Date of Report: September 14, 2015

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 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: Bald Knob Fire

B. Fire Number: NC-NCF-150110

C. State: North Carolina

D. County: McDowell

E. Region: 08

F. Forest: Pisgah National Forest

G. District: Grandfather Ranger District

H. Fire Incident Job Code: P8JY8B

I. Date Fire Started: July 17, 2015

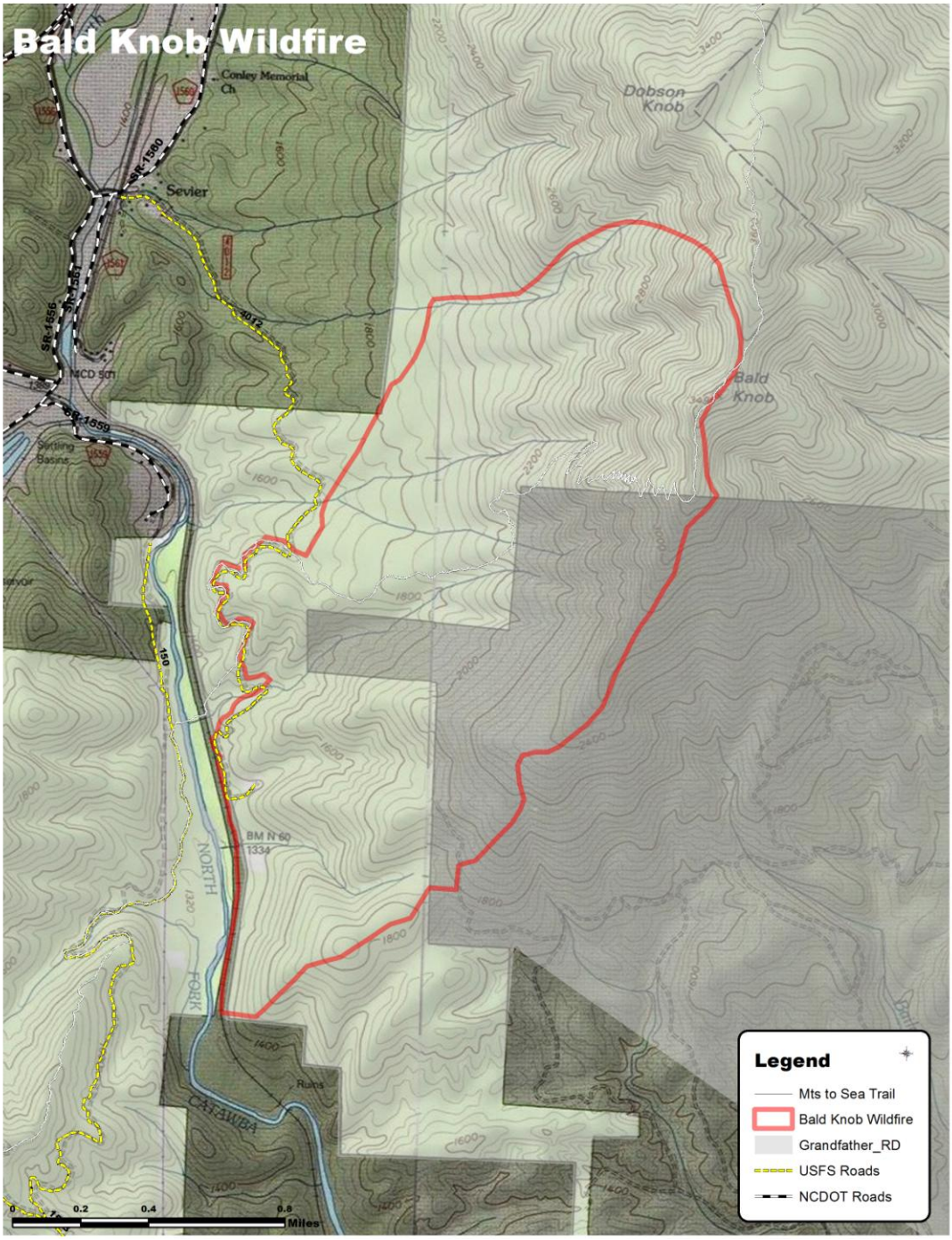
J. Date Fire Contained: August 24, 2015

K. Suppression Cost: $2,047,228

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 4.5
2. Fireline seeded (miles): 4.5
3. Other (identify): Recontoured 1.0 miles

M. Watershed Number: 030501010202 – North Fork Catawba River, Catawba River Basin

N. Total Acres Burned: 1,267
NFS Acres(X) Other Federal ( ) State ( ) Private (X)



Bald Knob Wildfire

O. Vegetation Types:

The wildfire occurred across a predominately west-facing slope extending across an elevation range from 1400 feet near the North Fork of the Catawba River to 3500 feet on Bald Knob. Vegetation types were determined based on aerial reconnaissance, field review from the southeast and the south, and modeled natural vegetation. Pine-Oak/Heath Forest dominates within the lowermost slopes of the burn line perimeter. Pine-Oak/Heath Forest and Dry Oak Forest dominate the burn area across the convex ridges and steep slopes, consisting from 60-65% of the landscape. This habitat is dominated by pitch pine (*Pinus rigida*), with table mountain pine (*Pinus pungens*), or a mix with shortleaf pine (Pinus echinata) at low elevations. Varying amounts of chestnut oak (*Quercus prinus*), scarlet oak (*Quercus coccinea*), black oak (*Quercus velutina*), white oak (*Quercus alba*), red maple (*Acer rubrum*), blackgum (*Nyssa sylvatica*), and sourwood (*Oxydendrum arboreum*). Ericaceous shrubs dominate this xeric community, particularly those sites without periodic wildfires. Mountain laurel (*Kalmia latifiolia*) is the dominant shrub with lesser amounts of flame azalea (*Rhododendron*

calendulaceum), lowbush blueberry (*Vaccinium pallidum*) and huckleberry (*Gaylussacia baccata*). In the absence of fire the shrub thickets are dense. Herbaceous diversity is sparse within the denser shrub thickets but more diverse within open understories. For those more open areas; turkeybeard, trailing arbutus, spotted wintergreen, and Carolina lily are characteristic as with a mix of grasses, in particular little bluestem and many herbs within the aster and legume families. Dry oak forest is very similar except dominated in the overstory by chestnut oak and scarlet oak. This portion of the landscape received the highest intensity fire although it varied from high to low intensity. Where the fire intensity was high, all the shrubs were top-killed. In comparison the low intensity fire locations did not always completely burn through the shrub component.

Dry-mesic oak forest occurs across about 25% of the burn area. It is dominated by chestnut oak, red oak (*Quercus rubra*), white pine (*Pinus strobus*) and various hardwoods. Numerous heath shrubs occur in the understory, in particular huckleberry. A low intensity burn occurred across this habitat and had variable impacts across its shrub layer. Within some areas a small portion of the duff layer was consumed and some individual Rhododendron, huckleberry, or mountain laurel shrubs were charred or completely blackened. The remaining primary forest community occurring across the burn unit was mesic oak forest, poorly developed rich cove forest, and acidic cove forest, which covered less than 15% of the area. This community is dominated by hardwood species in the understory with a dense shrub layer of white rosebay (*Rhododendron maximum*). These communities were unaffected by the wildfire, occurring in either the lowest elevation portion of the landscape or along stream corridors where the high relative humidity present under the dense evergreen shrub layer discouraged any fire activity.

Rock outcrops, consisting of a quartzite subtype of low elevation rocky summits, were scattered on the steepest west facing ridges. Shrubs and herbs dominate the thin acidic soils within this community. One rare community Carolina Hemlock bluffs occur within separate portions of the rock outcrops. Two types were noted. The typic, were Carolina hemlock (*Tsuga caroliniana*) occurs with scattered hardwoods such as chestnut oak was present at Bald Knob. This site is currently being chemically treated for hemlock wooly adelgids. The Bald Knob site was minimally affected by the wildfire. In contrast, a pine type, where pitch pine and table mountain pines co-occur with Carolina hemlock, along the southern perimeter was heavily impacted by the wildfire. The high severity burn resulted in death to perhaps ½ of the located trees with consumption of the duff layer at the tree base for ¼ of the remaining living trees. Half of the table mountain and pitch pines within this community were also heavily affected by the wildfire. It is uncertain how this community will change following the wildfire. Considering the bare rock and non-continuous fuels, it was surprising on the intensity of burn within the Carolina hemlock pine type.

P. Dominant Soils: The following soils occur in the burned area:

- Ditney-Unicoi complex, 10 to 25 percent slopes, very stoney;
- Ditney-Unicoi complex, 25 to 80 percent slopes, very stoney;
- Ditney-Unicoi-rock outcrop complex, 60-95 percent slopes;
- Evard loam, 10-25 percent slopes;
- Evard-Cowee complex, 25-60 percent slopes;
- Junaluska-Brasstown complex, 6 to 25 percent slopes;
- Junaluska-Brasstown complex, 25 to 60 percent slopes;
- Lonon-Northcove complex, 6 to 15 percent slopes;
- Northcove very cobbly sandy loam, 10 to 45 percent slopes, very stoney; and
- Ostin cobbly loamy sand, 1 to 5 percent slopes, frequently flooded.

All soils are “well drained” to “moderately well drained” with a predominantly “severe” water erosion hazard, but ranging from “slight” on gentle slopes to “very servere” on steep hilltops. The potential for damage by fire for all soils is rated “low”, with the exception of a small area of the Ostin cobbly loamy sand rated “high” by the NRCS (NRCS Web Soil Survey). The BAER assessment determined little disturbance to the forest duff layer over much of the fire due to the low residence time of the fire in one give area. Exceptions were observed on steep stoney soils where soils are thin and in other areas where logs burned and retained heat for a longer time resulting in a localized loss of the duff layer. In most cases the deeper organic layer remained intact, and hydrophobic soils were not found.

Q. Geologic Types: The burned area is in the Erwin formation of the Chilhowee group, predominantly interbedded dark green siltstone, sandy and silty shale and thin-bedded quartzite. Henderson granite gneiss occurs in the western portion of the burned area, with gray granite gneiss, containing lenses of hornblend gneiss, mica gneiss and mica schist (Geologic Map of N.C., 1958).

R. Miles of Stream Channels by Order or Class: Approximately 3.4 miles of mapped blue line streams exist in the assessment area, and are largely first order and ephemeral streams based on field assessment.

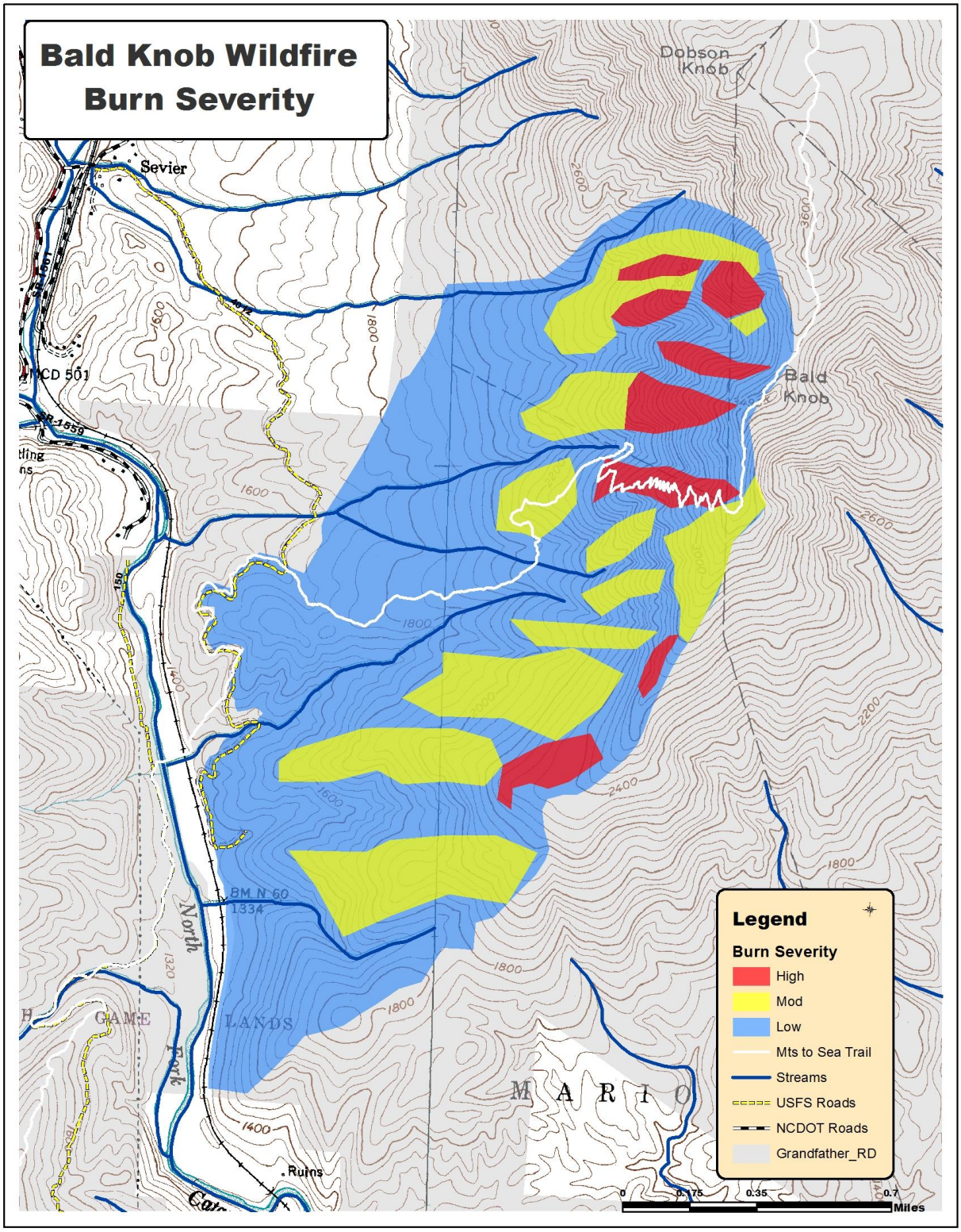
S. Transportation System

Trails: (Mountains to the Sea Trail) ~3.4 miles, Roads: ~1.7 miles (including State & FS roads, system and non-system)

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 869 (low) 306 (moderate) 92 (high)

Burn severity was determined from aerial reconnaissance, ground imagery, and field observations along the south, northwest, and the mountains to sea trail. It should be stated that the three separate fire severity classes almost exclusively reflects varying impacts to above-ground vegetation and probably does not reflect impacts to the soil. The vast majority, approximately 69%, of the area was a low intensity fire with little duff consumption or did not burn. There was no attempt to differentiate the unburned portion within this lumped category. Burn intensity was greatest on the steep west facing rocky slopes. About 92 acres, or seven percent of the area burned at high severity. Twenty-four percent of the area burned at moderate intensity, resulting in varying amounts of duff consumption and reduction of the shrub and herbaceous layers.



Burned Area Severity map

B. Water-Repellent Soil (acres): no water-repellent soils were located.

C. Soil Erosion Hazard Rating (acres):

1,175 (low) 92 (moderate) 0 (high)

D. Erosion Potential: 0.65 tons/acre (From Disturbed WEPP Results, given a 5-year Return Period of precipitation and runoff)

E. Sediment Potential: 0.33 cubic yards/square mile (From Disturbed WEPP Results, occurring under a 5-year Return Period of precipitation and runoff, soil weight of 1.0 ton/cubic yard and 1.98 square mile burned area)

PART IV - HYDROLOGIC DESIGN FACTORS

Potential hydrologic treatments were not determined to be a critical need since the burned area experienced predominantly a low to moderate soil burn severity, leaving much of the forest duff layer and forest intact. Over much of the burned area, a mosaic of burned and unburned conditions exist. The predominant change noted was a loss of the surface leaf layer and in places a loss of low to mid-story vegetation. Based on monitoring data from the Pinnacle Wildfire of 2007, it is assummed that the burned understory will recover within the year as plants emerge and resprout where they were top-killed (NFsNC Monitoring & Evaluation Report, 2011).

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. Monitoring of the Table Rock Fire of 2013 (an area just northwest of the Bald Knob Fire) helps to validate this assumption. Monitoring of soil conditions following a 1-2 inch rainfall event, that occurred within a few days of the area being burned, observed no soil movement from the moderately burned locations surveyed.

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

No non-native invasive plant species were located within the perimeter of the wildfire. Previous wildfires to the northeast have been invaded by princess tree (*Paulownia tomentosa*) and Chinese silvergrass (*Miscanthus sinensis*) following the reduction in the duff layer and removal or partial removal of the overstory layer. Infestations of these two species are known and have been treated for the last three years west and east of the Bald Knob wildfire. Tree-of-heaven (*Ailanthus altissima*), a rhizomatous species that spreads if burned, may also be in the wildfire area.

The burned areas, in particular those with duff consumption in the high and moderate severity burn sites, could provide opportunities for invasion from wind-dispersed seed or from buried seed or re-sprouting stems, if a few individuals are present. If these invasive species increased post burn, the result would diminish the level of plant species diversity, and could affect the critically rare Carolina Hemlock bluffs present at Bald Knob and the southern ridge. 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 State designated Outstanding Resource Waters), resulting in a Risk Evaluation and Emergency Determination of “Very High”.

Therefore, it is recommended to conduct early detection and rapid response in the spring of 2016 in the highly susceptible areas, covering about 92 acres. If any infestations are present, those infestations would be treated. Of particular concern is princess tree and Chinese silvergrass since they are wind dispersed. Any additional treatment needs identified later would be completed using program funds.

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: If infestations detected early, complete eradication of small outbreaks.

C. Probability of Completing Treatment Prior to Damaging Storm or Event: If necessary 95 percent

D. Probability of Treatment Success: 75 – 80 percent if necessary

E. Cost of No Action (Including Loss): Treatment costs would double in 2 years, and would continue to increase as the infestation increases.

F. Cost of Selected Alternative (Including Loss). *Not Calculated*.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Brady Dodd

Email: bdodd@fs.fed.us Phone: (828) 257-4214 FAX: (828) 257-4874

H. Inventory Narrative:

Nonnative Invasive Plant Monitoring and Treatment

Detection & Treatment Narrative: The activity will consist of early detection and treatment of outbreaks of two primary wind dispersed non-native inavsive species, princess tree and Chinese silvergrass. Both species have been located in areas to the northeast and west of the wildfire area. Early detection and response will be completed between May and August of 2016, focusing on high burn severity areas. 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% tricolpyr 3A will be applied. For Chinese silvergrass a 3% glyphosate mixed with a 1% surfactant and a 0.5% dye will be utilized. If other non-native invasive plants are encountered, treatement 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. Any treated infestations will be recorded in the FACTs database and digitized within a GIS format.

Costs

Early Detection & Rapid Response	
Detection/Treatment contract	$ 6,200
Herbicide	$ 150
COR contract initiation/oversight	$ 1,000
Totals	$ 7,350

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										
Early Detection Rapid Response (Monitoring & Treatment)	each	6200	1	$6,200	$0		$0		$0	$6,200
Herbicide	each	150	1	$150	$0		$0		$0	$150
COR contract initiation/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				$7,350	$0		$0		$0	$7,350
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$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
				$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
				$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/Hydro	hours	54	11	$0	$594		$0		$0	$594
Botanist	hours	55	13	$0	$715		$0		$0	$715
Overtime	hours	81	18.5	$0	$1,499		$0		$0	$1,499
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Evaluation				$0	$2,808		$0		$0	$2,808
F. Monitoring										
			1	$0	$0		$0		$0	$0
			1	$0	$0		$0		$0	$0
Insert new items above this line!							$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$7,350	$2,808		**$0**		**$0**	**$10,158**
Previously approved										
Total for this request				**$7,350**	**$2,808**					

* estimated costs as of 11/09/2015

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date