



Forest Service

National Forests in North Carolina

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File Code: 2520

Date: May 11, 2016

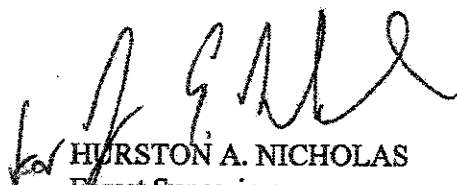
Route To:

Subject: Silver Mine Creek Wildfire (P8J8C2) –Burned Area Emergency Response
Report, Initial

To: Regional Forester

Enclosed is the Burned Area Emergency Response (BAER), Initial report for the 5,964 acre Silver Mine Creek Wildfire (P8J8C2) on the Appalachian Ranger District, National Forests in North Carolina. The fire started on April 21, 2016 and was contained on May 4, 2016. Critical values were identified, and emergency funds are requested at this time to treat three small infestations of Japanese Spiraea and monitor for invasive plant species across 24 susceptible acres. Pictures and other survey information associated with the wildfire and BAER analysis are available upon request.

If you have any questions, please contact Brady Dodd, Forest Hydrologist, at bdodd@fs.fed.us or 828-257-4214.


HURSTON A. NICHOLAS
Forest Supervisor

Enclosure

cc: Wallace Dillon, R8 BAER Coordinator



Date of Report: May 10, 2016

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST**A. Type of Report**

- ☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
☐ 2. Interim Report # _____
 ☐ Updating the initial funding request based on more accurate site data or design analysis
 ☐ Status of accomplishments to date
☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

- A. Fire Name: Silver Mine Creek Fire B. Fire Number: NC-NCF-160175
C. State: North Carolina D. County: Madison
E. Region: Region 8 F. Forest: Pisgah National Forest
G. District: Appalachian R.D. H. Fire Incident Job Code: P8J8C2 (0811)
I. Date Fire Started: April 21, 2016 J. Date Fire Contained: May 4, 2016
K. Suppression Cost: \$1,800,000
L. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): 3.4 to date with another 0.9 miles planned
 2. Fireline seeded (miles): 0 to date, but 10.1 miles are planned in the Suppression Repair Plan
 3. Other (identify): System Road grading
M. Watershed Number: 060101051203, Shut-in Creek -- French Broad River
N. Total Acres Burned: 5,964
 NFS Acres(5,934) Other Federal (0) State (0) Private (30)

O. Vegetation Types: The vegetation types were determined based on field reconnaissance, previously mapped stand boundaries, and modeled natural vegetation. Within the burn perimeter the elevation range varies from below 1300 feet on the French Broad River to 3670 feet at Rich Mountain fire tower. Steep slopes are evident across the areas. More than 50% of the area have slopes between 40-70%. Another 12% of the area exceeds 70% in slope. Recent timber management does not dominate the wildfire area. Greater than

75% of the landscape has stands 80 years of age or older. In the southern portion of the wildfire perimeter 64 acres were recently harvested, within the last 15 years.

Dry oak, chesnut oak and scarlet oak primarily, and Pine-oak/Heath forests dominates, about 50%, the wildfire landscape across the ridge and the steeper slopes. The presence of either pitch pine, table mountain pine, shortleaf pine, or Virginia pine depends on the frequency of previous fires allowing these pines to regenerate. A portion of these areas are co-dominated by white pine, which also indicates the lack of any recent fire activity. These two forest zones received the greatest wildfire intensity which included about 430 acres with canopy leaf removal or needle scorch. Acidic cove forest occurs across about 25% of the burn area along the stream corridors and extending up the steep north facing slopes. Most of these areas experienced low fire intensity with little impact on their dense shrub layer and sparse herb layer.

Dry-mesic oak forest occurs across about 10% of the burn area. It is dominated by chestnut oak, red oak, white pine, and various hardwoods. Portions of this type are currently dominated by white pine, either recently planted or as a result of prior land use management and the lack of recent prescribed burns or wildfires. Numerous heath shrubs occur in the understory, in particular huckleberry. A low intensity burn occurred across this habitat resulting in patchy consumption of the leaf litter and partial scorching of tree bases and shrub leaves.

The remaining forested communities occurring across the burn unit included mesic oak forest and rich cove, which covered about 10% of the area. Mesic oak forest was scattered across the burn unit while rich cove forest either occurred in the lowermost north-facing slopes of Silvermine Creek to the higher elevation slopes on the north and east faces of Rich Mountain. These two communities had low intensity fire activity and had scattered impacts to the herbaceous and shrub layer. Small scattered occurrences of these types occur over mafic rock and include the richest species diversity present across the wildfire extent. In some areas all the shrubs were consumed, in other areas none of the shrubs or abundant herbs, such as flowering Trilliums, were untouched. Rock outcrops, including montane acidic cliffs and acidic shale slope woodlands, occur across about 5% of the landscape, with the greatest concentration on the west facing slopes above the French Broad River in the southwestern perimeter of the burn. These rare communities, which harbor rare plant and animal species were minimally affected by the wildfire.

P. Dominant Soils: Dominant soil series within the burned area include Sylco, Stecoah, Soco and Cataska. The Sylco -Soco Complex is the most dominate soil series complex within the burned area making up approximately 30 percent of the area. Sylco soil series are moderately deep (33 inches) and are silt loam in texture. These soils formed in residuum and are affected by creep in the upper solum. These soils are excessively drained with medium surface runoff and have moderately rapid permeability. The Soco and Stecoah soils are moderately deep and are well drained. Soco soils have channery loam texture and Stecoah soils are sandy loam in texture. These soils formed in residuum and are affected by soil creep in the upper solum. There is very little runoff where forest litter/duff has not been disturbed. Runoff is medium to very rapid where litter has been removed. Cataska soil series are shallow (23 inches), have channery silt loam texture, formed in residuum that is affected by soil creep in the upper solum. These soils are excessively drained with moderate rapid or rapid permeability. Runoff is low where the litter/duff has not been disturbed or only partially removed and medium to high where litter/duff has been removed.

Each of these soil series can be found on slopes ranging from 15-95%. Within the burned area the majority of these soils are found on slopes ranging from 50-95%. These soils range from being stony to very stony with occasional rock outcrops throughout the area.

Q. Geologic Types: Predominantly the Snowbird Formation (Cbs), chiefly light-colored quartzite and sandstone, includes beds of slate, conglomerate and arkose. In the southern area of the fire, geology is variable with formations of quartzite, slate, shale and sandy layers, e.g. Hesse & Nebo quartzite and Nichols & Murray slate.

R. Miles of Stream Channels by Order or Class: 7 miles of 1st order, 5 miles 2nd order, 4.5 miles 3rd order, Big Laurel Creek 3.7 miles, and French Broad River 4.0 miles (these are all estimated)

S. Transportation System

Trails: ~13.0 miles

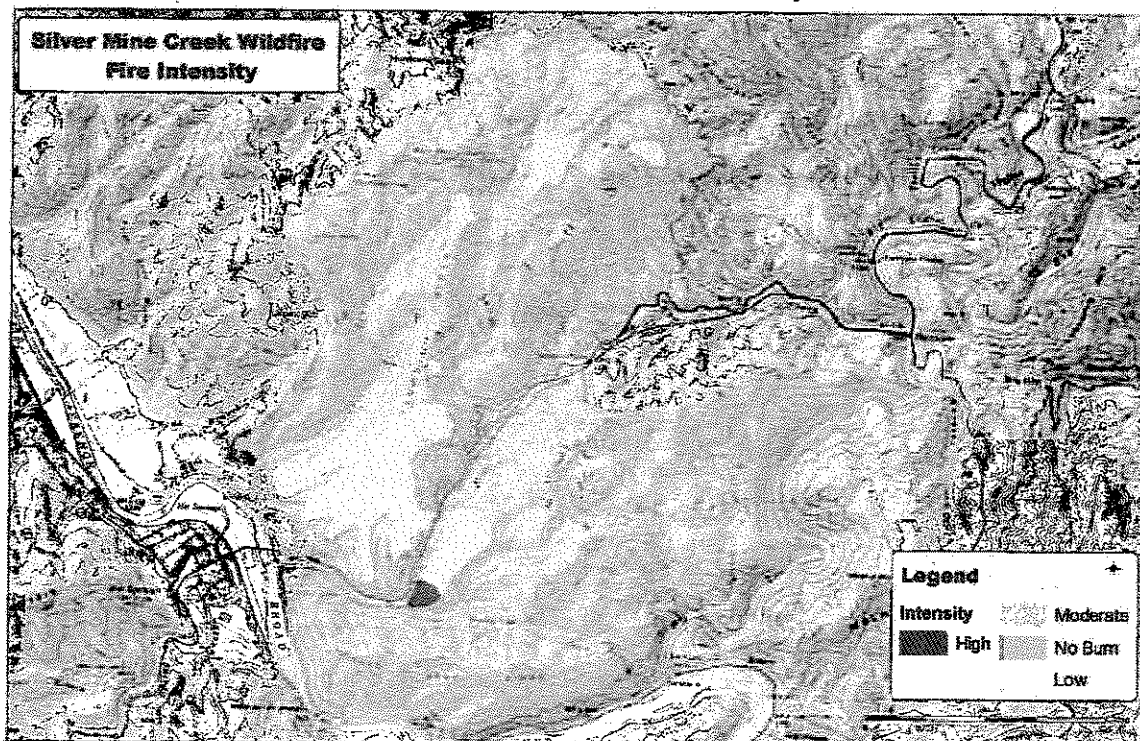
Roads: ~16.0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 5950 (low) 14 (moderate) 0 (high)

The burn severity extent was determined from an initial aerial map of hot spots, field surveys along trails, roads, and aerials with canopy leaf scorch or removal, and digital imagery from strategic locations. A Burned Area Reflectance Classification (BARC) map was not available due to cloud cover during the satellite passes over the burn perimeter. The vast majority of the burn perimeter had a low fire intensity, approximately 5,556 acres. Portions of these acres included a mosaic of burned and unburned fuels in moist locations such as scattered protected north-facing coves. A moderate intensity fire occurred across 408 acres. Shrubs, primarily consisting of mountain laurel and great laurel were partially to fully consumed in these areas. Tree canopy leaves, deciduous types only recently emerging, were either scorched or removed. Some of the fire adapted oak individuals, such as chestnut oak or scarlet oak, were either starting to leaf out again a week and ½ after the burn over or are anticipated to reemerge with leaves. Some white pine canopy trees and saplings may die from the wildfire activity due to their thin bark. Total duff consumption occurred only in very scattered locations, often in pine stands where fire residence time was greatest. In most other areas, duff consumption was limited, generally of a low soil burn severity with duff consumption of only 1-2 inches. The greatest fire effects occurred over 14 acres on a single steep, 80-90%, west-facing slope. Within this area a large concentration of table mountain pine was noted. Exposed mineral soil was scattered in patches within this location. The majority of the tree canopy species, while more heavily scorched within this location, are suspected of persisting.

Figure 1. Fire Intensity within the Silver Mine Creek Wildfire perimeter.



B. Water-Repellent Soil (acres): No hydrophobic soil conditions were found

C. Soil Erosion Hazard Rating (acres):

1 (low) 102 (moderate) 5,861 (high) (From NRCS data)

D. Erosion Potential: 0.16 tons/acre (From Disturbed WEPP run: Marshall 2 NE NC, silt loam texture, low severity fire, 0-90% slope, 1,000' slope length, 85% cover, 45% rock)

E. Sediment Potential: 77.1 cubic yards / square mile (From Disturbed WEPP run where average sediment is predicted to be 0.1602 tons/acre and assuming 1 cubic yard = 1.33 tons.)

PART IV - HYDROLOGIC DESIGN FACTORS

The majority of the Silvermine fire has a low to low-moderate burn severity. A very small portion (approx. 5 acres) of the fire had moderate-high burn severity. An assessment of these areas was conducted to determine impacts to resources and any necessary treatments that may be needed to minimize impacts to resources that may be at risk due to the effects of the fire.

The moderate-high burn severity occurred on Cataska-Sylco soils that are skeletal with areas of rock outcrops. These areas have evidence of soil creep and there are numerous tree tip-ups due to the shallow soils. In this area the burn severity is a mosaic of moderate to high. The moderate burn severity was more dominate with intermittent small patches of high burn severity. While mineral soil was exposed within the high burn severity patches, there were still some small roots present and the natural mineral soil color had not been altered. During normal rain events runoff is expected to slightly increase in this area due to the effects of the fire. Slopes of these areas are steep, but the ground is uneven with roots, vegetation stems, root ball tip-ups, rocks, and intact duff layers. The roughness of the ground should help break up water flow during rain events which would increase infiltration and reduce runoff. The area is convex which would also reduce the potential for concentrated water flow. Soil permeability of these soils is rapid which would also reduce overland flow of water. The area was tested for hydrophobicity. Water poured onto the soil did not bead up and infiltrated rapidly.

During normal rain events erosion is only expected to slightly increase from this site in the form of sheet and/or minor rill erosion. Erosion is expected to decrease over time as the vegetation and duff layer recovers. Some sprouting of vegetation from the seed bank was seen during the assessment.

This site is expected to make a full recovery over time. Emergency treatments were not recommended due to the findings and site expectations under normal precipitation events. These expectations may be exceeded if an abnormal precipitation event such as a tropical storm takes place within a couple of years. Emergency stabilization treatments would likely have no effect on the outcome from an abnormal precipitation event.

Notable increases in water yield and peak flows are not expected since forest vegetation mortality occurred in relatively small pockets and much of the forest duff layer remained intact. Erosion and sediment hazards are expected to be minimal due to the limited amount of mineral soil exposed as well as stoney and well drained soils. Therefore, soil and slope treatments are not recommended, and modifying road/stream crossings is not necessary. Although no hydrologic impacts are expected, annual or major storm checks of the culverts are recommended for a couple of years to check for accumulation of fire debris in the channels at the road crossings. Unused design sections IV.A - H are omitted from this form.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Critical Values:

Native or naturalized communities on NFS lands where invasive species or noxious weeds are absent or present in only minor amounts. (2523.1 – Exhibit 01).

Threat Identification:

Non-Native Invasive Plants

A non-native invasive plant species (NNIS) survey was conducted across roadsides, trails, wildlife openings, and greater burn intensity area. Within the Mill Ridge area and south of US 25/70 periodically mown wildlife openings are scattered across 14 acres. These areas harbor dense infestations of three to five NNIS. The wildlife openings were generally too green to burn either from the wildfire or the containment burnout.

Infestations were noted of the following NNIS within the wildfire area:

- Autumn-olive – very extensive infestations
- Multiflora rose – extensive infestations
- Japanese Spiraea – limited infestations
- Japanese Knotweed – limited to periphery by river
- Bicolor lespedeza – limited infestation
- Tree-of-heaven – scattered infestations
- Princess tree – very scattered infestations
- Mimosa – very limited infestation
- Oriental bittersweet – scattered infestations
- Japanese honeysuckle – widespread moderate infestations
- Kudzu – limited infestations
- Periwinkle – limited infestations
- Chinese silvergrass – very scattered infestations
- Japanese stiltgrass – dense to moderate infestations on trails, roads
- Coltsfoot – limited infestations on roadside in Cherokee NF

The majority of the wildfire area has a long history of non-native invasive plant infestations and are quite dense. However one species, Japanese Spiraea, was only located in three spot infestations and restricted to one roadside and its adjacent coves. It also presents the greatest threat to diversity within closed canopy forests within the burn perimeter. Japanese Spiraea persists and reproduces under a closed canopy particularly in boulder strewn mesic areas with soils derived from mafic rock. The three infestations cover less than a half-acre in extent. These three small infestations could spread within the surrounding burned areas since the duff layer was partially consumed and buried seed could create a larger infestation within these areas. The greatest extent for spread is within 10 surrounding acres. It is recommended to treat these three spot infestations and monitor a 10 acre buffer for its spread within the burn perimeter. If Japanese Spiraea increased post burn, the result would diminish the level of plant species diversity within these scattered areas with higher base content soils. It is recommended that control efforts be undertaken within these three outbreaks. In addition, it is recommended that monitoring be completed within the more mesic partially burned cove, covering about 10 acres, for outbreaks of this species.

A west-facing 14-acre area on the south side of US25/70 received the greatest fire intensity across the wildfire unit. Some mineral soil was exposed and the greatest amount of duff consumption across the wildfire. Given the thinner duff and the presence of two NNIS, princess tree and Chinese silvergrass, that have invaded other burn areas, it is recommended to monitor this 14-acre area for any invasion and treat if any are observed. This area contains the current highest density of table mountain pine seen within the wildfire perimeter and across the Appalachian Ranger District.

A review of the Risk Evaluation and Emergency Determination, 2523.1 - Exhibit 02 (shown below), concludes a Probability of Damage or Loss to be "Very Likely" and the Magnitude of Consequences would be "Moderate"

(because of impacts to table mountain pine dense area and high species diversity mesic slope sites), resulting in a Risk Evaluation and Emergency Determination of "Very High".

2523.1 - Exhibit 02 - Risk Evaluation and Emergency Determination

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Probability of Damage or Loss: The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within 1 to 3 years (depending on the resource):

- Very likely. Nearly certain occurrence (90% - 100%)
- Likely. Likely occurrence (50% - 89%)
- Possible. Possible occurrence (10% - 49%)
- Unlikely. Unlikely occurrence (0% - 9%)

Magnitude of Consequences:

- Major. Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.
- Moderate. Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.
- Minor. Property damage is limited in economic value and/or to few investments; damage to critical natural or cultural resources resulting in minimal, recoverable or localized effects.

B. Emergency Treatment Objectives: One objective would be to eliminate the three small infestations, consisting of about 0.5 acre, of Japanese Spiraea before it spreads in the adjacent burned area. The second objective would be to monitor for invasion of that species within the surrounding 10 acres and within a 14-acre area for princess tree or Chinese silvergrass. If these infestations are detected early, complete eradication can result.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land 100 % Channel N/A % Roads/Trails N/A % Protection/Safety N/A %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	75-80%		
Channel	-	-	-
Roads/Trails	-	-	-
Protection/Safety	-	-	-

E. Cost of No-Action (Including Loss): The existing infestation could double in size in two years and new infestations could greatly increase in size in 5 years resulting in two to ten times the cost of quickly finding and treating a new invasion.

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Archaeology
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: Brady Dodd, NFsNC Forest Hydrologist

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FAX: (828) 257-4874

H. Treatment Narrative:

Land Treatments:

Herbicide treatment will occur across three spot infestations, totalling about 0.5 acre, of Japanese Spiraea within the wildfire. In order to eliminate any risk from spreading this species into the surrounding burn area prior to seed production, the species will be treated in June prior to seed production. Treatment will consist of foliar applications of a 3% triclopyr 3A herbicide mixed with a 1% surfactant and a 0.5% dye. The initial application will be monitored in August and retreated in September if not 100% effective.

Costs

Treat Known Infestation	
Treatment contract	\$ 2000
Herbicide	\$ 100
COR contract initiation/oversight	\$ 1000
Totals	\$ 3100

Channel Treatments: N/A

Roads and Trail Treatments: N/A

Protection/Safety Treatments: N/A

I. Monitoring Narrative:

Detection & Treatment Narrative: The activity will consist of early detection and treatment, if located, across 24 acres. In one 10 acre area surrounding three small infestations of Japanese Spiraea further spread will be monitored. In another 14-acre area, two wind dispersed invasive species, princess tree and Chinese silvergrass, have the greatest likelihood of invasion. Both of these species have been located in areas of the wildfire, but in locations receiving much lower fire intensity and severity. Early detection and response will be completed between July and September of 2016. Any small infestations, covering less than a 10 by 10 meter extent, will be delineated with a central point location with an estimation of the infestation coverage, either by aerial extent or number of stems. Larger infestations will be delineated by polygons with an estimate of either aerial coverage within each polygon or number of stems, if appropriate.

The objective of the treatment will be for complete control. A preference will be for hand pulling any seedlings. Pulled seedlings will be draped over native lower tree branches to ensure the roots dessicate. Based on previous surveys within similar burned habitats the greatest risk will be from princess tree and Chinese Silver Grass. Young individuals of these two species have been effectively pulled in other infested sites.

If small older infestations are located, treatment will be completed with herbicides. For princess tree, a cut stump application of 50% triclopyr 3A will be applied. For Chinese silvergrass a 3% glyphosate mixed with a 1% surfactant and a 0.5% dye will be utilized. For Japanese Spiraea a 3% triclopyr 3A mixed with a 1% surfactant and a 0.5% dye will be utilized. If other non-native invasive plants are encountered, treatment will also consist of either mechanical treatment if possible or chemical treatment, cut stem with a 50% triclopyr 3A mix for woody plants or a 3% glyphosate mix for herbaceous species. Treatments can occur until October 15, 2016. Any treated infestations will be recorded in the FACTs database and digitized within a GIS format.

Costs

Early Detection & Rapid Response	
Detection/Treatment contract	\$ 2500
Herbicide	\$ 75
COR contract initiation/oversight	\$ 500
Totals	\$ 3075

Part VI - Emergency Stabilization Treatments and Source of Funds

Interim # Initial

			NFS Lands			Other Lands				All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER \$	\$	units	\$	Units	\$	\$
A. Land Treatments										
Japanese Spiraea treatment	each	2000	1	\$2,000	\$0		\$0		\$0	\$2,000
Herbicide	each	100	1	\$100	\$0		\$0		\$0	\$100
COR oversight	each	1000	1	\$1,000	\$0		\$0		\$0	\$1,000
Insert new items above this line				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$3,100	\$0		\$0		\$0	\$3,100
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
Team Leader/Hydrologist	hours	59	36		\$2,124					\$2,124
Botanist	hours	60	21		\$1,260					\$1,260
Soil Scientist	hours	59	20		\$1,180					\$1,180
Overtime	hours	90	47	—	\$4,230		\$0		\$0	\$4,230
Insert new items above this line				—	\$0		\$0		\$0	\$0
Subtotal Evaluation				—	\$8,794		\$0		\$0	\$8,794
F. Monitoring										
Detection/Treatment	each	2500	1	\$2,500			\$0		\$0	\$2,500
Herbicide	each	75	1	\$75			\$0		\$0	\$75
COR oversight	each	500	1	\$500	\$0		\$0		\$0	\$500
Insert new items above this line				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$3,075	\$0		\$0		\$0	\$3,075
G. Totals				\$6,175	\$8,794		\$0		\$0	\$14,969
Previously approved										
Total for this request				\$6,175						

PART VII - APPROVALS

 1. 
 Forest Supervisor (signature)

 5/11/16
 Date

 2. _____
 Regional Forester (signature)

 Date