USDA-FOREST SERVICE FS-2500-8 (5/00)

Date of Report: 8/14/00

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated WFSU-FW22 funds
[X] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)

[X] 2. Interim Report
[X]Updating the initial funding request based on more accurate site data and design analysis
[X]Status of accomplishments to date

[ ] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: No Pablo

B. Fire Number: MI-HMF-004

C. State: MI

D. County: Oscoda

E. Region: Eastern Region (R9)

F. Forest: Huron-Manistee NF

G. District: Mio RD

H. Date Fire Started: 04/30/00

I. Date Fire Controlled: 05/05/00 @ 1200 hrs.
Date Fire Totally Contained: 05/03/00 @ 2000 hrs.

J. Suppression Cost: $402,978 (as of 5/4/00) but estimated at $1,500,000 in final ICS-209.

K. Fire Suppression Damages Repaired with -PF12 Funds
1. Fireline waterbarred (miles): 1.0
2. Fireline seeded (miles): 0
3. Other - Fireline flipped back and covered with slash (miles): 19.7

(Note: There is approximately 19.7 miles of dozer line to be rehabilitated. The No Pablo fire was declared Out at 1200 hrs. on 5/9/00. Work will be initiated on suppression rehab needs on 5/10/00. Expected accomplishment is 1 mile fireline waterbarred and 19.7 miles fireline flipped and covered with slash.

L. Watershed Number: HUC 04070007-040 AuSable River at Mio and 04070007-060 Lower AuSable River

M. NFS Acres Burned: Approximately 5040 acres. Total Acres Burned: 5200 acres.
Other ownership type: ( )State ( )BLM (**X**)PVT Approximately 160 acres. ( ) Other

N. Vegetation Types: Jack Pine (plantations and natural), Red Pine (plantations), Red Pine-Oak, Aspen (bigtooth and quaking), Jack Pine-Oak, Black Oak, Upland and Lowland brush openings, Red Maple, Mixed Oak, Long Rotation Conifer

O. Dominant Soils:

Ecological Land types 10, 11 12, 13 and 15 on slope classes B and C (less than 12 percent):

Typic Udipsamments, mixed, frigid and Alfic Udipsamments, mixed, frigid on the glacial outwash plains.

Ecological Land Types 20, 21 and 23 on slope classes B and C with lesser amounts of slope class D (12 to 18 percent) and E (18 to 35 percent):

Typic Udipsamments, mixed, frigid and Alfic Udipsamments, mixed, frigid on the moraine and sandy hills and knolls.

Soils within the burn area are typically very deep and excessively drained. Permeability is rapid and runoff rates are slow to very slow. Erosion hazard for these soils is slight on slopes less that 18 percent and moderate on slopes greater than 18 percent.

(Note: slopes are predominately less that 18 percent within the burn area, but steeper hills, knolls and sideslopes on slopes of 35 to 50 percent are present mainly along the northern edge of the burn.)

P. Geologic Types: Glacial Outwash and Moraine

Q. Miles of Stream Channels by Order or Class: Approximately 3½ miles of first order intermittent streams and 1 mile of second order intermittent streams located within the northern 1/2 of the fire area.

R. Transportation System

Trails: 0 miles Roads: 17.5 miles (FS System and County)
Non-FS system roads: 35 miles (approximate)

PART III - WATERSHED CONDITION

A. Fire Intensity (acres): 1040 (low) 1040 (moderate) 3120 (high)

B. Water-Repellent Soil (acres): Approximately 3500 acres associated with moderate and high burn intensity areas. The degree of water repellancy was determined to be moderate (time required for adsorption of water on a dry surface between 10 and 40 seconds) and a medium degree of water repellancy (some moderate degree of repellancy below ½ inch but not below a 1 inch depth).

C. Soil Erosion Hazard Rating (acres):

4500 (low) 700 (moderate) 0 (high)

D. Erosion Potential: _____ tons/acre

E. Sediment Potential: _____ cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: n/a years

B. Design Chance of Success: n/a percent

C. Equivalent Design Recurrence Interval: n/a years

D. Design Storm Duration: n/a hours

E. Design Storm Magnitude: n/a inches

F. Design Flow: n/a cubic feet per second per square mile

G. Estimated Reduction in Infiltration: n/a percent

H. Adjusted Design Flow: n/a cubic feet per second per square mile

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

The No Pablo was a human-caused fire which started at approximately 2 pm on the afternoon of 4/30/00. Wind, high temperatures and dry fuels resulted in rapid fire growth during the first burning period, 2 pm to approximately 5 am the morning of 5/1/00. During this time the fire grew to an estimated 4000 acres. Cooler overnight temperatures and a light rain during the early morning of 5/1/00 slowed the fires advance and eventually it was contained at approximately 5200 acres. Suppression efforts continued for the next 4 days in an effort to contain and prevent further spread of the fire. The fire was declared controlled at 1200 on May 5, 2000.

The effects of the fire on soil and water resources are largely mitigated by the deep, highly permeable sandy soils and gentle terrain. The fire occurred in the glacial outwash and moraine of the Wisconsin Glaciation that is common in much of this part of the state. The glacial drift that was left as the glacier melted covered the entire area to a depth of several hundred feet. The topography is gently sloping (slopes < 10 percent over approximately 80 to 90 percent of the area) and elevation ranges from 1180 to 1320 feet above sea level. There are few defined drainages over the southern 2/3 of the fire area and surface water features are predominatly small ponds and wetlands which occur either near the edge of the fire in areas of low intensity burn or outside and near the fire boundary. Emley Lake is located on private land within the fire area in an area of low to moderate intensity burn. In the northern 1/3 of the fire area the outwash plain breaks into more steeply sloping topography (average slope of 20 percent) toward the AuSable River. The drainage pattern is better defined in this part of the fire. Intermittent drainages convey surface runoff, primarily in the form of snowmelt, to the AuSable River, which is located approximately 2 miles to the north. There are no perennial streams within the burned area.

The area within and surrounding the No Pablo fire is habitat for the Kirtland's warbler, a Federally listed endangered species. The recovery plan for this species has dictated the Ranger District management activities and strategies for the last 12 to 15 years. Much of the existing management on the district has been directed toward the objective of providing nesting and breeding habitat for this migratory species. The Kirtland's warbler is a habitat specialist, requiring dense young stands of Jack pine (1200+ trees/acre) between 5 and 20 feet tall to meet its nesting and breeding requirements. The No Pablo fire burned approximately 350 acres of occupiable, essential habitat which represents potential nesting and breeding territory for approximately 50 pairs of birds. Given the young condition of these stands and their lack of viable cones, it is not expected that these areas will regenerate naturally. Intense competition of ground vegetation, especially Pennsylvania sedge, will likely further hinder regeneration of these areas as well.

Accelerated sheet erosion and potential gully formation may be expected due to the collection and concentration of water that is likely to occur along dozer and single furrow plow line, especially on slopes greater than 10 percent. The suppression activities resulted in construction of approximately 19.7 miles of dozer line, single furrow plow line and widening of existing road corridors to contain and control the fire. A small amount of hand line (less that 1 mile) was constructed on steeper terrain along the northern boundary.

These rehab treatments of the suppression damage will be accomplished by the suppression organization. However, there is a potential for accelerated sheet erosion due to the increased possibility for ORV use within the fire area, as well. Bull Gap is a dedicated use area for ORV's and 4x4 vehicles. Now that the vegetation has been altered by the fire and line of sight opened up, it is possible that this type of use could be greatly expanded. This would result in loss of groundcover, surface (A horizon) soil displacement, and rutting by vehicle tires and development of pathways that will concentrate water and result in surface erosion and development of gullies.

B. Emergency Treatment Objectives:

Protect soil productivity by minimizing potential for accelerated sheet erosion and potential for gully formation due to loss of groundcover caused by increased ORV access and use. This objective would be accomplished by signing and patrolling the fire area during the upcoming summer use season.

Prevent potential deterioration of water quality by minimizing surface erosion. This objective would be met by controlling ORV use in the area of the fire.

Mitigate the potential for permanent or long-term loss of occupiable, essential Kirtland's warbler habitat due to type conversion of Jack pine to sedge meadows. This objective would be met by re-establishing Jack pine on 350 acres of occupiable habitat.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land **75** % Channel **N/A** % Roads **75** % Other (signing/patrol) **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90	90	90
Channel			
Roads	80	80	80
Other			

C. Cost of No-Action (Including Loss):

Cost of Suppression: estimated at $1,500,000
Cost of Lost T&E habitat: estimated at $1,597,360
Total cost of No-Action: $2,992,360

The cost of lost habitat was evaluated by considering the potential value of the nesting habitat affected by the No Pablo fire. The Forest and District biologists' professional opinion is that without reforestation of the 350 acres of occupiable, essential habitat affected by the fire, these areas will not be restocked to a density that will provide for this needed habitat for probably 50 years. Research indicates that the Kirtland's warbler will typically nest at a density of 6.67 acres per pair. The typical cost on the H-M National Forest for reforestation for KW habitat is appoximately $400.00 per acre. This represents an investment of $2,668/nesting pair territory. If these acres are not restocked for 50 years the loss per acre is $133,400. The 350 acres represents potential nesting and breeding territory for 52 pairs, when multiplied by the $133,400 lost value per

acre equals $6,936,800 over the 50-year timeframe. Realizing that the habitat is conservatively useful for perhaps 10 of the 50-year rotation this would yeild a lost value as occupiable, essential habitat of $693,680. At the end of the 50-year rotation of Jack pine stand, a harvest operation to regenerate the stand could by expected. Currently, the value of the timber expected to be harvested is $15.00 per cord with an expected volume of 20 cords per acre. This represents an additional $105,000 in lost value. The total economic loss over the 50 year period is then $798,680 in lost habitat value for this endangered species. This does not include the intangible lost value associated with the loss of individual members of an endangered population.

E. Cost of Selected Alternative (Including Loss):

Cost of Suppression: estimated at 1,500,000
Cost of recommended BAER treatments: $157,750
Total cost of Recommended Action: $1,657,750

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[ ] Geology	[ ] Range	[X] Botany
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[ ] Engineering	[ ]
[ ] Contracting	[X] Ecology	[ ] Research	[ ] Archaeology	[ ]

Team Leader: Greg Miller, Carson NF

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H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

1. Sign and barricade dozer line, single furrow plow line, and other critical locations where non-system trails and roads exist. Patrol area during weekends and high use periods to provide enforcement of closure and allow for public education and interaction. Monitor natural re-vegetation of rehabilitated plow line and seed with annual rye if needed.

This treatment will allow for protection of soil resources within the burn area. Damage due to loss of vegetative groundcover and displacement of surface soil layers by vehicles will likely result in accelerated soil loss and possible gully formation. It will also reduce the possiblity of unrestrained ORV use within the burn area during the time of vegetation recovery. Patrol and enforcement activities will allow for public contact and education of ORV users as to the potential for damage to resources.

This treatment would be applied at all access locations to the dozer line, plow line, and other vulnerable locations within and adjacent to the fire area. Preferred method of treament would be a sign and physical barrier of timber and slash from the line construction.

The recommended treatment includes 10 days per diem to cover travel costs for forest Law Enforcement personnel.

Costs of these treatments are displayed in Part VI.

2. Re-establish Jack pine on approximately 350 acres of occupiable, essential habitat for Kirtland's warbler affected by the No Pablo fire. This will reduce the likelihood of long term type conversion of this needed habitat. The stands affected by the fire were not yet old enough to reproduce and will likely not be reforested for several decades without planting due to intense plant competion from herbaceous species, principally Pennsylvania sedge.

Alternatives considered:

A. Direct seeding of Jack pine on approximately 350 acres of affected essential habitat for Kirtland's warbler.

This alternative is most feasible given the urgency of reforestation needed on these sites. Seed source is available and contractors could be arranged. There is concern over the success rate of this method. Seedling survival rates as low as 50 percent have been observed. This method would make the site available for use by the warbler in approximately 2007. A cost of approximately $100.00 per acre with a 17 percent administration and COR cost is estimated (total cost $110.00). Total estimated cost of Alt. A is $38,500.

B. Planting of 2-year seedlings on approximately 350 acres of affected essential habitat for Kirtland's warbler.

The preferred alternative is to plant 2-year seedlings, because there is a very high success rate associated with this method. Seedling survival as high as 90 percent is common and fill-in planting would not be needed. However, availability of sufficient seedlings (420,000) is questionable this late in the year. There are some safety and health concerns as well. Planting in ash covered sites may pose a health threat to the individual placing seedlings in the furrows. This alternative, if implemented, would provide a 2-year jump on the timeline for providing the habitat that was lost during the fire and make these sites available for use by the warbler in approximately 2005 to 2006. A cost of approximately $300.00 per acre with a 17 percent administration and COR cost is estimated (total cost per acre $350.00). Total estimated cost of Alt. B is $122,500.

C. Planting of 2-year seedlings on approximately 134 acres (Mecca) and direct seeding on 216 acres (Emley Lake) of affected essential habitat for Kirtland's warbler.

This alternative considers the suitability of the site in the recommended planting method. The Emley Lake plantation is best suited to direct seeding due to the presence of deep furrows from past planting activites. It is likely that fill-in planting would be required to meet the 1200+ trees/acre needed for suitable habitat. Seed sources and contractors to perform the work are available. This method would make the site available for use by the warbler in approximately 2007. A cost of approximately $100.00 per acre with a 17 percent administration and COR cost is estimated (total cost $110.00). Sub-total estimated cost of Alt. C (direct seed) is $23,760.

The Mecca plantation area is not deeply furrowed from past management activities and is more suited to mechanical planting of seedlings. Utilizing this planting method would accelerate the development of stand conditions on approximately 1/3 of the affected habitat area by planting 2-year-old seedlings. Seedling availability is still questionable. Success of seedling planting is commonly 90 percent and fill-in planting is not likely to be needed. A cost of approximately $300.00 per acre with a 17 percent administration and COR cost is estimated (total cost per acre $350.00). Sub-total estimated cost of Alt. C (mechanical plant seedlings) is $46,900.

Total estimated cost of Alt. C employing the different reforestation methods is $70,660.

The preferred alternative for jack pine reforestation is Alternative B due to the high rate of seedling survival expected and the acceleration of the stand development to replace the nesting and breeding habitat lost during the No Pablo fire as soon as possible. If seedlings prove not available, the secondary alternative would be C (plant one stand, seed one stand) followed by A (direct seeding).

Note 7/19/00: Insufficient 2-0 jack pine seedlings were available from sources considered suitable (a sufficient number was available from central Ontario, but the provenance was considered to be from too far north to be suitable for planting on the Huron National Forest), so alternative A (direct seeding) was implemented.

3. Monitoring

The request for funds also includes costs for monitoring the effectiveness of the treatments to determine whether or not objectives, as stated, were met. This monitoring will be performed by district personnel at pre-determined times and will be accomplished by several methods.

Reforestation of Jack pine to replace Kirtland's warbler habitat.

Monitoring of this treatment will be conducted by district employees at the end of summer in 2001, 2002, and 2003. Rates of seedling survival compared against the target stocking level of 1200 trees/acre will be the measurement used. The method employed will be survival surveys using systematic quadrat plots, using procedures normally followed to determine survival in Kirtland's warbler plantions under the Kirtland's Warbler Recovery Plan. Based on the monitoring results, appropriated funds would be pursued to accomplish any necessary fill-in planting if the target stocking or better is not achieved by 2003.

ORV use expansion into burn area.

This activity will be monitored by re-visiting the dozer line, plow line and user-created trails where signing and slash barricades were placed. The method used to assess whether or not ORV use is occuring would be visual inspection of the fireline and adjacent burned area following Memorial Day weekend, the 4th of July weekend (July 1-4) and the Labor Day weekend (Sept. 2-4). Monitoring will also be carried out by law enforcement personnel carrying out weekend patrols. Observations will be recorded on the LE&I Daily Activity Report, FS-5300-26. Records will be kept on the form of evidence of violations (tracks into burned areas), violations observed directly, the absence of violations, and contacts made with ORV riders.

Another item which would be considered is the effectiveness of signing, effectiveness of slash barricades at intersections with system roads, and the effectiveness of enforcement patrols and public interaction during high-use periods, especially the first summer.

This monitoring would be accomplished by walking segments of the dozer lines and looking for evidence of ORV use. Photos of this use or non-use will be taken and a report prepared by district personnel to document their findings.

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

			NFS Lands			Other Lands		All
Line Items	Units	Unit Cost $	Number of Units	WFSU-SULT $	Other $ --------	Number of Units	Fed $ -------	Total $
A. Land Treatments								
a. Direct seeding Jack Pine on approx. 350 ac of occupiable KW habitat (accomplished 6/14/00 – final cost) (see note below)	Acres	79.98	350	27,994				28,000
B. Channel Treatments								
C. Roads and Trails								
Sign, barricade, and seed dozer and/or plow line and user created ORV trails (Note: signs and barricades placed by suppression crews and charged to P-code)	Each	91.00	40	3640				3,650
Patrol burn area on weekends/holidays and other high use times	Days	500.00	45	22,500				22,500
Per diem (off district Level 4 law enforment officers)	Days	100.00	10	1,000				1,000
D. Structures								
E. BAER Evaluation/Adminstrative Support								
Plan preparation	Days	250.00	5	1,250				1,250
Monitoring and reporting of treatment effectiveness by district/forest personnel	Days	270.00	25	6,750				6,750
F. Totals								
Current Budget								63,150
Original Approved Budget								101,000
Difference								37,850

G. Accomplishment Narrative

Treatment 1. Prevention of ORV Use Expansion

Fireline rehabilitation was accomplished by off-Forest suppression crews and contract equipment operators using PF-12 funds. To prevent soil erosion caused by use of the fireline by off-road vehicles (ORV's) and to stabilize soil from rainfall, dense slash generated from fireline construction was pulled back onto approximately 19.7 miles of the fireline by an equipment contractor. At each intersection of the fireline with Forest Service system roads, county roads, and the ORV trail, barricades composed of trees that had been dozed out of the fireline were incoporporated in earthern berms to restrict access and prevent the fireline from being used as a new trail or road (see photo). Signing was erected at fireline intersections to clearly show that the fireline is closed to ORV use. Placement of barricades and signs was carried out by suppression/mop-up crews and charged to the P-code rather than the BAER funding.

Fire control line blocked to prevent erosion caused by new cross-country use by ORV's and 4-wheel-drive vehicles

An intense law enforcement initiative was carried out on Memorial Day weekend (5/26 – 5/29) in support of new use guidelines at the Bull Gap designated ORV scramble area near the head of the No Pablo Fire. This effort was funded by law enforcement and recreation, rather than BAER monies, but was effective in preventing illegal ORV use of the firelines or burned area. Weekend law enforcement patrols were begun on 6/2/00 and have continued to the present. Scattering of slash in firelines, signing, and patrols have been successful in preventing development of new trails and associated erosion in the burned area.

Fire control line at road intersection with sign indicating that ORV's are not permitted

ORV trail through burned area. Note that riders have not entered burned area with lush re-growth

Weekend law enforcement patrols will continue through Labor Day weekend. Beginning on July 15, increased travel in the general forest area including the No Pablo Fire was observed by Forest Service Law Enforcement Officers. Bear and hare hunters are permitted to run their dogs to train them for hunting season beginning on that date, under Michigan State law. Although scheduled special patrols to discourage encroachment of the burn area by ORV's and trucks are not planned following Labor Day weekend, law enforcement patrols will continue in the area because of its proximity to Bull Gap, and if it appears that special patrols are required, then they will be carried out. If necessary, an amended BAER request will be made to fund any needed additional patrols.

Treatment 2. Direct seeding of Jack Pine

The preferred and approved alternative for regenerating the 350 acres of occupied Kirtland's warbler habitat was a combination of planting of 2-0 nursery stock (134 acres, Mecca Warbler plantation) and direct seeding (216 acres, Emley Lake plantation). However, insufficient 2-0 stock of a suitable provenance was available for planting, so the decision was made to direct-seed the entire 350 acres. Sufficient seed was acquired from the Michigan Department of Natural Resources (MDNR). The MDNR seed required cleaning to allow its use in the seeder, which was done at the Forest Service Toumey Nursery in Watersmeet, MI. The lower-than-budgeted cost of the seed was partially offset by the need to fund an employee to travel to Watersmeet to get the seed cleaned.

The Huron-Manistee National Forests had not direct-seeded jack pine or other species in many years. Fortunately, the Mio Ranger District had purchased a Sigma Seeder in 1999, in order to test direct seeding as a method to regenerate jack pine stands for Kirtland's warbler more economically than planting nursery stock when adequately dense natural regeneration is not expected. A contractor with a two-disc trencher mounted on a skidder was contracted to mount and calibrate the seeder. The MDNR had experimented in 1999 with direct seeding with the same model seeder, but had encountered problems with control of seed application rate. Mio's regeneration technician and the contractor were able to identify and solve the problem, and the seeder was calibrated to apply seed at a rate of 15 seeds/meter, to obtain a target tree density of 1200 trees/acre.

Mecca Warbler Kirtland's warbler plantation on 5/8/00. Note planting furrows and young trees planted in 1994. This plantation was occupied by Kirtland's warblers in 1999 and was reaching its maximum warbler capacity as it approached crown closure.

Direct seeding of jack pine began on June 7 and ended on June 14, 2000. Once the seeder was calibrated, seeding progressed without problems. The 350 acres that were burned were treated. This includes the 25 percent of the area left as openings under the artificial regeneration method followed by the Forest Service and MDNR to establish Kirtland's warbler habitat (trees are regenerated at a density of 1600/acre, which with the openings gives an average density of 1200 trees/acre).

Rain events every several days following direct seeding has favored germination of jack pine seed. There are seedlings visible in many sections of trench in both areas that were direct-seeded. Natural regeneration of jack pine stands normally takes 3-5 years following harvest.

Mecca Warbler plantation following direct seeding (6/29/00). Note dense Pennsylvania sedge between seeding trenches that has sprouted following the fire. Without seeding, sedge would have taken over the site, interfering with Kirtland's warbler recovery.

Emley Lake Kirtland's warbler habitat. This 216-acre 8-year-old jack pine stand burned on 4/30/00.

Established protocols for monitoring regeneration success in Kirtland's warbler plantations will be followed in 2001, 2002, and 2003. If target stocking or better is not achieved by 2003, then fill-in planting will be carried out using 2-0 stock. A supplemental request for reforestation funds will be made at that time.

Jack pine seedling in trench of Mecca Warbler Kirtland's warbler plantation (6/29/00, 2-3 weeks following seeding).

Funding Status

Expenditures for Burned Area Emergency Rehabilitation have been considerably less than budgeted and approved. First, placement of barricades and signs at intersections of the fire control line with ORV trails and roads was accomplished with suppression/mop-up crews. Crew time, contract, and materials costs were charged to the P-code rather than to the BAER account. This appears to be a legal and appropriate account to charge these expenses to; however, accounting adjustments can be made if deemed necessary.

Because an adequate supply of 2-0 jack pine seedlings from an acceptable provenance was not available to plant the 134 acres of the Mecca Warbler plantation as proposed, there were considerable cost savings ($42,700) in regenerating the burned Kirtland's warbler plantations to maintain site productivity. The savings were due in part to the lower per-acre cost of direct seeding compared to machine planting 2-0 trees, but also because jack pine seed was acquired from the Michigan DNR at a lower rate than budgeted. However, it must be recognized that the survival rates for direct seeding jack pine can be as low as 50 percent, compared with survival rates of 90-95 percent for planting of nursery stock. Stocking surveys in 2001, 2002, and 2003 are the monitoring tool to determine whether adequate jack pine stocking is obtained to meet the target tree density of 1200/acre. The modest cost for these surveys is portrayed in the amended budget table, and if regulations permit, funding for this monitoring activity with BAER funds should be carried over. Since the direct seeding occurred, weather has been optimal for seed germination and seedling development. However, should weather or other factors result in survival as low as 50 percent, then funding of $66,000 will be required for fill-in planting of 175 acres in 2003 (1.0644 GNP inflator).

Monitoring and reporting costs are projected to be higher than budgeted in the original BAER proposal ($6,750 rather than $2,500).

PART VII - APPROVALS

1. __/s/ James L. Schuler_____8/24/00_____ _____
   Forest Supervisor (signature) Date

2. ____/s/M. Ruth Voltz (for) Robert T. Jacobs__ _9/08/2000_____
   Regional Forester (signature) Date