	Red Pine	TH	REL		w	CWS, CFN, CSP, CSS			RT-BE, RT-NG	
075-063	3	Aspen/White Spruce/Balsam Fir	NHRR	NHRU	UPWPWS		CWS, CSP, CSS			RT-OSF	
075-065	15	Quaking Aspen	TH	REL		w	CWS, CFN, CSP, CSS			RT-BE, RT-NG	
075-067	9	Jack Pine	NHRR	NHRU			CWS, CFN, CSP, CSS				
075-068	10	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CWS, CFN, CSP	A, B			
075-069	44	Aspen/White Spruce/Balsam Fir	PC60		NR	w	CWS, CFN, CSP, CSS			RT-BE, RT-OSF	Weed2
075-070	129	Aspen/White Spruce/Balsam Fir	PC60		NR	w	CWS, CSP, CSS			RT-BE	Weed1
075-073	5	Jack Pine	PC60		NR	w	CWS, CSP, CSS			RT-BO	
075-074	9	Aspen/White Spruce/Balsam Fir	PC60		NR	w	CWS, CSP, CSS			RT-BO	
075-078	7	Jack Pine	NHRU		SDJP		CMS, CVW, CSP, CSS				
075-079	82	Aspen/White Spruce/Balsam Fir	PC60		UPWPJP	w	CWS, CVW, CSP, CSS			RT-OSF, RT-BO	Weed1
075-082	14	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS				
075-083	30	White Pine	PC60		NR	w	CWS, CVW, CSP, CSS				
076-003	35	Quaking Aspen	CCR		NR	ws	CWS, CSP, CFT, CSS			RT-BE	
076-007	30	Balsam Fir/Aspen/Paper Birch	NHRU				CWS, CSP, CFT, CSS		R-1		
076-008	25	Balsam Fir/Aspen/Paper Birch	NHRR				CMS, CWS, CSP, CFT, CSS				

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
076-025	22	Quaking Aspen	CCR		NR	w	CMS, CWS, CSP, CSS			RT-BO	
076-027	26	Quaking Aspen	CCR		NR	w	CMS, CWS, CFN, CSP, CSS			RT-BO	
076-037	12	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS			RT-BO	
076-039	24	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS			RT-BO	
076-041	36	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BO	
076-042	18	Quaking Aspen	CCR	REL	NR	w	CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BO	
076-044	24	Quaking Aspen	CCR	REL	NR	w	CNR, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-BO	
076-047	67	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CSP, CFT, CSS		R-1		
076-057	35	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS			RT-BO	
076-059	18	Quaking Aspen	CCR		NR	w	CWS, CNR, CSP, CSS			RT-BO	
076-066	10	Jack Pine	CCR		NR	w	CWS, CSP, CSS			RT-TTW, RT-BO	
076-080	13	Upland Black Spruce or Black Spruce/Jack Pine	CCR		CVJP	w	CMS, CWS, CSP, CSS			RT-TTW, RT-BO	
076-082	21	Upland Black Spruce or Black Spruce/Jack Pine	CCR		CVJP	w	CWS, CSP, CFT, CSS			RT-TTW, RT-OSF, RT-BO	
076-092	11	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU			CWS, CSP, CSS	B	R-1		
076-095	14	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS			RT-BE, RT-BO	
076-096	39	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS			RT-BO	
076-097	6	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS			RT-BO	
076-127	17	Quaking Aspen	REL		NR		CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1		
078-002	7	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CWS, CSP, CSS				
078-016	44	Red Pine	TH			w	CWS, CSP, CSS		R-1	RT-NG	
078-025	31	Aspen/White Spruce/Balsam Fir	CCR		CVJP	w	CWS, CSP, CSS			RT-OSF	Weed1
078-026	25	Quaking Aspen	CCR		CVJP	w	CWS, CSP, CSS				Weed1
078-039	20	Red Pine	TH			ws	CWS, CNR, CFN, CSP, CSS			RT-NG	Weed1
078-051	26	Jack Pine	CCR		NR	ws	CMS, CWS, CFN, CSP, CSS			RT-BE, RT-TTW, RT-OSF, SR-BTBW	
078-057	32	Aspen/White Spruce/Balsam Fir	CCR		NR	w	CWS, CSP, CSS	A			
078-065	87	Jack Pine	CCR		NR	w	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-TTW, RT-OSF	
078-069	29	Red Pine	TH			ws	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE, RT-NG	

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079-001	16	Balsam Fir/Aspen/Paper Birch	CG	REL	UP		CMS, CWS, CFN, CSP, CSS	A	R-1, R-2, G-SC-1	RT-BE	
079-002	24	Balsam Fir/Aspen/Paper Birch	CG	REL	UP		CMS, CWS, CFN, CSP, CSS		R-1, R-2, G-SC-1	RT-BE	
079-007	49	Aspen/White Spruce/Balsam Fir	CCR	REL	DPRPWP	ws	CMS, CWS, CVW, CSP, CSS			RT-BE	Weed1
079-009	12	Quaking Aspen	PC30	REL	DPJPWS	ws	CMS, CWS, CFN, CSP, CSS		R-1, R-2, G-SC-1	RT-BE	
079-010	37	Upland Black Spruce or Black Spruce/Jack Pine	CCR	REL	DPRPWP	ws	CWS, CSP, CSS			RT-TTW	Weed1
079-012	34	Red Pine	TH			ws	CWS, CSP, CSS			RT-NG	Weed1
079-018	15	Aspen/White Spruce/Balsam Fir	PC60	REL	NR	ws	CWS, CSP, CFT, CSS			RT-BE	Weed1
079-022	8	Black Spruce	CCR		SDBS	ws	CWS, CSP, CFT, CSS				
079-024	40	Paper Birch	NHRR	NHRU			CMS, CWS, CNR, CSP, CFT, CSS				
079-026	15	Quaking Aspen	PC60	REL	NR	ws	CMS, CNR, CSP, CFT, CSS			RT-BE	
079-027	11	Aspen/White Spruce/Balsam Fir	NHRR	NHRU			CWS, CSP, CSS				
079-028	22	Quaking Aspen	NHRR	NHRU			CWS, CSP, CFT, CSP				
079-031	7	Balsam Fir/Aspen/Paper Birch	PC60	REL	NR	ws	CMS, CSP, CSS			RT-BE	
079-034	4	Quaking Aspen	PC60	REL	NR	ws	CMS, CSP, CFT, CSS			RT-BE	
079-035	12	Paper Birch	ST	SP	NR	w	CMS, CWS, CSP, CFT, CSS			RT-BE	
079-038	56	Aspen/White Spruce/Balsam Fir	NHRR				CMS, CWS, CSP, CSS				
079-039	11	Red Pine	TH			w	CWS, CSP, CSS			RT-NG	
079-040	24	Quaking Aspen	PC30	REL	DPRPWP	w	CWS, CSP, CFT, CSS			RT-BE	
079-043	20	Black Spruce	NHRU				CWS, CSP, CFT, CSS				
079-049	9	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU			CWS, CSP, CFT, CSS				
079-052	23	Quaking Aspen	PC60	REL	NR	ws	CMS, CWS, CSP, CFT, CSS			RT-BE	
079-054	13	Upland Black Spruce or Black Spruce/Jack Pine	CCR	REL	DPRPWP	ws	CWS, CVW, CSP, CSS			RT-BE, RT-TTW	Weed1
079-058	12	Red Pine	TH			ws					
079-060	2	White Pine	TH	REL		ws	CWS, CSP, CSS			RT-BE, RT-NG	
079-062	8	Balsam Fir/Aspen/Paper Birch	CG	REL	UP		CMS, CWS, CFN, CSP, CSS	A	R-1, R-2, G-SC-1	RT-BE	Weed1
079-063	18	Balsam Fir/Aspen/Paper Birch	CG	REL	UP		CMS, CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE	Weed1
080-006	27	Red Pine	TH			w	CWS, CSP, CFT, CSS			RT-NG	
080-022	53	Quaking Aspen	PC60	REL	UPWP	ws	CWS, CSP, CFT, CSS				Weed1

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080-023	14	Jack Pine	CCR		NR	ws	CWS, CVW, CSP, CSS			RT-TTW	
080-028	68	Red Pine	TH	REL		w	CWS, CSP, CSS			RT-NG	
080-032	51	Quaking Aspen	NHRR				CMS, CWS, CNR, CSP, CFT, CSS				
080-036	13	Jack Pine	CCR		NR	ws	CWS, CSP, CSS			RT-TTW	Weed1
080-040	29	Red Pine	TH			ws	CWS, CVW, CSP, CSS			RT-NG	Weed1
080-054	19	Quaking Aspen	NHRR	NHRU			CWS, CNR, CSP, CSS				
080-067	33	Red Pine	TH	REL		w	CWS, CNR, CSP, CSS			RT-NG	
080-071	19	Quaking Aspen	CCR		CVJP and DPWPS	ws	CWS, CNR, CSP, CFT, CSS				
080-095	10	Black Spruce	CCR		SDBS	ws	CWS, CSP, CSS				
080-098	5	Quaking Aspen	TH			ws	CWS, CSP, CSS			RT-NG	
080-100	3	Quaking Aspen	CCR		CVJP	ws	CWS, CVW, CNR, CSP, CFT, CSS				
081-022	53	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS		R-1, R-2, G-SC-1	RT-BE	
081-030	14	Jack Pine	CCR		NR	w	CWS, CNR, CSP, CSS			RT-CL, RT-TTW	
081-032	4	Quaking Aspen	CCR		NR	w	CWS, CSP, CSS		R-1, R-2, G-SC-1		
081-039	39	Quaking Aspen	CCR		NR	w	CWS, CVW, CFN, CSP, CSS			RT-BE	
081-043	34	Quaking Aspen	CCR		NR	w	CWS, CNR, CSP, CSS			RT-CL, RT-BE	
081-044	35	Quaking Aspen	CCR		NR	w	CMS, CWS, CVW, CSP, CSS			RT-CL	
081-046	20	Quaking Aspen	CCR		NR	w	CMS, CWS, CSP, CSS			RT-CL, RT-BE	
082-004	33	Red Pine	TH			as	CWS, CFN, CSP, CSS			RT-NG	Weed1
082-005	31	Red Pine	TH			w	CWS, CFN, CSP, CSS			RT-NG	Weed1
082-008	19	Black Spruce	CCR		SDBS	w	CMS, CWS, CSP, CFT, CSS		R-1, R-2, G-SC-1	RT-CL	
082-009	55	Red Pine	TH			w	CWS, CSP, CFT, CSS	B	R-1, R-2, G-SC-1	RT-BE, RT-NG	
082-010	24	Black Spruce	CCR		SDBS	w	CMS, CWS, CSP, CSS			RT-CL, RT-BE	
082-027	52	Aspen/White Spruce/Balsam Fir	CCR		CVJP	w	CMS, CWS, CFN, CSP, CFT, CSS			RT-BE	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
082-031	4	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU			CMS, CWS, CSP, CSS			RT-CL	
082-032	6	Jack Pine	NHRU				CSP, CSS			RT-CL	
082-033	12	Upland Black Spruce or Black Spruce/Jack Pine	NHRR	NHRU			CWS, CSP, CSS				
082-073	4	Black Spruce	CCR		SDBS	ws	CWS, CSP, CSS			RT-CL, RT-BE	Weed1
082-074	3	Balsam Fir/Aspen/Paper Birch	NHRR	NHRU			CWS, CSP, CSS				
082-090	15	Upland Black Spruce or Black Spruce/Jack Pine	NHRU		UPWSWP		CWS, CNR, CSP, CSS			RT-CL	
082-094	14	Aspen/White Spruce/Balsam Fir	CCR		CVJP	ws	CWS, CSP, CSS		R-1	RT-BE, RT-OSF	
082-095	98	Aspen/White Spruce/Balsam Fir	CCR		CVJP	ws	CMS, CWS, CSP, CFT, CSS		R-1	RT-BE	
083-004	51	Aspen/White Spruce/Balsam Fir	CCR		CVJP	ws	CWS, CSP, CSS				
083-005	4	Balsam Fir/Aspen/Paper Birch	CCR		CVJP	ws	CWS, CSP, CSS				
083-006	12	Upland Black Spruce or Black Spruce/Jack Pine	CCR		CVJP	ws	CWS, CSP, CSS			RT-CL, RT-TTW	
083-012	38	Black Spruce	BB	NHRB			CWS, CSP, CSS			SR-NG	
083-015	13	Red Pine	TH			ws	CWS, CNR, CSP, CSS	A		RT-BE, RT-NG	
083-027	27	Open	BB	NHRB			CWS, CVW, CSP, CSS			SR-NG, RP1	
083-033	4	Open	BB	NHRB			CVW, CSP, CSS	B		SR-NG	
083-034	10	Open	BB	NHRB			CWS, CVW, CSP, CSS			SR-NG	Weed1
084-019	14	Jack Pine	NHRR	NHRU			CWS, CNR, CSP, CSS				
085-020	54	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CSP, CSS				
085-021	34	Aspen/White Spruce/Balsam Fir	NHRR				CWS, CNR, CSP, CSS				
085-038	16	Upland Black Spruce or Black Spruce/Jack Pine	NHRR				CWS, CSP, CFT, CSS			RT-CL	
085-039	1	Jack Pine	NHRR				CWS, CSP, CSS			RT-CL	
087-003	44	Aspen/White Spruce/Balsam Fir	CCR		CVJP	w	CWS, CNR, CSP, CSS				
087-004	9	Jack Pine	NHRR	NHRU			CWS, CNR, CSP, CSS				
087-005	11	Jack Pine	NHRR	NHRU			CWS, CSP, CSS				
095-006	6	Black Spruce	CCR		SDBS	w	CWS, CSP, CSS			RT-CL	
095-019	37	Black Spruce	BB	NHRB			CWS, CVW, CNR, CSP, CSS			SR-NG	
095-027	153	Quaking Aspen	CCR		NR	ws	CWS, CSP, CSS			RT-CL, RT-BE	

Unit Number	Acres	Forest Type Name	Primary Treatment	Secondary Treatment	Reforestation	Season of Harvest	Soils Design Feature	Heritage Design Criteria	Recreation Design Criteria	Wildlife and Plant Design Criteria	Non-native Invasives Design Criteria
095-037	43	Quaking Aspen	NHRR				CWS, CSP, CSS	B		RP5	
095-046	82	Quaking Aspen	CCR		NR	w	CWS, CNR, CSP, CSS			RT-CL	
095-053	16	Red Pine	NHRR				CWS, CSP, CSS				

**Attachment 2
Other Activities Included with Decision**

The following describes the other activities that are included in the decision.

Transportation system

1. Construct 0.2 miles of new road to allow for expansion of Snowbank Gravel Pit. Decommission the existing 0.2 miles of existing road that is no longer needed. Add 0.4 miles of existing road to the system. The road goes past Smitty’s and ends on federal land on Snowbank Lake.
2. Reconstruct 0.9 miles of the Madden Lake Road.
3. Add 0.2 miles of existing road to the system to provide long-term access to state and federal land.
4. Construct 0.8 miles of new road to provide long-term access to state and federal land.

Trail System

Add 7.5 miles of existing winter routes to the managed trail system. Some of these routes will be used as temporary roads to access treatment units. See Attachment 4 (G-REC-2, Glacier-RTL-1, G-RTL-3) for information on how the trails will be managed.

Gravel Pits

Five gravel pits will be available for gravel to meet Agency and other needs. The following table displays how much each pit will be expanded.

Table 3.17-1. Active Gravel Pits in the Glacier Project Area					
Pit Name	Current Pit Size (Acres)	Potential Pit Size (Acres)	Quantity of Material Available (cubic yards)	10-year Expansion (Acres)	10-year Expansion (Cubic yards)
Madden Creek	2.4	4.5	50,000	0.11	2,760
Nickel Lake North	1.8	2.4	10,000	0.07	1,200
Nickel Lake South	1.9	5.0	50,000	0.17	2,785
Snowbank Lake	4.1	5.7	50,000	0.21	6,920
South Farm Lake	0.2	4.3	100,000	0.06	1,440
Total	10.4	21.9	260,000	0.62	15,105

Fall Lake gravel pit will be rehabilitated.

Stream Crossings

Three stream crossings will be improved. The current stream crossings are limiting fish passage and are resulting in impacts to water quality. The improved stream crossing will result in better water quality. The three stream crossings are: Forest Road 1542 crosses a tributary that flows into Moose Lake. Forest Road 1553 crosses a tributary that flows into the Kawishiwi River south of White Iron Lake. And Forest Road 1468 is a tributary that flows into Heart Lake.

Brush Disposal Sites

Old gravel pits along the Moose Lake Road and the Ojibway Summer Home Road will be available to the public to dispose of woody debris and brush disposal sites for public use. These areas will be available to the public to dispose woody debris from their property. The Forest Service will burn these piles in late fall when weather conditions resist fire spread outside the piles. These sites are being established to encourage landowners to create defensible space on their property by removing hazardous fuels. The effects of the 1999 blowdown are still evident in the area. Some landowners are still cleaning up the trees fallen during the storm while others are cleaning up trees finally succumbing to mortality from the stress inflicted by the storm.

**Attachment 3
Units Deferred from Alternative 4**

The following table displays the units that are no longer part of Alternative 4. These units are being deferred from management action at this time. The table includes some of the rationale for why they are not included in the decision.

Attachment 3: Units Deferred from Alternative 4		
Unit Number	Acres	Reason Unit Deferred From Alternative 4
001-027	11	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
001-028	64	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
001-029	38	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
002-022	6	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
002-028	7	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
002-030	7	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
002-074	2	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
002-078	1	Amount of young forest on all ownership, wildlife connectivity (such as for lynx), and Kek Trail in relation to amount of harvest along trail
005-008	10	Limited opportunities at this time, visual issue along Fernberg Road
005-013	13	Limited opportunities at this time, visual issue along Fernberg Road
005-017	5	Limited opportunities at this time, visual issue along Fernberg Road
005-020	10	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-021	12	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-038	9	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-039	13	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-043	11	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-045	10	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-046	4	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-047	8	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-053	33	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-054	8	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-064	7	Amount of young forest on all ownership, wildlife connectivity (such as for lynx)
005-069	4	Limited opportunities at this time, visual issue along Fernberg Road
005-075	9	Limited opportunities at this time, visual issue along Fernberg Road
006-019	24	Limited opportunities at this time, visual issue along Fernberg Road
009-027	8	Wildlife connectivity (such as for lynx)
009-032	10	Low priority, visual issue along Fernberg Road
009-033	16	Wildlife connectivity (such as for lynx)
009-034	11	Wildlife connectivity (such as for lynx)
010-027	27	Wildlife connectivity (such as for lynx)

Unit Number	Acres	Reason Unit Deferred From Alternative 4
010-035	14	Wildlife connectivity (such as for lynx)
010-056	30	Low priority, visual issue along Fernberg road
011-006	9	Low priority, visual issue along Fernberg Road
011-046	17	Low priority, visual issue along Fernberg Road
011-047	21	Low priority, visual issue along Fernberg Road
012-025	15	Low priority, visual issue along Fernberg Road
012-041	90	Wildlife connectivity (such as for lynx)
012-045	37	Wildlife connectivity (such as for lynx)
013-002	22	Low density for PC60 prescription
013-007	32	Low density for PC60 prescription
013-008	12	Low density for PC60 prescription
013-010	12	Low density for PC60 prescription
014-019	51	Succeeding to desired conditions, low density for prescription
014-020	4	Succeeding to desired conditions, low density for prescription
014-024	54	Succeeding to desired conditions, low density for prescription
014-026	10	Succeeding to desired conditions, low density for prescription
074-019	54	Field visit revealed small diameters; not ready for final harvest. Defer for future treatment
074-030	12	Not economical by itself, (lowland black spruce low density for final harvest)
022-122	32	Low priority for treatment at this time
022-132	18	Low priority for treatment at this time
073-035	32	Leave to meet landscape needs (eg, mature forests-Goshawk), terrain and access, ELT 18
073-038	20	Leave to meet landscape needs (eg, mature forests-Goshawk), terrain and access, ELT18
073-039	38	Leave to meet landscape needs (eg, mature forests-Goshawk), terrain and access, ELT 18
076-039	24	Leave to meet landscape needs (eg, mature forests)
076-048	16	Leave to meet landscape needs (eg, mature forests) and reduces noise in wilderness
076-050	11	Leave to meet landscape needs (eg, mature forests) and reduces noise in wilderness
076-114	15	Amount of harvest adjacent to wilderness and unit will carry to next entry period
076-117	12	Amount of harvest adjacent to wilderness and unit will carry to next entry period
076-118	27	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-003	3	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-004	7	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-006	8	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-008	10	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-009	5	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-010	38	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-015	17	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-018	7	Amount of harvest adjacent to wilderness and unit will carry to next entry period

Unit Number	Acres	Reason Unit Deferred From Alternative 4
078-022	61	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-023	17	Amount of harvest adjacent to wilderness and unit will carry to next entry period
078-031	21	Amount of harvest adjacent to wilderness and unit will carry to next entry period
080-051	30	Soils (ELT 18s)
080-052	20	Soils (ELT 18s)
080-059	9	Soils (ELT 18s)
080-061	21	Leave to meet landscape needs (eg, mature forests)
080-063	7	Leave to meet landscape needs (eg, mature forests)
080-082	8	Soils (ELT 18s)
080-084	15	Leave to meet landscape needs (eg, mature forests)
081-005	6	Amount of harvest adjacent to wilderness and unit will carry to next entry period
081-006	9	Amount of harvest adjacent to wilderness and unit will carry to next entry period
081-008	4	Amount of harvest adjacent to wilderness and unit will carry to next entry period
081-009	6	Amount of harvest adjacent to wilderness and unit will carry to next entry period
081-057	5	Amount of harvest adjacent to wilderness and unit will carry to next entry period
087-006	31	Leave to meet landscape needs (eg, mature forests-Goshawk), terrain and access, ELT 18
087-007	91	Leave to meet landscape needs (eg, mature forests-Goshawk), terrain and access, ELT 18
087-016	152	Leave to meet landscape needs (eg, mature forests-Goshawk), terrain and access, ELT 18
Total Acres	1747	

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Attachment 4 Operational Standards and Guidelines

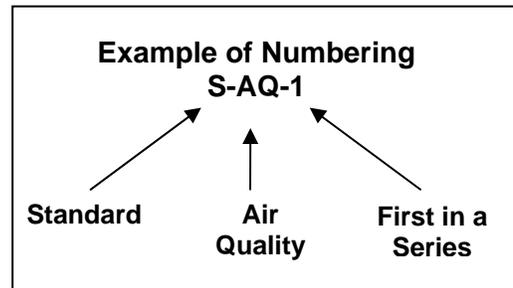
Introduction

This document lists the standards, guidelines, and other routine practices that will be employed during implementation of the Glacier Project.

Standards and guidelines are specific technical direction for managing resources and can be found in the Forest Plan. Standards are **required limits** to activities. These limitations help the Forest to reach the desired conditions and objectives. Standards also ensure compliance with laws, regulations, executive orders, and policy direction. Guidelines are **preferable limits** to management actions that may be followed to achieve desired conditions. Guidelines are generally expected to be carried out. They also help the Forest to reach the desired conditions and objectives in a way that permits operational flexibility to respond to variations over time. These are identified on the following pages as “S” or “G”.

Additional practices come from the Minnesota Forest Resource Council guide “Sustaining Minnesota Forest Resources. These are identified as “MFRC” and come directly from the Minnesota Forest Resource Council Voluntary Site-Level Forest Management Guidelines book. And some site-specific routine practices are identified by “Glacier” and are specific to this project and were identified by the interdisciplinary team to provide additional direction for implementing the project.

Key to Numbering	
S	Standard
G	Guideline
AQ	Air Quality
HR	Heritage Resources
ID	Insects, Diseases, and Disturbance Processes
PH	Public Health and Hazardous Materials
RTL	Trails
SC	Scenic Resources
TM	Timber Management
TS	Transportation Systems
VG	Vegetation Management
WL	Terrestrial and Aquatic Wildlife
WS	Watershed Health, Riparian Areas, and Soil Resources



Consistency with Minnesota Forest Resources Council (MFRC) Voluntary Site-level Guidelines

- G-FW-1 The Forest Service will implement the MFRC management guidelines when managing forest resources on the National Forest. These measures are described in *Sustaining Minnesota Forest Resources: Voluntary site-level Management Guidelines*. (available at <http://www.frc.state.mn.us/FMgdline/Guidelines.html>)

Note that not all of the MFRC guidelines are repeated in this document.

Air Quality and Smoke Management (AQ)

- S-AQ-1 Prescribed burning activities on the National Forest will only be conducted if they comply with requirements of the most current Minnesota Smoke Management Plan.

Watershed Health, Riparian Areas, and Soil Resources (WS)

Watershed Health

- S-WS-2 Excavated soil material, construction debris, spoils or debris from dredging projects, and debris and soil moved from upland sites during timber management activity (such as timber harvest, shearing or brush raking) will be deposited or spread out in upland locations. Stabilize soil deposited in this manner with vegetation.
- S-WS-3 Salvage and reuse topsoil for site rehabilitation during construction projects or other land use activities. When topsoil is unsuitable for reuse, other methods or tools such as sodding, hydro-seeding, fertilization, or erosion-resistant matting may be used to help rehabilitate disturbed areas.
- G-WS-1 Restore eroded sites, generally employing natural-appearing stabilization materials. Native species will be used in the restoration of vegetative cover. Non-native annuals may be used as nurse crops to obtain rapid stabilization while slower-growing native species are becoming established.

For Riparian Areas as a Whole (Both the Aquatic and Non-aquatic Portions)

- S-WS-6 Management activities involving heavy equipment crossing (by road, trail, or skid trail) of any stream or drainage ditch, or operations on the immediate shoreline of any lake or open water wetland will be designed and conducted in a way that:
- a. Limits the number of crossing locations to the absolute minimum needed to conduct the activity
 - b. Maintains or improves channel stability (dimension, pattern and profile) or shoreline stability in the affected or connected waters
 - c. Uses filter strips as directed by Forest Plan guideline G-WS-4 and MFRC site level guidelines.

Non-Aquatic portion of Riparian Areas

G-WS-4 On slopes averaging eighteen percent or steeper, the width of filter strips adjacent to lakes or streams will be either 150 ft. from the ordinary high water mark, 150 ft. from the bankfull elevation, or the width of the entire slope that is adjacent to the water's edge, which ever is greater.

Exceptions to filter strip guidelines are allowed for projects specifically designed for stream, lakeshore, or wetland restoration.

G-WS-5 In project areas subject to soil or vegetation disturbance, where the landward limit of the functional riparian area has not been site-specifically identified as part of project planning, a default "near bank" and "remainder" riparian management zone width of 100 feet each will generally be used along lakes, open water wetlands and streams.

Near-Bank Riparian Management Zone

S-WS-9 Within the near-bank zone, harvest trees only to maintain or restore riparian ecological function.

S-WS-10 Within the near-bank zone, do not deposit debris or spoils from maintenance, construction, or dredging. However, depositing materials for habitat improvement or restoration is allowed.

G-WS-6 Within the near-bank zone, minimize soil disturbance and avoid activities that may destabilize soils or add sediment to the water.

G-WS-7 Within the near-bank zone, minimize mowing or any other activity involving intensive removal of understory vegetation.

Soils

G-WS-8 Follow the limitations on management activities as specified in Table G WS-8.

G-WS-9 During resource management activities, minimize adverse impacts to soil productivity by striving to have no more than fifteen percent of a treatment area in a detrimentally compacted, eroded, rutted, displaced, or severely burned condition

G-WS-10 When conducting prescribed burns on ELTs 7, 8, 9, 11, 12, 16, 17, and 18, minimize the loss of forest floor (surface O layer). Provide for:

- a. Igniting burns only when the Canadian Fire Weather Index System Build Up Index (BUI) is fifty or less. (If the BUI system becomes outdated, another predictive model or index system may be used provided it affords a level of organic soil layer protection that is equivalent to a BUI of fifty or less.)
- b. Adjustment of ignition timing and firing patterns
- c. Taking into account vegetation type, topography, number of days since precipitation, wind, air temperature, humidity, and fuel loadings.

G-WS-11 On Ecological Land Types (ELTs) 7, 8, 9, 11, 12, 16, 17, and 18, management activities used for vegetation competition control will be designed and conducted in ways that minimize loss of the forest floor (surface O layer and duff layer).

Table G-WS-8 lists management activities that are designed to safeguard soil productivity. Table G-WS-8a defines the codes. Table G-WS-8b (Forest Plan page 2-18) provides brief descriptions of the ELTs, as well as principle threats to soil productivity on each ELT.

Activity/Limitation	1	2	3	4	5**	6	7	8	9	10	11	12**	13	14	15	16	17	18**
Skidding	Ax, B	A	Ax, B	A	#, A	A	B, E	E	B, E	Ax	B, E	#, A, E	B	Ax, B	Ax, B	Ax, B, E	#, A, x, B, E	#, A, E
Landings	A	A	A	A	#, A	A	+	+	--	Ax	+	--	+	Ax	Ax	#, Ax	#	--
Whole tree Logging	+	+	+	+	--	#	#, E, F	+, E, F	#, E, F	+	#, E, F	--	+	+	+	+, E, F	#, E, F	#, E, F
Tracked vehicles (feller buncher etc)	Ax	A	Ax	A	#, A	A	+	+	#	+	+	#	+	+	+	+	#	#, A
Temp roads, trails	#, Ax	#, A	#, Ax	#, A	#, A	#, A	+	+	+	Ax, B	+	--	+	Ax	Ax	+	--	--
Discing	Az, B	--	Az, B	--	--	--	B	B	--	Az, B	B	--	B	Az, B	Az	B	--	--
Reforestation	+	+	+	+	E	+	E, F	+	+	+	E, F	E, F	+	+	+	E, F	E, F	E, F
Machine Planting	Ax, B	--	Ax, B	--	--	--	Ax, B	Ax, B	#, B	Ax, B	B	--	B	Ax, B	Ax, B	B	--	--
Bracke scarification and Barrel scarification	Az	--	Az	--	--	--	C, E	C, E	#	Az	C, E	--	C	Az	Az	C, E	C, E	--
Blading, Shearing, Rockraking	Ax, B	A	Ax, B	A	#, A	A	D, E	D, E	D, E	Ax, D	D, E	#, D, E	D	Ax, D	Ax, D	Ax, D, E	--	--
Machine Piling/Bundler	Ax	A	Ax	A	#, E	E	E	E	--	+	E	#, E	+	+	+	E	E	#, E
Prescribed Fire	+	+	+	+	#, E, F, G	+	E, F, G	E, F, G	#, E, F, G	+	E, F, G	#, E, F, G	+	+	+	E, F, G	E, F, G	#, E, F, G
Use of low psi tires or other equipment with similar integrity	H	H	H	H	H	H	+	+	+	+	+	--	+	+	+	+	H	H

Table G-WS-8a. Activity Limit Codes Used in Table G-WS-8	
Code	Activity Limitation Designed to Protect Soil Productivity
**	No activities are permitted on these ELTs for purposes of timber production. Activities done for salvage, or to achieve other multiple use desired conditions or objectives are strongly discouraged on these ELTs and are subject to any applicable limitations shown elsewhere in this table. (see information below table)
+	Practice permitted on this ELT, subject to any applicable limitations specified elsewhere in this table.
--	Practice not permitted on this ELT.
#	Practice is strongly discouraged on this ELT. If undertaken, it is subject to any applicable limitations specified elsewhere in this table.
A	Limit activity to frozen soil (frozen to a depth that will support equipment that is being used).
Ax	Limit activity to frozen soil (frozen to a depth that will support equipment that is being used) or during normal dry period (generally July 1- Sept 15).
Az	Limit activity to normal dry period (generally July 1- Sept 15).
B	On slopes exceeding 18%, confine operations to the lower end of slopes and avoid creating long uninterrupted equipment "paths" that could channel water and erode soil. For slopes that exceed 35%, design for and favor activities that would provide for use of equipment and techniques that minimize operations on these slopes.
C	Bracke scarification not allowed when slopes exceed 18%.
D	Shearing not allowed on unfrozen ground when slopes exceed 18%, with the exception that it may be permitted during dry conditions if mineral soil is not exposed.
E	Retain/return distributed slash or woody debris and, where appropriate, retain stumps and bark on site.
F	Determine long term strategy on these ELTs for soil nutrient and tree nutrient efficiency. Favor maintaining or converting to pine/conifer type within LE vegetation composition by type objectives, and favor vegetation objectives for older growth stages. If existing stand is aspen/birch, favor partial cut & under plant to convert, or leaving more residual basal area when converting.
G	Follow G-WS-10.
H	Take precautionary measures to minimize soil disturbance when using this equipment on these sites.

Wetlands

S-WS-11 Activity fuels will not be pushed into windrows that encircle wetlands.

- G-WS-12 Use of wetlands under frozen conditions for temporary roads and skid trails will generally be permitted as long as no fill is placed in the wetland. These roads or trails will be blocked to discourage vehicle use under unfrozen conditions.
- G-WS-13 Wetland impacts will be avoided whenever possible. Where impacts are unavoidable, minimize and compensate for loss when undertaking projects.
- G-WS-14 Avoid felling trees into non-forested wetlands, except where done for purposes of habitat restoration.
- G-WS-15 Wetlands will be managed to prevent the reduction of their water quality, fish and wildlife habitat, and aesthetic values. Management actions will not reduce water quality within a wetland, or upstream or downstream of a wetland, unless restoration of natural conditions is the primary goal of the activity.
- MFRC-WS-1 Seasonal ponds and other lowland inclusions provide important habitat for woodland insects, amphibians and other species. Seasonal ponds have an identifiable edge caused by annual flooding and may be identified during dry periods by the lack of forest litter in the depression.

In upland stands, seasonal (vernal) ponds and other small lowland inclusions identified during layout will be protected with a minimum fifty-foot filter strip. This buffer can be used to help meet legacy patch and/or reserve tree needs. If this buffer is not being used to help with legacy patch needs then on sites with wind firm soils limited harvest can occur within this buffer, but a minimum of eighty basal area should be retained (MFRC, General guidelines, pp 24-28 and 73). Care should be taken to keep equipment out of the pond itself.

Insects, Diseases, and Disturbance Processes

- G-ID-3 Utilize existing natural or man-made barriers, such as drainages, cliffs, streams, roads, and trails instead of constructed firelines for prescribed fire and suppression activities where practical and safe for firefighters and the public.

Timber

- S-TM-4 Five years after clearcutting or final removals in seed tree or shelterwood harvest, stands must be adequately restocked. The minimum trees per acre necessary to adequately restock forests after even-aged tree harvest are shown in Table S-TM-4 by forest type group.

Forest Type Group	Minimum Trees* per Acre
Conifers	400
Northern Hardwoods, Birch, and Ash	1,000
Aspen	4,000

*Any commercial tree species may be included in the minimum.

- G-TM-4 Allow harvest of white cedar trees (in any forest type) only when re-growth of cedar is likely to be successful or for research purposes.

- G-TM-5 In stands twenty acres or larger that were regenerated with clearcuts, retain a minimum of five percent of the stand in legacy patches of live trees where no harvest occurs. Wherever possible these should be at least two acres in size. These legacy patches will protect soil organic matter and associated organisms and remaining vegetation will aid in the re-colonization of the adjacent managed area.

- G-TM-6 In northern hardwoods forest types, generally maintain a closed canopy (seventy percent or greater where possible) of mature forest vegetation in a minimum 200-foot zone surrounding seasonal ponds. Seasonal ponds included in this guideline must typically persist at least six weeks and be free of fish. The area will generally be managed to prevent the soil and water from warming excessively, to prevent erosion, and to provide large woody debris and leaf litter.

- MFRC-TM-1 Legacy patches should be no less than one-quarter acre in size (MFRC, Chapter 2, Wildlife Habitat, pg. 44). When locating legacy patches or leave tree clumps consider including important features such as wetland inclusions, seasonal ponds, riparian areas, forested corridors, den trees, cavity trees, trees with stick nests, large mature white pine, rare plant locations and rare native plant communities (MFRC, Timber Harvesting, pg. 35). Patches should be in representative habitats throughout the site (MFRC, Chapter 2, Wildlife Habitat, pg. 43)

- MFRC-TM-2 In general, retain a minimum of six to twelve live leave trees per acre to provide present and future benefits including shelter, resting sites, cavities, perches, rest sites, foraging sites, mast, and coarse woody debris. The trees will be at least six inches in diameter and include at least two trees per acre from the largest size classes available on site. A variety of species would be selected for within-stand species and structural diversity. (MFRC, General Guidelines, pg. 75-77).

- MFRC-TM-3 Leave trees may be left individually or in clumps ranging from one-quarter acre and larger. Minimal harvest within clumps is acceptable (down to a minimum of 80 BA) as long as the integrity of the clump or key leave trees are not disturbed, and as long as the clump is not doubling as a legacy patch (MFRC, Timber Harvesting, pg. 35).

- MFRC-TM-4 Unmerchantable trees, dead standing trees and trees not designated for harvest will be left. The operator will be allowed to fell (and leave in place) a portion of these trees in

areas where deemed necessary to facilitate the logging operations, as well as for safety reasons (MFRC, Timber Harvesting, pg. 33).

MFRC-TM-5 Consider retaining more than the recommended number of leave trees in harvest sites of greater than 100 acres. This practice would better mimic natural disturbances, such as fire and windstorm” (MFRC, Timber harvesting, pg. 40).

Glacier-TM-1 In general, all standing, live cedar, white pine, yellow birch and tamarack are designated as leave trees and are not to be cut except for trees needed to be removed because of safety hazard concerns or where specified on the unit card. These trees would count towards the 6-12 leave trees except where jack pine or black spruce are required for the Three-Toed Woodpecker (O-WL-23).

Landings (from MFRC Guidelines, p. 26 - 27)

Specify the number and location of landings as part of the harvesting agreement.

Size landings to the minimum required for the acres to be harvested, the equipment likely to be used, and the products to be cut.

Plan roads and landings to occupy no more than one to three percent of the timber harvest area. See Figure TH-8.

Locate landings so that they are:

- On upland areas whenever practical
- On stable ground
- Outside of filter strips or the riparian management zone (RMZ), whichever is wider, where practical. (See General Guidelines: Maintaining Filter Strips (pages 24-28) and General Guidelines: Managing Riparian Areas (pages 29-67).
- Away from areas where a cultural resource is present

Avoid landings in locations that will concentrate runoff from surrounding areas onto the landing. Use an appropriate combination of ditches, water bars and outsloping to keep the landing area dry.

Avoid locating landings and yarding areas on open water wetlands.

Skidding and Skid Trails (from MFRC Guidelines, p. 22)

Locate, design, construct and maintain skid trails to minimize damage to cultural resources or to the residual stand; minimize rutting; maintain surface and subsurface water flows in wetlands; and reduce erosion and sedimentation to protect water quality.

Lay out skid trails to minimize the number of skid trails and site disturbance while also achieving necessary operating efficiency.

- If practical and feasible, keep skid trails away from cultural resource areas.

- Avoid locating skid trails in filter strips and riparian management zones (RMZs). See General Guidelines: Maintaining Filter Strips and General Guidelines: Managing Riparian Areas.
- Avoid construction of skid trails with grades exceeding thirty-five percent.
- Limit skid trails to no more than ten to fifteen percent of the timber harvest area. Limit equipment traffic off the skid trails to no more than twenty to thirty percent of the area with no more than one to two passes with heavy equipment. (Small or irregularly shaped units may result in higher percentages of area occupied by infrastructure.) (See General Guidelines: Designing Operations To Fit Site Conditions, page 20.)
- Skid low on a slope or across a slope to minimize erosion.
- Minimize long, straight skid trails that channel water. If long stretches cannot be avoided by careful siting, provide adequate drainage to avoid concentration of surface water flow. Divert water by proper shaping of the trail surface and by using broad-based dips, lead-off ditches or water bars. See Forest Road Construction and Maintenance: Drainage.

Use full-tree skidding rather than tree-length skidding in the vicinity of a cultural resource, if practical and feasible.

Concentrate equipment traffic on skid trails. Maximize the area not impacted by traffic by concentrating equipment movements to common trails. Skidders should always use skid trail routes, rather than the shortest distance, to travel to and from landings.

Concentrate skidding to a set of well-developed skid trails for upland sites with mineral soils.

Avoid concentrating well-developed skid trails on shallow and deep organic soils. Operations on organic soils should only occur when soils are adequately frozen.

Prepare skid trails for anticipated traffic needs, to avoid unnecessary maintenance or relocation of trails. Techniques can include packing of snow or ground cover to ensure freezing, placing of slash mats on skid trails prior to skidding, or the use of appropriate wetland road construction methods to provide a stable trail surface.

Maintain skid trails in good repair so that additional skid trails are not required.

Reuse skid trails for thinning operations as trails for future thinnings and final harvest.

If skid trails do not hold up (resulting in excessive rutting or requiring the need to create new skid trails), curtail operations until soils dry out.

Vegetation Management (VG)

Vegetation Composition and Structure

Red and White Pine Forest
100 acre minimum patches

S-VG-4 In mature or older red and white pine forest types managed to maintain patch sizes of ≥ 100 acres, vegetation management treatments that maintain a sixty percent minimum canopy closure and maintain large diameter trees are allowable.

Spatial Zones 1 and 2

Large Mature and Older Upland Patches

G-VG-3 In Spatial Zones 1 and 2, in mature and older upland forest types managed to maintain patch sizes of ≥ 300 acres, vegetation management treatments are allowable where they maintain a fifty percent (sixty percent for red and white pine) minimum canopy closure at time of treatment and favor retention of larger and older trees characteristic of the patch.

Terrestrial & Aquatic Wildlife (WL)

Lynx

G-WL-2 Provide for the protection of known active den sites during denning season.

Bald Eagle

(from the Northern States Bald Eagle Recovery Plan 1983 –USFWS)

Disturbance Buffer Zones for Nest Trees.

1. Primary Zone: 330 feet from the nest. All land use except actions necessary to protect or improve the nest site should be prohibited in this zone. Human entry and low-level aircraft operations should be prohibited during the most critical and moderately critical periods, unless performed in connection with eagle research or management by qualified individuals. Motorized access into this zone should be prohibited. Restrictions on human entry at other times should be addressed in the breeding area management plan considering the types, extents, and durations of proposed or likely activities.
2. Secondary Zone: 660 feet from the nest. Land-use activities that result in significant changes in the landscape, such as clearcutting, land clearing, or major construction, should be prohibited. Actions such as thinning tree stands or maintenance of existing improvements can be permitted, but not during the most critical and moderately critical periods. Human entry and low-level aircraft operations should be prohibited during the most critical period unless performed in connection with necessary eagle research and management by qualified individuals. Roads and trails in this zone should be obliterated, or at least closed during the most and moderately critical periods. Restrictions on human entry at other times should be addressed in the breeding area management plan, considering the types, extents, and durations of proposed or likely activities.
3. Tertiary Zone: one-quarter mile from the nest, but may extend up to one-half mile if topography and vegetation permit a direct line of sight from the nest to potential activities at that distance. The configuration of this zone therefore may be variable. Some activities are permissible in this zone except during the most critical period. Each breeding area management plan may identify specific hazards that require additional constraints.

Roosting and Potential Nest Trees

- a) Three or more super-canopy trees (preferably dead or with dead tops) should be identified and preserved within one-quarter mile of each nest as roosting and perching sites.
- b) In areas identified as potential nesting habitat, there should be at least four to six over-mature trees of species favored bald eagles for every 320 acres within 1,320 feet of a river or lake larger than forty acres. These trees should be taller than surrounding trees or at the edge of the forest stand, and there should be clear flight paths to them.

Regional Forester Sensitive Species

All Sensitive Species

- G-WL-11 Avoid or minimize negative impacts to known occurrences of sensitive species.
- Glacier-WL-1 The biologist or botanist may identify other species of concern specific to the project area. A list of species of concern and important habitat components will be provided to the implementation crew prior to layout operations. If any threatened, endangered or sensitive plants and animals or their nests, dens or roost trees are found during planning layout or operations, activities would be temporarily halted in the area and the District Biologist or Forest Botanist would be notified. The district biologist or botanist would assess the risk to species and where appropriate; mitigation measures would be implemented prior to restarting operations. The Forest Plan, recovery plans and conservation strategies will be used when making mitigation recommendations.
- Glacier-WL-2 Where possible, no roads would be placed in lowland cedar or black ash stands; in cases where this is unavoidable, a Sensitive (RFSS) plant survey would be conducted prior to road construction.
- Glacier-WL-3 If any tree with a large stick nest is discovered, this tree and a 150 foot buffer (to provide wind shelter and cover) should be retained (excluded from harvest). Look for opportunities to incorporate nest tree into reserve tree clumps or legacy patches. Nest tree and/or buffer may be removed if district biologist visits site and determines that protection is not warranted

Gray Wolf

- G-WL-10 Provide for the protection of known active gray wolf den sites during denning season.

Boreal owl

- S-WL-6 Prohibit management activities within 300 feet of known nest sites.
- G-WL-13 Minimize activities that may disturb nesting pairs during critical nesting season (March 1-June 1).

Great gray owl

- G-WL-14 Allow, to the extent practical, only activities that protect, maintain, or enhance site conditions within 660 feet of a known nest site.
- G-WL-15 Minimize activities that may disturb nesting pairs during critical nesting season (March 1 - June 1).

Three-toed woodpecker

- G-WL-17 Protect known nest sites within a 200-foot radius surrounding nest sites until young have fledged.
- G-WL-18 Where ecologically appropriate, retain six to ten jack pine per acre in even-aged regeneration harvests in mixed conifer stands.

Sensitive Fish, Mollusks, Aquatic Insects

- G-WL-19 Protect known sensitive mussel beds.

Goblin Fern

- S-WL-9
- a) Activities that could disturb goblin ferns, their habitat, or microhabitat, should not occur within 250 feet of known goblin fern populations. The exception to this standard is for administrative studies or research that contributes to the conservation of the species.
 - b) In suitable habitat that is immediately adjacent and contiguous to existing populations beyond the 250-foot no-activity zone, site disturbing activities should occur only during frozen ground conditions (as evidenced by an absence of rutting, compaction, or breaking through the frost layer) and a minimum canopy closure of seventy percent should be maintained. (Single tree selection would generally meet desired conditions in this standard, but group selection harvest does not meet conditions desired in this standard because of the gaps created in proximity to occupied habitat.)
 - c) Minimize the likelihood of worm invasion in existing or potential habitat areas identified as having low potential for worm invasion. Such conditions exist where areas are void of roads and trails (or where densities can be minimized), developments, lakes and streams that support game fish, or are isolated due to wetlands or some other condition not conducive to worm colonization. Examples of actions to minimize worm invasion include limiting vehicle or OHV access, road building, or other activities that move soil into geologically isolated habitat.
- G-WL-20 Avoid management activities that may change microclimate or microhabitat conditions in steep ravines or on cliffs and talus slopes that are known or are highly likely to harbor sensitive plants.

Sensitive Lichens:

(*Caloplaca parvula*, *Cetraria aurescens*, and *Sticta fuliginosa*, *Menegazzia terebrata*, *Ramalina thrausta*, and *Usnea longissima*)

- G-WL-21 Do not permit management activities within stands that have known locations of sensitive lichens unless activity maintains, protects or enhances habitat conditions for lichens (old growth black ash or lowland conifer with interior forest conditions).

Management Indicator Species

(Bald Eagle – see above; Gray wolf – see above)

Northern goshawk (also a sensitive species)

S-WL-10 At northern goshawk nest sites with an existing nest structure, prohibit or minimize, to the extent practical, activities that may disturb nesting pairs in an area of fifty acres minimum (860 ft. radius) during critical nesting season (March 1 – August 30).

At northern goshawk nest sites in an area of fifty acres minimum (860 ft. radius), to the extent practical, allow only those activities that protect, maintain, or enhance high quality habitat conditions: 100% mature forest (>50 yrs old) with continuous forest canopy (>90% canopy closure) and large trees with large branches capable of supporting nests.

G-WL-22 Within northern goshawk post-fledging areas, minimize activities, to the extent practical, that may disturb nesting pairs during critical nesting season (March 1 – August 30) and, to the extent practical, within a 500 acre area encompassing all known nest areas within the territory:

Maintain suitable habitat conditions on a minimum of sixty percent of the upland forested acres in post-fledging areas. Suitable habitat: jack pine and spruce/fir forest types greater than twenty-five years and all other forest types greater than fifty years with semi-closed to closed canopy (greater than seventy percent). Aspen and birch forest types twenty-five to fifty years may be considered suitable if field review verifies that foraging habitat trees average fifty feet tall and canopy closure is fifty to seventy percent or greater.

Non-native Invasive Species

G-WL-23 During project implementation, reduce the spread of non-native invasive species.

Glacier-WL-1 For non-native invasive plant occurrences: either re-locate skid trails, temporary roads, or landings if infested and use would be in summer, OR treat (e.g. mow, spray, or pull) before use if use would be in summer. Non-native invasive plants located within fifty feet of treatment units would be mowed or sprayed before mechanical site preparation occurs. (O-WL-37)

Other Species of Interest

Osprey

G-WL-24 Minimize activities that may disturb nesting pairs of osprey within 330 feet of the nest during critical nesting season (April 1 - August 15).

G-WL-25 From 330 to 660 feet from nest trees, allow only those management activities that maintain, protect, or enhance nesting area habitat.

Great Blue Heron

G-WL-26 Prohibit management activities within 330 feet of active heron colonies. Prohibit management activities from 330 to 660 feet from the heron colony from March 1 through August 31.

Common Loon

G-WL-28 Minimize management activities and new developments or other uses near nest sites between May 15 and July 1. Minimize management activities or new developments near nest areas frequently used by people.

Aquatic Communities

S-WL-12 Where management activity is causing or may cause active bank erosion that is expected to contribute to a reduction in water quality and degradation of aquatic habitats, construct stabilization structures, plant vegetation, or otherwise manipulate vegetation to eliminate or minimize soil erosion while protecting and improving lakeshore or streamside environments and riparian habitats.

Heritage Resources (HR)

S-HR-9 Historic properties to be protected include protected areas ("buffers") beyond known site limits, determined on a case-by-case basis considering landform, vegetative cover, access, and planned project activities.

Recreation (REC)

G-REC-2 Forest management activities will generally reflect recreation objectives while minimizing conflicts with recreation uses by:

- a. Avoiding use of system trails for skidding logs
- b. Minimizing crossing skid trails over system trails
- c. Placing safety signing to warn recreationists of activities in an area
- d. Piling slash and other logging debris out of view of recreation sites and system trails
- e. Scheduling activities during low recreation use periods.

Trails (RTL)

G-RTL-3 During timber sale activities, combined use of roads or trails by logging trucks and motorized or non-motorized recreationists will generally be avoided when other routes are available.

Glacier-RTL-1 When other routes are not available and dual use (allowing harvest machinery on system snowmobile, ATV or dogsled trails) of trails and roads is necessary, the following will be done to facilitate timber harvest:

- Safety signing, piling slash and other logging debris off of the trails, and maintaining the trail or road corridor for passage of winter recreation users would be required to safely accommodate logging and recreational activities on the same corridor.
- Harvest activity may be scheduled during low recreation use periods on some system trails. For instance, when access via a winter trail is needed, harvest activities will be scheduled for spring, summer, or fall if practical and if other resource concerns can be addressed.
- Harvest activity may be restricted during high use periods on system trails. For instance, logging traffic would not be allowed during the winter on the Tomahawk

snowmobile trail or the Cedar Lake snowmobile trail from 6:00 pm Friday to 6:00 am Monday morning or on holidays.

- Dual use on system roads will not be managed the same as system trails. Efforts would be made to facilitate both uses but in some cases, the recreational experience may be temporarily impacted and or the road may be temporarily closed to some trail uses if safety concerns cannot be addressed.

Scenic Resources (SC)

G-SC-1 Temporary openings should appear as follows:

High Scenic Integrity Objective (SIO) Areas - Temporary openings will be similar in size, shape, and edge characteristics to natural openings in the landscape being viewed. Or, temporary openings will mimic a natural disturbance process typical for the area so that when ground cover has been established the opening appears to be a natural occurrence.

Moderate SIO Areas - Temporary openings may be more evident than in High SIO areas. Openings may be larger than those in the surrounding landscape, and after groundcover has become re-established openings may have the appearance of a management activity. Edge characteristics will be similar to those in the surrounding landscape and not dominate the surrounding landscape.

Low SIO Areas – Temporary openings may dominate the view. The shapes of openings reflect vegetation changes in natural openings. Openings also have visual effects and patterns of the shapes, sizes, and edges of natural openings in the surrounding landscape.

G-SC-4 Evidence of temporary activities (such as staking, paint, flagging, equipment maintenance, and staging areas) should be minimized, removed, or cleaned up immediately following project completion in High SIO areas.

G-SC-5 In Moderate and High SIO areas, log landings should be screened if they can be viewed from travel ways, recreation sites, and bodies of water with access. After project completion, log landings should be reforested or rehabilitated to mimic natural openings.

G-SC-6 In Moderate and High SIO areas, schedule mechanized activities during periods of low recreation use if the mechanized activities can be viewed from travel ways, recreation sites, and bodies of water with access.

G-SC-7 Furrows, trenches, fuel breaks, plantations, etc., should be located to reduce linear appearance if they can be viewed from travel ways, recreation sites, and bodies of water with access. Natural appearing edges rather than straight edges will generally be used.

Glacier-SC-1 Harvest units along Concern Level 1 and 2 travel routes, lakes and waterways, and use areas would be designed to ensure a natural appearance of treated areas is achieved within a reasonable length of time. Treatment strategies would include:

- Layout unit to ensure that apparent size of opening is minimized (i.e. use curvilinear edges and adequately-sized leave islands).
- Visible edges should avoid abrupt transitions between cut area and adjacent uncut stand. For instance, leave mid-story shrub-layer species in the transition zones between cut areas and adjacent stands and leave islands and follow direction in G-SC-1.
- Within 100 feet of either side of Concern Level 1 and 2 travel routes, lakes and waterways, and use areas, slash or residue created by logging operations should be removed if practical. If not practical, then slash depth should be less than twelve inches deep. In the remainder of the unit, slash would be lopped and scattered and would not exceed a height of three feet. Suggested techniques include, but are not limited to, complete removal, chipping, lopping and scattering, and piling and burning.

Transportation System (TS)

Road and Trail Construction, Reconstruction, and Maintenance

- S-TS-1 Newly constructed or reconstructed road and trail crossings of streams will be designed and built to minimize erosion. Surfacing (such as gravel, crushed rock, or asphalt) will be used at all crossings where vegetative cover is either inappropriate or expected to be inadequate for effective long term erosion control. Solid surfaces will be used in the construction or reconstruction of bridge decks on unpaved roads.
- S-TS-2 During non-frozen road surface conditions, close winter roads to all motor vehicle traffic.
- G-TS-1 Generally use minimum road and trail design standards to meet the appropriate purpose of the road or trail and to fit the land characteristics (form, line, texture, TEUI units, etc.).
- G-TS-2 Road or trail reconstruction will generally follow the existing corridor alignments.
- G-TS-3 New roads and trails constructed in High and Moderate SIO areas will generally blend in with the surrounding landscape as much as practical.
- G-TS-4 Roads and trails will generally be designed so that stream crossings are not located at the low point in the road grade (e.g. avoid bridge and culvert locations where sediment-laden runoff from the road approaches or ditches can collect and directly enter the stream).
- G-TS-5 Clearing widths for roads and trails at riparian area crossings will generally be kept to the minimum needed to provide a safe and functional crossing.
- G-TS-6 Where practical and beneficial, all stream crossing structures and associated road embankments in the flood-prone areas on OML 1 roads will generally be removed if the road will not be used again within five years.
- G-TS-7 Construction or reconstruction of permanent roads or parking lots will generally be avoided within the 150 feet of perennial streams or lakes, except in the situations where:
- a. Physical conditions preclude road locations at distances greater than 150 feet.

- b. Roads are needed to approach a designated stream crossing or water access site.
- c. Parking lots are needed to serve a designated water access site.
- G-TS-8 Adjacent to roads and trails, generally manage erosion and sedimentation to maintain water flow to protect natural stream behavior and allow for natural aquatic species movement.
- G-TS-9 Where roads and trails cross streams, generally use structures that permit passage for fish and aquatic life and properly distribute flood flow, bankfull flow, and sediment transport capacity. Generally favor bridges and arches (including temporary bridges where appropriate) rather than culverts.
- G-TS-10 Where ditches are needed, generally use techniques to minimize subsurface flow interception and flow concentration.
- G-TS-11 Restrictions on using National Forest System roads and trails may be required under certain circumstances, such as short-term closures during spring thaw.
- G-TS-12 On existing OML 1 roads, an effective barrier will generally be installed as needed to prevent use by highway-licensed vehicles and ORVs. ATV and OHM use may continue to be allowed on some existing OML 1 roads.

Temporary Roads

- S-TS-3 As soon as access use is completed, stabilize temporary roads and effectively close them to motorized traffic. Vegetation will be established within 10 years after the termination of the contract, lease, or permit.
- G TS-13 Locate temporary roads in areas where they minimize resource damage.
- G TS-14 Temporary roads are generally not intended for public use, but public use may be temporarily allowed if needed to meet management objectives.

Road Decommissioning

- S-TS-4 Decommission unclassified roads that are not needed in the National Forest road and trail system and special use permitted roads that are no longer needed. Decommissioning will make the road unusable by motorized vehicles and stabilize the roadbed.
- G-TS-15 In High and Moderate SIO areas, generally obliterate roads and trails that are decommissioned and restore to a natural appearance.
- G-TS-16 Roads and trails designated for decommissioning will generally be subject to the following:
 - a. The road or trail will be rendered unusable by motorized vehicles but may remain accessible to foot travel.
 - b. Stream crossing structures will be removed.
 - c. Road and trail fills will be removed from flood prone and wetland areas to restore stream and wetland crossings to original contours.
 - d. Removed fill will be reused or disposed of in a way that will not restrict flow or contaminate surface water.
 - e. Exposed soil will be revegetated.

Public Health and Hazardous Materials (PH)

S-PH-2 All spills and contaminated soil sites will be quickly cleaned up in conformance with federal and State guidelines.

G-PH-2 Equipment refueling will generally not be done in wetlands (Ecological Landtypes 2, 4, 5, or 6), other areas with poorly drained soil, filter strips, or riparian management zones. In those rare instances where refueling operations in such areas are necessary, operators will have ready access to a fuel spill kit consisting of items such as a shovel, absorbent pads, kitty litter and plastic sheeting. Store fuels in compliance with State regulations for above-ground and temporary storage tanks.

Attachment 5 Monitoring Plan

The monitoring that will be part of the Glacier Project is described below.

Vegetation Management Actions

Objective: Ensure that Operational Standards and Guidelines (OSGs) and site-specific design criteria identified for each treatment unit are included in contracts and implemented according to plan.

Methods and Frequency: Monitor a sample of harvest units to ensure OSGs are addressed in each unit. Reviews of contract compliance would be documented in inspection reports.

Responsibility: Sale Administrator, Contracting Officer's Representative, or other District personnel

Reforestation

Objective: Insure that harvested stands are reforested to desired species within five years of treatment.

Methods: 1) All stands harvested using even-aged management techniques would be monitored during the third and fifth years after harvest to determine if lands are adequately stocked. 2) All stands harvested and restored to conifers would be monitored during the first and third years after harvest to determine survival and stocking success. The need for disease-control operations and treatments to release young stands from competing species would be monitored at this time. 3) Harvested stands with diversity planting or under-planting would be monitored periodically to determine if planted trees survive. Additional monitoring beyond five years may be needed.

Responsibility: District Silviculturist or other District personnel

Prescribed Burns

Objective: Ensure that public safety considerations and mitigations are included in all burn plans and that burn plans are conducted according to plan.

Methods: Review prescribed burn plans. Conduct pre-treatment field visits to all prescribed burn treatment units to prepare fire control lines and examine fuel conditions. Monitor weather conditions before and during treatment periods. Alert adjacent landowners downwind of the treatment unit prior to implementation.

Responsibility: District Assistant Fire Management Officer or other District personnel

Non-Native Invasive Plants

Objective: Avoid or minimize an increase in the extent of non-native plant infestation in the project area.

Methods: Monitor a sample of harvest units and newly constructed roads after harvest, site preparation, or construction to determine if invasive plants have colonized areas where management activities have occurred. Treat non-native invasive species (NNIS) if found. Units and roads would be inspected between year one and year three following the sale

Responsibility: District Biologist, Biological Technicians, or Forest Plant Ecologist

Sensitive Plants

Objective: Detect potential impacts to the club spur orchid population located on the winter road accessing unit 80-54.

Methods: Conduct field visit to observe condition of plants after road use is completed.

Responsibility: Forest Plant Ecologist, Biological Technicians, District Biologist

Road Closures and Road Decommissioning

Objective: Ensure that roads are closed in a manner that either fully decommissions the road or excludes specified motorized vehicle use. Ensure that soil and water quality resource values are protected following closure of all temporary, and other closed roads.

Methods: Review contracts and permits. For recently closed temporary, decommissioned, and other closed roads, foot surveys would be conducted at least once during the first five years following road closure in order to verify revegetation of the road corridor and stability of streambanks at former stream crossings. Foot surveys would also be conducted periodically to determine the effectiveness of closures and identify additional work that may be required.

Responsibility: Engineering or other District personnel

Gravel Pits

Objective: Ensure gravel pits are developed according to pit management plans.

Methods: Site-level field visits and reports by resource specialists.

Responsibility: Engineering Staff or other District personnel

Attachment 6

The following is the list of people who submitted comments on the Draft EIS. A copy of the letters is included here along with an agency response.

Liz Engleman and Michael Bigelow Dixon	1	3
Thomas Christensen	2	4
Robin Vora	3	5
Elanne Palcich	4	6
Kris Wegerson	5	9
John Ipsen	6	12
Stephen Jay	7	14
Robert Tammen	8	19
Anne Jay	9	20
Diadra Decker	10	21
Lori Andresen	11	23
B. Sachau	12	25
Carla Arneson	13	29
Will and Peggy Anderson	14	30
Brian Pasko, Friends of the BW	15	32
MN Department of Natural Resources	16 (see 23)	76
Darren Vogt, 1854 Treaty Authority	17	42
Tim O'Hara, MN Forest Industries	18	44
Matt Norton	19	49
Ray Higgins, MN TPA	20	52
Annah Gardner, Sierra Club	21	57
Northeastern Minnesotans for Wilderness	22	69
MN Department of Natural Resources	23	76
Jared Leonard, Ainsworth	24	80
US Environmental Protection Agency	25	82
USDI Office of Environmental Policy and Compliance	26	84

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#001

Dear District Ranger,

We're writing in response to the Draft Environmental Impact Statement (EIS) for the Glacier Project, and we appreciate this opportunity to respond to all the work and planning that have gone into the EIS. As the owners of a resort on Tofte Lake (2209 Fernberg Road), we wanted to express our concern about the planned timber harvest along Fernberg Road and adjacent to all sides of our property.

First, the harvest of timber along Fernberg Road will greatly increase the highway noise for our resort – an otherwise idyllic spot where guests hope to escape the sounds of traffic and civilization. We request that you minimize the harvest on the Tofte Lake side of Fernberg Road from the Tofte Lake Boat Landing to the eastern edge of our property.

1-1

Second, we are concerned about the increased risk of tree blowdown on our property caused by timber harvests that come to the edge of our property and expose our trees to greater winds. We request, therefore, that you stop your timber harvests 50 feet from the edge of all sides of our property.

1-2

Finally, we are concerned that the maps provided thus far do not accurately reflect the length of shoreline and size of property of 2209 Fernberg Road, which we have recently incorporated as Tofte Lake Center at Norm's Fish Camp. We request that your department do the appropriate research so that future maps of the Glacier Project reflect the accurate size, shape and shoreline of the property so that your employees and contractors can do their work accurately and safely around Tofte Lake.

1-3

Thank you for considering these requests. We're impressed with the size and scale of the proposed work and hope that it leads to a healthier and more sustainable forest.

Sincerely,

Liz Engelman and Michael Bigelow Dixon

Response to 1-1: We have modified the proposed action for Units 006-019 and 007-076. Because of the linear size of the units and proximity along the Fernberg Road, both units are now proposed for non-harvest restoration treatments. No timber harvest would occur. Non-harvest restoration in this area involves planting long-lived tree species (such as white pine) in existing forest openings and possibly clearing brush and small trees such as balsam fir to create better opportunities to ensure success of planted desired tree species.

Response to 1-2: No timber harvest would occur adjacent to you property and therefore there would be no increased risk of trees blowing down on private property.

Response to 1-3: We are aware that there is private land located on Tofte Lake. There are survey markers on the ground marking the boundary between private and federal land. The actual property boundaries have not been updated in the FS corporate database. This would require personnel to locate markers on the ground and use a geographic positioning system equipment to mark the locations. Accurate boundary information would be utilized prior to any work being conducted in this area.

#002



"Thomas Christiansen"
<doctc@comcast.net>

01/29/2008 04:59 PM

To: <comments-eastern-superior-kawishiwi@fs.fed.us>
cc:
Subject: Glacier Project

Thank you for the information. My review of this project is very favorable. Tom Christiansen

2-1

Response to 2-1: Thank you for your response. Comment noted.

#003

I am happy to see the reduction in permanent roads. } 3-1
 I am disappointed that so much of the partial cutting and other slightly "experimental" or alternative silcultural methods appear to have been reduced. I would probably have to be more familiar with the individual sites to understand why. } 3-2
 In stand 062-002 I suggest also consideration of planting some red pine, white cedar, and paper birch in addition to white pine and white spruce. } 3-3
 What exactly is the "crushing" method of treatment along the shore of White Iron Lake? } 3-4
 I would appreciate being notified of how access will be made, and when made, to the units on the peninsula in the White Iron Lake (stand 062-002, 082, etc.). } 3-5
 Thanks for your time and consideration.
 Robin Vora
 1679 NE Daphne Dr.
 Bend, OR 97701

Response to 3-1: Comment noted.

Response to 3-2: Many sites were dropped after we did more extensive site assessments. The site visits showed that the existing conditions either meet the desired conditions of the Forest Plan or the stands have already begun to break up and there are not enough mature trees to conduct an intermediate harvest. Some stands have a lot of young white pine in the understory. One of the landscape ecosystem objectives is to increase white pine and when it is happening naturally, there is not a need to conduct management activities at this time. In other stands, many of the older trees have died and the existing basal area ranges from 50 to 90. A minimum of about 110 basal area is needed to conduct an economic harvest and the goal would be to reduce the basal to 60 to 90.

Response to 3-3: This unit would benefit by including planting of red pine and cedar. If these species are available when the planting is done, they would be included. In light of limited funds, paper birch would not be planted. However, paper birch would be identified to be retained if found after management treatments.

Response to 3-4: Crushing is a method used to knock down ladder fuels such as young balsam fir trees. Skidders and or bull dozers would be the primary tools for this activity. The primary treatment of the shoreline area would be non-harvest restoration crushing. However, the entire area would not be treated since the balsam fir under story is not a solid carpet within these units.

Response to 3-5: We understand that parts of this road are privately owned and we would coordinate with the private landowners to acquire permission for access prior to conducting management activities.

#004

I believe that the Forest Service regeneration plans are lacking in scientific evidence. Due to progressing global warming, I am already seeing changes in vegetation in my area (approximately 80 miles south of the Kawishiwi area) toward white pine, oak, and basswood. I believe that the Forest Service will find it extremely costly to try to reproduce current patterns of vegetation once clearcutting has taken place.

4-1

I would like clarification of the reasons for such extensive clearcutting. Since the logging industry is at a standstill due to lack of demand, it would be wiser to scientifically experiment with the best practices of selective harvesting on forest management.

4-2

The amount of road building required by clear cutting puts additional stress upon an ecosystem that is already stressed by global warming and use fragmentation. Effects of forest fragmentation also need to include the widening of Highway One and the proposed superhighway between Hoyt Lakes--Babbitt--Ely.

4-3

I request that the map of logging/clear-cutting of the Glacier Project be overlaid with a map of mineral exploration so that the public is informed of the cumulative effects on this bioregion.

4-4

Since the lynx management plan is currently being reconsidered, this aspect of the Glacier Plan must include the full scope of protecting habitat for the lynx population. In fact, no logging plan should be approved prior to a lynx management plan

4-5

The problem of deer/moose population ratios are of particular concern. Studies of declining moose population need to be included in the EIS.

4-6

Consideration for protecting the wilderness character and quality of the BWCA needs to be further refined according to historical significance and law.

4-7

A more detailed impact analysis on tourism needs to be included in the EIS, especially considering that Ely was selected as one of ten best places to visit in the U.S. The impacts of noise, equipment exhaust, loss of recreational areas and sites, and degradation of scenic quality due to clearcutting need to be fully considered.

4-8

Due to the extreme rapidity of climate change and its effect upon plants and wildlife, I believe that a public educational forum should be a part of the final EIS process. This forum should address the risks and benefits of human intervention on the current ecology of the Glacier proposal. Local citizens need to know what impacts our demands/usage have upon the local forest ecology. There needs to be a broader base of citizen knowledge and consensus before completing a logging project of this magnitude.

4-9

Elanne Palcich
3305 5th St. N

Response to 4-1: We included information on climate change and the Glacier Project on the FS web page at www.fs.fed.us/r9/forests/superior/projects/glacier.

Response to 4-2: Clearcutting is a type of vegetation management that is used to regenerate a stand of trees. The Forest Plan provides objectives for specific amounts of young forest in each landscape ecosystem. Regeneration harvests include clearcuts with reserves, partial cut 30, and seed tree harvests. Regeneration harvests are used in stands where the objective is to create young forest. Selective harvest is used when there is an opportunity to improve the species and structural diversity. Selective harvest does not regenerate a stand. The purpose of the Glacier project is to move the vegetation towards the landscape ecosystem objectives identified in the Forest Plan and the project includes both regeneration and selective harvest to meet goals and objectives. The current reduced demand for timber and other wood products is not expected to be a long-term condition.

Response to 4-3: Temporary roads are needed to access most harvest units, whether they are regeneration or intermediate (selective) harvest. And intermediate harvest areas may need more roads than clearcut areas because intermediate harvest areas would be available for periodic harvest entries and clearcut harvest areas would not need periodic entries. After an area is clearcut, the next entry would generally be more than 50 years in the future.

Response to 4-3 cont.: The project does not propose to construct new system roads that would be open for public use. Temporary roads would be constructed to access harvest areas and would be decommissioned upon completion of management activities.

The Biological Evaluation in Appendix F includes the effects of the reconstruction of Highway 1. The proposed highway between Hoyt Lakes and Babbitt (no new road is proposed to connect to Ely) was not considered in cumulative effects because there is no specific proposal for this road.

Response to 4-4: The map showing the proposed harvest units and mineral exploration sites is included at the end of this attachment 6.

Response to 4-5: On February 28, 2008, the Fish and Wildlife Service proposed revising the Canada lynx critical habitat designation. In response to this we considered and analyzed the effects to Canada lynx proposed Critical Habitat in the Supplement to the draft EIS as well as the final EIS. You can find this analysis in the Biological Assessment in Appendix G and in Chapter 3 of the FEIS section 3.4. In consultation with the US Fish and Wildlife Service we concluded that the Glacier project alternatives would maintain the primary constituent elements of lynx habit -- those physical and biological features that are essential to the conservation of the species. There are several existing laws and policy currently guiding the management of habitat for Canada lynx on the National Forest. These include, but are not limited to, the Endangered Species Act, Lynx Conservation and Assessment Strategy, and our Superior National Forest Land and Resource Management Plan. All projects that are planned on the Superior National Forest, including the Glacier project, follow the direction provided in these plans and laws to ensure that species recovery is not compromised by our action.

Response to 4-6: We share your concern about higher than desired deer populations and declining moose populations on the Superior National Forest. At a forest scale we are involved in both of these issues. We worked with the Minnesota Department of Natural Resources (MN-DNR) in establishing a goal to reduce the deer herd by up to 25% on most of the deer management zones that overlap the Superior National Forest. The MN DNR has begun to try and achieve this goal by issuing more hunting licenses in the area. In addition, we support several moose studies and surveys currently or soon to be starting on the forest. It has been determined from this research so far that moose populations are in fact declining. However the causes for the decline are not as apparent. Some indications are that declines may be somehow related to climate change. It has also been discovered that healthy moose are dying from unknown causes. This too is being studied. From what we can tell, and research tells us, suitable habitat for moose is not a limiting factor. The Forest Service's role in moose management is to ensure that habitat for moose is available, well dispersed and in good quality. All Glacier project alternatives do this, with alternatives 2 and 4 providing the most moose habitat.

Response to 4-7: The effects of the project on the BWCAW are disclosed throughout the EIS. Section 3.3 identifies four qualities for monitoring wilderness character. The untrammeled and undeveloped qualities are not addressed in the EIS because the Glacier Project does not propose any activities that would affect these characteristics because no activities would occur in the wilderness. The outstanding opportunities for solitude and the natural qualities are addressed in chapter 3 of the EIS. The Responsible Official will take into account the 1964 Wilderness Act, the 1978 Boundary Waters Canoe Area Wilderness Act, and other relevant laws in making a decision.

Response to 4-8: We are aware of the importance of tourism to the local Ely area. We are also aware of the economic impact of logging in the local community. The Final Environmental Impact Statement for the Forest Plan Revision, Volume 1, discloses the economic effects of implementing the Forest Plan. Both recreation and timber are important to Minnesota's regional economy. Efforts have been made throughout the project to lessen the effects of harvest on the

wilderness, scenic and recreational resources. Recreation would be enhanced through designation of additional trails in the Triangle area and the vegetation would be enhanced in South Kawishiwi River and Fall Lake Campgrounds.

The effects of the project on the scenery along the main travel ways are disclosed in Section 3.12 of the EIS. The effect of noise in the BWCAW is disclosed in Section 3.3. The effect of noise on recreation areas outside the BWCAW are described in Section 3.10. The affected environment section describes all of the recreation sites along the Fernberg Road and Highway 1 as being in motorized areas and next to roads. The sound of motors from nearby roads, parking lots, and lakes can be heard from most sites. Any additional logging noise would be similar to on-going public motorized use of the areas. There would be no loss of recreational areas or sites.

It is also important to consider the types of activities that are part of Ely's past and current culture. Timber harvest has been occurring on federal, state, county, and private lands since the early 1900s. Harvest that occurred more recently on non-federal lands generally follows the Minnesota Forest Resource Council guidelines that are found in the Voluntary site-level Forest Management Guidelines. And harvest occurring on federal land has followed Forest Plan direction which includes guidelines to limit effects to recreation and scenic resources.

Response to 4-8 continued: In addition, we have conducted monitoring of recent harvest areas along the Fernberg Road and Highway 1 and found that design criteria such as limiting the amount of harvest seen from the road and feathering the harvest areas, effectively limits adverse effects to scenery, enhances some aspects of scenery such as retaining larger-sized trees and planting longer-lived species such as red and white pine.

Response to 4-9: We fully agree that there could be more public education of potential changes resulting from climate change, forest ecology, and our use of natural resources. The Ely community has hosted several public forums on climate change. And Forest Service researchers have been actively involved in studying climate change for more than 20 years. The SNF uses the latest scientific knowledge in measuring the effects of proposed vegetation management on other resources and recognizes there are tradeoffs in providing natural resources for consumptive uses and disclosing the effects so the Responsible Official can make an informed decision. The Agency has been conducting similar types of vegetation management for the past nearly 100 years and continues to monitor actions and modify activities to lessen effects to other resources. Page 1-3 of the EIS states that "The purpose of the Glacier Project is to maintain and promote native vegetation communities that are diverse, productive, healthy, and resilient by moving the vegetation component toward landscape ecosystem objectives described in the 2004 SNF Land and Resource Management Plan.

#005

The USFS is recommending vegetation management over the next ten years in the Glacier Project Area. In the original Glacier Project Scoping Package, 19,266 acres were to be treated, representing 41% of the Superior National Forest (SNF) land in the area. Currently, the USFS favors Alternative 2 (A2), which would treat 13,308 acres or 28% of land in the area. Alternative 3 (A3), designed to address significant issues raised by the public in the scoping process, would treat 11,043 acres or 24% of the SNF land in the area. These are significant percentages. Under A2, 41% of the treatment would entail clear-cutting. Clear-cuts are poor forestry management. Part of the Agassa Lake Trail has been clear-cut, resulting in overgrowth of dense brush with the few reserve trees looking like fish out of water.

In A2, 5495 acres would be clear-cut, including several units adjacent to the BWCAW. These units were excluded in A3. Excluding these units is imperative to reduce management induced edge (fragmentation) near the boundary, prevent introduction of NNIS via new road ingress, discourage illegal ATV and snowmobile access, and preserve the wilderness character of the BWCAW. These affects are aided by the fact that only one mile of new temporary road segments will be built within 1/2 mile of the BWCAW under A3 vs. the 16 miles proposed under A2.

Fewer miles of road segments along with fewer acres of clear-cuts (A3) also benefit the threatened lynx. However, the DEIS lynx analysis should be redone in light of the USFWS revised critical habitat plan announced February 28, 2008. This new plan increases critical habitat for lynx up to 8,266 square miles, most of it in the SNF.

Clear-cutting in areas proposed for copper-nickel mining near Birch Lake, the USFS S. Kawishiwi Lake Campground and Spruce Road are identical in A2 and A3. The USFS is financially and physically aiding these projects which in the long run may cause acid mine drainage flow into the BWCAW. The Dunka Pit has already caused acid mine drainage into Unnamed Creek and Bob Bay on Birch Lake.

Clear-cutting should not be done in areas with high scenic or recreational value, such as behind the USFS S. Kawishiwi Lake Campground and the area encompassing the Snowbank Lake Trail. In unit 003-021, 59 acres will be clear-cut along the Snowbank Lake Trail and behind the Snowbank Lake Summer Home Group. This area has an R-1 recreation design criteria with the descriptor: "recreation concerns (minimize impacts to recreation resource)" p.H-3.

In summary neither A2 nor A3 is optimal. Clear-cutting is the dominant vegetative management tool in both. The BWCAW is better protected from degradation of its wilderness character by A3. Both appear to promote the establishment of copper-nickel mining very close to the BWCAW. Finally, A3 imperils the scenic and recreational value of the Snowbank Lake Trail and the area near the Snowbank Lake Summer Home Group.

Kris Wegerson

5-1

5-2

5-3

5-4

5-5

5-6

Response to 5-1: We do not agree that "Clearcuts are poor forestry management." Clearcuts are monitored on the Superior National Forest and we have documented successful regeneration of past harvest in the Glacier Project area (Project Record 6I-004). The Glacier Project proposes clearcutting with reserves to meet Forest Plan objectives for providing young forest. The Project also proposes seed tree and partial cut 30 regeneration harvests when the type of unit and the regeneration objectives allow for additional trees to remain after the harvest. Young forest is needed by many wildlife species. In an effort to limit effects resulting from clearcuts, live trees would be retained in all harvested areas and for stands greater than 20 acres, a minimum of 5% of the stand would be retained in a legacy patch to aid in the re-colonization of the adjacent managed area. The harvest along the Agassa Lake Trail occurred on State of MN land. Appendix B identifies those units that have special design criteria to address the recreation resource. And Appendix E includes specific direction for maintaining scenic resources. See G-SC-1, 4-7 and Glacier-SC-1 in Appendix E.

Response to 5-2: Please note that the proposed regeneration harvest units adjacent to the BWCAW boundary were selected because of an opportunity to reduce fragmentation and create larger-sized patches of young forest in areas with past harvest. Harvest occurred adjacent to these areas (outside the wilderness) in the recent past and in an effort to create a larger-sized patch of young vegetation these units were proposed to be harvested at this time. Therefore, these units would not increase fragmentation. The effects of harvest in relation to the spread of non-native invasive species and impacts to the character of the BWCAW are disclosed in Sections 3.5 and 3.3 of the EIS. We understand you are very concerned about the spread of non-native invasive species and the character of the BWCAW. As was stated in Section 3.16 of the EIS, forest-wide monitoring has found that new temporary roads do not result in illegal motorized access into the wilderness. Efforts to decommission old roads that have been used for illegal access to the wilderness are being addressed in other projects such as Dunka, Virginia, Echo Trail, and Travel Management.

Response to 5-2 cont.: Please see Table 3.16-2. This table shows that there would be 1.3 miles of temporary road (consisting of 16 road segments) within ½ mile of the BWCAW under Alternative 2 and there would be 0.04 miles of temporary road under Alternative 3.

Response to 5-3: The US Fish and Wildlife Services revised proposed critical habitat for lynx, and we have considered and analyzed the effects to proposed Critical Habitat in the Supplement to the draft EIS and the final EIS. You can find this analysis in the Biological Assessment in Appendix G and in Chapter 3 of the FEIS section 3.4. In consultation with the US Fish and Wildlife Service we concluded that the project alternatives would maintain the primary constituent elements of lynx habit -- those physical and biological features that are essential to the conservation of the species.

Response to 5-4: Vegetation management is not being proposed for the purpose of facilitating mining. Currently, mineral exploration, consisting of drilling core samples, is and has been conducted in the vicinity of the Spruce Road and east of the South Kawishiwi Summer Home Group. Exploration has been going on for many years. There is no approved proposal at this time to develop a mine. The Glacier Project reviewed the existing vegetation and proposed managing the vegetation to move the area towards the Forest Plan desired conditions. There is no correlation between the need to manage vegetation and the possibility of mining at some time in the future. There is a map at the end of this Attachment 6 that shows the proposed vegetation management and on-going and planned drill sites.

Response to 5-5: We understand you do not support clearcutting in high scenic or recreational areas. We are aware there is high recreational use within the campground and that harvest activities in units 079-007 and 079-054 may be heard in the campground if conducted during the use season.

Unit 003-021 was added to Alternative 3 because it is not adjacent to the BWCAW and offers an opportunity to manage for young forest. You are

correct in that if this unit is harvested, specific design criteria would be followed to reduce the effects of the harvest on recreation users such as scheduling harvest activities during periods of low use and not impacting the trail corridor. Islands of trees and legacy patches would be retained on the trail to limit the amount of harvest that would be seen.

All harvest units adjacent to trails in areas with high scenic integrity objectives, such as the Snowbank Hiking trail, would be conducted to minimize the visual impact to the recreation visitor. In fact in areas of high scenic integrity, the objectives of the harvest unit would be secondary to the scenic integrity of the area. Please refer to the conclusion in the recreation section.

Although the harvest units surrounding the South Kawishiwi Campground are scheduled for “improving stand conditions with harvest”, the primary objective would be to improve scenery. Some harvest would occur to open intermittent views of the river from the campground pavilion and selected campsites and other harvest would occur to reduce fuel loads of dead spruce fir to protect the campground resource.

Response to 5-6: Clearcutting with reserves is the preferred vegetative management technique to create young aspen and jack pine forest because these species need full sunlight to regenerate. Creating young forest also moves the area towards Forest Plan landscape ecosystem objectives. (See Forest Plan pp. 2-61 through 2-78.) We understand you believe the BWCAW is better protected under Alternative 3. Please see our response to 5-4 as the vegetation management is proposed to meet landscape ecosystem objectives and is not tied to mining exploration. And we understand you are concerned about the effect that harvest would have on the scenic and recreational quality of the Snowbank Trail and Snowbank Lake Summer Home Group.

Glacier harvest units in close proximity to recreation resources such as trails and recreation residences would have specific objectives to maintain scenic qualities as well as move the vegetation toward desired future conditions, and

would include mitigations to lessen the impacts of harvest on the adjacent recreation sites. We appreciate your concern for both sites. We will ensure that design criteria to protect these resources will be in place if the Responsible Official decides to conduct harvest in these areas.

#006

Thank you for giving us the opportunity to comment on the proposals for the Glacier Project. I have taken a look at Alternatives 2 and 3, and would favor Alternative 3 with several reservations. Compared with the original scope document, I appreciate the changes made in arriving at the current Alternative 2. In particular, I am glad to see a few areas of clearcut at the BWCAW boundary taken out of the proposal. In Alternative 3, there is much more attention paid to the sensitive boundary areas, and so overall I am happier with that version of the project. Ironically, there is a large area of clearcut abutting the Snowbank Lake trail in Alternative 3, which is not present in Alternative 2. Clearcutting this area (which is in fact designated R-1) would degrade the scenic nature of the trail for years to come, and the harvest would create a problem with noise pollution bothersome to the cabin owners in the Snowbank group (of which I am one) and those who recreate on Snowbank Lake. As you may recall from my previous comments, I view any clearcutting to be detrimental to the forest, and would rather see techniques used which are more selective and genuinely improve the composition of the stand.

6-1

Another particular concern I would like to speak to regards the clearcuts (in both proposals) which are in areas of mineral exploration activity. I cannot help but think that there is a relationship between this harvest and the goals of the mining industry. It suggests that the Forest Service wishes to aid the development of an extractive industry which will in all likelihood produce acid mine drainage which will pollute the BWCAW watershed.

6-2

Thanks for your consideration. We appreciate your efforts to maintain the health of the Superior National Forest and BWCAW.

Sincerely,

John Ipsen

Response to 6-1: We understand you are happier with Alternative 3 than Alternative 2 except for the units included in Alternative 3 that are adjacent to the Snowbank Trail and Summer Home Group. The units that are adjacent to trails or have other recreational use were given the code R-1 by the recreation planner on the team. These units are identified in Appendix B. These units are recognized because there are important recreational values that should be protected during harvest. The specific criteria that would be followed to reduce the effects of the harvest on the recreation resource include scheduling activities during low use periods, minimizing crossing of the trail with logging equipment, and retaining islands of trees adjacent to the trail. We are aware the harvest may be heard by summer home owners. Snowbank Lake is a motor lake and as such, the sound of motorized activity is common. The sound of the harvest from units within one mile of the both the Snowbank Trail and Snowbank Lake is 146 acres (10 units total). This would last approximately 73 days and would occur mostly during the winter, spring, or fall when recreation use is less than during the summer season.

Response to 6-2: Vegetation management is not being proposed for the purpose of facilitating mining. Currently, mineral exploration, consisting of drilling core samples, is being conducted in the vicinity of the Spruce Road and east of the South Kawishiwi Summer Home Group. Exploration has been going on for many years. There is no proposal at this time to develop a mine. The Glacier Project planning team reviewed the existing vegetation and proposed managing the vegetation to move the area towards the Forest Plan desired conditions. There is no correlation between the need to manage vegetation and the possibility of mining at some time in the future. There is a map at the end of this attachment that shows the proposed vegetation management and on-going and planned drill sites.

007

From: Stephen J. Jay, Homeowner, S. Kawishiwi River

Dear Mr. Van Every,

This letter is in response to your communication of January 23, 2008, that requested public comments on the Glacier Project. Thank you for the opportunity to participate.

As homeowners on the S. Kawishiwi River, we have witnessed first hand the environmental degradation resulting from mineral exploration in this area: noise of drilling; increased road traffic with attendant dust and noise; new road building and clear cutting--all within 1 ½ miles of BWCA. It is in this context that we view the new proposals for the Glacier Project with great concern since this would add logging and more road building to the above disruptive activities—again within a short distance of BWCA. The quality of the environment for visitors to this area, including the BWCA has already been impaired; what will be the additional adverse impacts of proposals in this Glacier Project? Is the FS looking at the cumulative effects of these activities?

7-1

Response to 7-1: The Glacier Team considered the cumulative effects of other past, current, and reasonably foreseeable future projects in relation to the Glacier Project. See Appendix C for a definition of cumulative effects and a listing of other projects that could contribute to cumulative effects. Each resource analyzed in Chapter 3 of the EIS discloses the cumulative effects relevant for that resource.

Vegetation management is not being proposed for the purpose of facilitating mining. Currently, mineral exploration, consisting of drilling core samples, is being conducted in the vicinity of the Spruce Road and east of the South Kawishiwi Summer Home Group. Exploration has been going on for many years. There is no proposal at this time to develop a mine. The Glacier Project planning team reviewed the existing vegetation and proposed managing the vegetation to move the area towards the Forest Plan desired conditions. There is no correlation between the need to manage vegetation and the possibility of mining at some time in the future. There is a map at the end of this attachment that shows the proposed vegetation management and on-going and planned drill sites.

Response to 7-2: The Forest Service Mission is to “Sustain the health, diversity, and productivity of the Nation’s forest and grasslands to meet the needs of present and future generations.” The Forest Service Chief has characterized the agency’s response to the challenges presented by climate change as “one of the most urgent tasks facing the Forest Service” and stresses “as a science-based organization, we need to be aware of this information and to consider it any time we make a decision regarding resource management, technical assistance, business operations, or any other aspect of our mission.”

7-2

We have two concerns with this Draft EIS and believe Alternative 1 is the best option for the FS to pursue.

1. Climate Change:

- a. There is clear evidence that global climate change is and will for the foreseeable future adversely affect the planet, including the forests of northeastern Minnesota. The nature, extent, and implications of these changes have been the subject of an extensive body of research for several decades and have been summarized in many scientific peer-reviewed scientific papers and reports of 13 federal agencies as part of the U.S. Global Change Research Act of 1990 (Public Law 101-606(11/16/90) 104 Stat. 3096-3104. The FY 2008 Report: “Our Changing Planet: The U.S. Climate Change Science Program, (Climate Change Science Program and the Subcommittee on Global Change Research) summarizes the federal responses. Additional science-based sources of information regarding both ecosystem and human health (<http://www.cdc.gov/nceh/climatechange/>) implications of climate change are found at: 1. Intergovernmental Panel on Climate Change (<http://www.ipcc.ch/>); 2. U.S. Environmental Protection Agency-Climate Change. (<http://www.epa.gov/climatechange/>)

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- b. The Glacier Project Draft EIS is largely silent on the extent to which the proposed EIS alternatives will be affected by climate change. This is a serious deficiency since implementation of the proposed management activities within the Glacier Project Area will have lasting effects for decades. Will incorrect decisions be made that are compounded by climate change? A thorough analysis of this issue in the context of proposed forest management activities would seem prudent before final decisions are made.
- c. It appears, from the information provided in this EIS, that none of the members of the Interdisciplinary Planning Team (Core) or the Extended Team (Chapter 4, pp. 1-3) have specific expertise in climate change. Also, none of the literature cited (4.3, pp. 10-12) refers to climate change, suggesting this issue was not considered by this EIS or outside the expertise of the Planning Team. In the Summary Introduction of the Draft EIS (S-1), the authors state: "This Draft EIS was prepared by an interdisciplinary planning team of resource specialists to inform the decision maker (Kawishiwi District Ranger) and public about the various management activities, called alternatives, which could be implemented within the Project Area." How is it possible to both plan and develop intervention activities to manage the forests as proposed in this Draft EIS when the issue of climate change has not been considered? Consideration should be given to adding experts in Climate Change to the Planning Team.

7-2, con't

Response to 7-2 cont.: The Agency has internationally recognized climate scientists and a body of peer-reviewed scientific information for developing responses to climate change. See SNF web page at www.fs.fed.us/r9/forests/superior/projects for more information on climate change and the Glacier Project

Climate change is not addressed as a separate topic in the Glacier EIS because to some extent, it is incorporated in the Landscape Ecosystem objectives and it is addressed in the purpose and need for the project which is to provide forests that are healthy, resilient, and adaptable.

Glacier Project planning team members have expertise in wildlife, botany, recreation, hydrology, soils, vegetation and fuels. And, the Forest Service has internationally recognized climate scientists who are studying climate change and sharing that information with the Agency. The Forest Service strategy for dealing with climate change is based on 20 years of targeted research and a century of science and management experience.

The Forest Plan states that "Each LE is characterized by its dominant vegetation communities and patterns, which are a product of local climate, glacial topography, dominant soils and natural process (forest Plan p. 2-55)." As more research is conducted and better information becomes available on specific changes that might be occurring in a local project area, changes to the Landscape Ecosystem objectives may be considered, if necessary to address specific changes resulting from climate change or changes in other physical, social, or economic conditions.

2. Direct and Indirect Impact on BWCA:

- a. There is inadequate research-based data and information regarding the potential direct and indirect impacts of proposed logging and road building on the BWCA. The U.S. Forest Service requires that cumulative impacts (past, present, and reasonably foreseeable future) be incorporated into a project evaluation. This Draft EIS does not contain the information required by the National Environmental Policy Act. Nor does it appear to abide by the intent of the Wilderness Act or the BWCA Act. Specifically, the extent to which this project could produce the following adverse effects: negatively impact BWCA visitor's experiences; isolate and fragment the BWCA's ecosystems; promote discontinuities between BWCA and critical adjacent existing forest; promote illegal trespasses in BWCA; promote ATV use which promotes environmental degradation; promote non-native invasive species; jeopardize the Canada Lynx (*Lynx canadensis*) which is protected under the Endangered Species Act and a component of the 2004 Forest Service Plan—are not adequately addressed with quality science.
- b. In the Draft EIS, 4.3: Literature Cited: there are only 4/43 (9%) of references that specifically mention Boundary Waters Canoe Area: (Heinselmann 1996; USDA FS, BWCA Wilderness Management Plan and Implementation; USDA FS 2000. Draft Air Quality Assessment Boundary

7-3

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007

Waters Canoe Area Wilderness...March 20, 2000; USDA FS 2000. Draft Air Quality Assessment Boundary Waters Canoe Area Wilderness, April 20, 2000.) Remarkably, of these four references, only one is in a peer-reviewed book (Heinselmann); among the other three references one is undated; and two are Draft documents that are now more than 8 years old. The Final documents (if such exist) are not included. Only about 26% of the 43 references cited were published from 2005 to the present. Regarding the magnitude of potential impacts of implementing the proposals included in this EIS, the paucity of documentation and research evidence supporting the Alternatives is problematic.

- c. In a previous communication forwarded to Mark E. Van Every's office (Sjay: October 21, 2007) comments regarding the Kawishiwi Minerals Exploration EA (36 CFR 215) were included with references from the peer reviewed literature). In the section: Cumulative Impacts NEPA & BWCAW Act, there is an outline with cited references of concerns about the encroachment of test drilling/mining activities adjacent to BWCA and the potential for serious adverse impacts on the environment and human BWCA visitor experiences. These comments and citations from the peer-reviewed literature are relevant to the present Glacier Project EIS and its potential adverse impact on BWCA.

This Draft EIS proposes (Purpose and Need: Summary of Chapter 1:S-1) to examine "differences between existing condition and the desired condition." --"as determined using guidance from the Forest Plan, federal and state laws and regulations, and from the issues and concerns expressed by the public..." (S-1) But the Draft EIS fails to adequately address either the "existing condition" or the "desired condition" using rigorous and up-to-date science-based data and information. The premises upon which proposed activities such as "Creating young forest with final harvests" (S-3) lack both definition and evidence based rationale. Neither Alternative 2 nor Alternative 3 rectify these critical deficiencies. Therefore, we urge the FS to adopt Alternative 1, until such time that quality evidence from independent research based agencies or universities working with the FS can address the questions raised in this EIS.

Finally, one of the owners (Ernest Lehmann) of a mining company engaged in test drilling in this area commented in Appendix 1 (Scoping Comment Summary and Disposition) (#026) that based on possible "future mining activity"..."in the area south and east of the Kawishiwi River and Birch Lake" -- "reforestation efforts should focus on fast-growing and short-lived species rather than long-lived species."

The idea that "future mining" in this area should be grounds for shaping the recommendations in the Glacier Project seems contrary to the intent if not the letter of the law. Such proposals regarding "reforestation efforts" should only be made at such time as a separate EIS is prepared for proposals to mine.

7-4
con't

7-5

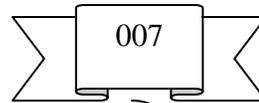
7-6

7-7

Response to 7-3: The effects of the project on the BWCAW are disclosed throughout the EIS. Section 3.3 identifies four qualities for monitoring wilderness character. The untrammled and undeveloped qualities are not addressed in the EIS because the Glacier Project does not propose any activities that would affect these characteristics because no activities would occur in the wilderness. The quality of outstanding opportunities for solitude is addressed in Section 3.3 and the natural qualities are addressed throughout chapter 3 of the EIS. The Responsible Official will take into account the 1964 Wilderness Act, the 1978 Boundary Waters Canoe Area Wilderness Act, and other relevant laws in making a decision.

The project does not propose to promote ATV use and recent monitoring shows that new temporary roads are not being used for illegal access in to the wilderness. Temporary roads within one-half mile of the wilderness boundary would be unlikely to lead to illegal OHV intrusions into the wilderness due to effective decommissioning of temporary roads upon completion of management activities (See Section 3.16 in the EIS). In addition, temporary roads would not be open for public use while vegetation management activities were occurring. Furthermore, monitoring efforts to date have found that all road spurs or user created/maintained trails found inside the BWCAW originated from established roads associated with timber sales that pre-dated the 2004 Revised Forest Plan. (2007 Monitoring of Motorized Use and Effects).

The EIS discloses the effects to lynx in Section 3.4 and the potential threat of spreading non-native invasive plants in section 3.5. We are not aware of other scientific information or analysis that would disclose additional relevant effects.



Do the proposed forest management activities recommended in this Glacier Project EIS have any bearing on future proposed mining activities mentioned by Mr. Lehman? Please clarify.

7-7, con't

Thank you again for the privilege of participating in this process.

Sincerely

Stephen J. Jay

Response to 7-3 cont.: We are also not aware of information that is required by the National Environmental Policy Act that is missing from this analysis. Your letter does not identify any additional scientific literature that we should consider. In order for us to adequately address concerns about lack of scientific information, we need to know what information we are not considering. NEPA requires a disclosure of environmental effects so the Responsible Official can make an informed decision. The EIS does disclose the direct, indirect, and cumulative effects of the project on the relevant resources.

Response to 7-4: The list of literature cited that is included in Chapter 4, does not include all of the references. Please see the Biological Evaluation (Appendix F) and Biological Assessment (Appendix G) as each has their own reference sections. And several additional references were added to the Supplement and to the Final EIS. Also, please note that this EIS is tiered to the Forest Plan and the Forest Plan Revision Final EIS. For some resources, analysis was conducted in the Forest Plan and references used in the Forest Plan are not duplicated in the Glacier EIS.

It is also important to note the Superior National Forest monitoring reports for 2005, 2006, and 2007. Research that is more than several years old can still be very relevant. Scientific information does not necessarily change every couple of years. If there is some specific research you think we should include, please share it with us.

Response to 7-5: We reviewed your letter dated October 21, 2007 that was submitted in regards to the Kawishiwi Mineral Exploration EA. It appears those references are in regards to mining and or mineral exploration. The Glacier Project proposes vegetation activities and not mining or mineral exploration. The cumulative effects of the mineral exploration decision are included in Glacier and if relevant are included in the Glacier EIS. See in particular, Sections 3.3, 3.4, and 3.5.

Response to 7-6: The Glacier Project is tiered to the 2004 Superior National Forest Land and Resource Management Plan (Forest Plan). The Forest Plan was developed using the best available science and was also developed through extensive collaboration with other land and resource management agencies such as the Minnesota Department of Natural Resources, Tribal governments, counties, US fish and Wildlife Service, North Central Experimental Station, Minnesota forest Resources Council, the Nature conservancy, and others. The purpose of the Forest Plan is to provide management direction to ensure that ecosystems are capable of providing a sustainable flow of beneficial goods and services to the public. Please see the Forest Plan and Forest Plan EIS for information on the extensive scientific information use to develop the Forest Plan.

Glacier Project resource specialists spent many days on the ground gathering and updating data and then analyzing that data to understand the existing conditions and compare that with the desired conditions identified in the Forest Plan. This information is documented in mid-level reports for each resource. Based on this information, the District Ranger directed a team of resource specialists to develop proposed actions that would move the project area toward the desired conditions. This is documented in the purpose and need and proposed action. In developing the proposed action, again, resource specialists visited sites and relied on existing research and their expertise to collaborate on the proposed action to ensure the effects of management would be mitigated and specific needs for each resource were considered. We feel that our resource specialists used the most current available data for develop the proposals and evaluating potential effects.

Response to 7-7: Mr. Lehman submitted a comment suggesting that fast-growing and short-lived tree species be managed for in the area south and east of the Kawishiwi River because of future mining. This comment is Mr. Lehman's personal opinion. The Forest Plan provides age class and species composition objectives for each of the landscape ecosystems and this is the direction that is used when planning vegetation projects. There is no direction in the Forest Plan to manage for short-lived tree species in specific areas. Future mining potential is speculative at this point. Future mining exploration or development was not considered in the development of proposed vegetation activities in the Glacier Project.

#008

As a private timber owner in the Kawishiwi Triangle I object to the excessive harvest of multiple use public timber in the Glacier project which will drive down the price of my private timber.

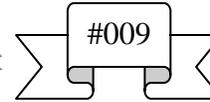
8-1

Sincerely,

Robert Tammen

Response to 8-1: A local project such as Glacier is unlikely to have measurable economic effects on the local communities. Therefore, the project economic analysis in section 3.18 of this EIS tiered to the Forest Plan EIS. We have not found that that harvest on federal land has much influence on local timber prices.

I wish to participate in the public comment period regarding the Glacier Project. Thank you for this opportunity.



Global climate change is regarded by the legitimate science community as a known challenge. None of the information your Planning Team provided mentions climate change and its effect on the forests in question. In light of neglecting this important aspect, I believe Alternative 1 is the best and most prudent option for the Forest Service to pursue.

} 9-1

Sincerely,
Anne M. Jay

Response to 9-1: Please see our information on climate change on the Forest web site: <http://www.fs.fed.us/r9/forests/superior/projects/glacier2.php>

The purpose of the Glacier Project is to maintain and promote native vegetation communities that are diverse, productive, healthy, and resilient. We cannot predict the precise changes that might occur as a result of climate change, but we can promote forest conditions that are healthy and resilient and may be better able to adjust to any changes that might occur.

#010

These are my brief comments about the Glacier project, despite not being able to refer to the language online.

Diadra Decker
Inver Grove Heights, MN 55076

There is no acceptable alternative.

Several significant factors are not adequately addressed in the Forest Service's Glacier Plan. This is endangered Lynx habitat.

10-1

Roads fragment the habitat and create pollution (combustion by-products emissions, noise, dust particulates, petroleum fumes, etc.).

10-2

I have been following the development of plans to do sulfide mining in this water-rich environment, which invariably produces acid mine drainage that kills ecosystems. Here, it would threaten the Boundary waters Canoe Area Wilderness (BWCAW), a very special place on earth.

10-3

Invasive species' effect upon BWCAW due to surface disturbance is not assessed.

10-4

Expected rapid climate change will affect the tree species that will thrive in this area 30 years from now. Valuable timber trees and other values in a diverse plant and wildlife community must be given careful thought and planning for healthy natural environment to re-establish after logging.

10-5

The most glaring thing is the logging that is being planned in anticipation of mining. It is clearly related to the mineral exploration in the Kawish/Birch area. This area is not being logged simply for mineral exploration, it is being logged in anticipation of mining (testified by mining executive and geologist, Ernie Lehman's comments).

10-6

These actions are tied and should be addressed in a separate EIS for any plan to mine.

Response to 10-1: The Canada lynx is a federally “threatened” species that is known to occur on the Superior National Forest. Because of its “threatened” status we are not only required to be aware that habitat occurs but we are also legally obligated to manage public lands to aide in the recovery of the species. For these reasons we designed the project and it’s alternatives to maintain habitat necessary for the lynx survival. The Biological Assessment, included as Appendix G in the draft, supplement and final EIS as well as section 3.4 in the DEIS, SEIS, and FEIS, disclosed the effects to lynx habitat and prey species. The Biological Assessment was updated to analyze impacts to lynx proposed critical habitat in the supplement to the draft EIS and the final EIS. Please refer to Appendix G and section 3.4 for effects to lynx in the Final EIS

Response to 10-2: We recognize that roads do fragment habitat. This is why we have planned the project so that no new public use roads are proposed to be added to the managed road systems and all temporary roads would be decommissioned upon completion of management activities.

Response to 10-3: The Glacier Project does not propose any mineral exploration or other mining activities. Approved mineral exploration is addressed under cumulative effects of relevant resources.

Response to 10-4: Please note that the project does not propose any surface disturbance in the wilderness. The potential effects of invasive species spreading to the BWCAW are disclosed in section 3.5 of the EIS.

Response to 10-5: We fully agree that we must give careful thought and planning for a healthy environment post logging activities. Many of the vegetation activities would be designed to enhance species and structural composition and create healthy forests that are more resilient to environmental changes. In some units, planting would be done to ensure increased diversity of the next stand and to plant trees that might otherwise not be as prevalent. For instance, the project would convert several aspen stands to jack pine. The LE objectives show there it is desirable to have more jack pine.

Response to 10-6: Logging is not being planned in anticipation of mining. See response to 7-7.

#011

Glacier Project Draft EIS comments: All the proposed cutting near the Kawishiwi River & Birch Lake is in preparation for mining. Lynx, climate change, rationale for younger forest conversion, roads, invasive species and the effect upon the BWCAW, are not adequately addressed in the Forest Service's Glacier Plan. The most glaring thing is the logging that is being planned in anticipation of mining. It is clearly related to the mineral exploration in the Kawishiwi/Birch Lake area. This area is not being logged simply for mineral exploration, it is being logged in anticipation of mining. (read Ernest Lehmann's comments). These actions are tied and should be addressed in a separate EIS for any plan to mine. Therefore, only alternative 1 is acceptable.

11-1

The lynx management plan is currently under review. Any Forestry management should be deferred until completion of the lynx habitat management plan. Moose population is in decline in Minnesota. There is no reference to the effect on declining moose in any of the alternatives.

11-2

None of the alternatives address global warming impacts on present day forestry management practices or how they may be inadequate in the future.

11-3

The Glacier project logging, done in anticipation of mining, presumes the validity of any future EIS and the economic viability of the proposed mining. The Glacier project will only accentuate the economic and environmental harm of an economically and environmentally ill conceived mine and hastily granted environmental approval. Exploration is the equivalent of mining unless one believes that the exploration is for no substantial purpose.

11-4

Alternatives 2 and 3 are not acceptable for the above stated reasons. Either plan will lead to degradation of lynx and other wildlife species and promote speculative mining ventures. Global warming and the effects on the ecology of the area have not been considered. The Forest Service is making decisions now that will affect the land into the future, they are doing so without adequate scientific basis.

11-5

Response to 11-1: Vegetation management is proposed to move the vegetation towards the age class and species composition and management indicator habitats described in the Forest Plan. This is the information that is used when planning vegetation projects. Vegetation management is not being proposed to address mineral exploration or other future speculative mining activities. The purpose and need for the project is described on pages 1-3 through 1-8 of the EIS. Potential effects from the Glacier Project alternatives are addressed in Chapter 3 of the EIS.

Response to 11-2: We are not required to defer land management planning while decisions are being made on lynx proposed critical habitat because we are already managing public lands to aide in the recovery of the species. See responses to 4-5 and 4-6.

Response to 11-3: We included information on climate change on the Forest web site at <http://www.fs.fed.us/r9/forests/superior/projects/glacier2.php>. This information was made available along with the Supplement to the Draft EIS. The purpose of the project is to maintain and promote native vegetation communities that are diverse, productive, healthy, and resilient. We do not know precisely how climate change might impact future vegetation, but if we can promote healthy forests that are resilient to whatever changes may occur, the forest communities may be better able to withstand any changes that may occur.

Lori Andresen

Response to 11-4: Vegetation management is proposed to move the vegetation towards the age class and species composition and management indicator habitats described in the Forest Plan. Vegetation management is not being proposed to address current or future speculative mineral exploration or other mining activities.

Response to 11-5: The effects of the project on lynx and other wildlife species are disclosed in Sections 3.4, 3.7 and 3.8 and Appendices F and G. Our analysis finds that adequate amounts of important habitats for wildlife are maintained with all project alternatives. The Forest Service uses the best available science to make resource decisions and to balance the tradeoffs between providing raw materials that we all use and ensuring effects to resources are limited to the extent practicable.



Comment A:

i need a paper copy of this plan to more fully comment. please extend time to comment. i do not believe this letter meets the notice to the public standard since national taxpayers own this land and absolutely zero effort has been made to notify the national taxpayers who own this land and who pay to maintain it. this is not just land for locals to make money from.
b. sachau

12-1

Response to 12-1: We mailed a hard copy of the document and included a letter that explained the public involvement process. The Glacier Project Scoping Report was mailed to the public on May 21, 2007. Approximately 1,600 addresses were on the initial project mailing list, consisting of landowners within and adjacent to the Project Area, and other interested agencies and individuals. The Report contained the Project's Purpose and Need, Proposed Action, additional information on Landscape Ecosystems and Management Areas, and information on how to remain on the Project mailing list. The Scoping Report initiated the public involvement process and asked for comments from the public by June 25. Because of some delays in mailing the Scoping Report, some people did not receive their package in a timely manner. The District Ranger sent a letter to the entire mailing list, explaining how to obtain a copy of the Scoping Report if they did not receive one and extending the comment period to July 16.

Seventy-three written comments were received, in addition to several phone calls where people asked to remain on the mailing list. The comments were all categorized and were used to develop significant issues. Significant issues are described in Section 1.9, page 1-16 of the draft EIS. In addition, some people asked questions about the project or resource management. The questions are addressed in the Response to Scoping Comments in Appendix J.

Response 12-1, continued: On October 26, 2007, the district ranger decided to complete an environmental impact statement instead of an environmental assessment. A Notice of Intent to prepare an EIS was published in the November 2, 2007 edition of the Federal Register. And, a letter was mailed to the people who submitted comments on the scoping report, stating that an EIS would be completed. This letter included information on the significant issues raised during scoping, the alternatives that would be analyzed in detail, and some information on the indicators that would be used to disclose the effects of the project. Both the Notice of Intent and the public letter asked for additional input from the public.



Comment B:

the scandal plagued us dept of agriculture is in charge of our national forests. talk about putting the fox in charge of the henhouse. the bureaucrats in corrupt washington dc -allthey think about is money and greed and have no concern for the fact that the people of this nation sweated blood and tears to save and protect this forest. these people from that stench filled city only think about money and greed and what car we get for it. the whole country is being run in this disgusting depraved way right now. our forests deserve better. the wildlife deserve better than to be managed by gun wacko killers, whose only thought is what can they kill today. these people are not representative of america at all.

i have comments on specific pages

5-1 i object to the logging. 12-3

is the moose can get along just fine w/o spending tax dollars to provide a "disturbance" in the forest. that is stupidity incarnate.

3-4 no logging should be done within 5 miles of wilderness. 12-5

3-21 the american public does not need the employees who work for them pkcing out "alternatives" that they want. the public only gets its choice from what these employees controlled by sin city washington want. that is certainly not democracy at work. the public can choose what they want and should be doing so. somehow the employees of this agency have become masters of the universe telling the public what to do and what they can do. that is not democracy.

3-26 the plan would be better without consulting with fish & game divisions, which have turned into agencies focused on wildlife slaughter for license money. they do no wildlife protection. they offer up species after species after species just to sell a few more license in a declining activity. hunting participation has gone down 10% in the 1st ten years. most sane people dont do it anymore. hunting belongs in 1940, not 2008.

3-157 prescribed burning may be "temporary for MN". however the dirty air produced - the fine particulate matter moves east causing lung cancer, heart attacks, strokes, pneumonia, allergy and asthma. hardly fair for those areas east of mn.

3-163 - its not a "change" in wildlife. its a purposeful deliberate act of killing wildlife that lives in a site because forest service wants to cater to gun wacko killers who want to kill "game" species. it is as ugly and depraved as that. any forest service employee who plays along in this ugly purposeful slaughter should be fired. it is depraved behavior.

3-166 the writer lies to the public by writing that logged trees will sprout up in a "relatively short period of time". i dont think 5 years is a short time at all. wildlife can die in the first month. so it is a very very long time indeed to replace logged trees. how can the writers write this drivel - just to get a paycheck - it is degenerate.

a-i i oppose the entire plan of logging. it is all unacceptable and completely motivated by greed and stupidity and venality of the present anti environmental bush administration.

c-2 i oppose spending general tax dollars on "hunter" walking trails. hunters are a small selfish group, declining in number every year, and who push peaceful users of the forest out to save their own lives for most of the year. that is completely unacceptable.

12-2

12-4

12-6

12-7

12-8

12-9

12-10

12-11

12-12

Response to 12-2: We respectfully disagree with your portrayal of how the Forest Service is managed. We urge you to visit the Superior National Forest and meet with the many resource professionals who have worked on this and other management projects on the Forest. We would be happy to show you areas that have been managed both in the recent past and from many years ago. We will show you the forests that are regenerating to white pine. We will show you areas not included in harvest units because of sensitive plants or because they provide important wildlife habitat. And we urge you to review the mission of the Forest Service, which as set forth in law, is to achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of people. This includes advocating a conservation ethic in promoting the health, productivity, diversity, and beauty of forests and associated lands, listening to people and responding to their diverse needs in making decisions, and protecting and managing the National Forests and Grasslands so they best demonstrate the sustainable multiple-use management concept. See www.fs.fed.us for more information. In addition, the Forest Service is the largest forestry research organization in the world, and provides technical and financial assistance to state and private forestry agencies.

Response to 12-3: As was stated above, the Forest Service was developed under the sustainable multiple use management concept. Part of multiple use is providing goods and services from federal land, including timber to help address this country's need for and use of timber for wood products.

#012

c-3 i oppose the mining proposals. i oppose non native vegetation projects since many non native species are still being sold by nurseries (who contribute to the us dept of agriculture not to ban them i guess). so further proliferation of non natives continues because of the failure to ban their sale. that is wasting tax dollars on work to treat the same plants that the nursery down the street sold for a profit. i think that is wasting of tax dollars. ban the non native species first. then ask for tax dollars.

12-13

c-4 i oppose the atv trail.

12-14

e-2 the mr smoke mgt plan is substandard in protecting states to the east from fine particulate matter which is microscopic. conforminmg to it allows disease and death to spread east.

12-15

f13 - the gray wolf was not taken off endangered list because of population growth. it was taken off the endangered list because gun wacko wildlife murderers needed a new species to offer up to sell hunting licenses. t saw the articles by the gun wackos from hunting clubs asking for this new species to be offered up for murder. hunting is declining every year and every year more species are offered up to try to get the fat old dick cheney types or elmer fudd types to pick up a gun.

12-16

i-9 i agree with all sierra club comments.

1-16 lumber profiteers appear not to know or want to acknowledge sustainability of this forest is being lost. the greed of these lumber profiteers is enormous.

12-17

the plan needs desperate revision. it has no redeeming features at present.
b. sachau

Response to 12-4: Moose probably can get along just fine without human intervention. However, because vegetation management may impact moose habitat, it is important to consider what those effects might be and to limit those effects to the extent practicable and to possibly improve some aspects of their habitat.

Response to 12-5: We understand you do not support logging within 5 miles of the wilderness. Without additional scientific information on why we should stay 5 miles away, we will not address this further but we will note your opinion.

Response to 12-6: It is unclear to us what the commenter is asking for. Alternative 3 was developed to address specific concerns that were raised by the public during the scoping process. We do not believe this constitutes telling the public what they can and cannot do. Instead, it shows we listened to concerns raised by the public and developed an alternative that addresses those concerns.

Response to 12-7: We consulted with the US Fish and Wildlife Service on this project for threatened and endangered species such as bald eagle and lynx. These are not game species. And through our consultation efforts, we have included additional mitigations to protect specific wildlife habitat. This would seem to be a benefit.

Response to 12-7 cont.: Collaboration with the Minnesota Department of Natural Resources is done to ensure better management across land ownership boundaries. Again, your statement is not based on any scientific evidence. Hunting is a legitimate use of National Forest land and many people who hunt do so for the specific purpose of providing food for their families and it is unclear to us why these people should not be able to provide for their families.

Response to 12-8: The EIS does disclose the effects of the prescribed burning projects on air quality. The analysis states that the prescribed burns in the project area would have temporary, short-term, and usually localized negative impacts on air quality. And when viewed from an historical perspective, the amount of particulate released over the life of the project would be about one-tenth of what was released on an average fire-day in the BWCAW in the past. In addition, prescribed burning is only conducted on days when there is adequate dispersion of the particulate matter.

Response to 12-9: The Forest Service does not cater to gun wacko killers who want to kill “game” species.

Response to 12-10: Again, we encourage the commenter to visit previously harvested areas on the forest. We have ample evidence that trees do regenerate very quickly. We do not disagree that there are impacts to some wildlife species. There is a trade-off between providing goods and services and having some impacts on the land and resources. This is why the Forest Plan was developed to consider those effects across the entire Superior National Forest and provide objectives for how to manage the forest. And it is why we complete an environmental analysis - so the Responsible Official is fully informed prior to making a decision.

Response to 12-11: Please see the purpose and need for the project, as described in Section 1.4 of the EIS.

Response to 12-12: The trails would be built and maintained by the Minnesota Department of Natural Resources. State tax dollars may be spent in constructing and maintaining the trail; federal tax dollars would not be used.

Response to 12-13: The Glacier Project does not propose mining.

As was stated earlier, the purpose of the project is to maintain and promote native vegetation communities. The project does not promote any non-native vegetation and instead will take specific measures to limit the spread of non-native plants.

Response to 12-14: The Glacier Project does not propose any ATV trails.

Response to 12-15: Please see response to 12-8.

Response to 12-16: Gray wolf has been put back on the endangered species list. The Project does not propose hunting of any species but does consider the effects the project would have on native and desired wildlife species.

Response to 12-17: Comments noted. The Glacier Project Supplement to the Draft EIS was modified to address a new alternative. And the Final EIS is also modified to better disclose the effects of the project.

Carla Arneson came into the office on February 15, 2008 to talk about the Glacier Project Draft EIS. She lives at the end of the Sunset Road. And we are proposing management activity south of her property. I met with her to understand what her concerns are and to explain what we are proposing to do.

Carla thinks the point south of her property is very special place because of the large red and white pine. She is concerned we are going to come in and cut down the large pine. She says it is very open in the understory and very scenic.

I showed her the map of the fuel treatment units in the project area. We plan to conduct non-harvest treatments on the perimeter of the point and adjacent to the water and mechanical harvest on the interior of the point to remove the hardwoods and balsam fir. I said our objective is to treat the area to reduce fuel loads so that if a wildfire got started, it would be easier to control, less likely to burn the entire stand including the old pine trees, would be easier to fight and lessen the chances of it spreading to private land to the north. Prevailing wind is from the south west and that would push any fire in this area towards the private homes to the north.

Carla indicated she was not opposed to the idea of treating the area to reduce fuels but did want to be sure that we are not going to cut any large red or white pine.

Appendix E, Operational Standards and guidelines, Glacier-TM-1 states that in general, all standing, live, cedar, white pine, yellow birch, and tamarack are designated as leave trees and are not be cut.... In addition, Appendix H, Unit Specific Design Criteria, states that in Unit 62-002 all super canopy red and white pine would be retained where possible. Unit 62-002 is proposed for a two-aged harvest. The objective is to remove about half of the trees and create conditions suitable for pine regeneration. Following harvest, the unit would be underburned, followed by planting pine and spruce.

Units 62-001 and 62-082 are proposed to be crushed to first knock down the young balsam and then would be burned to reduce the fuels. No other trees besides balsam fir and possibly paper birch would be knocked down.

Carla is interested in walking the units with us. I will inform Susan and David of this and we may arrange a field visit this spring but it is not necessary at this time. Further field reviews would happen prior to implementation if the unit is carried forward in a decision.

No further follow up is needed at this time.

#013

Response to 13: These notes serve as both comment and response for this conversation with Carla Arneson and Sue Duffy. No further follow-up was needed.

#014

My wife and I have read with great interest the Draft Environmental Impact Statement and the answers to the public's questions regarding the Glacier Project Scoping Report.

We are pleased with the thoughtful and thorough way many of the concerns raised have been addressed. However, we still feel a need for additional specific information regarding the treatment of the land between Triangle and Ojibway Lakes. We are unclear as to why this narrow strip of land surrounded by water would be a priority in regard to preventing wildfire. Our other questions are as follows:

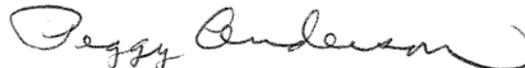
- 1. Is controlled burning the only option being considered to reduce fuels? 14-2
- 2. With one of the main management objectives being a forest of mixed-age vegetation, wouldn't it be prudent to treat different parts of this tract during different years? 14-3
- 3. How close to the water's edge will the vegetation be burned? 14-4
- 4. How close to our property lines will the burn be conducted? 14-5
- 5. As per your response in the Draft EIS, what specific efforts may we expect to see to limit the severe negative visual impacts like those created by the previous burns between these lakes? 14-6

In closing, the lush beauty of Triangle Lake as seen from our cabin has helped sustain us and our family for the past 30 years. The proposed burn area is directly across a very narrow bay from us and adjacent to our north and east property lines. As we are near sixty now, we hope that we are not forced to be surrounded by charred landscape for our remaining years. Anything you are able to do to mitigate the visual impact of any burns at the far east end of Triangle Lake would be greatly appreciated!

Thank you for your careful consideration of our heartfelt concerns. We earnestly await your response.

Sincerely,


Will Anderson


Peggy Anderson

14-1

Response to 14-1: The interdisciplinary planning team reviewed this area and determined that there is not a high fire risk condition in this area. Therefore, units 004-055, 004-069, 007-026, 007-040, and 007-043 have been dropped from this proposal.

Response to 14-2: Burning is not the only option to reduce fuels. Vegetation management through a variety of timber harvest techniques also accomplishes fuel reduction. Timber harvest is often used because it is economical and removes a greater amount of fuel. If further fuel reduction is desired after a harvest, prescribed burns may be used and are then easier to conduct.

Response to 14-3: The type of fuel reduction that was originally proposed in this area would not change the age of the overstory trees and would not result in a mixed-age forest. The action would have reduced the amount of balsam fir in the understory.

Response to 14-4: Vegetation can be burned right up to the shoreline. As you are aware, when parts of Ojibway and Triangle Lakes were burned in the past, many of the cedar trees along the shoreline were protected and did not burn. This and similar efforts, such as using a backing fire to burn along the shoreline to protect shoreline visual quality, are included in burn plans.

Response to 14-5: Burning will not be conducted in this area.

Response to 14-6: No fuel reduction activity will occur in this area. The purpose of fuel reduction treatments is to lessen the risk of wildfire. A wildfire burning through this area would likely burn all of the vegetation along a shoreline, including the cedar and larger-sized white and red pine. A wildfire could have an unacceptable impact on the scenery in an area. Controlled burns are designed to have less impact and contain measures to protect scenic quality. Although as you noted, the evidence of a controlled burn can be noticeable for several years. Again, efforts are made to limit the effects of prescribed burns on scenery but it may still be noticeable. And we believe the effects of prescribed burning are much less than a wildfire.

Response to 14-7: No activities are planned for the Triangle Lake area.

#015

As the new Policy Director for the Friends of the Boundary Waters Wilderness, I want to thank you for the opportunity to offer these comments on the Glacier Project Environmental Impact Statement. Please include this document as part of the Forest Service’s official record for this project, and include our organization on your mailing list to receive copies of all related notices, announcements, and documents.

15-1

As you well know, the Friends and the Forest Service have a long tradition of collaborative endeavors, mixed with friendly and healthy debate. I very much look forward to working with you and continuing that tradition in my new role. And, while I certainly do not anticipate that we will agree on all of the points below, my hope is that you will find our thoughts informative and our comments helpful to you in coming to a decision in this matter. Moreover, I welcome your ideas about how our comments can be more useful to you and your staff in the future.

As always, we appreciate the considerable amount of time and work the Forest Service has devoted to this project, and I particularly want to thank the Forest Service staff in your office who responded cheerfully and quickly to our frequent information requests with regard to this project.

The Friends applaud the Forest Service for identifying and considering Alternative 3, and urge the Agency to select Alternative 3 as its final agency action.

15-2

The Friends applaud the Forest Service for identifying and considering Alternative 3, and urge the Agency to select Alternative 3 as its final agency action. Alternative 3 is the **only** option that would allow the Forest Service to achieve both (1) its obligation under the National Forest Management Act and the Superior National Forest Plan to further the purpose and need of

Response to 15-1: Comments noted. We appreciate the fact that you have acknowledged the considerable amount of time and effort we have devoted to this project. We also look forward to the continued collaborative efforts and healthy debate.

Response to 15-2: We understand that your organization, the Friends of the Boundary Waters, supports Alternative 3 for the reasons included in your letter because you believe Alternative 3 strikes a better balance between the goals of producing timber for local mills, reducing flammable fuels in at-risk areas, maintaining the integrity of inventoried roadless areas, and protecting the wilderness character. We disagree that in Alternative 3 the Forest Service has acknowledged the substantial risks posed by the proposed logging and road-building activities in other proposed alternatives.

The purpose of Alternative 3 is to address significant issues brought up by the public during the scoping process. The scoping report defined an issue as a point of debate, dispute, or disagreement with the anticipated effects of a proposed action. Significant issues were carried forward for detailed analysis to ensure the effects of the project are thoroughly disclosed and so the decision maker can compare the effects between the alternatives and make an informed decision. The document does not state that Alternative 2 would pose a significant risk to the integrity of the BWCAW. The EIS discloses the effects of harvest on relevant resources. The responsible official will compare the effects of the alternatives and will decide if one of the alternatives should be implemented.

this proposed project, and (2) its obligation under the 1964 Wilderness Act to preserve the “wilderness character” of the Boundary Waters Canoe Area Wilderness.

While the conflict between these two obligations is often highlighted, the Friends believe strongly that, by choosing to implement Alternative 3, it is possible for the Forest Service to legally and effectually reconcile the goals of the Glacier project’s timber production purpose with the mandate of the Wilderness Act. The Agency should embrace Alternative 3 because it strikes a strong balance between the goals of producing timber for local mills, reducing flammable fuels in at-risk areas, maintaining the integrity of inventoried roadless areas, and protecting the wilderness character of the BWCAW.

In Alternative 3, the Forest Service has acknowledged the substantial risks posed by proposed logging and road-building activities in other proposed alternatives, and proactively identified opportunities to pursue those logging and road-building activities that minimize the ecological and recreational risks to the character of the Wilderness, inventoried roadless areas, and other sensitive areas of the Superior National Forest. With Alternative 3, the Forest Service has demonstrated that it *can* develop a strong solution when, during the planning process, it becomes clear that the benefits of particular treatments cannot be justified when compared to the risks they pose to the resource. Alternative 3 is a strong example of the level of flexibility and creative thinking that we hope the Forest Service will continue to demonstrate in the future.

In contrast, the preferred Alternative 2 poses a significant risk to the integrity of the BWCAW by selecting harvest units directly adjacent to the Wilderness boundary (many of which are known breeding grounds for non-native invasive species); creating a number of temporary roads within ½ mile of the Wilderness, which pass through known non-native invasive plant (NNIP) breeding grounds, are potential conduits for the passage of weeds into the Wilderness, and tempt illegal motorized use into the Wilderness and other fragile areas; and threaten, for extended periods of time, the solitude that the Boundary Waters Wilderness and nearby lands have to offer.

The EIS improperly discounts the risk of NNIP invading the BWCAW through the 1300 acres of adjacent timber harvest contemplated in Alternative 2. While the Forest Service recognizes that ground disturbances associated with Glacier Project timber harvest activities could facilitate the spread or invasion of NNIP into the BWCAW, the EIS summarily calls the risk “small” and asserts without analysis or support that “it is much more likely” that NNIP would spread into the BWCAW from recreational use than from timber harvest units adjacent to the Wilderness. The EIS cursorily discounts the known risk of invasion, as well as the fact that a number of the proposed logging and other treatment areas will occur directly adjacent to roads, trails, and portages used to access the Wilderness, thereby exacerbating the risk of NNIP spread through recreational activities. The EIS must adequately analyze and mitigate the impacts to Wilderness quality from logging adjacent to the BWCAW, including the recognized risk of introducing or spreading NNIP into the Wilderness.

Additionally, while the EIS recognizes that illegal motorized use within the BWCAW is a paramount concern, it fails to consider increased illegal motor activity as an impact of the proposed temporary roads. The Forest Service must ensure that these temporary roads are truly

15-2,
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Response to 15-3: In section 3.5.6.1 of the EIS, we disclose the effects of the Glacier alternatives on NNIP. For Alternative 2, Indicator 3 evaluates the risk of NNIP invasion into the BWCAW and includes a supporting rationale for the conclusion that the risk of NNIP impacts on the BWCAW is low. Portions of the analysis have been clarified for the Final EIS. We believe that this analysis is thorough and well-supported, and that it adequately addresses your concern.

Response to 15-4: The EIS addressed illegal motorized use in Section 3.16. Temporary roads within one-half mile of the wilderness boundary would be unlikely to lead to illegal OHV intrusions into the wilderness due to effective decommissioning of temporary roads upon completion of management activities (Figure 3.16-2). In addition, temporary roads would not be open for public use while vegetation management activities were occurring. Furthermore, monitoring efforts to date have found that all road spurs or user created/maintained trails found inside the BWCAW originated from established roads associated with timber sales that pre-dated the 2004 Revised Forest Plan. Recent monitoring also shows that we have been successful in decommissioning temporary roads and during 2007, ten miles of road were decommissioned with approximately 62 miles approved for decommissioning but not yet implemented. (2007 Monitoring and Evaluation Report, Recreational Motor Vehicles and and Transportation).

All temporary roads would be decommissioned upon completion of management activities. The agency has not used gates or berms to decommission roads for several years. Please see Figure 3.16-1 that shows how roads are now being decommissioned. Because roads would be decommissioned, we do not expect there to be illegal activity so there would be no additional cumulative effects to consider.

temporary. The Final EIS and Decision Notice must propose a specific strategy to ensure that all temporary roads are decommissioned and revegetated in accordance with the Forest Service Manual and other applicable laws. As the Agency is aware from past experience, mere gates or berms are not sufficient to effectively close roads to ATVs. In turn, ineffectively closed roads can result in the conversion of temporary roads into permanent unclassified roads. Further, the EIS should analyze the potential cumulative impacts of illegal use of closed roads.¹

The differences between Alternative 2 and Alternative 3 in terms of their impact on the character of the BWCAW are stark: 45 logging units that would impact Wilderness recreation sites versus 13; 275 all-season logging days versus 23; 295 winter logging days versus 36; 1.3 miles of temporary road vs. 0.04; 16 temporary road segments versus 1; 1300 acres of timber harvest adjacent to 2.3 miles of the BWCAW boundary versus 0.

The Friends strongly encourage the Forest Service to implement Alternative 3 as its final agency action.

A plethora of poor decisions has amounted to an ongoing assault on Wilderness Character in the South Kawishiwi River, Little Gabbro and Gabbro Lake vicinity.

In just the last few years, continuing to the present, the Wilderness and the adjacent area extending from the South Kawishiwi River entry point to the south and southwest of Little Gabbro and Gabbro Lakes have been pounded by a plethora of poor decisions that have compromised the character and integrity of the Boundary Waters Wilderness.

Notably, numerous clearcuts, still yet to be completed, from the 2004 Tomahawk Project will overlap the Glacier Project south of Little Gabbro and Gabbro Lakes at the edge of the Wilderness border (see Figures 1 and 2 below). In many cases, the Tomahawk clearcuts and the proposed Glacier project clearcuts sit directly adjacent to each other. In fact, the clearcuts proposed in the Glacier Project represent only a third to half of the acres of clearcuts that would actually be imposed in the Little Gabbro Lake vicinity under both projects. Taken together, these clearcuts strip away a giant swath of forest in a concentrated area along approximately five miles of the Wilderness' edge south of Little Gabbro and Gabbro Lakes. And, in at least one case, management activities are proposed in the Glacier project literally on top of the Tomahawk clearcuts.

15-4, Cont

15-5

15-6

Response to 15-5: We understand that you prefer to see less harvest activity near the wilderness boundary than more. The difference between alternatives as noted in your comment have been highlighted in the Glacier EIS to show that there would be different effects on the wilderness, although further analysis shows that the scope of the impact would have a maximum decibel level of 38 (small in scope) on the wilderness recreation experience of visitors. Furthermore, the Recreation Opportunity Spectrum (ROS) designation for the wilderness near Gabbro and Little Gabbro Lakes is semi-primitive non-motorized recreation, where by definition; opportunities for experiencing isolation and solitude are moderate to low.

Because none of the harvest activity in this area would be in the wilderness and the possibility of harvest noise heard would be small in scope and occur in winter when 2% of wilderness visitors may be found throughout the entire wilderness between December and April, the potential for impact to wilderness visitors would be low. The Responsible Official will take your comments into account in making a decision.

Response to 15-6: We understand you are concerned about the amount of timber harvest occurring in the area portrayed on the map. Please see the map 6-2 at the end of this Attachment that shows the difference between what was proposed and what will be harvested as a result of the Tomahawk EA. The map shows the entire stand being impacted when being planned but what actually happens during implementation is that parts of the unit are not harvested and what actually happens on the ground is less than what is portrayed on the planning map. This is because parts of units are not included in the harvest boundary because of soil type, terrain, leave trees and legacy patches, and other factors. The Glacier units were selected specifically to create a larger-sized patch of young forest by harvesting next to the Tomahawk units. By proposing harvest adjacent to recently harvested areas, we can reduce the amount of edge and increase patch sizes, which are both Forest Plan objectives.

The cumulative effects of Tomahawk and MN Department of Natural Resources harvest was taken into account under cumulative effects.

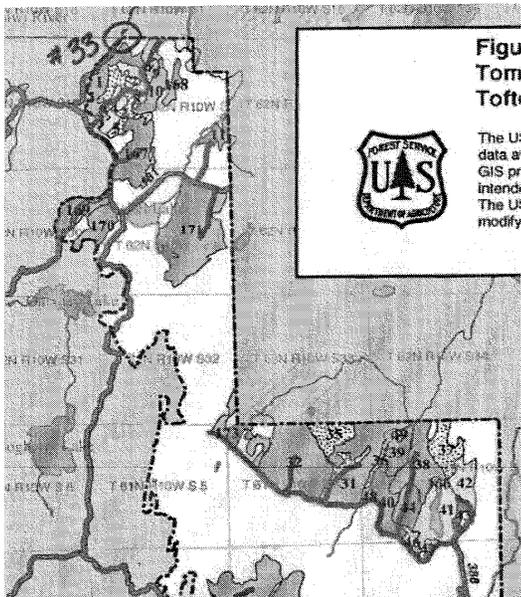


Figure 1. 2004 Tomahawk Project. Alternative 4, Selected Alternative.

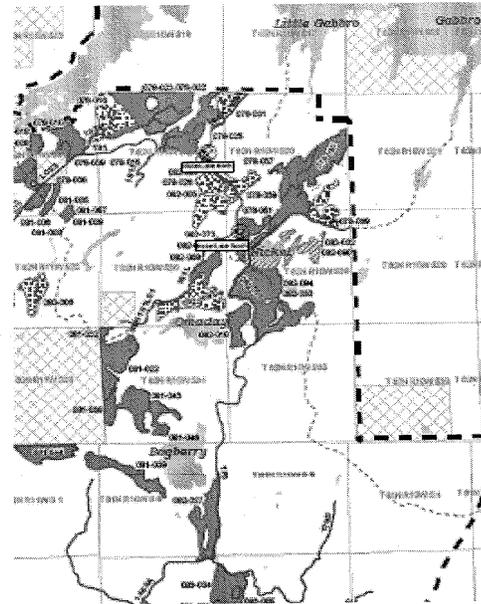


Figure 2. Glacier Project EIS. Alternative 2, Preferred Alternative.

Additionally, the Minnesota DNR has planned nearly 900 acres of logging within the Kawishiwi triangle area, in addition to other logging plans of Lake County and local landowners.

Moreover, this past fall, the Kawishiwi Ranger District approved a proposal for exploratory drilling at 74 individual sites just to the southwest of the Little Gabbro Lake and Kawishiwi River entry points and extending downstream along the South Kawishiwi River. These activities are expected to create a zone of pounding and drilling noises that, according to modeling, will impact, at a minimum, the South Kawishiwi River entry point and penetrate the Wilderness. Similar drilling is already occurring on Birch Lake, south of the project area, which has resulted in complaints by recreationists and landowners.

What is most astonishing, however, is that, particularly with regard to Alternative 2, the Forest Service has wholly abdicated its legal obligations under the National Environmental Policy Act² to assess the cumulative impacts of all of the aforementioned recent activities along with the proposed action. In fact, the extent of the Forest Service's cumulative effects "analysis" in the EIS is quite terse: "District recreation and wilderness staff *met* on November 13, 2007 to

Response to 15-7: The cumulative effects section of the Draft EIS considered the effects of the Tomahawk Project, prescribed burning in the BWCAW, minerals exploration, harvest on other ownership, and the forest-wide travel management project. See Appendix C for a list of other activities occurring in the area.

The supplemental EIS was modified in several resource sections to better explain and quantify the cumulative effects.

The purpose of the November 2007 meeting was to ensure we are considering all of the activities that have the potential to contribute to cumulative effects are considered and to discuss what those effects might mean for the various parts of the project area and wilderness.

15-6
cont.

Because several people commented on the cumulative effects of the project, the planning team met again in early April to review all of the projects identified in Appendix C to ensure that all resource sections considered all of the potential past, on-going, and reasonably foreseeable future projects that might contribute to cumulative effects. Several of the cumulative effect sections of the EIS have been modified to better describe the potential cumulative effects.

15-7

review potential effects to the wilderness character.”³ That group concluded that “based on the existing character of the activities occurring outside the wilderness. . . wilderness users would experience less isolation and solitude in areas closer to the wilderness boundary than in more remote locations of the wilderness.”⁴

Merely meeting to discuss these “potential effects” and concluding that Wilderness users should lower their expectations does not rise to the level of cumulative effects analysis that is required by the National Environmental Policy Act. In fact, the EIS barely contains a discussion of the cumulative effects in this particular area of the Wilderness, let alone an analysis. There is no discussion or analysis of the length of time that these activities would cumulatively impact the Wilderness. There is no discussion or analysis of how often noise and related effects of these various activities would overlap in space or time. There is no discussion or analysis of the cumulative effects of two compounded logging projects that would expose large sections of Wilderness edge through clearcutting. There is no discussion or analysis of mitigation measures that might relieve this area from the cumulative effects of a wide range of extractive activities in the project area.

Further, the Friends take issue with the Glacier Project EIS’s statements that undesirable noise in the Wilderness is somehow more acceptable between the hours of 7 a.m. and 6 p.m. when wilderness visitors are on the move, as well as the suggestion that these noises are acceptable when wind and waves compete with unnatural sounds for attention.⁵ These statements exemplify the EIS’s attempt to justify the preferred alternative by downplaying the impact of these actions on wilderness character and the wilderness experience. Those who wish to see ongoing logging and other projects adjacent to the Wilderness border are quick to argue that the law does not allow a “buffer zone” outside of the Wilderness boundary. While this characterization is debatable, there can be no debate that the law does not provide for a buffer zone inside the Wilderness boundary. But, that is exactly what has been created as the Forest Service allows project after project to infringe upon the Wilderness’ character.

Implementing Alternative 2 of the Glacier Project would be a violation of both the Forest Service’s obligations under the National Environmental Policy Act and a failure to uphold the mandate of the 1964 Wilderness Act. Fortunately, the Forest Service has wisely identified Alternative 3, which relieves the Little Gabbro Lake vicinity from the impact of even more timber harvest along the BWCAW border, and eliminates the concern that the Glacier Project would cause additional cumulative effects on this particular area of the Wilderness. The Friends strongly urge the Forest Service to adopt Alternative 3 as its final agency action.

Road building and logging in an untrammeled Inventoried Roadless Area cannot be justified.

Alternative 2 of the Glacier EIS proposes clearcutting in 148 acres of the Greenstone Lake West Inventoried Roadless Area (IRA). However, the driving purpose for proposing treatments in the Greenstone Lake IRA is neither ecological restoration nor the necessity of these units to

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15-8

Response to 15-7, cont.: We do want to point out that the EIS does not make the conclusion that wilderness users should lower their expectations. The EIS includes descriptions of the management area guidelines and those indicate that some areas of the wilderness are going to have less remoteness. For instance, Section 3.3.5 states that in the semi-primitive non-motorized wilderness areas the opportunities for experiencing solitude and isolation are low. The conclusion states that wilderness users would experience less isolation and solitude in areas closer to the wilderness boundary than in more remote locates of the wilderness.

The EIS discloses that noise would likely be heard at several locations within the wilderness. Some of this noise could be from the Glacier Project and some noise could be from other sources such as mineral exploration, private developments, and airplanes flying overhead. The EIS also does not state that undesirable noise is somehow more acceptable between the hours of 7 am and 6 pm. The EIS states that harvest operations typically occur between 7 AM and 6 PM. During day light hours is when the activities of wilderness visitors as well as environmental noise such as wind and waves often contribute more to measurable decibel levels at wilderness sites than harvest activity occurring in the vicinity.

We do not believe the analysis shows there would be a violation of our obligations under NEPA or a failure to uphold the mandate of the 1964 wilderness Act. Neither of these laws prohibits management activities adjacent to a wilderness area. The responsible official will consider your comments and the actual effects of each alternative on the wilderness character and will consider the tradeoffs between taking action and not taking action in the decision. The decision will also ensure the actions included meet relevant laws.

fulfilling the Forest Plan’s goals. Rather, the treatments were proposed in response to the apparent fire risk posed by fuel build-up in the IRA for residents along the Fernberg Road corridor. There are other techniques available to the Forest Service, beyond clearcutting, that should be used to achieve this fuels-reduction objective.

The Greenstone Lake West IRA has not seen any logging or road building activity in the past ten years, and may not have been subject to logging or road building activities at anytime in the past century. This is one of the few remaining intact, untrammled, core-habitat and natural areas that remain outside of the BWCAW and, not unlike Roadless Area Conservation Rule lands, this and other IRAs serve as “bulwarks against the spread of non-native invasive plant species and provide reference areas for study and research.”⁶ Additionally, as trees in the 100-149 year age class are under-represented in the project area and throughout the Forest generally, these IRAs present unique opportunities to the Forest Service to preserve old growth forest and move portions of the forest into this age category.

The desire to save the agency money on fire prevention efforts (by logging instead of crushing), or to provide a small additional amount of lumber to local mills, does not justify the construction of significant amounts of new temporary road into this IRA and the risks that those roads pose for the potential spread of NNIPs and the illegal use of motorized vehicles in the IRA – particularly where an equally effective alternative exists.

However, the Friends strongly support the reintroduction of fire into the roadless area both as an avenue for maintaining forest health and for managing fire risk. Likewise, we could support efforts to diversify the stands through a combination of burns, crushing and releases that do not involve the development of temporary roads, and underplantings. However, maintaining an intact forest community in the Roadless Area should remain a higher priority for the Forest Service than manipulating the succession of specific tree species in the Area.

Observations and recommendations related to specific stands in the project area.

The Friends make the following observations and recommendations with regard to specific compartments and stands proposed for treatment in the project area:

Compartment 4. Alternative 2 proposes a variable thin for a red pine stand identified as 004-016. The stand runs alongside FR 439, which ends near the BWCAW border, and then culminates in a trail that leads into the Wilderness and to the Kawishiwi River. Non-native invasive plants (NNIPs) have been identified in both the stand and along FR 439. As a result, the potential for spread of invasive species into the Wilderness as a result of harvest in this unit is high. If the Forest Service chooses to implement Alternative 2, the final decision must modify the shape and extent of stand 004-016 so that logging ends a significant distance from the boundary and trail into the Wilderness. Likewise, vehicles and machinery used for the thinning should be prohibited from approaching the trail or the boundary. Further, great care should be taken to prevent the spread of NNIPs, including through avoidance and treatment as necessary, in the various releases that are proposed in the stands in compartment 4 along the wilderness

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15-9

Response to 15-8: The Agency will consider other methods to reduce fuels besides clearcutting. Alternative 3 includes mechanical crushing and removal of non-merchantable vegetation to reduce fuels. Other methods will be considered by the Responsible Official prior to making a decision on this project. The effects of proposed harvest, roads, and other treatments are disclosed in the EIS. We understand your support of reintroducing fire into the roadless area to maintain forest health and manage the fire risk.

Response to 15-9: If Alternative 2 is selected to be implemented, your suggestion to modify the shape of the unit would be considered. The EIS discloses the risk of NNIP moving into the wilderness and the risk is low. We currently take care in all harvest units to reduce the risk of spread of NNIP.

boundary (the maps associated with the EIS contains insufficient detail to identify these treatments by stand number).

Compartment 6. Alternatives 2 and 3 both propose releases in stands identified as 006-001, 006-038, 005-005, and 006-003. These stands abut the Fernberg Corridor and extend on either side of a canoe portage to Wood Lake on the BWCAW boundary. Near the intersection of the portage and the Fernberg Corridor, NNIPs are documented. Great care should be taken to prevent the spread of NNIPs, including through avoidance and treatment as necessary, in the various releases that are proposed in the stands in this compartment. Additionally, those implementing the releases should be required to avoid activities that would cause soil disturbances in these stands, particularly adjacent to the portage, and increase the likelihood of NNIP spread.

Compartment 11. As discussed above, the risks associated with temporary road building and clearcuts designed for stands 011-36 and 011-45 cannot be justified. If the Forest Service chooses to implement Alternative 2, the final decision should eliminate the proposed logging activities in these stands.

Compartments 12 and 13. The Friends always has some degree of concern for logging projects that occur on the Wilderness boundary. However, the Forest Service’s proposal for the stands in these compartments are aligned with the use of an existing roadbed, which would not require the construction of a new temporary access road, and occurs where the noise impacts of logging are less likely to detract from the wilderness character due to the existing motorized use that is presently permitted on Farm Lake. Because of these mitigations, the Friends appreciate and support the Forest Service’s desire to take advantage of this opportunity to establish white pine and white spruce through a combination of seed tree cuts, partial cuts, and underplantings. We do note, however, that there is evidence of NNIPs at the intersection of the temporary road that would be used to access these stands and the Fernberg Corridor. Care should be taken to prevent the spread of NNIPs, including through avoidance and treatment as necessary.

Compartment 14. Alternative 2 proposes partial cuts in two clusters – one northeast of Garden Lake, and one to the south between Farm and Garden Lakes. As in compartments 12 and 13, the Friends appreciate the Agency’s desire to convert the existing aspen stands to white spruce and white pine. However, we feel that the second cluster (the cluster between the two lakes and adjacent to the BWCAW border) is situated differently than the first cluster and the stands in Compartment 12 and 13. Unlike in Compartments 12 and 13, logging the stands in the second cluster will require the construction of a significant amount of new temporary road. Due to the presence of NNIPs at the junction of these proposed new temporary roads and the Fernberg Corridor, as well as the ground disturbance that would result from new road construction, the spread of NNIPs toward and possibly into the Wilderness is likely. Additionally, the proposed treatments in the second cluster are adjacent to a non-motorized section of the Wilderness and near a wilderness segment of the Kawishiwi River. As a result, the construction of new roads and the implementation of logging activities are more likely to adversely impact the experience of those enjoying the Wilderness. If the Forest Service chooses to implement Alternative 2, the final decision should eliminate this second cluster of partial cuts – particularly the southwestern-most stands directly adjacent to the BWCAW boundary.

15-10

15-11

15-12

15-13

Response to 15-10: We are aware that there are NNIP in the Fernberg corridor and if this area is included in the decision, great care would be taken to reduce the risk of spread of NNIP. We do not expect to cause soil disturbance through the type of treatment proposed.

Response to 15-11: See response to 15-8 and 15-10.

Response to 15-12: Compartments 12 and 13 are in the vicinity of Fall Lake and not Farm Lake. We assume you mean the harvest south of the wilderness boundary near Fall Lake. Again, if these units are included in the decision, we will take care to reduce the risk of spread of NNIP. We appreciate your support of these treatments.

Response to 15-13: We note your comment and the Responsible Official will consider your comments in the decision. Please note that the effects analysis for NNIP shows that harvest adjacent to the wilderness is unlikely to result in the spread of NNIP to the wilderness. See Section 3.5.

Compartment 78. All of the proposed harvests in this compartment that are adjacent to and in the vicinity of the BWCAW border in the South Kawishiwi/Little Gabbro/Gabro Lake area are inappropriate for inclusion in this proposed project. For the host of reasons discussed above, the Friends urges the Forest Service to drop these units from consideration.

The Friends also feel it is important to generally address the potential for the spread of NNIPs in rocky outcrops throughout the project area, particularly in treatment areas near the BWCAW. The Friends appreciate the Forest Service’s elimination of activities proposed in stands with rocky outcrops in Alternative 3, and urge the Forest Service to eliminate those stands from the final agency action should the Forest Service choose Alternative 2. Additionally, there must be broad recognition that rocky outcrops and bedrock woodland communities have the potential to occur in any of the stands in the project area, and forest planners may not be aware of their existence until the area is being prepared for logging activity. The final agency action should include clear guidelines and directions for identifying these communities prior to logging, establish buffer areas around them where logging would be prohibited, and provide for additional mitigation and avoidance measures as necessary.

Missed opportunity to expand non-motorized recreation opportunities outside of the Boundary Waters Wilderness.

The Friends cannot help but note the total absence of discussion about opportunities to expand non-motorized recreational opportunities in the Superior National Forest as part of this project and others being proposed within the Superior National Forest. While the Glacier Project proposes some new additional winter-use trails, the new trails will be open to some motorized use and, moreover, the new trail miles are merely an afterthought that follows from the fact that road-building is necessary for logging activities being proposed in the project area. In the absence of these logging proposals – and the ability to convert road to trail – it is likely that these new trail miles would never have been proposed.

Chapter two of the Superior National Forest Plan identifies “recreation” and “trails” as major resource program areas and outlines a series of desired conditions for recreational activity in the Forest. Among them is the desire to “[emphasize] recreational activities and opportunities appropriate to remote natural settings”⁷ and to “provide non-motorized trail opportunities in a variety of forest settings.”⁸ Yet, the Friends have witnessed little movement toward this desired condition in recent years.

As visitation in the BWCAW continues to skyrocket, the Friends feel that it is absolutely critical that the Forest Service actively begin to expand and promote non-motorized recreational opportunities in the Superior National Forest that are outside of the designated Wilderness. Roadless Area Conservation Rule lands and IRAs are likely candidates for additional opportunities, but there are certainly others. The Friends stand ready and willing to partner with the Forest Service in such an effort.

15-14

Response to 15-14: We believe it is appropriate to include management activities in these units in an alternative considered in detail that will move the vegetation towards the Forest Plan objectives. There is also an alternative that does not include these units. The responsible official will weigh the effects of taking action or not taking action in the decision.

15-15

Response to 15-15: The responsible official will determine if harvest should occur in any of the units with rock outcrops. Alternative 3 was developed to address the effects that harvest would have on the spread of NNIP. We recognize that rock outcrops, also known as ELT 18s, can exist within treatment units. See the Soil Design Criteria in Appendix B. And see Appendix E for additional information on limits on management activities that are designed to safeguard soil productivity.

15-16

Response to 15-16: The purpose and need for the Glacier Project is to manage the vegetation and associated road system. Part of the purpose and need is to enhance the scenery, including planting desired species and increasing the species and structural diversity in some areas. The project also manages the vegetation to enhance habitat for game species to address hunting opportunities. The project also proposes to improve the Madden Lake Road and this road provides access to Madden Lake and a proposed hunter-walking trail system on State of MN land. These are not specific recreation projects but they will enhance the experience of those using this area.

We disagree with the statement about visitation in the BWCAW skyrocketing. Our records indicate that for overnight permits issued for 2005, 2006, 2007 and 2008 the number of permits issued ranged from a low of 34,681 in 2008 to a high of 35,990 in 2005. Overnight use has remained fairly consistent for the past 4 years.

Broader Forest Plan issues still outstanding.

As you know, the Friends and the Forest Service are currently in litigation about how to best manage the Superior National Forest and the Boundary Waters Canoe Area Wilderness. So, the Forest Service is well aware of the Friends' concerns, particularly with regard to the Forest Services' (1) continued failure to analyze the direct, indirect, and cumulative impacts of the Plan and activities conducted under the plan on the BWCAW, (2) inadequate analysis of the impacts of proposed projects under the Forest Plan on Canada Lynx, and (3) the inappropriate use of Management Indicator Habitats to assess wildlife impacts.

Suffice it to say that the Friends believe that the Forest Plan is deeply flawed in a number of areas, and we are troubled that the Forest Service continues to use the objectives of the Forest Plan as justification for projects like this one, when there is still so much unresolved debate about the scientific credibility and the legality of the Forest Plan.

Again, the Friends appreciate the opportunity to comment on this project. If we can be of any further assistance, please do not hesitate to call.

Sincerely,



Brian S. Pasko, Policy Director
The Friends of the Boundary Waters Wilderness

15-17

Response to 15-6, cont.: We agree it is important for the SNF to promote and manage for non-motorized recreational experiences, as well as motorized opportunities. We appreciate your support and willingness to partner with the Forest Service on these projects.

Response to 15-17: We are aware that the Friends of the Boundary Waters do not support the current Forest Plan and appealed the project internally and after not being successful there, took the Agency to court. We are awaiting the outcome of that litigation. We have been implementing the Forest Plan since 2004, following the direction for desired conditions, standards and guidelines, landscape ecosystem objectives, and management area direction. Teams of skilled and educated resource staff develop site specific projects that move the existing condition of the vegetation towards the desired conditions. And we have been monitoring these actions. We have not found evidence that the Forest Plan is deeply flawed. We do recognize that some people and groups do not support the Agency mission and believe the Agency should manage the forest differently. These differing opinions were considered when the Forest Plan was developed. We now have an obligation to implement the Forest Plan and continue to monitor the effects of what is being implemented and determine if changes are warranted. The Glacier Project, along with other decisions, will be monitored and the Forest will determine if there are changes that should be made because of new knowledge, findings on the ground, or other Agency direction.

#017

The 1854 Treaty Authority would like to provide comment on the draft environmental impact statement (EIS) for the Glacier Project. As you know, tribes retain treaty rights within the 1854 Ceded Territory, and the Glacier Project falls completely within that area. We remain highly concerned about management actions that may affect the exercise of treaty rights or the resources themselves.

17-1

While we appreciate the effort to meet with us and to include a section on tribes and treaty rights in the document, we believe that our consultation with the Forest Service is still in need of improvement. In the EIS, it states that “the federal trust doctrine requires that federal agencies manage the lands under their stewardship with full consideration of tribal rights and interests, particularly reserved rights, where they exist.” The federal government must consider the interests of the bands, and work to find ways to accommodate needs and address concerns. Language in the EIS provides a good foundation by describing tribes, the 1854 Ceded Territory and treaty rights, tribal interests, etc. However, the section describing effects on tribal concerns is minimal, and in fact does not discuss the project’s effects or how tribal concerns were addressed in project planning. This must be included in the EIS.

Significant issues identified for this project included effects to the Boundary Waters Canoe Area Wilderness, lynx, non-native invasive species, and roadless areas. Although these issues may need to be addressed, little effort appears to have been put toward tribal concerns. Primary issues that we have continually raised with the Forest Service are habitat (primarily for game species) and access (for moose hunting, fishing, wild rice harvesting, etc.). It appears that some of the management initiatives that provide young forest will benefit moose, and we are supportive of those actions. With concern over a potentially declining moose population and identified high interest from the bands, we feel that project analysis, planning, and implementation should better address moose habitat needs. The four management indicator species (bald eagle, gray wolf, northern goshawk, white pine) do not seem sufficient.

17-2

Although this project area has not typically been utilized by many tribal moose hunters in recent years, access continues to be a concern (and perhaps limited access to clearcut areas has contributed to the lack of current hunting). The Forest Service must acknowledge the distinction between motorized recreation and access for hunting, fishing, and gathering treaty rights. It is unacceptable to say that this issue will be addressed in off-highway vehicle recreation planning or under other initiatives at some point in the future. The Forest Service must consider treaty-right hunting activities as a use to be accommodated rather than a use to be curtailed. Management of temporary roads continues to be a primary concern. A need exists to access some of the units after treatment, primarily for moose hunting. Again, we are not requesting or desire an extensive network of roads/trails, but simply access by truck or ATV into some of the treatment units, specifically those designed to regenerate aspen.

17-3

Finally, I again remind the Forest Service of its responsibility to work with tribes on a government-to-government basis. We believe that effects of the project on the exercise of treaty rights and maintenance of

Response to 17-1: Comments noted. The Final EIS includes additional information on recent contacts with 1854 Authority.

Response to 17-2: Moose habitat is addressed in Section 3.8 Management Indicator Habitats in the Draft EIS. Additional information on potential effects of the project on moose is also included in the Final EIS. We plan to meet with tribal representatives prior to the decision to better address tribal concerns.

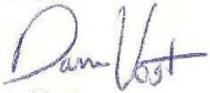
Response to 17-3: We agree that the effects of the project on the exercise of treaty rights and maintenance of tribal cultural practices are very important aspects of our planning process and as such, we want to address these concerns before and during the development of the proposed action. We do not consider these to be significant issues because of how we define significant issues that we use in our planning process. We define issues as a point of debate, dispute, or disagreement with the anticipated effects of a proposed action. The effects of the project on treaty rights including access to hunting areas and moose habitat will be included in the Final EIS.

A consortium of the Grand Portage and Bois Forte Bands of the Lake Superior Chippewa

tribal cultural practices are significant issues. Tribes are sovereign nations (not special interest groups) and by treaty with the United States retain rights to hunt, fish, and gather in the 1854 Ceded Territory. The project area falls within this ceded territory, and management practices affect resources, use of those resources, and ultimately treaty rights.

Thank you and please contact me with any questions about our comments.

Sincerely,

A handwritten signature in blue ink that reads "Darren Vogt". The signature is written in a cursive, slightly slanted style.

Darren Vogt
Environmental Director

#018

Minnesota Forest Industries has reviewed the Draft Glacier Environmental Impact Statement (EIS). We do not support the modified proposed action 2, as presented in the EIS. Nor do we support the additional proposed action alternative 3. MFI recommends that the Forest Service develop an alternative that would implement forest management actions that more actively treat the overmature forests within the project area. Specific comments on the project are below.

The Glacier EIS project area lies in-between the BWCAW. The BWCAW is withdrawn from timber management and provides many of the ecological functions desired by the EIS. The Forest Service is required to actively manage lands outside the BWCAW to maintain local and regional economies by offering raw materials for sale to loggers, and forest product companies. In fact, Congress recognized this when the BWCAW was established in passage of legislation that directed the Forest Service to intensify timber management outside the wilderness.

(c) Within the limits of applicable laws and prudent forest management:

(1) the Secretary shall, in furtherance of the purposes of subsection (a) of this section and of section 4 of the National Forest Management Act of 1976 (90 Stat. 2949), expedite the intensification of resource management including emphasis on softwood timber production and hardwood utilization on the national forest lands in Minnesota outside the wilderness to offset, to the extent feasible, the reduction in the programmed allowable timber harvest resulting from reclassification of the Boundary Waters Area, and the Secretary shall make a review of progress to date in 1983, and a forecast of planned achievements by 1985 and shall submit, as part of the 1985 program under the schedule called for in the Resources Planning Act of 1974, a Plan and recommendations for 1985-1990. In administering the Superior National Forest, the Secretary is authorized and directed to engage in artificial and natural

18-1

Response to 18-1: As was explained in the supplement to the Draft EIS, we did develop an alternative that conducted additional harvest. We were able to develop the Alternative 4 because of an error in the data that was used to conduct the Draft EIS.

The Superior National Forest manages all of the National Forest System land included in the Superior National Forest boundaries. The 2004 Land and Resource Management Plan (Forest Plan), provides desired conditions, objectives, and standards and guidelines for each of the relevant resources. In addition, for each landscape ecosystem, there are objectives vegetation composition, age class, tree species diversity, and management indicator habitats.

The Project does propose management activities throughout the project area.

You are correct in that these are objectives and they were used in developing the purpose and need and proposed action.

The standard referred to on page 2 of your letter is the standard found on page 2-30 of the Forest Plan. S-WL-1 states that “Management activities on NFS land shall not change more than 15 percent of lynx habitat on NFS land within an LAU to an unsuitable condition within a 10-year period.” As was stated earlier, when we realized we had an error in our data, we realized we could conduct additional regeneration harvest and not exceed this standard. Therefore, we developed Alternative 4.

#018

regeneration, release, site preparation, and other forms of timber production enhancement.

The Glacier EIS has failed to follow the direction provided by Congress. This is apparent in the Forest Service analysis of alternatives, proposed treatments, and withdrawal of more than 5,500 acres of timber management activity from the original proposal.

The forest service violated NEPA by failing to provide a range of alternatives permitting a reasoned choice. The project area encompasses a large area. The Forest Service administers more than 45,000 acres within the project boundary. Within the project area more than 23,000 acres of the aspen and jack pine forest types are beyond rotation ages (Table S-TM-5, FP pp. 2-21). In fact, more than 10,500 of these acres are 80 years old or more. It is well documented that aspen and jack pine forest types deteriorate rapidly after the age of 50 years. These sites are more than likely under-stocked and not succeeding to the types of forests desired by the Forest Service.

The EIS evaluated only two action alternatives. MFI proposed an alternative that would intensify timber management to capture timber volume prior to losses in mortality, improve forest health, reduce threats of fire, and improve forest growth and productivity. The Forest Service discounted this proposed alternative. The Forest Service responded by modifying alternative 2 by decreasing the amount of acres to be treated via timber management.

Proposed alternative 2, as modified by the Forest Service, significantly reduces timber outputs. More than 5,500 acres were withdrawn from timber management from the original proposal. Approximately 500 acres were final harvest (clearcut with reserves) and the remaining 5,000 acres withdrawn were intermediate treatments that would improve forest health and productivity and significantly contribute to local and regional economies.

One of the reasons for removing stands identified for clearcut with reserves treatment was that the "*Forest Plan standard*" for young forests would be exceeded in the project area. First it is our understanding that the amount of forest by age-class is not a standard, but rather an objective in the Forest Plan.

Further, the EIS incorrectly cites age-class objectives for the Jack Pine/Black Spruce LE that are different from the forest plan objectives outlined in FP Table JPB, page 2-61. The Forest Plan has an age-class of 10-39 whereas the EIS has an age-class of 10-49 for this LE.

MFI performed an analysis of the Jack Pine/Black Spruce LE using age-class categories found in table JPB-2 from the Forest Plan. This analysis shows that post harvest treatments that the proposed actions (prior to modification) would have approximately 780 acres more in the 0-9 age-class than the decade one objectives presented in the plan. The 10-39 age-class would be approximately 7,850 acres below decade one objectives, while the 40-79 and the 80-179 age classes would be 4,658 and 3,368 acres above forest plan objectives, respectively. Table 1 displays this information.

18-1,
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The age class objective table for Jack Pine/ Black Spruce has been corrected. Thank you for pointing this out to us.

See the updated analysis conducted on the age class and species composition for each LE in the Supplement to the Draft EIS. We believe this addresses your concern about the range of alternatives and missing the opportunity to move more quickly toward Forest Plan objectives.

Please note that there are other resource objectives besides age class and species composition. The Forest Plan also provides objectives for wildlife, recreation, soil, and water. In addition, the project must also consider effects of the project on these other resources.

18-1,
Cont.

This analysis was additionally performed for the Dry Mesic Red/White Pine LE. The results were similar. The 0-9 age-class had approximately 132 acres more than the forest plan objective for decade one, while the 80-179 age-class exceeded forest plan objectives by more than 5,400 acres. Table 2 displays the results of this analysis.

This analysis strongly suggests that there may be a bias within the Forest Service which favors old forest over young forest objectives. In both LE's evaluated the acreage for older age-classes substantially exceeded forest plan objectives for decade one. This was not the case for younger forests, 0-39 years of age.

Age Class	Current	2017	Decade 1 Obj.	Ac. +/- FP Obj.
0-9	314	4,130	3,350	781
10-39	4,827	2,199	10,050	(7,850)
40-79	11,209	8,965	4,307	4,658
80-179	7,578	8,633	5,264	3,369
180+	-	-	1,196	(1,196)

Table 1: Jack Pine/Black Spruce LE. Forest plan decade one age- class objectives compared with age-class acreage post treatments identified in alternative 2 (unmodified). Table displays a significant amount of acres beyond forest plan objectives for the 40-79 and 80-179 age-classes. Modified alternative 2 would reduce the 0-9 age-class by an additional 500 ac.

Age Class	Current	2017	Decade 1 Obj.	Ac. +/- FP Obj.
0-9	979	1,460	1,327	133
10-49	2,331	2,972	5,839	(2,867)
50-99	9,124	7,143	4,246	2,896
100-139	828	1,688	1,858	(170)
140+	8	8	-	8

Table 2: Dry Mesic Red/White Pine LE. Forest plan decade one age- class objectives compared with age-class acreage post treatments identified in Alternative 2 (unmodified). This table also shows that the proposed actions will result in a significant amount of acreage beyond forest plan age-class objectives for decade one. in the older forests category.

The proposed alternative fails to consider that the age class 10-39 in the Jack Pine/Black Spruce LE and the 10-49 age-class in the Dry Mesic Red/White Pine LE are significantly lower than decade one objectives. In order to meet this objective for decade 2 additional acres from the older age-classes should be harvested. This may increase the young forests objectives short-term, but will maintain old forest objectives and more quickly meet the forest plan objectives for the 10-39 age-class for the Jack Pine/Black Spruce LE and 10-49 age-classes for Dry Mesic Red/White Pine LE. In the near long-term this would lead to a more balanced age-class distribution and timber outputs from this area.

MFI requests that the Forest Service develop and assess an alternative that would increase the amount of young forests within the project area. This alternative should strive to reduce the amount of overmature forests more in line with the age-class objectives as presented in the Forest Plan for decade one. The Forest Service must propose additional clearcut with reserve

harvests in order to more quickly attain forest plan objectives for the 10-39 and 10-49 year age-class over the next decade following proposed timber management treatments.

The Environmental Impact Statement provides a limited discussion of the economic analysis of this project. There are a number of deficiencies in the economic analysis. The deficiencies include a failure to explain the impact of employment related to the EIS. There is a lack of discussion educating the reader on the importance of that income to the local economy. In addition to labor income, there is an impact to the local economy as those dollars are spent within the community by loggers and others who received income from the project. More information about the funds provided to government units by the project should also be included. Failing to recognize these economic impacts understates the importance of timber management to the local economy.

As discussed elsewhere higher harvest levels should have been evaluated by the Forest Service. MFI asks that the Forest Service develop and analyze an alternative with increased harvest levels. This economic analysis must be similarly reevaluated taking into account the proposed increased harvest levels.

Further, much of the economic analysis discussed is premised on assumptions relating to the cost of the project. It is not apparent from the EIS how the costs of the project are calculated. The EIS should have included at least a brief description of costs for the project. Without those costs, meaningful comment on the economic analysis cannot be provided.

MFI requests that the Forest Service provide additional economic analysis in the EIS showing the importance of the project to the local and regional economies including job creation and retention.

The selected alternative results in an irretrievable commitment of resources, especially the loss of significant jack pine and aspen acreage. The National Environmental Policy Act (NEPA) and the Council on Environmental Quality's implementing procedures under Title 40, Part 1502 of the Code of Federal Regulations, provide that an EIS prepared pursuant to NEPA must include an analysis of both the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity, and of any irreversible or irretrievable commitments of resources that would occur should the action be implemented. 40 CFR 1502.16.

The Glacier EIS area has a substantial amount of overmature forest. Nearly 82% (23,012 acres) of the jack pine and aspen forest types within the project area are considered mature or over mature. 67% (19,000+ acres) are considered to be over mature.

Much of the jack pine/aspens acreage within the project area is well beyond an age that is considered healthy. More than 10,000 acres are greater than 80 years of age. As these overmature stands continue to age, insects and pathogens will harbor and breed in these areas.

18-1,
Cont.

18-2

18-3

#018

Response to 18-2: The Supplement to the EIS includes additional economic effects analysis information.

The economics section of the EIS is not intended to be a complete economic analysis. Economics analyses must be considered from a larger-scale in order to provide a more accurate assessment of the effects. The Glacier EIS is tiered to the social and economic analysis for the Superior National Forest and can be found in the Environmental Impact Statement prepared for the Revised Forest Plan (FEIS Ch. 3.9-1 through 3.9-58).

The Forest Plan EIS addresses the economic sustainability of local communities including employment, income, present net value and also considers recreation and tourism and commercial wood products and suitable time lands. A local project such as Glacier is unlikely to have measurable economic effects on the local communities. We do however, recognize that local loggers live in the community and likely depend on timber harvest in the area to support their businesses.

See Alternative 4 for the alternative that does include increased harvest levels.

And see Table 3.18-4 in the Supplement to the Draft for information on the costs of timber related activities by alternative.

Eventually the pathogens will spread, lowering timber productivity and increasing timber mortality in nearby healthy forests.

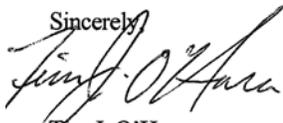
Despite having such an unhealthy condition in the jack pine and aspen cover types within the project area, the selected alternative only proposes clearcut with reserve harvest of approximately 3,470 acres in these forest types. Alternative 2 does little to address the unhealthy condition of the forest, especially in the jack pine and aspen cover types. As proposed, this project will allow thousands of acres of jack pine and aspen to be lost to mortality and convert to other cover types. Since the Forest Plan directs that the jack pine within the Jack Pine/Black Spruce LE be increased the actions proposed in the EIS violate the Forest Plan.

The selected alternative will result in an irretrievable commitment of resources allowing thousands of acres of jack pine and aspen to be lost to mortality.

The overmature jack pine and aspen within the project area should be harvested so that the timber is not irretrievably lost, and the management directions of the Forest Plan followed.

MFI appreciates the opportunity to comment on this project. We strongly request that the Forest Service develop an additional alternative that would increase timber harvest, economic activity to local and regional economies, improve forest health, lessen the threat of fire and insect infestations, and capture timber volume prior to losses by mortality.

MFI has provided the Forest Service with the rationale on how such an alternative should be developed. If you have questions about our comments please contact MFI.

Sincerely,

Tim J. O'Hara
Vice President of Forest Policy

#018

18-3,
Cont

Response to 18-3: the Glacier EIS (Section 3.22) defines irretrievable commitments of natural resources are commitments that result in the loss of productivity or loss in use of resources due to management activities proposed in the alternatives. Such opportunities are foregone for the period of time that the resource cannot be used.

Foregoing current harvest opportunities at this time may represent an irretrievable commitment of resources; however, areas not harvested could be harvested in the future if they are still classified as suitable for timber harvest.

We understand that there is a large percentage of mature and over-mature forest in the Project. Two of the main objectives of the project are to create young forest and decrease the amount of mature and old forest. We recognize that some old aspen and jack pine stands will convert to other forest types and this addresses other objectives in the Forest Plan. And we expect that much of the old aspen and jack pine will be available for future treatments. We do not expect it to be lost and will remain suitable for timber harvest in the future.

Again, Alternative 4 was developed to harvest additional mature and old forest.

Thank you for the opportunity to comment on the particulars of the Glacier Project (“the Project”). I am the forestry and wildlife advocate and a staff attorney for the Minnesota Center for Environmental Advocacy (MCEA). MCEA is the legal and scientific voice protecting and defending Minnesota’s environment, wildlife, and public health. We work with communities and conservation groups in the courts, the legislature, and state agencies, using science and policy to develop, communicate, and achieve positive change. MCEA is particularly interested in encouraging the U.S. Forest Service to advance landscape and site level goals through sophisticated design of forest management projects. MCEA is glad to have the opportunity to comment on the Project.

MCEA supports Alternative 3 for the better accommodation it makes for the requirements to protect the wilderness character of the Boundary Waters Canoe Area Wilderness. These include fewer clearcuts adjacent to the Wilderness boundary; fewer miles and fewer segments of roads involved in the Project; fewer harvest units that would have an effect on recreational sites on the forest; shorter periods of time during which logging activity’s effects would intrude on other users of the forest.

Up to this point, MCEA has already conveyed several simple comments via confirmed phone call to the Ranger District:

1. MCEA recommended that the final Project should drop the proposed harvest units located in Inventoried Roadless Areas (IRA), including specifically units identified as 011-045 and 011-036, in the IRA located to the northwest of Greenstone Lake West;
2. MCEA inquired regarding the appropriateness of upgrading the road to Madden Lake, and commented that there is too much access to lakes in

#019

19-1

19-2

19-3

Response to 91-1: We note your support of Alternative 3 because there would be fewer clearcut adjacent to the wilderness boundary and fewer roads, less impact on recreation sites.

Response to 19-2: Alternative 3 does not include harvest in the inventoried roadless area northwest of Greenstone Lake. The Responsible Official will consider your comments in making his decision.

Response to 19-3: The purpose of upgrading the road is to make it suitable for passenger vehicles. Currently, only high clearance vehicles can use the road. We do not believe there would be large boats and motors on Madden Lake because it is a small lake, the type of lake that is more suitable for canoe-type use.

the Superior National Forest not in the Wilderness; MCEA asks that except for the minimum necessary changes that might be made to correct for safety problems on curves or hills, that the road to Madden Lake be left as-is; on this point, MCEA now adds that if there were additional lakes, not necessarily Madden Lake, where canoeists could have a higher quality experience with less traffic and fewer large motors about, it might help alleviate some of the day-use canoe traffic that affects some entry points, which would improve the experience for all. The first step would be to avoid increasing easy traffic for large vehicles and larger boats, including refraining from upgrading roads to selected lakes.

19-3, cont.

3. MCEA commented that the Project maps are not easily interpreted. The USFS should take care to improve significantly its maps, and avoid some of the worst features, particularly the grey-tone differentiation between existing system trails and new system trails, which is impossible to understand without a great deal of effort; these maps diminish the ability of the public to understand the proposed Project and its alternatives, and to offer meaningful comments;

19-4

4. MCEA commented that there should be no new system trails open to OHVs in the Project area anywhere along the Fernberg Road, or anywhere else within 2 miles of the Wilderness boundary, given the close proximity of surrounding Wilderness and the incompatibility of any added engine noise with Wilderness character (see Mace-Bell-Loomis paper, attached).

19-5

MCEA makes the following additional comments:

MCEA COMMENT: Have a specific plan to obliterate all temporary forest roads and skid trails created by the vegetation management called for in the Project, and use the best technique used on the Tofte Ranger District, so that these “temporary” roads do not become lasting features on the land as a result of ATV use. Also have a specific plan as to what further steps might be taken soon after the attempted revegetation, in the event that efforts to keep ATVs out of the area are found not to be working at some time in the future. The Project area can and should address non-motorized recreation needs (hunter-walking trails).

19-6

RATIONALE: For multiple reasons, MCEA is extremely concerned about the management of the Forest’s transportation system, which has enormous implications for public safety, for protection of the environment, and for the high-quality traditional recreational experiences that hundreds of thousands of Americans seek in the Superior National Forest each year. First, there is a very great disparity between the amount of recreation that is non-motorized and the amount of U.S. Forest Service land in Minnesota managed for non-motorized uses. Specifically, state and U.S. Forest Service data (year 2000 recreational visitor day (RVD) counts) show that 70% of all non-winter recreation on the Superior National Forest is non-motorized (excluding Wilderness activities; add Wilderness activities, and the figure rises to 88%). Clearly, the demand is there for non-motorized non-Wilderness recreation opportunities. Yet almost no U.S. Forest Service lands outside of the Wilderness are managed for non-motorized activities like hunter-walking trails, birding, hiking, biking, or camping. Even including Wilderness lands, just 31% of U.S. Forest Service land in Minnesota is managed for non-motorized uses. When the Wilderness acres are excluded, the disparity is far greater. This is a serious concern, because while most hunters are not looking to hunt in the Wilderness, they do want a hunting experience that is free of the most common annoyance on the forest today: ATVs. After driving the car or truck on a forest road, the typical hunters’ idea of an enjoyable hunt is to find a place to park, and then set out walking.

19-7

Response to 19-4: We are aware that the maps may have been difficult to read. In the future, we will try to better differentiate gray tone color differences. We did not produce large scale maps because of cost and the additional amount of paper. We will also continue to encourage people to contact us if they want more information, including larger scale maps.

Response to 19-5: We understand you do not want any new system trails open to OHVs in the project area. The Glacier Project does not propose to add any OHV trails.

Response to 19-6: Please see Sections 3.16.6 and 3.16.7 in the EIS. All temporary roads would be decommissioned upon completion of management activities.

The project does address hunter-walking trails. See information on hunter walking trails in Appendix C. part of the purpose of improving the Madden Lake Road is to provide access to hunter-walking trails.

Response to 19-7: The purpose and need for the Glacier Project is to maintain and promote native vegetation and to manage the associated transportation system. The purpose is not to provide non-motorized recreation opportunities. Please note that the Forest recently completed the forestwide travel management plan. The EA and Decision Notice are available on our web page at: <http://www.fs.fed.us/r9/forests/superior/projects>. This decision identifies where motorized use may occur. All other areas of the forest are closed to motorized use.

#019

Some set up portable carry-in climbing stands and sit for hours. Others walk for hours, still-hunting. None of them want to have ATVs driving past and disturbing them 15 minutes or an hour into the hunt. Moreover, most hikers, bird-watchers, and other traditional users have similar stories to tell of bad experiences with ATVers, and they have similar desires for high quality recreation experiences unmarred by encounters with ATVs or the ugly damage they've left behind.

19-7, cont.

Response to 19-8: Again, the issue of illegal ATV use is beyond the scope of this project. As was stated earlier, all of the temporary roads would be decommissioned upon completion of management activities. Recent monitoring shows that historic motorized access routes into the wilderness do continue to be used and we do not find evidence of illegal use on new temporary roads that result in new illegal construction to enter the wilderness. Please see the 2007 Superior National Forest Monitoring and Evaluation Report for information on the number of roads that have been decommissioned in the last several years. And again, please note the Travel Management EA. The Forest will continue to monitor for illegal use and decommission roads that are no longer needed.

Second, the record of success in keeping ATVs out of public land areas where they are not wanted is checkered, at best. If special efforts are not made to ensure that skid trails and forest roads are absorbed back into the land quickly, then this Project – though intended to reduce fuels – will have serious, predictable and undesired environmental consequences: soil damage (compaction and erosion); sedimentation; wetland disturbance; water quality degradation; introduction and spread of non-native invasive species; wildlife disturbance; motorized use proliferation; and loss of badly needed and under-provided non-motorized recreation opportunities outside of the Wilderness. MCEA does not want these effects to be found on this Project site, and requests that every care be taken to obliterate and revegetate all signs of temporary roads and skid trails on the Project site. Equipment routes from the forest road to the stands should be obliterated and revegetated as the last pieces of equipment are being removed from the Project site. Please note that some good examples of logging road obliteration and revegetation have been recorded on the Tofte Ranger District. The best techniques from these should be used on this Project.

19-8

COMMENT: The Project documentation does not adequately address the cumulative impact of previous timber harvest along the Wilderness boundary, particularly the Tomahawk project and logging activities on state-owned lands under Department of Natural Resources' and county administration. There are significant habitat, wildlife, recreation, and aesthetic, consequences from the adjacency and overlap of some of these timber management projects that require cumulative effects analysis. This is a serious weakness in the Project, and MCEA urges that it be corrected.

19-9

Response to 19-9: The cumulative effects of Tomahawk and Department of Natural Resources harvest is taken into account under cumulative effects. Each resource section addressed the relevant past, on-going, and reasonably foreseeable future actions that might contribute to cumulative effects. Section 3.3.6.2 clearly addresses cumulative effects resulting from Tomahawk, prescribed burning, mineral exploration, and the forest-wide travel management project. And we have expanded the cumulative effects analysis for many of the resources. See the Final EIS for the latest versions and most complete analysis of cumulative effects.

This completes MCEA's comments on the Project. Thank you again, very much, for the opportunity to comment. I look forward to hearing from you regarding these comments.

Sincerely,

Matt Norton

The Minnesota Timber Producers Association has reviewed the Draft Glacier Environmental Impact Statement (EIS). We do not support the modified proposed action 2, as presented in the EIS. MTPA recommends that the Forest Service implement forest management actions that more actively treat the overmature forests within the project area. Specific comments on the project are below.

The Glacier EIS project area lies in-between the BWCAW. The BWCAW is withdrawn from timber management and provides many of the ecological functions desired by the EIS. The Forest Service is required to actively manage lands outside the BWCAW to maintain local and regional economies by offering raw materials for sale to loggers, and forest product companies. In fact, Congress recognized this when the BWCAW was established in passage of legislation to intensify timber management outside the wilderness.

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The Glacier EIS has failed to follow the direction provided by Congress. This is apparent in the Forest Service analysis of alternatives, proposed treatments, and withdrawal of more than 5,500 acres of timber management activity from the original proposal.

#020

20-1

Response to 20-1: As was explained in the supplement to the Draft EIS, we did develop an alternative that conducted additional harvest. We were able to develop the Alternative 4 because of an error in the data that was used to conduct the Draft EIS.

The Superior National Forest manages all of the National Forest System lands included in the Superior National Forest boundaries. The 2004 Land and Resource Management Plan (Forest Plan), provides desired conditions, objectives, and standards and guidelines for each of the relevant resources. In addition, for each landscape ecosystem, there are objectives vegetation composition, age class, tree species diversity, and management indicator habitats.

The Project does propose management activities throughout the project area.

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The standard referred to on page 2 of your letter is the standard found on page 2-30 of the forest Plan. S-WL-1 states that “Management activities on NFS land shall not change more than 15 percent of lynx habitat on NFS land within an LAU to an unsuitable condition within a 10-year period.” As was stated earlier, when we realized we had an error in our data, we realized we could conduct additional regeneration harvest and not exceed this standard. Therefore, we developed Alternative 4.

#020

The forest service violated NEPA by failing to provide a range of alternatives permitting a reasoned choice. The project area encompasses a large area. The Forest Service administers more than 45,000 acres within the project boundary. Within the project area more than 23,000 acres of the aspen and jack pine forest types are beyond rotation ages. In fact, more than 10,500 of these acres are 80 years old or more. It is well documented that aspen and jack pine forest types deteriorate rapidly after the age of 50 years. These sites are more than likely under-stocked and not succeeding to the types of forests desired by the Forest Service.

The EIS evaluated only two action alternatives. MTPA proposed an alternative that would intensify timber management to capture timber volume prior to losses in mortality, improve forest health, reduce threats of fire, and improve forest growth and productivity. The Forest Service discounted this proposed alternative. The Forest Service responded by modifying alternative 2 decreasing the amount of acres to be treated via timber management.

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Further, the EIS incorrectly cites age-class objectives for the for the Jack Pine/Black Spruce LE that are different from the forest plan objectives outlined in FP Table JPB, page 2-61. The Forest Plan has an age-class of 10-39 whereas the EIS has an age-class of 10-49 for this LE.

MTPA performed an analysis of the Jack Pine/Black Spruce LE using information contained in table JPB-2 from the forest plan. This analysis shows that post harvest treatments that the proposed actions (prior to modification) would have approximately 780 acres more in the 0-9 age-class than the decade one objectives presented in the plan. The 10-39 age-class would be approximately 7,850 acres below decade one objectives, while the 40-79 and the 80-179 age classes would be 4,658 and 3,368 acres respectively, above forest plan objectives. Table 1 displays this information.

This analysis was additional performed for the Dry Mesic Red/White Pine LE. The results were similar. The 0-9 age-class had approximately 132 acres more than the forest plan objective for decade one, while the 80-179 age-class exceeded forest plan objectives by more than 5,400 acres. Table 2 displays the results for this LE.

This analysis strongly suggests that there may be a bias within the Forest Service that favors old forest over young forest objectives. In both LE's evaluated the acreage for older age-classes substantially exceeded forest plan objectives for decade one.

20-1,
Cont

Response to 20-1 continued: The age class objective table for Jack Pine Black Spruce has been corrected. Thank you for pointing this error out to us.

See the updated analysis conducted on the age class and species composition for each LE in the Supplement to the Draft EIS. We believe this addresses your concern about the range of alternatives and missing the opportunity to move more quickly toward Forest Plan objectives.

Please note that there are other resource objectives besides just age class and species composition. The Forest Plan also provides objectives for wildlife, recreation, soil, and water. In addition the project must also consider effects of the project on those resources.

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180+	-	-	1,196	(1,196)

Table 1: Jack Pine/Black Spruce LE. Forest plan decade one age-class objectives compared with age-class acreage post treatments identified in Alternative 2 (unmodified). Table displays a significant amount of acres beyond forest plan objectives for the 40-79 and 80-179 age-classes.

Age Class	Current	2017	Decade 1 Obj.	Ac. +/- FP Obj.
0-9	979	1,460	1,327	133
10-49	2,331	2,972	5,839	(2,867)
50-99	9,124	7,143	4,246	2,896
100-139	828	1,688	1,858	(170)
140+	8	8	-	8

Table 2: Dry Mesic Red/White Pine LE. Forest plan decade one age-class objectives compared with age-class acreage post treatments identified in Alternative 2 (unmodified). This table also shows that the proposed actions will result in a significant amount of acreage beyond forest plan age-class objectives for decade 1.

20-1,
Cont.

The proposed alternative fails to consider that the age class 10-39 in the Jack Pine/Black Spruce LE and the 10-49 age-class in the Dry Mesic Red/White Pine LE are significantly lower than decade one objectives. In order to meet this objective for decade 2 more acres from the older age-classes should be harvested. This may increase the young forests objectives short-term, but will maintain old forest objectives and more quickly meet the forest plan objectives for the 10-39 age-class for the Jack Pine/Black Spruce LE and 10-49 age-classes for Dry Mesic Red/White Pine LE.

MTPA requests that the Forest Service develops and assess an alternative that would increase the amount of young forests within the project area. This alternative should strive to reduce the amount of overmature forests. The Forest Service needs to propose additional clearcut with reserve harvests in order to more quickly attain forest plan objectives for the 10-39 year age-class over the next decade following proposed treatments.

The Environmental Impact Statement provides a limited discussion of the economic analysis of this Project. There are a number of deficiencies in the economic analysis. The deficiencies include a failure to explain the impact of employment related to the EIS. There is a lack of discussion educating the reader on the importance of that income to the local economy. In addition to labor income, there is an impact to the local economy as those dollars are spent within the community by loggers and others who received income from the Project. More information about the funds provided to government units by the Project should also be included. Failing to recognize these economic impacts understates the importance of this Project to the local community.

20-2

As discussed elsewhere higher harvest levels should have been evaluated by the Forest Service. MTPA asks that the Forest Service develop and analyze an alternative with increased harvest levels. This economic analysis must be similarly reevaluated taking into account the proposed increased harvest levels.

Response to 20-2: The Supplement to the EIS includes additional economic effects analysis information.

The economics section of the EIS is not intended to be a complete economic analysis. Economics analyses must be considered from a larger-scale in order to provide a more accurate assessment of the effects. The Glacier EIS is tiered to the social and economic analysis for the Superior National Forest and can be found in the Environmental Impact Statement prepared for the Revised Forest Plan (FEIS Ch. 3.9-1 through 3.9-58).

The Forest Plan EIS addresses the economic sustainability of local communities including employment, income, present net value and also considers recreation and tourism and commercial wood products and suitable time lands. A local project such as Glacier is unlikely to have measurable economic effects on the local communities. We do however, recognize that local loggers live in the community and likely depend on timber harvest in the area to support their businesses.

See Alternative 4 for the alternative that does include increased harvest levels.

And see Table 3.18-4 in the Supplement to the Draft for information on the costs of timber related activities by alternative.

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20-2,
Cont

Last, much of the economic analysis discussed is premised on assumptions relating to the cost of the Project. It is not apparent from the EIS how the costs of the project are calculated. The EIS should have included at least a brief description of costs for the project. Without those costs, meaningful comment on the economic analysis cannot be provided for this project.

MTPA requests that the Forest Service provide additional economic analysis in the EIS showing the importance of the project to the local and regional economies including job creation and retention.

The selected alternative results in an irretrievable commitment of resources, especially the loss of significant jack pine and aspen acreage. The National Environmental Policy Act (NEPA) and the Council on Environmental Quality's implementing procedures under Title 40, Part 1502 of the Code of Federal Regulations, provide that an EIS prepared pursuant to NEPA must include an analysis of both the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity, and of any irreversible or irretrievable commitments of resources that would occur should the action be implemented. 40 CFR 1502.16.

20-3

The Glacier EIS area has a substantial amount of over mature forest. Nearly 82% (23,012 acres) of the jack pine and aspen forest types within the Project area is considered mature or over mature. 67% (19,000+ acres) are considered to be over mature.

Much of the jack pine/aspen acreage within the Project area is well beyond an age that is considered healthy. More than 10,000 acres of are greater than 80 years of age. As these over-mature stands continue to age, insects and pathogens will harbor and breed in these areas. Eventually the pathogens will spread, lowering timber productivity and increasing timber mortality in nearby healthy forests.

Despite having such an unhealthy condition in the jack pine and aspen cover types within the project area, the selected alternative only proposes clearcut with reserve harvest of approximately 3,470 acres in these forest types. Alternative 2 does little to address the unhealthy condition of the forest, especially in the jack pine and aspen cover types. As proposed, this project will allow thousands of acres of jack pine and aspen to be lost to mortality and convert to other cover types. Since the Forest Plan directs that the jack pine within the Jack Pine/Black Spruce LE be increased the actions proposed in the EIS violate the Forest Plan.

The selected alternative will result in an irretrievable commitment or resources allowing thousands of acres of jack pine and aspen to be lost to mortality.

The over-mature jack pine and aspen within the Project area should be harvested so that the timber is not irretrievably lost, and the management directions of the Forest Plan followed.

MTPA appreciates the opportunity to comment on this project. We request that the Forest Service develop an additional alternative that would increase timber harvest, economic activity to local and regional economies, improve forest health, lessen the threat of fire and insect infestations, and capture timber volume prior to loss by mortality.

Response to 20-3: The Glacier EIS (Section 3.22) defines irretrievable commitments of natural resources are commitments that result in the loss of productivity or loss in use of resources due to management activities proposed in the alternatives. Such opportunities are foregone for the period of time that the resource cannot be used.

Foregoing current harvest opportunities at this time may represent an irretrievable commitment of resources however; however, areas not harvested could be harvested in the future if they are still classified as suitable for timber harvest.

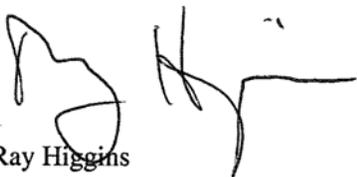
We understand that there is a large percentage of mature and over-mature forest in the Project. Two of the main objectives of the project are to create young forest and decrease the amount of mature and old forest. We recognize that some old aspen and jack pine stands will convert to other forest types and this is ok because it addresses other objectives in the Forest Plan. And we expect that much of the old aspen and jack pine will be available for future treatments. We do not expect it to be lost and will remain suitable for timber harvest in the future.

Again, Alternative 4 was developed to harvest additional mature and old forest.

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MTPA has provided the Forest Service with the rationale on how such an alternative should be developed. If you have questions about our comments please contact MTPA.

Sincerely,



Ray Higgins
Field Representative

Thank you for providing this opportunity to comment on the Draft Environmental Impact Statement for the Glacier Project. The comments herein are submitted on behalf of the Sierra Club North Star Chapter.

As you know the Sierra Club is a non-profit environmental organization with over 24,000 members in Minnesota. We participate in the administrative process to provide substantive comments on identified project areas as well as encourage the Forest Service to better achieve long-term wildlife and habitat protection and sustained recreational opportunities.

The Sierra Club prefers Alternative 3 over Alternative 2, but believes that there are still many important modifications that must be made and further analysis to be done.

I. Cumulative Effects

The National Environmental Policy Act (NEPA) requires a thorough analysis of the potential direct, indirect, and cumulative impacts of a proposed project. The environmental analysis of this proposal needs to include an analysis of cumulative impacts due to past actions, other current actions, and reasonably foreseeable future actions, pursuant to NEPA. The Sierra Club is concerned that the Agency did not conduct an adequate analysis of how cumulative impacts due to past, present and future actions will contribute to the impacts caused by the proposed Glacier project.

The Sierra Club would like to see an analysis of how past, present, reasonably foreseeable and ongoing (i.e. Tomahawk project, mineral exploration, state, county and city projects and travel management projects) actions combined with the Glacier project's proposed actions will affect threatened, endangered and sensitive (TES) species. The Sierra Club is especially concerned with how Glacier project harvests and past, present and future projects near and adjacent to the Boundary Waters Canoe Area (BWCAW) will affect the overall wilderness characteristic of the BWCAW. The Sierra Club does

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21-1

Response to 21-1: We note your support of Alternative 3 over Alternative 2.

Response to 21-2: The Supplement to the Draft EIS was updated to better display the cumulative effects of past, on-going, and future projects that overlap in time and space. We believe we have conducted an adequate analysis of the direct, indirect, and cumulative effects. See also the Final EIS because, again, some of the potential effects to the wilderness have been clarified in the relevant resource sections.

21-2

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not believe that an adequate analysis was done to evaluate all of these projects and what the overall effects will be.

II. Threatened, Endangered and Sensitive Species

The Glacier Project Environmental Impact Statement (EIS) states that there is a need to address habitat needs for game species, management indicator species (MIS) and threatened, endangered and sensitive (TES) species (Glacier EIS, 1-5). The Sierra Club is concerned that establishing habitat for game species often creates the exact opposite habitat that most of the MIS and TES species need. The Sierra Club is especially concerned with how reductions in upland mature forest habitat will negatively affect sensitive species. The EIS states that mature forest habitat would be decreased by 10-13% but that there would still be remaining suitable habitat for sensitive species across the project area (Glacier EIS, 3-52). The EIS states that “the decrease in the amount of mature forest does not exceed what is needed to maintain adequate habitat for species needing mature forest” (Glacier EIS, 3-59).

Many sensitive species will likely be negatively effected by this project, and the Sierra Club disagrees that potential impacts will be “within an acceptable risk level” (Glacier EIS, 3-51). The Sierra Club would like to see an analysis of the how creating habitat for game species will affect habitat for MIS and TES species.

The EIS and the Biological Evaluation (BE) for the Glacier Project fail to include site-specific monitoring and data for sensitive species. The National Environmental Protection Act (NEPA) requires actual analysis of impacts, with insufficient scientific data on sensitive species there cannot be adequate analysis of how this project will impact these species. Making guesses and using assumptions of how the proposed activities will affect sensitive species should not be used as a substitute for scientific evidence. For example, with the Heather Vole, the BE states that a survey has been conducted every fall since 2002 in an attempt to track trends in small mammal populations. Yet none of these surveys took place within the Glacier Project area (BE, F-16). Therefore the Forest Service knows absolutely nothing about the Heather Vole in terms of this project. Thus the conclusions made about the Heather Vole are merely guesses and are not backed by any evidence.

The agency admits that future predictions are uncertain and that many of these species and their required environmental conditions are not well understood (Glacier EIS, 3-47). The Glacier projects’ proposed management activities should maintain the species viability and not cause a trend toward federal listing of the species. The EIS concludes that all alternatives would maintain, protect, or improve habitat for all sensitive species and ensure that the project would not lead to a trend toward federal listing (Glacier EIS, 3-49 – 3-50). Yet without adequate scientific evidence to back up this conclusion, it is merely a guess.

The EIS says that “for most sensitive species the project area provides a small portion of their available habitat and in general impacts would likely be short-term” (Glacier EIS, 3-51). This conclusory statement has nothing to back it up. Which species are included in the “most” category, and more importantly which are not? How did the Forest Service determine which species fit into this “most” category? How does the Agency define “short term” impacts? What would these short term impacts be? What

21-3

Response to 21-3: In your letter, you requested to see an analysis of the effect of the project on MIS and TES species. That analysis can be found in the FEIS in sections 3.4 Threatened and Endangered Species, 3.7 MIH, and 3.8 Regional Forester Sensitive Species and in the Biological Evaluation located in Appendix F and the Biological Assessment located in Appendix G. For sensitive species, Chapter 3 contains a summary of the analysis; however, for the full effects analysis by species you should refer to the Biological Evaluation in Appendix F. In reference to your concern about monitoring data and analysis requirements of NEPA, the Biological Evaluation includes information on all available monitoring data. In addition, the Biological Evaluation contains the available information on population trends, habitat requirements, and limiting factors. Quantifiable analysis indicators are identified based on those things that we know about each species in order to analyze the impact of project alternatives. Your statement that “the Forest Service knows absolutely nothing about heather vole” is simply untrue. Appendix F includes the evidence that backs our conclusions on effects to sensitive species.

Your letter also contains a list of questions and statements related to the Glacier DEIS 3-51. Please note that this section of the EIS is a summary of the effects to several sensitive species. The answers to your questions may vary depending on species and can be found in Appendix F the Biological Evaluation in each individual species analysis.

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kind of analysis was done to figure out what these impacts would be and why they would only be short term? How does the Forest Service know that the project area only provides a small portion of the species available habitat? Were forest wide surveys done on all sensitive species to make this determination?

The Sierra Club believes that the Forest Plan does not provide enough detailed direction to adequately protect, maintain and restore sensitive species. Further, many of the standards and guidelines in the Forest Plan are not being followed in the Glacier Project planning process. The Forest Plan states that “Protecting biodiversity, including increasing efforts to protect sensitive species, is a priority management action for protecting ecosystems on the National Forests” (FP, A-27). Yet the Glacier EIS states that ground disturbing management activities may harm, kill, displace, temporarily disturb and destroy habitat for sensitive species and may destroy sites for rare species that are not readily reestablished elsewhere, but that these potential impacts are “generally expected to be low and within an acceptable risk level (Glacier EIS, 3-51).

The EIS explains that this conclusion was made because the Forest Plan provides direction to minimize or avoid negative effects, to ensure that management would not lead to a trend toward federal listing and to protect known locations of species where appropriate (Glacier EIS, 3-51). Yet without population numbers the mitigation measures in the Forest Plan are meaningless. For example, G-WL-11 – “Avoid or minimize negative impacts to known occurrences of sensitive species” and G-WL-12 – “Minimize negative impacts to known sensitive species from management activities that may disturb pairs in their breeding habitat during critical breeding season” (FP, 2-31) are useless when there are no known occurrences of a particular species in the Border project area because population surveys have never been conducted in that area for that species (i.e. Heather Vole, Gray Wolf). Further, S-WL-7 – “Allow only those management activities that protect, maintain, or enhance known locations for: Jutta arctic, taiga alpine, Freija’s grizzled skipper, and Nabokov’s northern blue” (FP, 2-33) only works if the Agency knows where these sensitive species occur in the project area.

The Sierra Club is concerned that there are no plans to improve or restore habitat for many of the sensitive species. Instead, the Agency focuses on maintaining some minimum amount of habitat with mitigation measures. The Sierra Club is concerned that some of the mitigation measures are not really explained and leave a lot of room for error. For example, for many of the species one of the mitigation measures is; if the species is observed, or its nest/den is observed the district biologist should be immediately notified. The Sierra Club is concerned with the effectiveness of this mitigation measure. Does it mean that employees of the companies who win the bids to log in the project area would be able to identify these species and their habitat, and then expected to immediately contact the district biologist?

The Sierra Club questions whether these mitigation measures will indeed maintain these sensitive species and their current available habitat. The Sierra Club appreciates the amount of time that was put into the BE, but believes that the Agency needs to further consider and explain the mitigation measures for all sensitive species.

21-3, cont.

Response to 21-3 cont.: One mitigation measure in particular we would like to further address here: that is the mitigation that if a species is observed, or its den/nest is observed, the District Biologist should be immediately notified. (See Appendix E for these site specific routine practices and other operational standards and guidelines that would be employed if any part of the project is implemented.) You question the effectiveness of this measure and if logging operators would be able to identify these species and their habitats. We do rely on our field technicians, timber sale administrators and operators to report dens and nests when they find them. Most of these people have years of experience working in the woods and are very knowledgeable of species and their habitats. This works well as a method to find and protect dens/nests while the activities are occurring. Other mitigations that we use are such things as seasonal restrictions and avoidance. Our monitoring has shown that these mitigations have been effective.

We are not able to respond to some of your comments such as “have not provided enough detail” or “further analysis must be done.” We feel our analysis adequately assesses the potential impacts of the project.

III. Management Indicator Species (MIS)

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The 1986 Forest Plan designated 34 MIS, yet the 2004 Forest Plan designated only 4. The Sierra Club believes that this is not sufficient to meet National Forest Management Act (NFMA) requirements nor is it adequate to evaluate how other species will be affected. The Sierra Club does not believe that these 4 species can be adequate "bellwethers" for other species in the project area. Nor has the Agency demonstrated how these 4 species are affectively acting as a bellwether in the Glacier Project area to manage for species diversity.

The Forest Service has failed to obtain the necessary data on MIS in the Glacier Project EIS. With the exception of the Northern Goshawk, no population data was collected on MIS. With only 4 species designated as MIS and without adequate population data on those MIS, the Forest Service cannot effectively conduct this project while at the same time maintaining species diversity. Therefore, any conclusion that species and species diversity will not be affected is baseless.

With respect to Gray Wolf it appears that no data was collected on the species within the project area. The Forest Service did no site-specific surveys on the Gray Wolf. Instead the Agency relies on generalized knowledge that summarizes the species within the context of the Western Great Lakes. With no data on this species in this area it is not possible for the Gray Wolf to function as a MIS and no way for evaluating the impacts of this project on species diversity within the Glacier Project area and beyond.

The EIS explains that the Forest Plan G-WL-10 calls for protection of known active gray wolf den sites, yet it appears that no surveys were conducted to account for how many den sites are located within the project area and where they are located. O-WL-18 from the Forest Plan calls for the Agency to maintain, protect and improve habitat for the Gray Wolf using both course filter and fine filter strategies. The Sierra Club would like to see a better explanation of what strategies the Agency used in achieving this objective and how the Agency used the course and fine filter strategies with respect to protecting and improving Gray Wolf habitat.

An effort was made to gather population data on the Northern Goshawk. Yet there is no analysis of how the Goshawk acts as an MIS. The Sierra Club is also concerned that fragmentation of mature patches of forest will negatively impact the Goshawk and decrease suitable Goshawk habitat. Forest Plan direction calls for providing habitat to increase Goshawk population, but destroying and fragmenting mature forest will move in the opposite direction of this goal.

The Forest Plan states; O-WL-31 – "Provide habitat to provide for population goal minimum: 20-30 breeding pairs" (FP, 2-34). The Sierra Club would like to know how this project plans to increase breeding pairs in the area. The BE states, "Also, mitigation will assure the maintenance of stand complexity in pine and spruce thinning units by requiring the operator to leave 6 to 12 live hardwood trees per acre when available. This will preserve possible future nest trees for goshawks (BE, F-21). The Sierra Club would like to see a further explanation of this strategy. What does "when available" mean? How often will this happen? How will leaving 6-12 hardwood trees per acre, some of the time, promote Goshawk to re-inhabit the area?

Again there is no explanation of how the Bald Eagle functions as a MIS. The Sierra Club is concerned with plans to harvest in close proximity to several known nest sites (BE, F-36). The Sierra Club believes that these activities should absolutely not

21-4

Response to 21-4: You voiced concern about the number of MIS species designated by the Forest Plan. In a lawsuit brought by you and other groups, the US District Court (District of Minnesota) recently upheld our approach and selection of MIS in our Forest Plan. As the judge pointed out, the Plaintiffs failed to explain why the use of 4 MIS is not sufficient and did not explain why the Forest Service cannot use MIH to compliment its analysis of MIS. In the judges ruling she states that "A review of the Forest Plan reveals a thorough and reasoned explanation for the selection of the MIS used in the Forest Plan and subsequent FEIS and the reasons for using MIH to compliment the Forest Plan's analysis of MIS. Forest Plan FEIS (Administrative R. citations). Accordingly, the Forest Service's decision regarding the number of MIS, the selection of MIS, and the use of MIH was neither arbitrary nor capricious".

You state that we have failed to obtain necessary population data and made baseless conclusions on the effects to MIS. Your reason is that we did not conduct site-specific surveys for MIS within the Glacier project area. It is important to understand that in terms of the National Forest Management Act, "project area" refers to the entire Superior National Forest not individual project locations within the forest. This data is collected for all MIS and documented annually at the forest level, and results can be found in our annual monitoring and evaluation reports also found on our website <http://www.fs.fed.us/r9/forests/superior/> under publications. This data was considered in project planning and analysis for the Glacier project. These analyses can be found in chapter 3 sections 3.7 of the Glacier Final EIS.

occur during the nesting period, and likely should not occur at all because of their location so near nest sites.

Finally, there is no population data or discussion of how White Pine is analyzed for its MIS function. The Forest Service fails to explain how White Pine will be monitored for population trends or why White Pine is a good indicator species. The main problem is that MIS' are supposed to be indicators for assessing how management activities will not adversely impact species diversity. There is absolutely no explanation of how White Pine is functioning to help the Forest Service accomplish these species diversity goals.

21-4,
cont.

IV. Management Indicator Habitats (MIH)

The Sierra Club is concerned with the reliance on MIH and its effectiveness and ability to protect species diversity. The Agency has not demonstrated how analysis and monitoring of MIH will allow it to anticipate and assess the impacts of the Glacier project on species diversity.

The Glacier EIS relies on the 2004 Superior National Forest Plan; however the Plan falls severely short of meeting its legal obligations related to protection of species. NFMA's implementing regulations provide that "[f]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area." 36 C.F.R. § 219.19. The regulations also direct that forest planning "recogni[ze] that the National Forests are ecosystems and their management for goods and services requires conditions will not be irreversibly damaged; (ii) there is assurance that such lands can be adequately restocked within five years after harvest; (iii) protection is provided for streams, stream banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperature, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat; and (iv) the harvesting system used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber." The Revised Forest Plan fails to comply with the requirements of NFMA because the agency has not obtained the necessary data to ensure the diversity of plant and animal communities and the viability of threatened, endangered, sensitive and Management Indicator Species (MIS), instead relying on habitat indicators to assess population viability.

21-5

The Forest Plan designates too few Management Indicator Species and does not require collection of population data on those species. The Glacier EIS fails to include site-specific monitoring and data for all sensitive species in the area. The 2004 Superior National Forest Plan and the Glacier EIS, fail to explain how the MIS function as fine filters to double check the effectiveness of the MIH. The EIS does not even address the relationship between MIH and MIS.

The designation of only four MIS, no requirement for the agency to collect population data on these species, and the lack of site-specific monitoring and data provide an inadequate amount of information to help determine if MIH designations protect species diversity. Many of the MIH do not even have a vertebrate MIS associated with them, so the Forest Service has no way to monitor the effectiveness of the MIH. The Glacier EIS fails to clarify and clearly outline how the MIH will ensure species diversity.

Response to 21-4 cont.: You asked for an explanation of how we used the coarse and fine filter strategies with respect to gray wolf habitat. Coarse filter strategy involves planning and implementing Forest Plan objectives for Management Indicator Habitats in our Landscape Ecosystems. The fine filter analysis contains two parts. First, project level habitat analysis is conducted to determine the change to habitat expected and associated effects (see Glacier Final EIS chapter 3 section 3.4) Second, a design feature/mitigation is included in project design to protect wolf den sites from disturbance based on G-WL-10 (see the wolf section in the Biological Evaluation located in Final EIS appendix F). In talking with wolf researchers in the area we know that wolves don't always use the same den site from one year to the next, so we rely on our field technicians, timber sale administrators and operators to report dens when they find them. This works well as a method to find and protect dens while the activities are occurring.

You had several concerns and questions about Northern goshawk. Information related to Northern goshawk can be found in the Glacier Final EIS section 3.7 and the Biological Evaluation in Appendix F. Our analysis shows that project alternatives would result in less fragmentation on the landscape and nearly the same amount of interior forest of large mature forest important to goshawk, thus maintaining current habitat condition, and improving future habitat conditions for goshawk populations on the forest. Several of your questions relate to a mitigation from the BE for maintaining hardwoods in pine and spruce thinning units. We have known goshawk territories on the forest where goshawk nests are located in aspen trees within conifer plantations. The purpose of this mitigation is to maintain those nesting opportunities. Not all conifer plantations contain aspen or other suitable nest trees. "When available" means in those plantations that have a hardwood component. This would happen in all plantations that have suitable hardwood trees.

V. Lynx

The Sierra Club is concerned that the Glacier Project will cause a decrease of lynx in and around the project area. The Sierra Club believes that further analysis must be done on the impacts this project will have on lynx. The Canadian Lynx is a federally listed threatened species. The Forest Plan calls for conservation and recovery of the lynx. At a minimum suitable habitat is to be maintained and protected. Ideally habitat should be improved over time. The EIS claims that the project will protect and/or improve lynx habitat and conditions, yet the EIS itself admits that current favorable areas for the animal will be reduced due to this project.

The Fish and Wildlife Service relied on certain commitments made by the Forest Service when it issued its no jeopardy finding for lynx during review of the Superior National Forest Plan. Objective O-WL-11 requires the Forest Service to “Maintain and, where necessary and feasible, restore sufficient habitat connectivity to reduce mortality related to roads and to allow lynx to disperse within and between LAUs and between LAUs and Boundary Waters Canoe Area Refugium on NFS land.” (FP, 2-29). The Agency has not fulfilled this objective in the Glacier EIS.

The EIS fails to show how the Forest Service analyzed connectivity between the three LAUs in the project area and the Boundary Waters Canoe Area Wilderness (BWCAW) Refugium and how the effects of this project will result in continuing to maintain existing connectivity or improve it. The EIS states that “Connectivity would be maintained between and within Lynx Analysis Units (LAU), including the Fernberg Corridor that is bordered on the north and south by the Boundary Waters Canoe Area Wilderness (BWCAW) because of areas not impacted by the harvest” (Glacier EIS, 3-17). The Agency mistakenly concludes that they have fulfilled their duty to maintain connectivity because of “areas not impacted by harvest”. The definition of maintain means to keep the current conditions as is. The problem is that the Glacier Project does not maintain the current connectivity in the area, but reduces it.

Glacier Project management activities will remove suitable habitat within and between the LAUs and the BWCA Refugium. Although the EIS states that this project will protect and/or improve lynx habitat and conditions; Alternative 2 and 3 will result in less suitable snowshoe hare habitat and lynx denning habitat in two of the LAUs. The Agency claims that “current habitat components for lynx are currently abundant and fairly well-distributed throughout the area” (Glacier DEIS 3-19). However, this should not be relevant, the definition of “maintaining” means keeping the current conditions as they are, not reducing them because they are already “abundant” or “adequate”. Further, how can the goal of improving conditions for lynx ever be achieved if the agency will not even maintain the current conditions but plans to reduce the amount of suitable areas for lynx?

Standard S-WL-2 directs the Forest Service to allow no net increase in the mileage of snow-compacting routes within any LAU. Yet the Glacier Project proposes building over 44 miles of new roads (temporary and permanent) under Alternative 2 and over 34 miles of new roads under alternative 3 (Glacier EIS, 3-24). Are any new roads planned within LAUs or between them? The Sierra Club believes that a map including

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21-6

Response to 21-4 cont.: You had concerns about Bald Eagle. Information related to Bald Eagle can be found in the Glacier Final EIS section 3.7 and the Biological Evaluation in Appendix F. We share your concern with the potential impact of timber harvest in proximity to nesting eagles. This is why we have included mitigation so that those harvests would not occur while eagles are nesting.

You had concerns about white pine. Information related to white pine can be found in the Glacier Final EIS sections 3.7 and 3.9. The Forest Plan monitoring and evaluation report will monitor and track population trends of white pine.

Response to 21-5: See Response to 21-4. The rationale and explanation for our selection of MIS and MIH can be found in the Forest Plan EIS located on our website under projects and plans, and numerous supporting documents in the Administrative Record for the Forest Plan. Monitoring of MIS and MIH occurs annually at the Forest level and results can be found in our annual monitoring and evaluation reports, also found on our website under publications. Both MIH and MIS were considered in project planning and analysis for the Glacier project. These analyzes can be found in chapter 3 sections 3.7 and 3.8 of the Glacier Final EIS. (web address for the Superior National Forest home page: <http://www.fs.fed.us/r9/forests/superior/>)

the LAUs in the project area, existing roads and planned roads should be included as well as a more detailed analysis of how new roads will impact lynx.

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21-6, cont.

VI. Non Native Invasive Species

The Sierra Club supports the Forest Services' efforts to reduce the spread of non native invasive species (NNIP) in the project area. However, there is a concern with the potential for spread of NNIP into the BWCAW due to the 1300 acres of proposed timber harvests adjacent to the BWCAW under Alternative 2. The Forest Service concludes that the risk of this happening is low (Glacier EIS, 3-31). Yet, there is no analysis or evidence to support this conclusion. The Agency must explain why and how they have concluded that the risk of NNIP spreading into the BWCAW is "low". The Sierra Club believes that Alternative 3 would be more beneficial because there are no proposed harvesting sites adjacent to the BWCAW, thus the spread of NNIP into the wilderness area is unlikely. Lastly, the Agency has failed to consider the cumulative NNIS impacts to the BWCAW from all harvest and road building activities. The Forest Service must analyze how other past, present, and reasonably foreseeable future actions will contribute to the spread of NNIP.

21-7

VII. Roads

The Sierra Club believes that roads in the Superior National Forest do and will lead to many negative effects including, destruction of species habitat, decreases in the Lynx population, fragmentation, damage to soil and water resources, and lead to illegal OHV trespass into sensitive areas. The Sierra Club prefers that as few new roads as possible be built for this project.

21-8

The Sierra Club supports all efforts to close and decommission unneeded roads. The Sierra Club supports the plan to not build any new system roads within one mile of the wilderness boundary. Finally, the Sierra Club supports the plan to improve 3 stream crossings, and urges the Forest Service to look for more opportunities in the project area where stream crossings could be improved.

VIII. BWCAW

The Forest Service has a duty to preserve the wilderness character of the BWCAW. This duty requires the Agency to conduct its management activities in a manner that will ensure the protection of the BWCAW. The Sierra Club prefers Alternative 3 over Alternative 2 due to the many acres of planned harvests adjacent to the BWCAW in Alternative 2. The Sierra Club is concerned that these harvests will contribute to degrading the wilderness character of the BWCAW. These proposed cuts will result in harvest noise, temporary roads that could lead to ATV trespass into the BWCAW, air pollution, spread of NNIS, impairment of water quality due to sedimentation and direct, indirect and cumulative impacts which could result in edge effects that diminish the quality of wildlife habitat within the BWCAW. The Forest service has a duty under Sec. 4(c) of the Wilderness Act to preserve and protect the wilderness resource, harvesting up to the edge of the boundary violates this duty.

21-9

Response to 21-6: With respect to your comments about Canada lynx, you have voiced a concern that the Glacier Project does not fulfill Forest Plan objective O-WL-11 which is an objective to “*Maintain and when necessary and feasible, restore sufficient habitat connectivity to reduce mortality related to roads and to allow lynx to disperse within and between LAUs and between LAUs and Boundary Waters Canoe Area Refugium on SNF land*”, and that we have not analyzed connectivity. We respectfully disagree. To begin, maintaining habitat for lynx was identified upfront as a purpose and need for the project (see FEIS section 1.4). Project alternatives were designed to address this. The effects to lynx habitat, including connectivity, were fully analyzed and disclosed in the FEIS section 3.4 as well as the Biological Assessment found in Appendix G. Our analysis shows that, at a minimum, 84% of the federal land would provide suitable connective habitat. Further, maps located in the project record show us that this habitat is well dispersed across the project area and would allow for lynx movement within and between LAUs and between LAUs and refugia habitat.

You questioned our definition of “maintain” in terms of maintaining habitat for lynx, and suggest that we are not maintaining habitat as required by our Forest Plan. You have also offered your definition which is “to keep the current condition as is.” Again we must respectfully disagree with your definition. This is because forests are dynamic and constantly changing, even without human influence or manipulation. The current condition is one snapshot in time and may look very different from one given time to another. To attempt to maintain a particular current condition may not only be undesirable but also impossible given the dynamic properties of forests and ecosystem. Our definition of “maintain” with respect to habitat is: to keep in existence or continuance, and to keep in an appropriate condition. So getting back to the example of maintaining sufficient habitat connectivity outlined in O-WL-11, we have kept connective habitat in existence with a minimum of 84% of lynx habitat on federal land in an appropriate condition to allow lynx movement and dispersal.

#021

The Sierra Club is especially disturbed with the closeness between planned Glacier Project harvest sites and ongoing and future harvest sites from the Tomahawk Project. Clearcuts from both projects will result in a huge harvest area along the wilderness' edge south of Little Gabbro and Gabbro Lakes. The Sierra Club believes that a further cumulative impacts analysis must be made to consider the Tomahawk project, the Minnesota DNR's plan to log 900 acres in the Kawishiwi triangle area, Lake County and local landowners logging plans and the 74 exploratory drilling wells southwest of the Little Gabbro Lake and Kawishiwi River entry points. The Sierra Club believes that when considering all these other activities, the Forest Service should not continue with Alternative 2's plan to harvest in the Little Gabbro Lake vicinity. Further, to best preserve the wilderness characteristic of the BWCAW, no harvest activities should take place adjacent to or near the wilderness boundary.

The Sierra Club believes that a more detailed cumulative effects analysis should be completed in relation to the BWCAW. The cumulative effects analysis needs to go beyond simply naming other projects that are to occur adjacent to the BWCAW. It needs to be a discussion of how the Glacier project and these other projects will affect the wilderness character of the BWCAW; including their affects on species, invasive species, connectivity, impact to recreation and overall health of the BWCAW ecosystem.

The Forest Service uses two indicators to analyze how this project will affect the BWCAW; number of harvest units within one mile of wilderness recreation sites and estimated number of days needed to harvest units that may affect wilderness recreation sites. The Sierra Club believes that the BWCAW's value is beyond just that of recreation. The BWCAW is one of America's last remaining pristine wilderness area's and is home to many unique species and ecosystems. The Sierra Club believes that one important indicator that should be analyzed is the way in which harvesting and other management activities will affect the BWCAW in terms of fragmentation and connectivity with the rest of the Superior National Forest and overall health of the BWCAW in terms of species and ecosystems.

IX. Roadless Areas

The Sierra Club believes that the 2001 Roadless Rule was intended to apply to and protect all Inventoried Roadless Areas (IRAs) in the National Forests and that the official map and list of IRAs would be regularly updated and revised over time. With no legal basis, the Forest Service has chosen to distinguish between Roadless Rule IRAs and Forest Plan IRAs and give less protection to the Forest Plan IRAs. The Sierra Club believes that the Forest Plan IRAs should be protected the same as the Roadless Rule IRAs and that no timber harvesting or road building should be allowed in these areas. Thus, the plan to harvest 148 acres in the Greenstone Lake West Inventoried Roadless Area should not occur.

The Sierra Club prefers the Alternative 3 plan to leave a large mature patch in the Greenstone Lake West Inventoried Roadless Area over the Alternative 2 plan to conduct road building and timber harvesting in this roadless area. The Greenstone Lake West IRA is a unique area that contains some of the last old growth in the Superior National Forest. The Sierra Club opposes the plan to harvest 148 acres within the Greenstone Lake West Inventoried Roadless Area. The Sierra Club is also concerned with the plan to

21-9,
Cont.

Response to 21-6 cont.: With respect to your comments on roads and Forest Plan Standard S-WL-2 you suggest that we should include a map of the LAUs as well as a map showing existing and planned roads. The LAU map can be found in section 3.4 of the Glacier Project final EIS and the maps showing existing and planned roads can be found on our website <http://www.fs.fed.us/r9/forests/superior/projects/glacier2.php> under maps. The analysis of the effect of roads including new roads can be found in the Lynx section of the Glacier Final EIS section 3.4.

Response to 21-7: In section 3.5.6.1 of the EIS, we disclose the direct and indirect effects of the Glacier alternatives on NNIP. Indicator 3 evaluates the risk of NNIP invasion into the BWCAW and includes a supporting rationale for the conclusion that the risk of NNIP impacts on the BWCAW is low. Portions of the analysis have been clarified for the Final EIS. We believe that this analysis is thorough and well-supported, and that it adequately explains why the risk of impacts NNIP impacts to the BWCAW is low for Alternative 2. Please see section 3.5.6.2 for our analysis of the cumulative effects of the Glacier project on NNIP, which includes analysis of cumulative NNIP impacts on the BWCAW.

We understand you support Alternative 3 because there are no proposed harvest units adjacent to the BWCAW.

Response to 21-8: Comment noted. The Agency also prefers that as few new roads as possible be built for this project.

21-10

construct 1.2 miles of temporary roads in this area. In the past temporary roads are often not successfully decommissioned which leads to OHV use and trespass into sensitive areas. How does the Agency propose to effectively close these roads so that they will not be accessed and will re-vegetate as quickly as possible, and what is the timeline for these measures?

#021

21-10, Cont.

X. Fuel Reduction

The Glacier EIS states that it will not use or consider using prescribed burns in place of commercial harvests because than the Forest Plan objective of providing commercial wood products will not be met (Glacier EIS, 2-6). Further, the EIS states that in the Forest Plan EIS Record of Decision it was decided that timber harvest will be the primary tool for reaching vegetative objectives (Glacier EIS, 2-6). Simply because this unwise decision was made during the Forest Plan stage does not mean that it should be continually used to justify a harmful practice. Preferring commercial harvesting over prescribed burns and restoration aimed harvesting, harms the overall health of the forest and the area. Instead of just referring to the Forest Plan as justification, the Agency needs to actually look at the scientific evidence and weigh the pros and cons of these two different strategies. Certain restoration centered harvesting in conjunction with prescribed burns can do wonders to restore an area. But, when harvesting is done with the objective of providing timber products the Agency is not capable of picking the best restoration strategy for an area.

21-11

The Agency states that commercial harvest must be used instead of prescribed burns because in the Forest Plan one of the objectives is to provide commercial wood products. However, preferring commercial harvests over prescribed burns conflicts with many of the other goals, objectives and guidelines in the Forest Plan. Some of the goals include; promote ecosystem health, protect and restore soil resources, control invasive species, provide for a variety of life by managing biologically diverse ecosystems, and develop and use the best scientific information available . . . to support ecological, economic, and social sustainability (FP, 2-5). In addition to these goals, there are countless standards and guidelines that call for protecting and enhancing soils, managing vegetation so as to return it to its RNV and protection of animal and plant species and their habitat needs.

The Sierra Club sees far more benefits that would result from using controlled burns than from commercial harvesting. Many benefits come from fire. Downed trees left after a fire provide; habitat to animal species, snags, future woody debris, nutrients to the soil and surrounding vegetation such as calcium and potassium, and fire helps certain tree species regenerate such as Jack Pine, Black Spruce and White Pine. These important components of a forests' overall health cannot be reproduced with clearcutting and other forms of commercial logging. Plus, clearcutting is disastrous when it comes to introducing invasive species into an area.

XI. Management Area Direction

The Sierra Club is concerned with the current trend of harvesting and creating young age class in the name of returning areas to a closer range of historical natural

21-12

Response to 21-9: We understand you support Alternative 3 over Alternative 2 because Alternative 2 does not harvest adjacent to the BWCAW. We believe the EIS adequately discloses the effects the project would have on the BWCAW. We agree that the harvest would result in some noise being heard in the BWCAW. We do not agree that the project would result in temporary roads leading to the wilderness, air pollution, spread of NNIP, or impairment of water quality, edge effects or wildlife habitat in the wilderness. Please see sections 3.16, 3.19, 3.5, 3.14, 3.9, 3.4, 3.7, and 3.8. The effects of the project in relation to the 1964 Wilderness Act will be addressed in the Record of Decision.

We believe we have adequately considered the cumulative effects and these are disclosed in the EIS. The purpose of proposing harvest near the Tomahawk units is to decrease the amount of fragmentation and create a larger-sized patch of young forest. See the purpose and need for the project in Section 1.4.1.

The Forest Service does not use just two indicators to disclose effects to the wilderness. Every resource section describes the analysis boundaries and the boundaries clearly state if that resource might be impacted in the wilderness. Some resources in the wilderness would not be affected. The two indicators in the wilderness section disclose the effects to the outstanding opportunities for solitude, which is one of two wilderness qualities the project could impact. The other quality is the natural quality and this is disclosed in each of the other resource sections. Fragmentation is discussed in Section 3.9 and connectivity and overall health of species can be found in Sections 3.4, 3.7, and 3.8.

diversity and variability. The Sierra Club is all for restoring diversity of vegetation patterns but is unsure if the means chosen by the Forest Service, i.e. harvest and clearcut, is the optimal method to achieve these goals. The Sierra Club fears that with the parallel goal of providing commercial timber, vegetation management becomes focused more on creating timber products than on choosing the best methods to return areas to their RNV.

The Sierra Club would like to see a discussion of the costs versus the benefits of creating large patches of young age class. While this strategy may result in a more natural range of variability/diversity in the long run, what are the negative impacts of these methods, long term and especially short term? One particular concern is how creating young age class (which fragments the area) will affect TES (threatened, endangered and sensitive) species both in the immediate area and in surrounding areas. Finally, the Sierra Club would like to see a discussion of how the two goals of creating commercial wood products and returning areas to their RNV conflict and coincide with each other and how and why the Agency feels they can be reconciled.

The Sierra Club wishes to express our appreciation for your assistance in helping us acquire information related to this proposed action, as well as your consideration in reviewing these comments. We look forward to working with you as this project progresses. Please keep us on the mailing list as this project moves forward.

Sincerely,

The Sierra Club North Star Chapter

21-12,
Cont.

21-13

Response to 21-10: Appendix C of the Forest Plan Revision Final Environmental Impact Statement contains information on the process the Forest followed during the revision process. Greenstone Lake West is not part of the Roadless Area Conservation Rule. We are not proposing any management activities within RACR areas. Greenstone Lake West was identified during the Forest Plan revision. The Forest Plan Record of Decision assigned the Greenstone area to the semi-primitive motorized management area. Therefore, management activities that follow the semi-primitive motorized MA objectives are appropriate for this area. We note that you believe the Forest Plan inventoried roadless areas should be managed the same as the RACR areas. We recognize these areas for what they offer; however, we cannot recognize them the same as RACR areas. We are obligated to follow Forest Plan direction along with agency and legal rules and regulations.

We recognize that this area is adjacent to a large patch of mature pine and that it warrants special consideration in how it is managed. We believe we can effectively decommission temporary roads. Please see Section 3.16 for information on road decommissioning.

The Responsible Official will take your comments into account prior to making his decision.

Response to 21-11: The Superior National Forest Land and Resource Management Plan (Forest Plan) 2004 provides the framework and direction that specific projects (like Glacier) utilize to move an area to the desired conditions. The substitution of prescribed fire in place of harvest methods was addressed in the Forest Plan EIS Record of Decision on page 6: “Timber harvest will be the primary tool for reaching vegetative objectives”. Page 14 of the Forest Plan EIS Record of Decision reads: “Concerns were raised about using stand replacement fire and burning up material that could be used commercially. Where areas are identified as suitable and available for timber harvest, commercial timber sales will be used as the primary management tool. The use of fire will complement mechanical treatments in achieving objectives”. These decisions were not made in a vacuum. These decisions were based on the analysis from many resource specialists, who extracted best available scientific information from 27 pages of references (Forest Plan Final EIS, Appendix References). Adverse effects were identified and mitigated to minimize the effects to forest health. Although some of the decisions in the Forest Plan ROD are not supported by members of the public, the Responsible Official took into account the comments from the public, the analysis, the input from the people who drafted or supported the analysis and rendered decisions that best carries out the mission of the Forest Service which is “To sustain the health, diversity, and productivity of the nation’s forest and grasslands and to meet the needs of present and future generations.”

Use of prescribed fire instead of commercial harvest is addressed in the Glacier Project EIS Section 2.4 Alternatives Considered and Not Carried Forward for Detailed Study Alternative 6. Using prescribed fire instead of clearcutting to meet LE objectives does not meet the “providing forest products” part of the Glacier Project’s Purpose and Need, nor does it follow decisions with the Forest Plan EIS.

The Forest Service does not disagree that prescribed burning provides many benefits. In the Glacier project, the Forest Service is proposing to use fire in conjunction with timber harvesting and crushing to restore areas back to their historic fire regime condition class. Alternatives 2 and 4 would prescribe burn 1,199 acres while Alternative 3 would prescribe burn 1,030 acres. The primary objective for the majority of these acres is to reduce fuel loading and change fuel arrangement by reducing balsam fir and a build up of thick swamp grasses. Other benefits of fire would include preparing the forest floor to allow natural pine seeds to establish themselves and retard the advancement of non-desirable species into an area.

In addition, the Glacier Project proposes over 5,000 acres of non-harvest type restoration activities. We believe this shows a large effort to conduct management activities that are appropriate for the variety of sites in the Project Area.

See also our response to your letter on the Supplemental EIS in Attachment 7.

Response to 21-12: We disagree that the project focuses more on creating timber products than on choosing the best methods to return areas to their range of natural variability. Please note that returning to the range of natural variability was considered in the Forest Plan. The Glacier Project proposes to move the Project Area toward the Landscape Ecosystem objectives which take into account some aspects of the RNV. See Section 3.1.3 Ecosystem Management in the Final Environmental Impact Statement for the Forest Plan Revision. Under all action alternatives, over one-third of the acres proposed for treatment would improve stand conditions through a variety of non-harvest activities including prescribed burning, biomass removal, mechanical ground disturbance, planting, and removing less desirable species. Regeneration harvests, including clearcut with reserves, shelterwood and seed tree harvests are proposed when there is an

opportunity to create young forest. Other harvest methods do not create young forest. We will not use prescribed burning alone to create young forest because of the difficulty of controlling such an intense fire and there could be extensive adverse effects resulting from stand replacement fires. See Response to Comment 15-3 in Attachment 7.

Response to 21-13: The costs of implementing this project are disclosed in Section 3.18. We believe a comparison of the costs versus the benefits of creating large patches of young forest are disclosed throughout the EIS. Alternative 1 discloses the effects if we take no action and the action alternatives disclose the effects if we take action. The effects to threatened, endangered, and sensitive species can be found in Sections 3.4 and 3.7.

The discussion of how the goals of creating commercial wood products and returning areas to their RNV was considered in the Forest Plan and the Record of Decision for the Forest Plan includes the Regional Forester's rationale for selecting the alternative to implement. The purpose of the Glacier Project is to maintain and promote native vegetation communities that are diverse, productive, healthy and resilient by moving the vegetative component toward the landscape ecosystem objectives for the relevant resource sections described in the Forest Plan.

#022

The following comments regarding the Glacier Project DEIS are submitted by Northeastern Minnesotans for Wilderness (NMW). NMW is a regional grassroots, wilderness advocacy group. NMW’s core mission is to preserve and protect wilderness and wild places in the Minnesota Arrowhead Region, especially the BWCAW. Since its founding in 1996 NMW has grown to represent over 400 members and supporters in Northeastern Minnesota.

Our contact information is,
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Email: smagliulo55731@yahoo.com

We prefer written communications to us to be through paper copy. We also request notification regarding any subsequent meetings or field trips concerning the Project.

We applaud the USFS decision to prepare a full EIS for the Glacier Project and we appreciate the efforts you have made to address the scoping comments made by NMW and others. Although we still have substantive concerns, the number of issues has been reduced significantly.

Our comments on the DEIS are grouped in eight (overlapping) categories: Glacier Project Area, Alternative 3 versus Alternative 2, Cumulative Effects, Vegetation Treatments, BWCAW Impacts, Forest Plan Inventoried Roadless Areas, Documentation Concerning Proposed Clearcuts, and Management Indicator Species/Habitat.

Glacier Project Area

We note two features of the Project area that deserve special attention.

1) Much of the Glacier Project area (Fernberg Road) is a relatively narrow corridor and much of the Project boundary is also the boundary of the BWCAW. Project activities may thus have an increased (adverse) effect upon the BWCAW.

22-1

22-2

Response to 22-1: Comments noted. We understand your mission is to preserve and protect wilderness and wild places, especially the BWCAW.

Response to 22-2: We understand you are concerned about the project area’s location in the Fernberg Road corridor and adjacent to the BWCAW. The EIS focused special attention on the potential effects of the project on the BWCAW and developed an alternative that would have less harvest adjacent to the boundary of the wilderness so that the effects of the harvest versus not harvesting would be fully disclosed.

The Forest Service manages approximately 52 percent of the land in the project area. Private landowners own approximately 22 percent of the land. Private developments have the potential to fragment wildlife habitat and we recognize the importance of the agency’s actions to provide and enhance wildlife habitat and reduce fragmentation and manage for wild places.

Response to 22-3: We understand you support Alternative 3 over Alternative 2 because you believe timber harvest adjacent to the BWCAW and in an inventoried roadless area is unacceptable.

2) There is considerable residential development occurring in the Project area. Likewise, substantial mining activity is being proposed for SNF and other lands in the vicinity of Birch Lake and the nearby Kawishiwi River (and BWCAW). The wild places and other forest components in the area are becoming fragmented with adverse habitat effects for Lynx and other species. USFS controls only about half (52%) of the Project Area. FS holdings must be carefully managed to achieve more general desired objectives for the area.

#022

22-2, cont.

Alternative 3 versus Alternative 2

NMW urges USFS to adopt Alternative 3 as clearly preferable to Alternative 2 (the current recommended action). NMW recommends, in the absence of a better idea, the Alternative 3 no vegetation treatment of areas adjacent to the BWCAW. Timber harvest, especially clearcutting, and associated roadbuilding adjacent to the BW in Alternative 2 is unacceptable to anyone concerned with preserving wilderness character.

22-3

Likewise, NMW recommends the West Greenstone Lake Inventoried Roadless Area non harvest vegetation treatment of Alternative 3 versus the logging activity and road building proposed in Alternative 2. Alternative 2 would undermine the goals of IRA to retain to the extent possible an untrammled environment.

Cumulative Effects

Your reference to a cursory discussion of the cumulative effects issue (p. 3-15) hardly fulfills NEPA requirements regarding cumulative effects. This is especially true as these cumulative effects relate to the wilderness experience in the BWCAW and the additional clearcuts proposed in the area S. of Gabbro and Little Gabbro Lakes and near the Kawishiwi River in the vicinity of Birch Lake. Cumulative effects include the activities undertaken in vegetation treatment and the results and consequences of these activities as they relate to the wilderness experience and the IRA environment. We note that the Gabbro/Kawishiwi area has already been subject to extensive logging in the Tomahawk Project and is the location of numerous test drilling sites in preparation for large scale metallic sulfide mining projects. Potential cumulative effects must be analyzed in systematic fashion using the best available science.

22-4

Vegetation Treatments

NMW is prepared to entertain the idea that larger patches of young forest should be established under certain conditions. The purpose as we understand it would be to generate a more natural forest where natural regeneration may not occur and to mimic natural forest in the absence of fire. As presented in the Project DEIS, however, this idea is merely an assertion. The backing for the idea should be presented, with references, and the potential effects and cumulative effects should be evaluated in detail. (We note elsewhere that the discussion of cumulative effects in general is grossly inadequate.)

22-5

A major reason for skepticism regarding creation of large even aged (young forest) stands is that as these age there is pressure to harvest (CCR) the units for commercial purposes. The result of this cycle is a tree farm rather than a forest. NMW notes this consideration as something to be monitored carefully in future years.

Response to 22-4: The interdisciplinary team met in early April to review the cumulative effects analyses completed for the project and the past, present and foreseeable future actions listed in Appendix C. The cumulative effects sections for some resources have been expanded because of this review. We have additional information on the mineral exploration activities and updated information on the Forest-wide Travel Management Project actions that are proposed within the project area.

Response to 22-5: The Forest Plan, including the EIS, provide the direction and analysis on the need to increase patch sizes to better emulate historical conditions and to provide interior forest habitat for those species needing interior forest. Please see Forest Plan pages 2-24 through 2-27 and the Final Environmental Impact Statement pages 3.2-50 through 3.2-75. This analysis includes the size and amount of large mature and older forest patches, size and amount of large young forest patches, amount of forest interior habitat and management induced edge density. The Forest Plan considered the range of natural variation and on page 3.1-23 of the EIS states “Early in the Forest Plan revision process, the Forest Service recognized that the picture of the past compared to the present provides a basis for understanding the range of landscape conditions needed to sustain ecosystems and species. That analysis will not be repeated in the Glacier EIS. The Glacier EIS tiers to this analysis in the Forest Plan EIS.

#022

We recommend that FS consider alternatives to clearcutting (CCR) if at all possible, and reject clearcutting adjacent or in proximity to the BWCAW. Our understanding is that clearcutting (CCR), followed by development of an even age single species stand, does not mimic most fires.

The vegetation plan for most of the proposed young stands is jackpine. However, you have noted the danger of fire in the Fernberg Corridor especially, and the need to reduce potential fuels accordingly. Our understanding is that in the event of fire, jackpine is especially susceptible to laddering and to the creation of crown fires.

BWCAW Impacts

NMW is especially concerned about the clearcutting (CCR) proposed adjacent to the BWCAW. NMW strongly recommends against clearcutting (CCR) in Project units adjacent to the BWCAW.

We have commented already on clearcutting in earlier sections. In addition to the earlier comments, we note that, with regard to the BWCAW, an observed clearcut detracts from the wilderness experience and the harvest activity itself intrudes upon the experience. FS is remiss in not examining the cumulative effects of Glacier on the BWCAW in any detail.

Road construction and clearing adjacent to the BW creates the potential for illegal trespass into the BW (even though all roads will be closed eventually according to the DEIS). Harvest activity and trespass also lead to potential transport of NNIS into the BW. Vegetation treatment of any kind should, wherever possible, provide for a portion of land outside the BW that could be treated should NNIS appear in vegetation treatment units. Road building should stop well short of the BW boundary to minimize trespass and NNIS dangers.

Forest Plan Inventoried Roadless Areas

NMW is prepared to consider more fundamental non-harvest treatments in Forest Plan IRA as a means of restoring more natural forest conditions. We reject for IRA, as well as for units adjacent to the BW, the proposal for clearcutting (CCR) as an unwarranted intrusion in the face of less intrusive alternative treatments. Alternative 3 which eliminates the harvest treatment in the West Greenstone Lake IRA is preferable if FS is unable or unwilling to develop alternatives to the clearcutting (CCR) proposed in Alternative 2.

There is a discrepancy in the DEIS on concerning proposed actions in the W. Greenstone Lake Forest Plan IRA. P. 2-15 states, "Eight percent of Greenstone Lake west Inventoried Roadless Area would have clearcut with reserves treatment." (Eight percent equals 148 acres as shown in Table 2-10.) However, the DEIS also says (p. 3-35 and 3-41) the Greenstone Lake W IRA will be a "partial cut of 30." The PC30 was proposed as a "pre-treatment" (to hopefully eliminate the threat of crown fires). The area would then be underburned to reduce the remaining fuels, according to the proposal. A phone call from Friends of the Boundary Waters Wilderness to USFS confirmed that the CCR proposal (on p. 2-15) is the correct one. This is unfortunate. NMW would be prepared to consider underburning if the pre-treatment was a non-harvest, alternative.

22-5,
Cont.

22-6

22-7

Response to 22-5, cont.: As is stated on page 1-2 of the Forest Plan, "The purpose of the Forest Plan is to provide management direction to ensure that ecosystems are capable of providing a sustainable flow of beneficial goods and services to the public."

The purpose of the Glacier Project is to implement the Forest Plan and to maintain and promote native vegetation communities that are diverse, productive, healthy, and resilient by moving the vegetative component toward landscape ecosystem objectives described in the Forest Plan.

Please note that the type of clearcutting utilized in this project is clearcutting with reserves. In addition, seed tree harvest, partial cut 30, and two-aged harvests are also used to regenerate stands. Clearcutting with reserves is proposed in units where full sunlight is needed to regenerate the desired species such as aspen and jack pine. The trees reserved in the unit include 6-12 trees per acre that would be retained either scattered or in clumps and for units greater than 20 acres in size, an additional five percent of the harvested area would be retained in a legacy patch. Clearcutting with reserves does not result in a single species stand because of the reserved trees (eg., leave trees and other trees that might not be harvested such as white pine, and other non-harvest areas such as legacy patches) not harvested to meet harvest design criteria. This type of harvest can help mimic stand replacement type disturbances in many northern Minnesota sub-boreal forest types. (Forest Plan p. 1-9)

#022

Area South of Little Gabbro and Gabbro Lakes and The Kawishiwi River Area Near Birch Lake.

NMW expresses special concern for two overlapping areas, the area S.of Little Gabbro and Gabbro Lakes, and the adjacent Kawishiwi River area near Birch Lake. The basic concerns regarding the Gabbro Lakes are have been expressed already, including, opposition to clearcutting (CCR), especially adjacent to the BWCAW; the cumulative effects of past (Tomahawk Project) and proposed timber management; the potential for BW trespass; and the introduction of NNIS by equipment or through trespass.

22-8

The area has suffered inordinate disturbance through timber harvest activities and is expected to be disturbed even more substantially through planned mining operations. This combination of past and planned actions has the potential for substantial cumulative impacts which FS should identify and analyze. The failure to address cumulative effects is a major weakness in the Glacier Project DEIS. The magnitude of these past and proposed actions should be recognized and provision made in the Project for possible mining activities which would require substantial revision to the Project. (Substantial revision is needed anyway.) The amount of vegetation treatment proposed in these areas should be scaled back considerably.

Documentation Concerning Proposed Clearcuts

The Project DEIS proposes a significant number of clearcuts (CCR). A number of these are proposed in units adjacent to the BWCAW. NMW requests FS disclose how the clearcuts proposed in the Glacier Project DEIS relate to the applicable standards governing the size, location, and use of clearcuts. Our understanding is that 1982 National Forest Management Act (NFMA) enacted regulations require that clearcut openings be shaped and blended with the natural terrain, to the extent practicable, to achieve aesthetic, wildlife habitat, or other objectives established in the forest plan 36 C.F.R @ 219.27(d)(1) . Furthermore, individual clearcuts may not exceed 40 acres except as provided in limited exceptions. 36 C.F.R @ 219.27(d)(2). Many of the proposed Glacier Project clearcuts (CCR) appear to exceed 40 acres. (We note that the 2005 NFMA regulations are illegal and invalid on this point because they fail to include the specific provisions, standards and guidelines for clearcuts that are explicitly directed by NFMA.)

22-9

Insufficient Management Indicator Species and Improper Substitution of Management Indicator Habitats

NMW recommends that the number of Management Indicator Species (MIS) in the Project be increased substantially and objects strenuously to USFS substituting Management Indicator Habitats (MIH) for MIS.

22-10

In the 2004 Forest Plan, the Forest Service abdicated its statutory and regulatory mandate to designate management indicator species as a means of maintaining viable populations of diverse species within the Superior National Forest and assessing the impacts of forest management activities. The 1986 Forest Plan identified 34 indicator species. Operating under the 2004 Forest Plan, USFS is proposing to anticipate and assess the species diversity impacts of the Glacier Project with only four MIS: white pine, northern goshawk, gray wolf, and bald eagle. Noticeably absent are any aquatic species to assess watershed or riparian health. FS instead relies on Regional Foresters Sensitive Species (RFSS). The development of RFSS is less than clear

Response to 22-5, cont.: The Forest Plan landscape ecosystems' objectives show there is a need to increase the amount of jack pine forest type in both the jack pine/black spruce and dry-mesic red and white pine LEs. It is true that jack pine stands are susceptible to laddering when less than about 25 years old. As jack pine age, they lose the lower branches and would be less susceptible to laddering and the creation of crown fires (although as the jack pine ages the increased presence of black spruce and balsam fir in the understory could eventually become the prime source of ladder fuels). Along the Fernberg corridor no areas larger than 66 acres are proposed to be converted to jack pine. Hence, these stands would not provide a continuous amount of hazardous fuel over large areas but would be limited to the individual jack pine stands.

Response to 22-6: We understand you have a concern about seeing clearcuts and feel they can detract from the BWCAW. As was stated in Section 3.3, the vegetation management activities would not be visible from the main use areas in the BWCAW. And the effects of hearing harvest activity are disclosed throughout this section.

Section 3.16 of the EIS addresses road decommissioning. Based on recent monitoring, we found that new temporary roads are not being illegally re-opened. The EIS discloses the effects of harvest activity and the potential spread of NNIS into the BWCAW. The monitoring section of the EIS relative to NNIP states that we will monitor a sample of the treated stands and treat any new NNIP that are found.

whereas MIS are more clearly understood. MIS should be used in species analysis in the Glacier and other SNF projects.

The Glacier DEIS should demonstrate how the four MIS are acting as “bellwethers” for other species in the Project Area. Likewise, site-specific population data should be provided and surveys conducted.

The most disturbing action concerning species management is that in lieu of managing for diversity and gauging management activity impacts through the selection of a representative number of indicator species, the Glacier Project DEIS designates Management Indicator Habitats (or similar indicator habitats, 3.7.3, 3.8). USFS is abdicating a clear legal mandate to manage for species diversity using indicator species. USFS should at least justify its novel indicator habitat approach by scientifically demonstrating a correlation between habitat and species viability. A brief review of the literature is hardly sufficient to establish the case for substitution of MIH for MIS in evaluating Project effects. The Forest Service simply assumes that the new-found indicator habitat approach will be effective. The validity of MIH assumptions and predictions has not yet been determined. In the absence of substantive backing for a new approach, USFS should reanalyze Glacier Project species data using MIS.

Sincerely,

Brad Sagen
Chair, NMW Board of Directors

#022

22-10,
Cont.

Response to 22-7: We note that you do not support timber harvest in the inventoried roadless area. The supplement to the Draft EIS clarified that the type of harvest under Alternatives 2 and 4 would be a clearcut with reserves. We describe the harvest in this manner because it represents the greatest amount of impact that would occur. As was stated on page 3-57, there would be no harvest of red or white pine. Based on our field review, there are areas with a high proportion of red and white pine trees and therefore, parts of the area would not be clearcut. And again, the purpose of the harvest is to reduce the amount of fuel so the subsequent underburn would be easier to conduct and control because of less fuel being available. Following treatments, jack pine would be planted in the open areas. Alternative 3 would not conduct timber harvest and would treat the non-merchantable balsam fir and other species to reduce the amount of fuel, and then conduct an underburn. There would not be an opportunity to plant jack pine.

Your comments will be considered by the Responsible Official in making the decision.

Response to 22-8: The areas south of Little Gabbro Lake and the Kawishiwi River have been brought up more than once as an area of concern by members of the public. Vegetation management objectives include creating “larger-sized patches” of forest that have similar characteristics for a wide variety of resource benefits. This was identified in Section 1.4 of the EIS where the purpose and need for the project includes “restoring landscape scale vegetation pattern for healthy ecosystems and promoting mature forest patches and interior forest patches to meet species needs for well distributed habitats and ecosystem needs. (Glacier EIS Section 1.4) Including Glacier harvest units adjacent to recent Tomahawk units would move vegetative objectives towards desired conditions for wildlife species and to mimic large scale disturbances of the past such as fire or wind storms.

Because none of the harvest activity in this area would be in the wilderness and the possibility of harvest noise heard would be small in scope and occur in winter when 2% of wilderness visitors may be found throughout the entire wilderness between December and April, the potential for impact to wilderness visitors is low. See Section 3.3 of the EIS for additional analysis.

An analysis of cumulative effects of the activities occurring in this broad geographical area as it relates to “outstanding opportunities for solitude and an unconfined type of recreation” referred to in the comment as “overlapping areas”, much of it being far removed from the wilderness boundary, can be found on pages 3-14 through 3-18 of the Wilderness section in the final EIS. This section analyzes impacts to wilderness visitor solitude from the cumulative effects of the Tomahawk Project (see Section 3.3.6.2 for cumulative impacts from Tomahawk harvests. Map 6-2 included at the end of Attachment 6 shows the geographical overlap between Glacier and Tomahawk Projects.

Response to 22-9: The Glacier Project is tiered to the direction and effects analyses completed in the Forest Plan. Page 2-26 (O-VG-20) of the Forest Plan states “Create large patch temporary openings up to 1000 acres through management activities.” and “Increase average size of temporary forest openings. Reduce amount of forest edge created through vegetation management activities, while still retaining a range of small patches and edge habitat.” Past management did limit temporary openings to 40 acres and this has resulted in increased habitat and patch fragmentation. In addition, historical patch sizes were generally larger than they are today. (Forest Plan EIS p. 3.2-50 and Record of Decision p. 10)

The Forest Plan analysis considered the role the BWCAW would play in meeting LE objectives. See Forest Plan EIS pages 3.2-51 and 3.2-54, and 3.2-55. The Forest Plan uses spatial zones to provide a context for large patch numbers and acres, provide for ecosystem representation, and account for the BWCAW. The Glacier Project area is in Zone 3 and is proximate to the BWCAW and is ecologically similar.

The Forest Plan embodies the provisions of the National Forest Management Act of 1976 (Forest Plan p. 1-5). Section 6 of the NFMA states (1) provide for multiple use and sustained yield of the products and services obtained there from in accordance with the Multiple Use, Sustained-Yield Act of 1960, and in particular, include coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. The Act goes on to provide specific direction to (E) insure that timber will be harvested from national Forest system lands only where soil and watershed conditions will not be irreversibly damaged... and (F) for clearcutting, it is determined to be the optimum method....and the potential environmental, biological, esthetic and economic impacts have been assessed and cut

blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain.... The Agency does include design criteria to blend harvest units with the surrounding areas.

See Appendix E pages E-14 and E-15 for additional information on how temporary openings should appear.

Response to 22-10: The US District Court (district of Minnesota) recently upheld our complementary approach to using both MIS and MIH in our Forest Plan and subsequent project planning. In the judge's ruling she states that "A review of the Forest Plan reveals a thorough and reasoned explanation for the selection of the MIS used in the Forest Plan and subsequent FEIS and the reasons for using MIH to compliment the Forest Plan's analysis of MIS. Forest Plan FEIS (Administrative R. citations). Accordingly, the Forest Service's decision regarding the number of MIS, the selection of MIS, and the use of MIH was neither arbitrary nor capricious". (Case No. 07-3160 ADM/RLE) The rationale and explanation for our selection of MIS and MIH can be found in the Forest Plan EIS located on our website under projects and plans, and in numerous supporting documents in the Administrative Record for the Forest Plan. Monitoring of MIS and MIH occurs annually at the forest level and results can be found in our annual monitoring and evaluation reports also found on our website under publications. Both MIH and MIS were considered in project planning and analysis for the Glacier project. These analyzes can be found in chapter 3 sections 3.7 and 3.8 of the Glacier Final EIS.

(web address for the Superior National Forest home page: <http://www.fs.fed.us/r9/forests/superior/>)

#023

The Minnesota Department of Natural Resources (DNR) appreciates the opportunity to provide input on the Glacier Project draft Environmental Impact Statement (DEIS). We greatly appreciate you incorporating DNR input early in the planning process.

The DNR is committed to sustainably managing our forests for a variety of public needs - scenic, recreational, social and economic. Each is equally important. However, it is important that we maintain a viable timber industry in order to have the tools and infrastructure available to actively manage our forests. The industry has been undergoing a period of volatility, instability and change over the last several years. The Governor’s Task Force on the Competitiveness of Minnesota’s Primary Forest Products Industry provided a report to the Governor that pointed out that “an imbalance in fiber supply and demand led to most recent capital expenditures in the primary forest industry going to other regions of the United States and the world where fiber and other costs are lower.” This is jeopardizing the industry competitiveness in Minnesota that could reduce our ability to manage our forests in the future. The report goes on to recommend that we increase the statewide annual timber harvest for all ownerships.

23-1

The DNR is increasing our efforts to sustainably provide more fiber to the market while still providing for the other needs of the people of Minnesota. Any reduction, however, in fiber production on other ownerships places additional burdens on the state, which makes it more difficult to address other forest values. We encourage the USDA Forest Service to strive to meet its 2004 Forest Plan goals for timber harvesting and fiber production.

Given that, we encourage the District to consider selecting Alternate 2, the Modified Proposed Action. We feel that it best provides young forest habitats and meets the socio-economic needs of Minnesotans while still maintaining habitat for other species and providing other forest values. We are, however, concerned with the level of active management that was removed from the original Proposed Action in the scoping report. If possible, please reconsider some of the

Response to 23-1: We understand the DNR’s role in providing sustainable fiber to the market. The Forest Service will also strive to provide sustainable fiber to local economies, while meeting other public needs such as scenery, recreation, social, and economic opportunities.

dropped stands in your final decision. In addition, we support the District’s position on timber management adjacent to the BWCAW and a variety of recreation sites across the forest. We do not believe that buffering such areas from the visual and auditory influences of active forest management serves the people or the resource well.

23-1,
Cont

Following are comments from individual DNR Divisions.

Division of Trails and Waterways: Contact Scott Kelling, (218) 753-2590 ext. 252

Tower Area Trails and Waterways has no comments on this project.

Division of Fish and Wildlife, Wildlife Section: Contact Rick Horton, (218) 999-7947

The DNR Division of Fish and Wildlife (FAW), Wildlife Section, feels that the project addresses many of our concerns for game habitat management including deer thermal cover, increasing jack pine, and maintaining access. However, we are concerned that the District removed 480 acres of clearcutting and a substantial amount of un-even-aged management from the proposed action and is allowing 1,348 acres of aspen to succeed without treatment (page 3-84).

We appreciate the District’s willingness to meet with Area Wildlife staff during mid-level analysis, and subsequently including burning around Heart Lake, deer yard management and large patch/young forest management to the project.

However, we do not feel that the District’s response fully addressed our comments and suggestions from the scoping phase. Appendix I does not offer a definition of the category “Opportunity”, therefore we cannot judge the degree to which the District has considered our suggestions on decryard management or release in 63-11-19. Two other comments pertaining to moose management and the North Country Trail are categorized as “Comment” but that does not tell us if the District is going to do it. Lastly, two comments referring to the use of fire are categorized as “RTC” but are not actually in the Response To Comments (Appendix J). Other responses are not adequate to gauge the decision-making process. Therefore we are compelled to rephrase these issues and ask that they be clearly addressed in the FEIS:

- How much of the paper birch in the project is over 70 years of age, and how much of it is being regenerated?
- Will the District over-stock/over-seed jack pine to address the low natural productivity of over-aged stands and the heavy depredation by deer? Does the District need assistance with jack pine establishment?
- Will harvest access systems be designed to create a footprint for the North Country Trail?
- Will the white spruce and cedar in 63-11-19 be released? If not, why?

23-2

Response to 23-2: Please see Section 2.4 of the final EIS for a clarification of why the 485 acres of even-aged treatments and 1,348 acres of intermediate treatments were deferred from treatment at this time.

- There are 2,794 acres of paper birch over 70 yrs of age in project area. The project proposes to regenerate approximately 467 acres.

We also propose to treat some paper birch younger than 70. There are a total of 3,022 acres of paper birch over 50 years of age and the project would regenerate approximately 553 acres.

- The District will consider over-stocking and over-seeding in the regeneration of jack pine to ensure adequate stocking. If the District needs assistance, we will contact the DNR. Thank you for your offer to assist.

- Harvest systems would not be designed to create a footprint for the North Country Trail. It is our understanding that Congress has not yet modified the official route; therefore, it would be pre-mature to include plans for this trail at this time. Also, the temporary road system would generally travel north and south of the Fernberg Road and the trail would likely run east to west.

- White spruce and cedar are desired tree species and if they are found in unit 013-037, they would be released.

#023

- Why was brushing and underplanting used in the Stub Lake area, rather than prescribed burning (as we requested in mid-level and scoping)? Would the District consider allowing us to conduct the burns as a cooperative project? We support efforts to restore fire to the forest ecosystem and re-iterate our offer to assist with burns. Please contact Walt Gessler to coordinate assistance (218) 753-2580 ext. 241.

23-2,
Cont.

Division of Fish and Wildlife, Fisheries Section: Contact Joe Geis, (218) 753-2480

Fisheries supports the management of riparian areas for extended rotation, long-lived conifers, and/or increased basal areas as identified in the document. This should benefit aquatic habitat and water quality.

Fisheries supports the proposal to improve the three existing stream road crossings identified in the document as this will remove potential passage barriers to aquatic organisms and provide water quality benefits. Two new stream road crossings are also proposed. As identified in the document, these new road crossings will follow Forest Plan direction for stream simulation through the crossing and will provide for aquatic organism passage.

Fisheries supports improvement to the access road to Madden Lake. The road is being improved to provide better access for vegetation management but will also provide better access to Madden Lake.

Fisheries supports adding 0.4 miles of existing road to the old Snowbank Lodge site to the managed road system. The old lodge site can be used to launch boats.

Division of Lands and Minerals: Contact David Dahl, P.G., (218) 231-8445

If the vegetative management plans include designation of, or management towards, restrictive surface use areas like old growth or Research Natural Areas, then the bedrock mineral resource potential should be included in the analysis. These kinds of restrictive designations have the potential to hinder access to and evaluation of the bedrock mineral estate. The area south of the South Kawishiwi River is a known area of potentially economic mineralization and the greenstone belt that stretches along the Fernberg corridor westward through Ely hosts known occurrences of base and precious metals mineralization.

23-4

Division of Ecological Resources: Contact Bruce Carlson, (218) 723-4763

The Division has no input to add to those comments submitted during the scoping phase of the project.

•The District is proposing brushing as the primary treatment based on field reviews. Because of the wet areas, we believe that brushing would be better suited to this site. We will include burning as a secondary treatment and if conditions are suitable for burning, we would consider burning the area in cooperation with the DNR.

Response to 23-3: Comment noted.

Response to 23-4: The vegetation management plans do not include any designation of or management towards actions that would restrict future uses of the area.



Thank you once again for allowing us to comment on this project. Feel free to contact me for additional information or further clarification.

Sincerely,

A handwritten signature in black ink, appearing to read "Craig Engwall". The signature is written in a cursive style with a large, sweeping initial "C".

Craig Engwall
Northeast Regional Director
(218) 999-7913

#024

Ainsworth Engineered has reviewed the Draft Glacier EIS. We do not support the modified proposed action 2, nor do we support the additional proposed action alternative 3. Ainsworth recommends that the Forest Service develop an additional alternative that would treat the over mature forests in the project area more aggressively.

This project area lies adjacent to the BWCA. There are no vegetation management prescriptions inside the BWCA as part of its establishment. Congress has directed the Forest Service, through legislation, to intensify vegetation management (specifically timber management) outside the BWCA boundaries to offset the reduction in the allowable timber harvest resulting from the establishment of the wilderness area.

The withdrawal of approximately 5500 acres of timber management from the original proposal is a failure by the Forest Service to follow legislation put forth by Congress.

This project also fails the NEPA process by providing only two action alternatives. Ainsworth strongly suggests the Forest Service develop an additional alternative to satisfy the NEPA process with adequate action alternatives.

Much of the project area is comprised of aspen and jack pine forest types that are beyond rotation ages described in the Forest Plan. The Forest Plan describes aspen rotation age of 40 years, and jack pine of 50 years. More than 10,500 acres in this project area are beyond 80 years of age, almost twice the Forest Service recommended rotation ages. These timber types deteriorate rapidly after normal rotation age, let alone almost twice the rotation ages. Insect, disease, and fire are at extremely high risk for these stands, as well as low stocking, poor regeneration, and conversion to less desirable or off-site species.

The Forest Service plan under alternative 2 significantly reduces timber outputs. Removing 5500 acres of timber management from the original proposal places these over mature stands at the extreme risks above mentioned. Management in these stands would provide drastically improved forest health, improve productivity, and contribute to a struggling forest products economy through local and regional avenues.

24-1

Response to 24-1: The Superior National Forest developed a Land and Resource Management Plan in 2004 that provides objectives for landscape ecosystems and management areas. The Glacier Project developed a proposed action that was included in the scoping report that identified many of the stands that were suitable for harvest. Based on field reviews, public comment, and preliminary effects analysis, some harvest units were dropped because of Forest Plan standards, conditions on the ground, and access concerns. Dropping stands from proposed harvest for these reasons is not a failure to follow legislation.

The Forest Plan does not state that the rotation age for aspen is 40 years and 50 years for jack pine. This is the age at which these species generally reach the culmination of mean annual increment. Even-aged regeneration harvest is allowed after a stand has reached at least 95 percent of culmination of mean annual increment. See S-TM-5 in the Forest Plan.

Tables 3.9-2b and 3.9-5b show the desired age class objectives forestwide and what would occur in the project area for all alternatives. You are correct in observing that the amount of mature and over-mature forest exceeds Forest Plan objectives. One of the objectives of the Glacier Project was to decrease the mature and old aspen, jack pine, and mature spruce fir. See Section 1.4.1 of the EIS. Therefore, Alternatives 2, 3, and 4 all decrease the amount of mature forest and move the area towards the age class LE objectives, whereas Alternative 1 does not.

#024

The Forest Service cannot allow these stands to be at risk any longer. One of the reasons for removing the stands identified for clearcut with reserves was that the Forest Plan Standard for young forests in these areas would be exceeded. Large or landscape level planning are objectives (as commonly described in Forest Service literature) not hard numbers for management. An increase in young forests in this project can be offset in other projects, or on a landscape level. This area is in dire need of young forests to reduce the risks mentioned.

The Glacier project has a large amount of over mature forest, almost twice the rotation age as described by the Forest Service. These areas are not healthy and will succumb to the risks mentioned in my comments. Neither of the Forest Service alternatives address these issues. The opportunity cost of allowing these acres to die of mortality or convert to other cover types is non-recoverable. The alternatives do not follow Congress's direction for management. Ainsworth strongly urges the Forest Service to develop an action alternative that would address these issues.

Sincerely,

Jared Leonard
Procurement Forester
Ainsworth Engineered USA LLC

24-1
Cont.

Response to 24-1, cont.: Because we had conducted the preliminary effects analysis using incorrect data, when we re-ran the analysis, we discovered we could create additional young forest and not exceed any of the Forest Plan standards and guidelines. The responsible official directed the team to develop an alternative that created additional young forest and focused those harvests on areas where we could also expand the amount of jack pine. Therefore, the supplement to the draft EIS contained an additional alternative that would create over a thousand acres more young forest than Alternative 2.

Some of the mature and over-mature stands not treated at this time may succeed to younger aged spruce-fir forests prior to the next management cycle and these stands would meet objectives for pole-aged spruce fir forest. And some stands would be available for management in the next entry, expected to be in about ten years.

#025

The U.S. Environmental Protection Agency has reviewed the U.S. Forest Service's Draft Environmental Impact Statement (EIS) for the proposed Glacier Project on the Kawishiwi Ranger District in the Superior National Forest (Forest). Our review is pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

In 2004, the Forest adopted a new Forest Plan, which provides general guidance regarding the management of National Forest lands. The Forest Plan divides the Forest into different Management Areas (MAs), each having particular objectives and a desired condition. According to the Draft EIS, the current vegetation component in the Glacier Project Area does not meet Forest Plan desired conditions for species composition, age class, tree species diversity, and management indicator habitats for landscape ecosystems. Differences between the existing and desired conditions were used to develop the purpose and need for the proposed project.

The Draft EIS documents the analysis of three alternatives. The alternatives differ by the amounts and types of vegetation management, proximity of management activities to the Boundary Waters Canoe Area Wilderness, degree of potential impact to lynx, and miles of road to be constructed. A preferred alternative was not designated in the Draft EIS.

Based on our review, we have assigned a rating of LO (Lack of Objections) to the Draft EIS. We understand the two action alternatives analyzed in the Draft EIS support the management direction for the Glacier Project Area outlined in the 2004 Forest Plan. A summary of the rating system used in the evaluation of this EIS is enclosed for your reference.

25-1

Response to 25-1: Thank you for your review of the Draft EIS. Please note the cover letter stated that Alternative 2 is the preferred alternative. The Record of Decision will be based on the Final EIS and will contain the rationale for any decision to proceed with management actions.

Thank you for the opportunity to review and comment on this draft EIS. We request the FEIS include rationale explaining why the alternative selected by the District Ranger after reviewing comments to the Draft EIS is the best approach to manage resources in the Glacier Project Area.

Please send one copy of future NEPA correspondence for this project to our offices when it is finalized. Should you have any questions, please do not hesitate to contact me or Kathleen Kowal of my staff at (312) 353-5206 or via email at kowal.kathleen@epa.gov.

Sincerely,



Kenneth A. Westlake, Supervisor
NEPA Implementation
Office of Enforcement and Compliance Assurance

#025

25-1,
Cont

#026

534-025

#26



IN REPLY REFER TO:

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904



April 2, 2008

ER 08/248

Mr. Mark E. Van Every
District Ranger, Kawishiwi Ranger District
Subject: Glacier Project
Superior National Forest
1393 Highway 169
Ely, Minnesota 55731

Dear Mr. Van Every:

The Department of the Interior (Department) has reviewed the January 2008 Draft Environmental Impact Statement (DEIS) for the Glacier Project, Superior National Forest, Kawishiwi Ranger District, St. Louis and Lake Counties, Minnesota. Please carefully consider the following comments in completing the Final Environmental Impact Statement (FEIS).

GENERAL COMMENTS

The U.S. Fish and Wildlife Service coordinated extensively with the U.S. Forest Service (USFS) on the recently completed 2004 Superior National Forest Land and Resources Management Plan (Forest Plan) and collaborated closely with the USFS during the planning process for this project. The presently proposed action appears to be consistent with the long-range strategy for the Forest as set forth in the Forest Plan.

26-1

The DEIS adequately addresses the concerns of the Department regarding fish and wildlife resources, as well as species protected by the Endangered Species Act. With the exception of the issues discussed in the paragraphs below, the Department finds that the DEIS adequately addresses the other resources and issues of concern to the Department.

SPECIFIC COMMENTS

Section 3.14 Water Quality, pages 3-129 to 3-131

26-2

The assessment provided in this section deals primarily with the potential impacts of vegetation management and associated roads on the ecological integrity of the Boundary Waters

Response to 26-1: Comment noted.

Response to 26-2: The water quality section of the final EIS has been updated to better describe the effects that might occur to water quality under each of the alternatives. The method of analysis is directly related to the scale of proposed management. The scale of management for impacts to aquatic systems is described in the Superior National Forest Plan (USDA, 2004) as the 6th level watershed (S-WS-1). Effects to individual resources may occur, however, overall system integrity will be maintained as described in the Plan. The effects to individual resources are minimized through the use of site-specific mitigation measures such as the best management practices described by the Minnesota Forest Resources Council. These will be employed as part of the proposed project. See Attachment 4 for the operational standards and guidelines that are routinely followed. This includes direction for how to conduct management activities on specific soil types including wetlands, and how to conduct management activities within riparian areas. See also sections 3.11 Soils and 3.14 Water Quality.

4-2-2008 0923

Canoe Area Wilderness. The assessment would be improved by specifically addressing the potential for delivery of sediment to all wetlands, lakes, and streams within the project area from harvesting activities.

26-2,
Cont

Section 3.14.2 Analysis Methods, page 3-129

Verry (2000) is not included in the list of references cited (Section 4.3). It is assumed that the following reference was consulted: Verry, Elon S. 2000. Land fragmentation and impacts to streams and fish in the central and upper Midwest In: Proceedings, Society of American Foresters 2000 national convention; 2000 November 16-20; Washington DC. SAF Publication 01-02. Bethesda, MD: Society of American Foresters: 38-44.
<http://www.treesearch.fs.fed.us/pubs/12537>

If so, its application to "indicator 2" may not be conservative enough. Verry (2000) identifies impacts to streams that result in doubling or tripling peak streamflows when 60 percent of forest land is converted to crop land. However, lesser but still adverse impacts may occur with lower levels of harvest. Other forest plans published recently use equivalent roaded area or equivalent clearcut area procedures and thresholds of 20-30 percent clearcut equivalent harvested. Reid (1993) cites a study which showed peak streamflow increases in a basin with as little as 12 percent roaded area (p. 31).

26-3

Section 3.14.4 Affected Environment, page 3-130, second paragraph, sixth sentence

This sentence appears to state that if a watershed has 40 percent or more of its gross acreage in water/wetland, then even clearcutting 100 percent of the available dryland area would not exceed the threshold of concern by indicator 2, because the harvest would still be less than 60 percent of the total area of the watershed. Assuming that the 60 percent threshold is valid (see our previous comment), the sentence should be revised to clearly indicate that less than 60 percent the dryland could be available for harvesting, not 60 percent of the total watershed area.

26-4

Appendix F, Biological Evaluation of the Draft EIS, Region 9 Regional Forester Sensitive Species, pages 28, 34, 39, and 78

The Sauer and others (1999) reference has been updated and may contain additional information that could be used in the analyses for the FEIS.

Sauer, J. R., Hines, J.E., and Fallon, J., 2007, *The North American Breeding Bird Survey, Results and Analysis 1966 - 2006. Version 10.13.2007*. USGS Patuxent Wildlife Research Center, Laurel, MD. Available from: <http://www.mbr-pwrc.usgs.gov/bbs/>.

If you have questions concerning the specific comments above, please contact Lloyd Woosley, Chief of the U.S. Geological Survey Environmental Affairs Program, at (703) 648-5028 or at lwoosley@usgs.gov.

26-5

Response to 26-3: The citation referred to, and included in the references to the biological evaluation in Appendix F is: Verry, E.S. 2000. "Water flow in soils and streams: Sustaining hydrologic function," *In Riparian Management in Forests of the Continental Eastern United States*. Ed. Verry, Elon S., James W. Hornbeck, and C. Andrew Dolloff. Lewis Publishers, Washington D.C. Pp. 99-124.

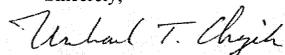
The focus of Verry's work is the hydrological impact of open canopies on snowmelt processes in the upper Midwest and forms the basis of the hydrologic analysis in Superior National Forest Plan (USDA, 2004). The 60% threshold is related to conversion of mature forest cover to young and upland cover and is an appropriate estimate of potential effects associated with landscape cover changes. Care must be taken to not transfer results and methods between landscapes as stated in Reid (1993) in regards to 12 percent roaded area threshold, "*these results are not transferable to California's geology and climate*". The influence of soil compaction on hydrologic processes in the mountainous west was the focus of the initial equivalent clearcut area (ECA) and equivalent roaded area (ERA) analysis.

This 60% threshold is used in the Glacier Project as a watershed cumulative effects indicator, recognizing that other factors specific to roads and vegetation management at the site level need to be considered and mitigated. We feel that, in combination with other Standards and Guidelines outlined in the Forest Plan (i.e., the Minnesota Forest Resource Council's site level guidelines incorporated into the Forest Plan), potential effects from the Glacier Project are adequately measured and addressed in terms of local scale and landscape scale hydrologic processes.

We appreciate the opportunity to review the document and provide comments.

3

Sincerely,



Michael T. Chezik
Regional Environmental Officer

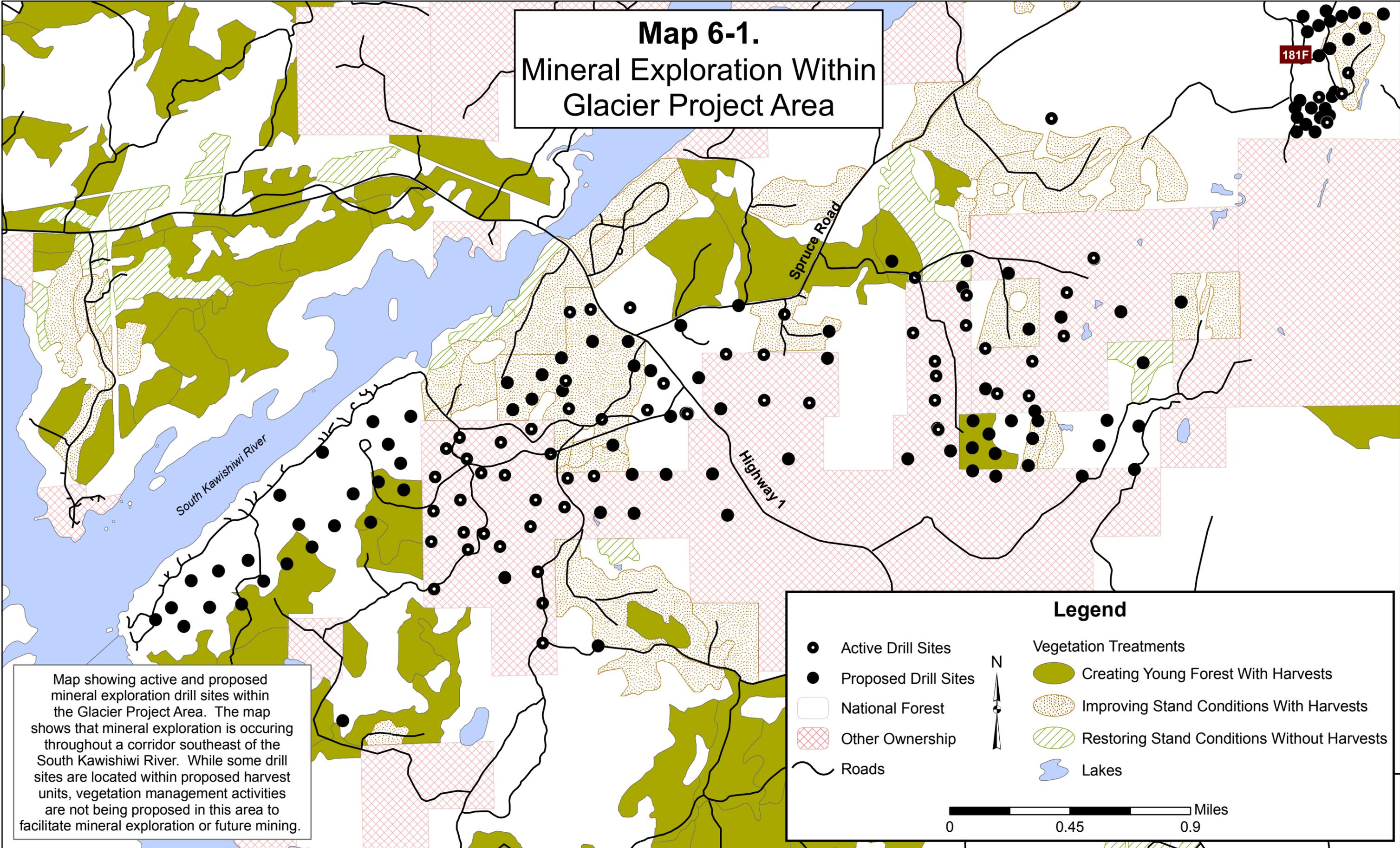
REFERENCES CITED

Reid, L. M. 1993. Research and cumulative watershed effects Gen. Tech. Rep. PSW-141. Berkeley, Calif.: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. 118 p. <http://www.treesearch.fs.fed.us/pubs/7928>

Response to 26-4: The text in the document adequately portrays the concept of the 60% threshold. As stated above, the 60% threshold is related to hydrologic impacts (specifically snowmelt mechanisms) of the basin. If a watershed is dominated by wetlands and/or lakes, the impact to the hydrology (discharge rates in the streams) will be muted for the management of streams at the landscape scale because of the available storage capacity.

Response to 26-5: The 2006 breeding bird survey results were used in the analysis. Thank you for pointing out this error in the reference section.

Map 6-1. Mineral Exploration Within Glacier Project Area



Map showing active and proposed mineral exploration drill sites within the Glacier Project Area. The map shows that mineral exploration is occurring throughout a corridor southeast of the South Kawishiwi River. While some drill sites are located within proposed harvest units, vegetation management activities are not being proposed in this area to facilitate mineral exploration or future mining.

Legend

- Active Drill Sites
- Proposed Drill Sites
- National Forest
- ▨ Other Ownership
- ~ Roads

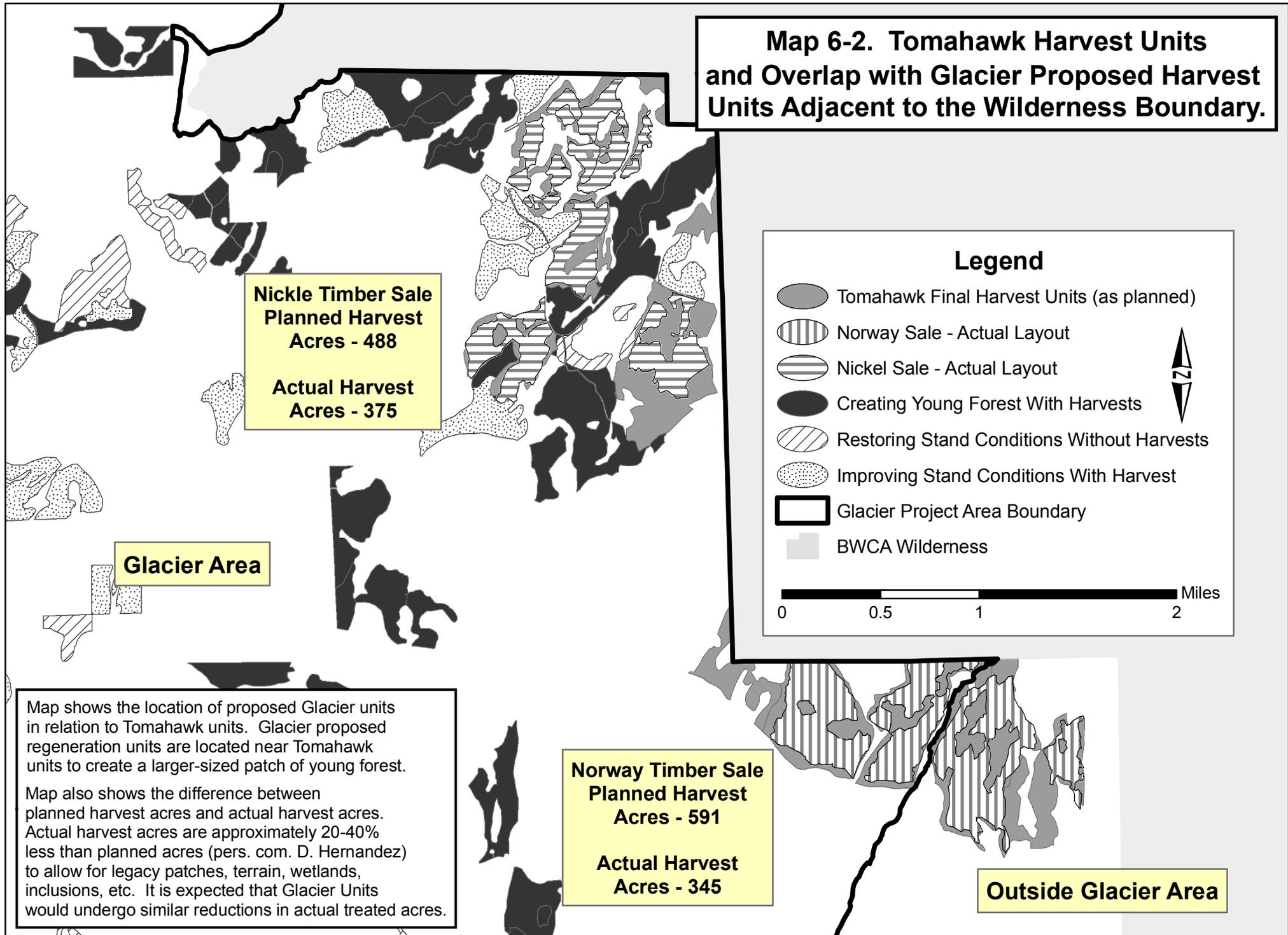
Vegetation Treatments

- Creating Young Forest With Harvests
- ▨ Improving Stand Conditions With Harvests
- ▨ Restoring Stand Conditions Without Harvests
- ☁ Lakes

N

0 0.45 0.9 Miles

Map 6-2. Tomahawk Harvest Units and Overlap with Glacier Proposed Harvest Units Adjacent to the Wilderness Boundary.

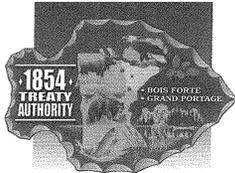


Attachment 7
Response to Comments on the supplement to the draft EIS

The following table displays who submitted comments on the supplement to the draft EIS. This section contains a copy of the letter along with the Agency response.

Commenter	Comment Number	Page Number
Lenny Cersine	1	3
1854 Authority	2	4
B Sachau	3	6
Lake County	4	7
USEPA	5	8
Luther Lindberg	6	10
MN DNR	7	11
Donna Arbaugh	8	13
USDI, Environmental Policy	9	14
Beth Ann Lewis	10	15
Friends of the BW	11	16
Sierra Club	12	21
Will and Peggy Anderson	13	29
Gene Shaw	14	30

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1854 Treaty Authority

4428 HAINES ROAD • DULUTH, MN 55811-1524
218.722.8907 • 800.775.8799 • FAX 218.722.7003
www.1854treatyauthority.org

002

July 25, 2008

Mark VanEvery
Kawishiwi Ranger District
Superior National Forest
1393 Hwy 169
Ely, MN 55731

Re: Glacier Project

Mark,

Thanks for the opportunity to provide input on the issue of leaving some motorized access to treatment units for moose hunting. This is an issue that we as an agency are concerned about.

I did take a look at the project area and associated documents to see if there were any areas that jumped out at me. Honestly, I became frustrated rather quickly due to having to jump back and forth between maps and tables and trying to find treatments that were designed to regenerate suitable moose browse (primarily aspen regen., also birch and jackpine areas may be worth investigating) and then try to figure out which roads were in place and where roads might be considered for future hunting access.

2-1

I would request that your staff, as they are much more familiar with the proposed treatments and road situation for the project, take a look at the project area and identify a handful of treatment units designed to create young aspen forest that would potentially be suitable to leave some temporary roads for access for 5-10 years post-treatment. Such areas would be most useful if they either accessed areas with little road access currently, or if they adjoined previous treatment units with a mix of older aspen and associated conifer stands. If they could do so, perhaps then we can take a look at the proposed sites and come to some sort of agreement on which are most important to us.

This may be the most efficient way to proceed, or is at least worth a try. Again, thanks for the invitation to comment.

Sincerely,

Andrew J. Edwards
Director, Resource Management Division

Cc: Lisa Pattni

A consortium of the Grand Portage and Bois Forte Bands of the Lake Superior Chippewa

Response to 2-1: We had a conference call with members of 1854 Treaty Authority to discuss moose habitat and access to hunting, fishing and gathering sites. In general, the project would create moose habitat through the regeneration harvests and therefore, additional analysis for moose is not needed, although the tribes believe that moose should be a management indicator species and should be given more attention in our planning documents.

The 1854 Treaty Authority would like to see better access to recently harvested areas so tribal members can exercise their hunting rights and have better access to areas likely to contain deer and moose. We discussed areas along the Fernberg and did not identify any areas that would provide good opportunities. The area has good road access now, with both system and non-jurisdictional roads open for public use. We discussed access to harvest units southeast of Fall Lake but because of past illegal motorized access to the wilderness and the short distance between the Fernberg and the wilderness boundary, the Agency is not interested in providing motorized access to this area. We will consider providing a parking spur near Pea Soup Lake, adjacent to the Fernberg Road to offer parking so people can park in this area and then access the area on foot. They would also like access to the Dan Lake area if that area is to be regenerated. There are two areas in the south part of the project area that they would like us to consider access - the block of units in the southwest corner of the project area (along the 1900 roads) and near August Lake. The tribes would like some of the temporary roads in these two areas left open for 5 to 10 years after harvest so hunters can get off the main roads. And if the roads cannot be left open, at least leave a short parking spur for vehicles off the roads. The responsible official will consider this in his decision.

Response to 2-1 cont.: We also talked about the Triangle Area. I explained that the planning team had looked for opportunities for additional roads and while there are opportunities in the Triangle Area, most of the roads cross wetlands and are not suitable for all season use. Except for Forest Road 1525, that travels north from Highway 1 along the Kawishiwi River to White Iron Lake. This road is currently gated all year except for snowmobile use during the winter. District staff are reviewing rationale for why the road was gated. The responsible official will determine if this road will be opened for seasonal hunting or other recreational uses.

003



jean public
<jeanpublic@yahoo.com>
07/28/2008 03:58 PM
Please respond to
jeanpublic

To: COMMENTS-EASTERN-SUPERIOR-KAWISHIWI@FS.FED.US,
AMERICANVOICES@MAIL.HOUSE.GOV
cc: FOE@FOE.ORG, INFORMATION@SIERRACLUB.ORG
Subject: GLACIER PROJECT DEIS SUPPLEMENT OF JULY 21, 2008

I OBJECT TO ALL OF THESE SLASH AND BURN PROJECTS THAT HAVE ARISEN UNDER THE BUSH CHENEY DESTRUCTION OF THE ENVIRONMENT ADMINISTRATION. I HAVE NEVER SEEN ANY ADMINISTRATION SO DESTRUCTIVE OF AMERICAN LAND.

I DO NOT BELIEVE THERE IS AN "OVERMATURE" FOREST. I BELIEVE THAT IS PROPAGANDA. THERES SHOULD BE NO LOGGIGN ALLOWED IN THIS LAND OWNED AND SWEATED FOR BY NATIONAL TAXPAYERS.

WHEN THE WOOD IS GONE, WHAT WILL THE LOCAL ECONOMIES DO? THEY WILL HAVE PERVERTED, DESTROYED LAND LIKE DESERT IN AFRICA - LETTING LOCAL ECONOMIES TELL YOU THEY NEED THE WOOD MONEY (SO IT CAN BE SHIPPED TO JAPAN) IS ABOUT AS IGNORANT A POLICY AS CAN BE IMAGINED. SUCH LOGGING CREATES GLOBAL WARMING. TREES HOLD ENORMOUS AMOUNTS OF WATER AND EROSION RESULTS WHEN THEY ARE LOGGED.

THE MAJORITY OF COMMENTS WERE TO STOP THIS ASSAULT ON THE ENVIRONMENT.

B. SACHAU
15 ELM ST
FLORHAM PARK NJ 07932

3-1

Response to 3-1: We understand you do not support vegetation management on the Superior National Forest. Please note that the Forest Service is a multiple use Agency and this includes providing a sustainable flow of beneficial goods and services to the public.

Your comment about what will happen when the wood is gone is not an accurate description of what is happening on the ground. Trees are a renewable resource and after an area has been harvested, trees grow back on the site. We urge you to visit the Superior National Forest and we will direct you to some areas that were harvested in the past and you will be able to see that trees do grow back.

The Glacier Project was developed by a team of resource specialists who have a great deal of training and experience in managing their respective resource. The purpose of the Glacier Project is to maintain and promote native vegetation communities that are diverse, productive, healthy, and resilient. We will attempt to accomplish these objectives through timber management to the extent practicable (Forest Plan p. 1-9).

Please see information on climate change on our web page at: <http://www.fs.fed.us/r9/forests/superior/projects/glacier2.php>. We provide information on the role forests play in carbon sequestration and the importance of having healthy and resilient forest communities and how some management techniques can improve a forest's ability to sequester carbon.



LAKE COUNTY HIGHWAY DEPARTMENT
1513 Hwy 2
Two Harbors Minnesota 55616
(218) 834-8380
FAX (218) 834-8384

004

July 30, 2008

Mark VanEvery
Kawishiwi District Ranger
Superior National Forest
1393 Highway 169
Ely MN 55731

RE: Glacier Project

Thank you for the follow up to the Glacier Project Draft Environmental Impact Statement. Your efforts to provide for multiple use and enhanced forest management is vital to our local economy.

As you know, Lake County and the Town of Fall Lake have interest in extending our CSAH 16 to TH1. Also, a new property owner, Roy Marlow, has bought up the Potlatch lands in the area which is a significant portion of the private land in the Town of Fall Lake. At some point, it would be helpful to see if forest management road needs, Mr. Marlow's future plans for the property and the CSAH 16 extension might have some mutual benefits. Your help in arranging such a meeting, as your schedule permits, would be appreciated.

Yours truly,


Alan D. Goodman
Lake County Highway Engineer

ADG/df

Cc: Roy Marlow, Marlow Timberlands
Town of Fall Lake
Lake County Board of Commissioners
Tom Martinson

Response to 4-1: We are aware of your interest in extending CSAH 16. At this time there is not a formal proposal for this road so no additional analysis is included in the Glacier Project. We are also aware that the Potlatch lands in Lake County are now in private ownership. The Agency will work with the landowner to determine if either the Agency or individual needs access across each other's land. At this time, there are no specific proposals. We will meet with Lake County and the landowner to address access needs if requested.

4-1



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

005

SEP 05 2008

REPLY TO THE ATTENTION OF:

E-19J

Mark E. Van Every
District Ranger
Kawishiwi Ranger District
Superior National Forest
1393 Highway 169
Ely, Minnesota 55731

Re: **Supplement to the Draft Environmental Impact Statement (EIS) for the
Glacier Project, Kawishiwi Ranger District, Superior National Forest (SNF)
EIS No. 20080283**

Dear Mr. Van Every:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the above-mentioned document in accordance with our responsibilities under the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

The Supplement to the Draft EIS (Supplement) analyzes a new alternative resulting from public comments to the Draft EIS and updated data used to determine preliminary effects of the proposed project. This new alternative is designed to move the project area toward the landscape ecosystem objectives more quickly, by creating additional young forest. The objectives as listed in the Supplement remain the same – create young forest and improve stand conditions through timber harvest, removal of unwanted vegetation, planting desired species, and prescribed burning in order to implement the SNF Land and Resource Management Plan (the Forest Plan).

We assigned a rating of LO (Lack of Objections) to the Draft EIS in our March 27, 2008 comment letter. After reviewing the Supplement, we retain our rating of LO. We understand the three action alternatives analyzed in the Supplement support the management direction for the Glacier project area as analyzed in the 2004 Forest Plan. A summary of the rating system used in the evaluation of the Supplement is enclosed for your reference.

We do, however, have one recommendation pursuant to a discussion between Susan Duffy, the project leader, and Kathy Kowal, of my staff. We recommend the Supplement be revised to clarify the percent of suitable habitat projected for Northern goshawk following implementation of the Glacier project. It is unclear from the information contained in the Supplement that the 48% of suitable habitat projected for the end of Decade 1 of Forest Plan implementation is also the expected percentage following implementation of the Glacier project.

Response to 5-1: The 48% of suitable goshawk habitat projected at the end of decade 1 comes from the 2004 Forest Plan EIS and is based on modeling forest plan implementation in its first 10 years. So this percentage does not include the Glacier project specifically but rather is a projection of how much suitable habitat would remain after 10 years of plan implementation. The Final Glacier Project EIS has been updated to clarify this.

2

Please send us one copy of future NEPA documents pertaining to this project. If you have any questions concerning these comments, please contact Kathleen Kowal of my staff at (312) 353-5206 or via email at kowal.kathleen@epa.gov.

Sincerely,



Kenneth A. Westlake, Supervisor
NEPA Implementation
Office of Enforcement and Compliance Assurance

Enclosure – Summary of Rating Definitions

006

August 30, 2008

Mark E. Van Every
District Ranger
1393 Highway 169
Ely, MN 55731

Dear Mr. Van Every:

First of all, thank you to Sue Duffy for spending time yesterday in walking us through the Glacier Project and what it might mean for those of us in the Ojibway Summer Home Group. She was kind, thorough, and helpful.

Your July 21 letter asked for comments from interested persons and, as a cabin owner on Lake Ojibway, I offer the following.

1. We note that Alternatives 3 or 4, if adopted, will have effect on the area of the road leading to our cabins (cf. Area 007-017). We also note that Alternative 2 is presently preferred. We are confident that, if one of these is selected, you will enhance the forest in our area and keep our road and our cabins in your concern.
2. We assume that you will have to build your own road to implement either of the two alternatives and not use road for which we are responsible.
3. We note that if Alternative, 2, 3, or 4 is selected, the Ojibway Summer Home brush pile will be used. We appreciate the care the Forest Service shows in taking care of that brush pile.
4. We note that the area between Ojibway and Triangle Lakes is not a fuel concern and nothing will be done in that area.
5. We understand that logging and cutting will probably take place at a time when we are not at our cabins in the summer and that the logger has five years to complete his contract.

We have every confidence in the project and in the way in which you and the Forest Service make a selection between the alternatives. We will try to keep in touch with your website late in October to learn about your decision.

Thank you for your work and the work of your staff in keeping our beautiful forest safe and refreshed.

Sincerely,

Luther Lindberg (14108 Summer home Road, Ely and 200 Springwater Drive, Columbia, SC 29223)

Response to 6-1:

1. The primary purpose of the project is to maintain and promote native vegetation communities that are diverse, productive, healthy, and resilient by moving the vegetation component toward the landscape ecosystem objectives described in the Forest Plan. And we are well aware of your road and cabins and the Responsible Official will take this into consideration when making a decision.
2. Access to the units west of your access road would be accessed from a road further to the west. We do not expect we would need to use your road beyond the gate to access any of the treatment units if they are included in the decision. Units to the north of the private land may be accessed via the system road.
3. Yes, the Ojibway Summer Home brush disposal site is included in all of the action alternatives.
4. The area between Ojibway and Triangle Lakes is not a fuel hazard area. No management activities are planned at this time.
5. Units 007-006, 016, and 017 are currently identified for harvest during frozen ground or normal dry conditions (See appendix B). Therefore, these units could be harvested during non-frozen times if the ground is dry. If these units are included in the decision, we will review the design criteria and determine if additional measures should be taken to reduce the effects of harvest on the landowners and recreationists.

6-1



Minnesota Department of Natural Resources

1201 E Hwy 2
Grand Rapids, MN 55744

007

September 3, 2008

Mark Van Every
USDA Forest Service
Kawishiwi Ranger District
1393 Highway 169
Ely MN 55731

RE: GLACIER PROJECT DEIS – RE-RELEASE

Dear Mr. Van Every,

The Minnesota Department of Natural Resources (DNR) appreciates the Kawishiwi Ranger District's willingness to modify the Glacier Project draft Environmental Impact Statement (DEIS) to address real issues within the forest. We agree that there are additional opportunities to regenerate the backlog of old early successional forest types in the project area and move it towards the DFFC more rapidly.

As you know, the DNR is increasing our efforts to sustainably provide more fiber to the market while still providing for other needs. We are also concerned about the wildfire, insect, and disease risks posed by unmanaged older forests. By sustainably managing these tracts we can provide aesthetic, wildlife, human safety and economic benefits for the people of Minnesota.

Given that, we encourage the District to consider selecting Alternate 4. We feel that it moves the Forest closer to Plan goals for composition and age class in a timelier manner than the other alternatives. It also best provides young forest habitats and meets the socio-economic needs of Minnesotans, while still maintaining habitat for other species and providing other forest values.

We reiterate our support for the District's position on timber management adjacent to the BWCAW and a variety of recreation sites across the forest. We do not believe that buffering such areas from the visual and auditory influences of active forest management serves the people or the resource well.

Following are comments from individual DNR Divisions.

Division of Trails and Waterways: Contact Scott Kelling, (218) 753-2590 ext. 252

Tower Area Trails and Waterways has no comments on this project.

Response to 7-1: Comments noted.

Mark Van Every
September 3, 2008
page 2

Division of Fish and Wildlife, Wildlife Section: Contact Rick Horton, (218) 999-7947 or Walt Gessler, (218) 753-2580 ext. 241

The DNR Division of Fish and Wildlife (FAW), Wildlife Section, is pleased to see that the District addressed our concern about removing 480 acres of clearcutting and a substantial amount of uneven-aged management from the proposed action, and allowing 1,348 acres of aspen to succeed without treatment. We support Alternative 4 and your efforts to increase the amount of jack pine and the size of patches in the project area. We feel that these actions better replicate natural disturbance on the landscape, and address many of our concerns for game habitat management. However, many of those conversions are from aspen. We ask that some of these stands be allowed to remain somewhat mixed with scattered relatively pure aspen inclusions.

Alternative 4 also helps meet Forest-wide young forest age class goals. It is good to see the District seriously consider an alternative that exceeds Forest Plan amount of young forest within a project area in order to meet overall goals. This seems to be an appropriate landscape for it.

We look forward to reviewing the response to comments in the FONSI to see how previously voiced concerns were addressed in this project.

Division of Fish and Wildlife, Fisheries Section: Contact Joe Geis, (218) 753-2480

Please consider previously submitted comments.

Division of Lands and Minerals: Contact David Dahl, P.G., (218) 231-8445

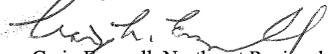
Please consider previously submitted comments.

Division of Ecological Resources: Contact Bruce Carlson, (218) 723-4763

Please consider previously submitted comments.

Thank you once again for allowing us to comment on this project. Feel free to contact me for additional information or further clarification (218) 999-7913.

Sincerely,



Craig Engwall, Northeast Regional Director
craig.engwall@dnr.state.mn.us

xc: Jim Sanders
Tower Area Team
Bob Leibfried

008

14020 Summer Home Rd
Ely, MN 55731
September 5, 2008

Mark Van Every, District Ranger
Kawishiwi Ranger District SNF
1393 Highway 169
Ely, MN 55731

Dear Ranger Van Every,

I am writing to you with concerns regarding the Glacier Project. As I understand it alternatives 3 and 4 include significant cutting west of Ojibway. The first two glacier ponds are regularly used for fishing and the camp site on the second pond has frequent use. The cutting would also impact the cabin owners of the former leased land now privately owned following the exchange with the FS several years ago. I am one of those 16 land owners.

Forest management is, of course, of great importance. My hope is that projects such as this would be done in areas that would not impact the neighbors who prize the recreational and aesthetic values of the Ojibway west land.

Thank you for your consideration.

Sincerely,
Donna Debaugh

Oct. - May address: 923 Wheeler St. So.
Tacoma, WA 98444

8-1

Response to 8-1: We understand you are concerned about the effects that harvest might have on the Glacier Ponds and the Ojibway Summer Home owners. If the responsible official decides to conduct harvest in this area, we will review the design criteria and determine if there are additional actions we could take to reduce potential effects.

Please note that harvest would not occur within 400 feet of Ojibway Lake or the Glacier Ponds to meet the Shipstead-Newton-Nolan Act.

09/08/2008 10:35 2155979845

DOI OEPC PHI

PAGE 02/02



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904



009

IN REPLY REFER TO:

September 8, 2008

ER 08/795

Mr. Mark E. Van Every
District Ranger, Kawishiwi Ranger District
Subject: Glacier Project
Superior National Forest
1393 Highway 169
Ely, Minnesota 55731

Dear Mr. Van Every:

The Department of the Interior (Department) has reviewed the July 2008 Supplement to the Draft Environmental Impact Statement (EIS) for the Glacier Project, Superior National Forest, Kawishiwi Ranger District, St. Louis and Lake Counties, Minnesota. With respect to resources or issues for which the Department or its bureaus have jurisdiction or special expertise, we offer the following comments and recommendations for your consideration.

The Department reviewed the January 2008 Draft EIS for the Glacier Project, and the U.S. Fish and Wildlife Service (FWS) coordinated extensively with the U.S. Forest Service (USFS) on the recently completed 2004 *Superior National Forest Land and Resources Management Plan* (Forest Plan) and collaborated closely with the USFS during the planning process for this project. The presently proposed action appears to be consistent with the long-range strategy for the Forest as set forth in the Forest Plan. Based on input from the FWS, the Department finds that the Supplement to the Draft EIS adequately addresses the concerns of the Department regarding fish and wildlife resources, as well as species protected by the Endangered Species Act. We have no comment on the adequacy of other resource discussions presented in the document.

9-1

We appreciate the opportunity to review the document and provide comments.

Sincerely,

Michael T. Chezik
Regional Environmental Officer

cc:

L. Maclean, FWS, Ft. Snelling, MN
T. Sullins, FWS, Bloomington, MN

Response to 9-1: Thank you for your review of our environmental document.

010



bal588@comcast.net
08/26/2008 02:17 PM

To: comments-eastern-superior-kawishiwi@fs.fed.us
cc:
Subject: Glacier Project

August 26, 2008

To Mark E. Van Every

I would like to make additional comments of the Glacier Project based on the Supplement EIS. First, I am impressed on the complexity and thoroughness of the assessment and proposed alternatives. I appreciate all the work that your staff have done and will do on this project to help improve and manage the national forest in this area. As a lay-person I certainly don't understand all the scientific details involved. Thus, my comments are primarily related to the impact more on the human appreciation of this wilderness area as a residential landowner on Lake Ojibway.

- 1. I am opposed to Alternative 4 and the more extensive harvesting and temporary road building.
- 2. I am okay with Alternative 2 except for the harvesting along the BWCAW areas in the South Gabbro area.
- 3. I prefer Alternative 3 except for the proposed harvesting along the Ojibway Summer Homes Road and the Lake Ojibway public access road. These are areas that include the glacial trout ponds and are very close to private property. There has been recent harvesting on the state land by Section 12 lake, as well as other areas along the Fernberg Road to create young forest.
- 4. I am pleased that the proposed roads and harvesting around Triangle Lake close to the Kawishiwi River and the East Greenstone Lake area are not longer being considered.
- 5. I would like to see more improvements made to Unit 4 by Section 12 Lake and the Ojibway Shore Road. This unit had a prescribed burn a few years ago and now seem to be dominated by young aspen and dead trunks, with a loss of some white, jack and red pines that were dominate features. I do appreciate the efforts to reduce fuel load close to private property.

10-1

10-2

10-3

On our property on Lake Ojibway, we planted over 500 red and white pines in the last 15 years. These trees are growing and surviving in larger numbers than we expects. There are even a few tamarack growing along the lake shore. I hope our private efforts on forest management will complement your efforts in the adjacent Superior National Forest.

Thanks for all your fine work.

Beth Ann Lewis
 588 Terrace Courte
 Roseville MN 55113
 bal588@comcast.net

2372 Gray Jay Drive (Lake Ojibway)
 Ely, MN 55731

Response to 10-1: Thank you for noticing all of the work completed by the interdisciplinary team for this project. And we note that you support Alternative 3 because it does not harvest next to the BWCAW and you do not want to see harvesting adjacent to the Ojibway Summer Home Road. We are aware of the Glacier Ponds that are adjacent to proposed harvest. If these units are included in the decision, we will consider additional design criteria to lessen effects to land owners and recreationists.

Response to 10-2: As you know, the unit was burned several years ago to reduce the amount of balsam fir in the understory, thus reducing the fuel hazard. The amount of fuel was reduced and as you pointed out, there is now a lot of aspen coming in. We recognize there needs to be some follow-up work and therefore are including non-harvest restoration activities in Units 005-002 and 004. This includes releasing any existing young pine or other desired species and underplanting white spruce and white pine. Some of the young aspen may be cut to create better conditions for the desired species.

Response to 10-3: Thank you for your efforts to plant red and white pines on your land. It is encouraging to hear that they are surviving. This type of activity ties in well with our efforts to increase species and structural diversity.



VIA E-MAIL: comments-eastern-superior-kawishiwi@fs.fed.us

Mark E. Van Every, District Ranger
USDA Forest Service, Superior National Forest
Kawishiwi Ranger District
1393 Highway 169
Ely, MN 55731

Friday, September 4, 2008

RE: Glacier Project – Supplemental Environmental Impact Statement

Dear Mr. Van Every:

Thank you again for the opportunity to comment on the Glacier Project and its supplemental Environmental Impact Statement (SEIS). As much of the analysis and the proposed alternatives in the SEIS remain unchanged from the original EIS, with this letter we wish to incorporate our previous comments (including our letters dated March 14, 2008 and March 24, 2008) and reiterate our support for the proposed Alternative 3. Unfortunately, the recent addition of Alternative 4 to the SEIS does nothing to address the range of concerns raised in our previous comments. In fact, we are concerned that the adoption of Alternative 4 would likely exacerbate both the direct and cumulative impacts of the Glacier Project on the Boundary Waters Canoe Area Wilderness in part because Alternative 4 proposes additional clearcut harvest along the Wilderness' boundary.

The Friends continue to find the SEIS deficient in its analysis of the Glacier Project's cumulative impacts on the Boundary Waters Canoe Area Wilderness and effects on its wilderness character. Federal courts have been clear that "general statements that merely catalog environmental facts are legally inadequate" to satisfy the Agency's requirement to take a "hard look" at the cumulative effects of a project.¹ While the SEIS acknowledges a host of activities in the project area that would have direct and indirect impacts on the BWCAW², the cumulative

¹ *Sierra Club v. Bosworth*, 352 F.Supp.2d at 926 (citing *Friends of the Boundary Waters Wilderness v. Dombeck*, 164 F.3d 1115, 1128; *Neighbors of Cuddy Mountain*, 137 F.3d 1372, 1380).

² These activities include "noise from vehicle traffic on roads and entry points near the wilderness, motorboat traffic on motorized lakes inside the wilderness and outside but near the wilderness, noise generated by landowners with property adjacent to wilderness including individual homeowners, resorts, outfitters, and camps. . . [t]imber harvest activity on federal land...and other ownership including state, county, and private industry lands...USFS aircraft on fire detection flights, aerial law enforcement and wildlife surveys, aircraft to support US Border Patrol and Canada's

401 NORTH THIRD STREET, SUITE 290 MINNEAPOLIS, MN 55401-1475 TEL 612-332-9630 FAX 612-332-9624
WEBSITE: WWW.FRIENDS-BWCA.ORG E-MAIL: INFO@FRIENDS-BWCA.ORG

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011

Response to 11-1: Please note that Alternative 4 was developed to address a finding that we had used inaccurate data during the development of the Draft EIS. After correcting this error, the team identified additional opportunities for creating young forest without exceeding Forest Plan standards. This was explained in the Supplement Information sheet included with the Supplement to the Draft EIS. The effects of Alternative 4 are disclosed throughout chapter 3 of the EIS. The Responsible Official will consider the direct, indirect, and cumulative effects that might occur on the Boundary Waters Canoe Area Wilderness as a result of this project.

Response to 11-2: The "agency" in this case feels that it has met NEPA and Federal court requirements to "take a hard look" at the cumulative effects of activities occurring at a similar time and place as Glacier project activities. Please note that effects must overlap in time or space for there to be cumulative effects. The analysis area for direct, indirect, and cumulative effects is described in each resource section of the EIS. Meaningful analysis to determine and measure impacts to wilderness character as they relate to the quality of "opportunities for solitude and a primitive and unconfined type of recreation" has been looked at extensively. Refer to Decibel Level Calculation for Example Timber Harvest Operations which are based on the amount, type, and decibel level produced by harvest machinery used by typical operators on the Kawishiwi Ranger District. The same reference also calculates the audible noise level as a listener moves farther away from the sound source to project the decibel level that may be heard from sites in the wilderness. Another reference lists the sound levels of common places such as libraries, secluded woods and heavy truck traffic to determine the scope of noise that may be heard within the wilderness, and yet another reference provides a rationale for determining the duration of sound produced by harvest activity as short, medium or long term.

Your letter does not identify any additional activities that should be considered to disclose the effects to the wilderness. Therefore, we believe we have considered the relevant activities that might contribute to cumulative effects.

11-1

11-2

Friends of the Boundary Waters Wilderness
 Brian S. Pasko, Policy Director
 Page 2 of 3

impacts analysis in the SEIS contains only a short list and brief descriptions of some of the most prominent of those activities; absent from the SEIS is any meaningful analysis of how the BWCAW’s wilderness character has and will continue to deteriorate as a result of the combined effects of these activities – particularly in the vicinity of the South Kawishiwi River and Gabbro Lakes.

11-2,
cont.

For example, the SEIS fails to adequately evaluate the noise levels that will be cumulatively generated from all of these activities. And, it fails to determine with any credibility the actual increase in noise levels expected in the BWCAW or the impact such noise level increases would have on the area’s wilderness character. Rather, the SEIS merely makes a semi-educated guess at what those noise levels might be based on theoretical sound emissions and a couple of mathematical formulas. As in *Izaak Walton League of America, Inc. v. Kimbell*, the SEIS provides “no quantitative evidence or analysis of decibel levels projected [. . .] into the adjoining wilderness. Instead, the [document] merely approximates the decibel level in the BWCAW [. . .] and concludes that that sound impact is not significant. The absence of any supporting data in the [document] deprives interested parties of information relevant to the agency’s decision-making process and thus undermines the procedural safeguards of NEPA.”³

Additionally, the Forest Service fails to recognize that the after effects of sound in the wilderness may be as important as effects during exposure when measuring the impacts of sound on wilderness character in part because of the impacts of noise on the wilderness experience.⁴ Further, the Forest Service’s analysis uses recreational sites (campsites and portages) as the only measure of the impact of noise-creating activities on wilderness character; the Wilderness Act requires the agency to protect wilderness character of the entire Wilderness, not just at recreational sites within the Wilderness. Moreover, suggesting that certain roads and other activities are already producing noise that breaches the Wilderness does not justify allowing additional noise to penetrate the boundary, especially where choosing other alternatives or using appropriate mitigation measures could avoid further degradation of the resource.

11-3

Finally, despite several communications with the Forest Service, both through the Glacier Project’s process and the Travel Management Planning process, the Forest Service has failed to acknowledge or address our concerns related to the future use of FR 181. As expressed in our March 24 letter, the Friends urge the Forest Service to adopt a final decision that would include a directive to decommission and obliterate FR 181 from approximately Nickel Lake to the Wilderness Boundary, either as soon as practicable, or immediately following implementation of the Glacier Project’s activities.

11-4

Quetico Provincial Park operations, and emergency motorized use for search and rescue firefighting operations.” SEIS at 3-7. Noise from motorized recreation is noticeably absent from this list.

³ *Izaak Walton League of America, Inc. v. Kimbell*, 516 F.Supp.2d 982 D.Minn. (2007).

⁴ See Mace, B. L., P. A. Bell, and R. J. Loomis, “Visibility and Natural Quiet in National Parks and Wilderness Areas: Psychological Considerations.” See also Mace, B.L et al., “Source Attribution of Helicopter Noise in Pristine National Park Landscapes.” *Journal of Park and Recreation Administration*, Fall 2003. See also Mace, B.L., “Soundscapes of the National Park System.” (distinguished Faculty Lecture, Southern Utah University).

Response to 11-2 cont.: In section 3.3.6.2, under cumulative effects it states that we have not found an exact study or reference material directly related to sound measurement of harvest activity noise and its effects on nearby wilderness areas. Because a similar study has not been found we cannot replicate the exact science provided by a previous study. NEPA does not require an Agency to obtain information that is currently unavailable. We attempted to locate the references you cited in your letter. In the future, please include the references you cite so we have them readily available.

We located the article for the “Visibility and Natural Quiet in National parks and Wilderness Areas.” The abstract states

“Yet, with increases in visitation and mechanized travel, air and noise pollution are intruding more and more into preserved natural areas. Psychological research shows that humans can detect very low levels of these pollutants in natural and laboratory settings, that air and noise pollution detract from the enjoyment of the visitor experience, and that people place a high value on naturally quiet, pollution-free settings.” This article discusses how psychological research is essential for a more complete understanding of the value and the influence of both visibility and quiet surroundings with a focus on applied, field-based research in national parks and wilderness areas.”

We feel we have used the information we do have available and will continue to monitor sound in the wilderness, including timber harvest, mineral exploration, road usage, motorboats both in and out of the wilderness, and other human and mechanical noises both in and out of the wilderness. To date we have invested considerable employee time and energy to carry out this study.

Friends of the Boundary Waters Wilderness
Brian S. Pasko, Policy Director
Page 3 of 3

Again, the Friends appreciate the opportunity to comment on this project. If we can be of any further assistance, please do not hesitate to call.

Sincerely,



Brian S. Pasko, Policy Director
The Friends of the Boundary Waters Wilderness

Response to 11-2 cont.: The article “Source Attribution of Helicopter Noise in Pristine National Park Landscapes” addresses helicopter noise in National Parks. We do not believe it is appropriate to directly compare helicopter noise with timber harvest noise. However, we do note that the abstract states that when helicopter noise was at 60 decibels, it resulted in lower ratings of scenic beauty, solitude, tranquility, freedom, naturalness, and preference, and higher ratings of annoyance. The analysis in the Glacier EIS on noise shows that timber harvest would not exceed 38 decibels.

We did not find an article titled “Soundscapes of the National Park System” but did find a reference for a talk given by B. L. Mace. In a description of his talk, it says “The soundscape of a national park, like the scenery, wildlife, or geology is a valuable resource that is easily degraded by inappropriate sounds or sound levels. The key analysis issue has been determining what levels and types of sound are appropriate or acceptable for different management areas throughout a park. Several specific studies conducted in the national parks will be detailed to illustrate the complexities of measuring and managing soundscapes.”

We agree that a soundscape is a resource that can be degraded by inappropriate sound. For this reason, we analyzed alternatives that would have different levels of noise impacts to determine if the level or type of sound generated by the Glacier Project would be different than the type and level of noise currently heard in the wilderness.

Response to 11-2 cont.: Section 3.3.6.2 does disclose the cumulative effects of those projects that overlap in time and space, including the Tomahawk Project, harvest on other ownership, prescribed burning in the BWCAW, mineral exploration, and the Forest-wide Travel Management Project. The EIS includes the Tomahawk Project, which is in the vicinity of South Kawishiwi River and Gabbro Lake, and states that “Where the two projects overlap, the combined duration of harvest would be 137 days for Glacier harvest in alternatives 2 and 4 and 77 harvest days for Tomahawk.” The analysis goes on to say that “the nearest harvest unit is ½-mile from Little Gabbro Lake where the audible sound level would be 30 decibels or similar to a secluded woods.”

We believe the EIS adequately discloses the level of noise and the duration of the noise. Because the level of sound can vary drastically based on environmental factors, providing an estimate of sound effects is adequate. Section 3.3.6.2 specifically addresses how other on-going and future projects may contribute to cumulative effects.

The comment about how the BWCAW’s wilderness character will continue to deteriorate appears conjectural, as does the idea that various activities including mineral exploration and timber harvest, spread out over a time period of 5 to 10 years respectively, and occurring in a broad geographical area in separate locations and at different times, would lead to sound level increases. Instead, the analysis indicates that there would be temporary noise heard from wilderness locations. And if some of the activities occurred concurrently, the impact would be less than if all the activities were spread out at different times over a 10 year period.

The EIS does not conclude that the sound impact on the wilderness is not significant. Instead the EIS concludes with the likely scope of the sound, which for all activities considered would be small in scope, similar to other sounds already occurring outside the wilderness yet at times heard from within, such as when terrain, vegetation, wind speed and direction, and other environmental sounds are favorable for sound to carry.

Potential effects to other resources within the wilderness are analyzed and disclosed in the Final EIS. The Glacier Project and the Minerals Exploration Project, which was not initiated by the Forest Service but occurs on federal land as well as State, County and private lands, are unrelated except for their proximity. The nearest exploration site, which may be completed during the 2008/2009 winter and would not occur at the same time as Glacier timber harvests, is 1 1/2 miles from the nearest BWCAW lake where visitors may be present. Most of the exploration sites east of Birch Lake, which is not in the wilderness, are far beyond the distance where the noise would carry into the wilderness to impact visitor solitude. This conclusion, drawn from an analysis of sound levels, distance from the wilderness, and consideration of other past and present sound producing activities common to nearly all general forest areas near the perimeter of the BWCAW boundary, represents a hard look to meet the intent and purpose of NEPA and other federal requirements to disclose the effects of agency activities.

Response to 11-3: John Pierce, Recreation Planner on the Glacier Project, contacted Brian Pasko on April 11, 2008 via electronic mail in regards to FR 181. FR 181 is needed to access units included in the Tomahawk Project. This road may also be used to access units in the Glacier Project if any units in this area are included in the decision. Upon completion of harvest activities, the road will be blocked to motorized traffic north of

Nickel Lake. This route is a popular winter route and we will continue to allow non-motorized access from the blocked section to the wilderness boundary. We will continue to monitor this road and to the extent practical eliminate illegal motorized use in the wilderness.

012

Mark E. Van Every, District Ranger
Kawishiwi Ranger District
1393 Highway 169
Ely, MN 55731

September 8, 2008

RE: Glacier Project

Dear Mr. Van Every,

Thank you for providing this opportunity to comment on the Supplemental Environmental Impact Statement for the Glacier Project. The comments herein are submitted on behalf of the Sierra Club North Star Chapter.

As you know the Sierra Club is a non-profit environmental organization with over 24,000 members in Minnesota. We participate in the administrative process to provide substantive comments on identified project areas as well as encourage the Forest Service to better achieve long-term wildlife and habitat protection and sustained recreational opportunities.

I. Roadless Areas

The Sierra Club is concerned with Alternative 2's plan to harvest 148 acres in the Greenstone Lake West Inventoried Roadless Area. While creating more jack pine is definitely a positive motive, clearcutting 148 acres in a roadless area is too severe of a method to achieve this goal.

The Sierra Club also opposes the plan to conduct mechanical crushing and removal of hazardous fuel build ups. Woody residues contribute to soil, new growth in the forest, biodiversity and habitat for animals. While the Sierra Club recognizes the importance of preventing devastating forest fires, prevention must be done in the smartest way possible, the way that is going to cause the least amount of harm to the forest. Since fire suppression has been occurring for so long, the best way to prevent destructive forest fires of the future is to reintroduce fire into the area.

II. Transportation System

The Sierra Club opposes the building of 1.2 miles of temporary roads. Especially the upgrading of Madden Lake Road, the Sierra Club believes this road should be decommissioned. While they are just temporary, the concern is that sometimes

12-1

12-2

Responses to 12-1: We understand you do not support clearcut harvest in the Greenstone Lake West inventoried roadless area. We also understand you do not want to see any mechanical removal or crushing of hazardous fuels. We agree that hazardous fuel reduction should be done in the smartest way. Doing nothing in the short term would cause the least amount of harm. However, if a wildfire started and burned through this area, it would likely kill most of the trees because of the amount of fuel available to feed the fire. The adjacent large pine patch might also be lost.

We do want to reintroduce fire to this site and if burning is included in the decision, it will be done in a safe and effective manner.

The Responsible Official will carefully weigh the tradeoffs that will happen whether action is planned or not. And if action is planned, it would be done so as to minimize the adverse effects to the extent practicable.

Response to 12-2: Please note that the Glacier Project proposes to use between 33 miles of temporary road under Alternative 3 and 45 miles under Alternative 4. And between 0.04 and 2 miles of temporary road would be within 1/2 mile of the wilderness. See Tables 2-3 and 3.16-2. We understand you want to see the Madden Lake Road decommissioned. We are not considering decommissioning it under the Glacier Project because the road is needed for access to NFS lands and other ownership, in addition to Madden Lake.

temporary roads are not successfully obliterated and thus remain for years to come. Also since the Agency has 10 years to decommission a temporary road, a so called temporary road could actually be around for a long time, thus ceasing to be temporary. Roads can contribute to damage to water resources, lead to trespass and harm species, especially lynx. The Sierra Club supports the improving of all stream crossings. Road decommissioning is mentioned, but there does not appear to be any plans to decommission roads within the Glacier Project area. All unnecessary and old temporary roads should be immediately decommissioned.

III. Fuel Reductions and Vegetation Management

Chapter 2 of the Supplemental EIS states that because the Forest Plan decided that timber harvest will be the main tool used for “vegetative objectives”, commercial harvesting of public lands will continue to be used and preferred over restoration and controlled burns. Using commercial timber cuts as a way to manage a forest is unwise and counter productive. By its very nature, a commercial clear cut cannot simultaneously restore or maintain the health of a forest.

The Forest Service should focus on prescribed burns, reintroducing fire into the forest and restoration over commercial interests. Conducting commercial timber harvests violates many of the goals, objectives and guidelines stated in the Forest Plan aimed at protecting and restoring the Superior National Forest. Some of the goals include; promote ecosystem health, protect and restore soil resources, control invasive species, provide for a variety of life by managing biologically diverse ecosystems, and develop and use the best scientific information available . . . to support ecological, economic, and social sustainability (FP, 2-5). In addition to these goals, there are countless standards and guidelines that call for protecting and enhancing soils, protecting water resources, managing vegetation so as to return it to its RNV and protection of animal and plant species and their habitat needs.

The Sierra Club sees far more benefits that would result from using controlled burns than from commercial harvesting. Many benefits come from fire. Downed trees left after a fire provide; habitat to animal species, snags, future woody debris, nutrients to the soil and surrounding vegetation such as calcium and potassium, and fire helps certain tree species regenerate such as Jack Pine, Black Spruce and White Pine. These important components of a forests’ overall health cannot be reproduced with clearcutting and other forms of commercial logging. Further, commercial timber cuts do not emulate naturally occurring disturbances because roads are built to access the sites, trees are removed, vegetation is trampled and soil and water is polluted. Plus, clearcutting is disastrous when it comes to introducing invasive species into an area.

The cycle of continuing to suppress fire only furthers the problem. Cutting down thousands of acres¹ of forest to prevent a fire from occurring there is insane. This does not promote a healthy forest, promote a return to the forest’s natural range of variability or promote a sustainable solution to forest fires.

¹ Alternative 2 proposes cutting 7,493 acres of National Forest Land where one of the purposes is reducing fuels, while Alternative 3 will cut 5,398 acres and Alternative 4 will cut 8,736 acres. Each Alternative proposes cutting over 800 acres for the sole purpose of reducing fuels (3-165).

12-2,
cont.

Response to 12-2 cont.: We understand your concern about temporary roads remaining open. As we have stated in other NEPA documents, under the 1986 Forest Plan that allowed cross country travel, many of these old temporary roads were left open for dispersed recreational use. And it was legal for motorized vehicles to use these routes as long as they were not causing resource impacts. The 2004 Forest Plan does not allow cross country travel and we are in the process of implementing a forest-wide travel management plan that addresses how to manage the unclassified roads on the forest. In addition, recent vegetation management plans have included proposals to decommission unneeded roads and to date, many miles have been decommissioned. See decisions on the Virginia, Dunka, and Whyte Forest Management Projects.

We believe the EIS adequately discloses the effects of constructing and using temporary roads to access treatment areas. See Sections 3.4, 3.5, 3.7, 3.11, and 3.14.

12-3

Response to 12-3: We understand you think the FS should utilize prescribed burns over commercial timber harvest. We considered burning without harvesting in Section 2.4 of the EIS, Alternatives considered but eliminated from detailed study. For the reasons mentioned in the forest Plan Record of Decision (p. 6 and 14), Section 2.4 of the EIS, and the following additional information, burning instead of timber harvest will not be analyzed in detail.

The Agency is directed by Congress to produce timber to meet the needs of this country for wood products and the Forest Plan states that timber harvest will be the primary tool for reaching vegetative objectives.

IV. Non Native Invasive Species (NNIS)

The Sierra Club is concerned that constructing over 44 miles of roads will increase the spread of many NNIS. While these are only temporary roads, that does not matter to NNIS, they are still able to spread into the forest. The Sierra Club is also concerned with the very high potential of NNIS spreading to rock outcrop areas due to the 3118 acres of timber harvest under Alternative 2 that is adjacent to rock outcrop areas.

Alternative 2 proposes a staggering 1300 acres of timber harvest adjacent to the BWCAW (3-44). While Alternative 4 proposes even more, with 1428 adjacent acres (3-47). Yet the Agency concludes that the risk of any NNIP spreading into the BWCAW from Alternative 2's harvest units is "small" (3-44). The Sierra Club believes that the Agency has not properly assessed the risk and believes that the risk is actually much greater for NNIP to penetrate into the wilderness boundary.

V. Management Indicator Species (MIS) and Management Indicator Habitat (MIH)

The 1986 Forest Plan designated 34 MIS, yet the 2004 Forest Plan designated only 4. The Sierra Club believes that this is not sufficient to meet National Forest Management Act (NFMA) requirements nor is it adequate to evaluate how other species will be affected. The Sierra Club does not believe that these 4 species can be adequate "bellwethers" for other species in the project area. Nor has the Agency demonstrated how these 4 species are affectively acting as a bellwether in the Glacier Project area to manage for species diversity.

The Sierra Club is concerned with the Glacier Project's reliance on MIH and its effectiveness and ability to protect species diversity. The Glacier Supplemental EIS relies on the 2004 Superior National Forest Plan; however the Plan falls severely short of meeting its legal obligations related to protection of species. NFMA's implementing regulations provide that "[f]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area." 36 C.F.R. § 219.19. The regulations also direct that forest planning "recogni[ze] that the National Forests are ecosystems and their management for goods and services requires conditions will not be irreversibly damaged; (ii) there is assurance that such lands can be adequately restocked within five years after harvest; (iii) protection is provided for streams, stream banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperature, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat; and (iv) the harvesting system used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber." The Revised Forest Plan fails to comply with the requirements of NFMA because the agency has not obtained the necessary data to ensure the diversity of plant and animal communities and the viability of threatened, endangered, sensitive and Management Indicator Species (MIS), instead relying on habitat indicators to assess population viability.

The 2004 Superior National Forest Plan and the Glacier EIS, fail to explain how the MIS function as fine filters to double check the effectiveness of the MIH. Many of the MIH do not even have a vertebrate MIS associated with them. The EIS does not even address the relationship between MIH and MIS. The designation of only four MIS, no

12-4

Response to 12-3 cont.: Harvesting offers many advantages over prescribed burning. Timber harvesting and subsequent plantings provide an effective means of moving areas towards the desired LE objectives for species composition, age class distribution, and tree species diversity within individual stands in a timely manner. The majority of the stands are very old where a substantial amount of trees have died and have either added to the woody debris on the forest floor, or have remained in the canopy as snag trees. This material would remain on site after the harvesting is completed. Applying best management practices would limit the adverse effects to a site. The effects of harvesting are discussed within each resource section. Logging is less expensive and has a wider window of operation than prescribed burning. Most people are more tolerant of logging than they are of prescribed burning. We agree that the effects of timber harvest are different than the effects of burning; however, we do not believe that commercial harvest, when done in a responsible manner, violates any of the goals or objectives stated in the Forest Plan.

12-5

We agree there are benefits from using controlled burns and have proposed to conduct burns in several areas where the burning can be accomplished in an effective and safe manner. There are also costs and effects of burning that need to be considered. Burning does not provide wood products, burning does not provide a source of income to conduct post treatment activities such as planting, and at times, there is a risk of the fire escaping. People are concerned about the potential threat of a prescribed burn escaping its control lines and burning their homes down. People are also concerned about the limited visibility and lingering smoke associated with prescribe burning. In addition, stand replacement fires are impractical to implement. Effective stand replacement prescribed fires would have to occur during times when active wildfires would occur. The Forest Service policy is to protect life, property and resources. Since we have a limited fire staff on the Superior, our resources would frequently be committed to fire suppression and would not be available to focus on prescribed fire.

requirement for the agency to collect population data on these species, and the lack of site-specific monitoring and data provide an inadequate amount of information to help determine if MIH designations protect species diversity.

12-5
Cont

VI. Sensitive Species

The Supplemental EIS states that; direct effects of this project may include harming, killing, displacing and temporarily disturbing species. As well as possibly destroying sites for rare species that are not readily reestablished elsewhere (3-67). Further, the EIS states that “Vegetation management activities may alter habitats for terrestrial, aquatic and plant species by changing amount, distribution, or quality of habitats” (3-67). The Sierra Club disagrees with the statement in the supplemental EIS that states; “all alternatives would meet Forest Plan direction to maintain, protect, or improve habitat for all sensitive species . . . because adequate habitat would be maintained under all action alternatives” (3-66). It is unclear how the Agency reaches the above conclusion. It isn’t explained how adequate habitat will be maintained with thousands of acres of proposed timber harvests.

This project will result in decreases between 10-16% of mature older forest which will negatively affect heather vole, boreal owl, goshawk, black-throated blue warbler, bay breasted warbler, Connecticut warbler, great gray owl [nesting], Mancinus alpine and Jutta arctic (3-68). The Agency’s conclusion that “Generally, remaining suitable habitat would remain sufficient and well-distributed across the project area” (3-68) has nothing to back it up and is not logical. Where is the scientific documentation to support this conclusion?

The Sierra Club is especially concerned with how the Agency plans to protect the northern goshawk while conducting all of the proposed harvesting. The Biological Evaluation (BE) states that this project will result in less suitable habitat for goshawk and less foraging area (BE F-28). With regards to the northern goshawk, citing several scientific references the BE states that some understory (e.g., forbs) and down logs are needed for prey species habitat. Adults and fledglings use large down logs as feeding and plucking perches (BE F-24). It goes on to state that “goshawk prefers larger tracts of forest for foraging and, therefore, is affected by fragmentation of forested areas” (BE F-25). “Creation of landscape patterns (e.g., large openings from clearcutting or increased edge habitat) that favor predators such as red-tailed hawk, great –horned owl, fisher or raccoon are a threat to goshawk (BE F-25).

There are three known northern goshawk nests within the Kawishiwi Ranger District and one of these is within the Glacier project area (BE F-24). It seems safe to say that although the Agency does not know the exact number, currently the goal of 20-30 occupied nest sites within the forest has not been accomplished. So what is being done to accomplish this goal? How is the Northern Goshawk factored into the purpose and need of this project? How can creating young age class coincide with the Forest Plan’s objective of having 20-30 occupied nests?

VII. Lynx

12-6

Response to 12-3 cont.: Due to high temperatures, dry conditions, low humidities and unpredictable winds, it would be very difficult to control these burns. A large area surrounding the burn would have to be closed to the public in order to keep people out of harms way in the event the prescribe burn escape its control lines. Since the Glacier project area is intermixed with different ownership throughout, the closure order would impose hardships to home owners, resort owners and business owners that are impacted by this closure order. In addition, the majority of the large, woody material would not be fully consumed during the fire. This material would smolder and lead to the burn exceeding a safe particle matter emission level.

We do not agree that clearcutting is disastrous when it comes to non-native invasive species. We have been conducting a variety of regeneration harvests, including clearcutting with reserves and we have not seen a huge increase in non-native species. Typical areas with non-native species are along and within existing road corridors, portages, gravel pits, campgrounds, and parking areas. See Section 3.5 for information on non-native invasive species.

Timber harvesting is not intended to prevent the occurrence of wildfires, but is being used to reduce the potential for high intensity crown fires from occurring. Commercial logging is very effective at reducing this fire risk because logging changes fuel loading, fuel continuity, and fuel arrangement through the process of removing material from the site. Keeping fires on the ground increases the chances to suppress them and reduces the risk of injury to the firefighters suppressing them.

We believe the EIS discloses the effects of timber harvest. The Responsible Official will consider the tradeoffs between harvesting timber and conducting other management activities. In addition, please see Table 2-1 that shows over 5,000 acres would be treated through a variety of non-harvest type activities. Areas that are not suitable for timber harvest would be treated through other means.

The Sierra Club is greatly concerned that the Glacier Project will decrease habitat for lynx and their prey species. The Endangered Species Act obligates the Forest Service to manage National Forest land to aid lynx in their continued survival and recovery. The Canadian Lynx is a federally listed threatened species. The Forest Plan calls for conservation and recovery of the lynx. At a minimum suitable habitat is to be maintained and protected. But to prevent the extinction of this species, focus must be put on improving habitat conditions, not merely maintaining what currently exists. What currently exists is not adequate; otherwise the species would not be federally listed. The Glacier Project does not propose any lynx habitat improvement. Rather claims are made that habitat will be maintained because; “effects will be insignificant”, lynx will not be adversely impacted” and “amount of habitat will remain within accepted threshold levels” (3-19).

This project is not focused on improving lynx habitat; instead this project appears to actually decrease a great amount of lynx habitat. The Supplemental EIS states that effects will be temporary (3-27), however temporarily reducing lynx habitat or its prey species habitat does not maintain or improve conditions for lynx in the present, therefore it violates the Endangered Species Act and the Forest Plan.

The Sierra Club is also very concerned with how this project will affect connectivity of lynx habitat between the BWCAW, LAU’s and the rest of the National Forest. The Supplemental EIS concludes that because thousands of acres in the project area are not slated for harvest, connectivity will be maintained (3-19). This reasoning makes no sense, it fails to consider all of the units that are slated for harvest and it fails to consider past, present and future projects in this area and other areas in the National Forest. Of great concern are cuts planned within the Fernberg Corridor. This area is especially important to connectivity due to its bordering three sides of the BWCAW. No cuts should take place in this area.

The Fish and Wildlife Service relied on certain commitments made by the Forest Service when it issued its no jeopardy finding for lynx during review of the Superior National Forest Plan. Objective O-WL-11 requires the Forest Service to “Maintain and, where necessary and feasible, restore sufficient habitat connectivity to reduce mortality related to roads and to allow lynx to disperse within and between LAUs and between LAUs and Boundary Waters Canoe Area Refugium on NFS land.” (FP, 2-29). The Agency has not fulfilled this objective in the Glacier Project. Further, this project fails to follow many Forest Plan objectives and directions set up to promote recovery of the lynx, such as;

- _ Promote the conservation and recovery of Canada lynx and its habitat (O-WL-8)
 - _ Maintain, protect or improve habitat for the species (O-WL-4)
 - _ Seek opportunities to benefit the species (O-WL-5)
 - _ Reduce or eliminate adverse effects (O-WL-6)
 - _ Minimize building or upgrading of roads in areas that are important for the species habitat and for habitat connectivity (O-WL-7)
 - _ Within Lynx Analysis Units, lands should retain, improve or develop habitat characteristics suitable for snowshoe hare and other important alternate prey (O-WL-9)
 - _ Provide foraging habitat in proximity to denning habitat (O-WL-10)
- (FP 3-25 – 3-26).

12-7

Response to 12-4: We understand you believe there is a higher risk associated with NNIP spreading into the BWCAW than what is disclosed in the EIS. The EIS concludes that all alternatives pose a risk of impacts resulting from the spread of invasive plants. Section 3.5.6.1 discloses the environmental effects of each alternative, and Indicator 1 discloses the effects of temporary road construction on NNIP spread. The analysis shows that even though some species are likely to spread, they have low ecological consequences because these species stay on roadsides and do not compete with native vegetation. Some high risk species do occur in the project area but the risk of spread is low because of winter harvest, ongoing treatments, and operational standards and guidelines.

Indicator 3 discloses the potential effects to the BWCAW. The analysis shows that several events would need to happen for weeds to move from a harvest unit into the BWCAW. First, NNIP would need to get established in disturbed areas of harvested stands adjacent to the BWCAW. Monitoring of harvest units has shown that if this does happen, infestations are typically small. Second, wind, wildlife, or humans would have to transport weed seeds from established populations into the wilderness, where no project activities or ground disturbance is proposed. Lastly, NNIP would have to establish in competition with undisturbed native vegetation, which is unlikely. Therefore, the chances of non-natives spreading to the wilderness would be low.

Indicator 4 discloses the effects of timber harvest adjacent to rock outcrop areas. The analysis says that disturbance associated with timber harvest could lead to the spread of invasives into the rock outcrop communities and that would degrade the native plant communities. It is not possible to predict the acres of new infestation but there is a moderate risk. The types of weeds that would be most likely to spread would be the species found along roadsides such as orange and yellow hawkweed and oxeye daisy. Several operational standards and guidelines and design criteria would minimize weed spread including winter harvest, no harvest on ELT 18s, infestations would be avoided, and herbicides will be used to treat some invasives. We believe we have adequately disclosed the potential effects of non-native invasive species.

For every indicator, the Agency concludes that impacts will not be significant, the Sierra Club disagrees. There is no evidence that the changes this project will have on the forest will not significantly impact the lynx. The agency has already admitted that this project will impact the lynx' food and habitat, but concludes that the impact will be small so it is ok to proceed. If the species is ever to recover there needs to be more suitable habitat for lynx and its prey, not less, that means restoration and decommissioning of roads, not continued building of roads and commercial timber harvesting. The Agency continually defends their decision to use public lands for the commercial timber industry because the Forest Plan and the Multiple Use Sustained Yield Act call for it. Yet the Endangered Species Act and the Forest Plan also call for the protection and recovery of lynx, these two objectives cannot be simultaneously met when commercial harvests are conducted in lynx habitat.

VIII. BWCAW

The Sierra Club is concerned that the scheduled harvests adjacent to the wilderness boundary will have several negative effects on the BWCAW including noise and scenic quality impacting visitor's wilderness experience, risk of NUIS spreading into the wilderness area and fragmentation that is leading to the wilderness being cut off from the rest of the forest. The Sierra Club does not believe that harvests should occur adjacent to the BWCAW border.

Noise that will drift into the wilderness will disturb visitor's experience of the unique wilderness qualities. Specifically, the units near Gabbro Lake, Little Gabbro Lake and the South Kawishiwi River will disturb cross country skiers and dog sledgers that use this area. Also, units scheduled to be harvested near South Farm Lake will disturb skiers and dog-sledders. Of particular concern are units near the South Kawishiwi River. A whopping 331 acres are slated to be cut down. An estimated 152 days will be spent cutting, and this is just an estimate, it could likely be much more. The EIS states that "wilderness visitor solitude would be mitigated by the season of harvest (winter) when use is low relative to summer (3-10)". Yet the EIS also states that this area is used by dog sledgers and skiers in the winter (3-9).

The EIS concludes that 45 days of summer harvesting in the Fall Lake area is short in duration, yet if summer is May 1 to September 30, that is 150 days, therefore 45 days is about 1/3 of summer, that is not short term. This entry point is very busy both in the summer and the fall and harvesting so close to this area will affect many wilderness users. Units near North Kawishiwi River north of Lake One are extremely close to the wilderness boundary, the EIS admits that noise "may" be heard (3-12), yet it seems clear that noise *will* be heard when harvesting activities are taking place so close to this area.

The goal is to keep the wilderness area wild and protected. Justifying added noise to the wilderness because there is already noise occurring from other sources is flawed reasoning and will lead to increased intrusions on the wilderness character of the BWCAW. The Agency uses two indicators to analyze how this project will affect the BWCAW. The first indicator is; number of harvest units within one mile of wilderness recreation sites. The second indicator is; estimated number of days needed to harvest units that may affect wilderness recreation sites. The Sierra Club believes that these two indicators are inadequate to analyze how this project will affect the BWCAW.

12-7
Cont

Response to 12-5: The US District Court (District of Minnesota) recently upheld our complementary approach to using both MIS and MIH in our Forest Plan and subsequent project planning. In the judges ruling she states that "A review of the Forest Plan reveals a thorough and reasoned explanation for the selection of the MIS used in the Forest Plan and subsequent FEIS and the reasons for using MIH to compliment the Forest Plan's analysis of MIS. Forest Plan FEIS (Administrative R. citations). Accordingly, the Forest Service's decision regarding the number of MIS, the selection of MIS, and the use of MIH was neither arbitrary nor capricious". (Case No. 07-3160)

The rationale and explanation for our selection of MIS and MIH can be found in the Forest Plan EIS located on our website under projects and plans, and numerous supporting documents in the Administrative Record for the Forest Plan. Monitoring of MIS and MIH occurs annually at the forest level and results can be found in our annual monitoring and evaluation reports also found on our website under publications. Both MIH and MIS were considered in project planning and analysis for the Glacier project. These analyzes can be found in chapter 3 sections 3.7 and 3.8 of the Glacier Final EIS.

(web address for the Superior National Forest home page: <http://www.fs.fed.us/r9/forests/superior/>)

12-8

In addition refer to response to comments on the DEIS responses 21-4 and 21-5.

Recreation is only one aspect of the BWCAW's wilderness character. The Wilderness Act requires the Forest Service to protect the wilderness character of the entire BWCAW, not just near recreational sites, and in both the winter and summer months.

12-8
Cont

The Sierra Club wishes to express our appreciation for your assistance in helping us acquire information related to this proposed action, as well as your consideration in reviewing these comments. We look forward to working with you as this project progresses. Please keep us on the mailing list as this project moves forward.

Sincerely,

The Sierra Club North Star Chapter
2327 East Franklin Avenue, Suite 1
Minneapolis, MN 55406-1024
612-659-9124

Annah Gardner
AJGardner@stthomas.edu

Response to 12-6: Your letter contains a list of statements related to the sensitive species analysis in the SEIS and you question where “is the scientific documentation to support the conclusion”? Please note that section 3.7 of the EIS is a summary of the effects to several sensitive species. The answers to your questions may vary depending on species and can be found in appendix F the Biological Evaluation in each individual species analysis. In addition, the Biological Evaluation contains the available scientific information on population trends, habitat requirements, and limiting factors. Quantifiable analysis indicators are identified based on those things that we know about each species in order to analyze the impact of project alternatives.

You also question what is being done to accomplish the Forest Plan objective of a minimum goshawk population goal of 20-30 breeding pairs. According to our 2007 Monitoring and Evaluation report:

- In 1996 there were no known nests on the SNF. By 2007, 24 nests had been found.
- Between 2004-2007 most vegetation management projects impacted goshawk habitat, but were not likely to cause loss of viability or a trend toward listing.
- Mature and older upland forest, a key indicator of suitable habitat for goshawk, was 56%, well above the 41% threshold and the 48% projected for the end of Decade 1 of Plan implementation.

This shows that we are able to implement Forest Plan objectives for young forest and maintain necessary habitat for goshawk at the same time, although not on the same acre. In addition, large young patches created now would grow to be large mature patches in the future and these large mature patches would provide necessary goshawk habitat.

In addition, refer to response to comments on the DEIS response 21-3.

Response to 12-7: Your letter states that you disagree with us about the conclusion of effects to Canada lynx although you have provided no information or evidence that contradicts our analysis or information on effects that we have not considered or analyzed. We believe that this project does conserve lynx habitat. See Tables 11 and 12 in Appendix G Biological Assessment for an overview of how the project is consistent with the Forest Plan. In addition the US Fish and Wildlife Service, who is the responsible agency with respect to federally listed species and the Endangered Species Act, has reviewed and concurred with our analysis, conclusions and determinations of effect to lynx.

In addition refer to response to comments on the DEIS response 21-6.

Response to 12-8: We understand the Sierra Club does not believe that harvests should occur adjacent to the BWCAW border and that you are concerned about how noise will drift into the wilderness.

The length of harvest as being short, medium, or long-term is defined in the EIS. Commenter states that 45 days of summer harvesting near Fall Lake can be about a third of a summer season. However, please note that Fall Lake is a motorized lake and the sound of motors is likely present every day during the ice free season so whether or not harvesting would occur, wilderness visitors would be likely to hear the sound of motorboats.

Alternative 3 was developed to address the concern that vegetation management and associated roads would negatively affect wilderness qualities including the visitor's experience and the ecological integrity of the wilderness. The effects to the wilderness visitors are disclosed in Section 3.3 and include the two indicators you list. The effects on the ecological integrity of the wilderness can be found in the following sections: 3.4, 3.5, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.14, 3.15, and 3.19. The three action alternatives, and the no action alternative as a baseline, give the responsible official a range of alternatives to consider. The Responsible Official will consider your comments prior to making his decision.

013

Mr. Mark E. Van Every
District Ranger - Kawishiwi District
Superior National Forest

This letter is to comment on the proposed timber harvesting planned for the area south of the Fernberg Road and west of forest road #557.

If any harvest is conducted in this recreational area it should be highly selective in nature, and care should be taken to minimize the visual impact of the activity, while protecting the water quality. The narrow strip of vegetation west of forest road #557 should remain untouched, providing screening of the road from Glacier Ponds 1 and 2.

As designated trout lakes these ponds provide a special fishery in the area, and also the opportunity for an intimate camping experience removed from the requirement of a permit.

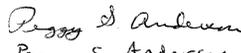
We have observed that the campsite on Glacier Pond 2 has a relatively high rate of occupancy, and provides an important alternative to camping in the BWCAW.

Please consider these values carefully before conducting any timber harvesting in this area. From our experience these hidden, quiet and beautiful little places are more and more difficult for the general public to experience. They need to be protected for the treasures they are.

Thanks for your thoughtful reflection.

Sincerely,


Willard G. Anderson
18005 Hood Ave.
Homewood, IL 60430


Peggy S. Anderson
18005 Hood Ave.
Homewood, IL 60430

Response to 13: We know the Glacier Pond campsite is popular and provides a quiet and beautiful place to camp and recreate. We understand you want to be sure the scenery, water quality, and recreational impacts are limited.

If the Responsible Official decides to conduct vegetation management near the Ojibway Summer Home Road or Glacier Pond 1 or 2, additional design criteria will be considered to limit the effects of harvest.

014



"Gene Shaw"
<gshaw@visitduluth.com>
09/08/2008 03:12 PM

To <kawishiwi@fs.fed.us>, <sduffy@fs.fed.us>
cc
bcc
Subject Glacier Project

I would like to disapprove of alternative 3 north and 4 North as the area mark on the maps if clear cut or thinned would take away any foliage that acts as a buffer to the boundaries of Ojibway West western borders.

Gene Shaw
5219 Kingswood Lane
Hermantown MN 55811

Response to 14: We note that you are concerned about the amount of harvest that might occur adjacent to the Ojibway summer Home road. Your comment will be considered by the Responsible Official prior to making a decision.