07/17/20:

BURNED-AREA REPORT

PART I - TYPE OF REQUEST

A. Type of Report

☒ 1. Funding request for estimated emergency stabilization funds

☐ 2. No Treatment Recommendation

B. Type of Action

☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

☐ 2. Interim Request #___

☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Mahogany

B. Fire Number: NV-HTF-500732

C. State: NV

D. County: Clark

E. Region: Intermountain – R4

F. Forest: Humboldt-Toiyabe

G. District: Spring Mountains NRA

H. Fire Incident Job Code: P4M7YC

I. Date Fire Started: 06/28/20

J. Date Fire Contained: 07/07/20

K. Suppression Cost: $8,000,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates): No data was provided

1. **Fireline repaired (miles): 5.33**
2. **Other (identify): 1 spike camp, 2 heliwells, 1 staging area,**

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
150100150207	Deer Creek	16,106	2,758	15%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	2758
OTHER FEDERAL (LIST AGENCY AND ACRES)	0
STATE	0
PRIVATE	0
TOTAL	2758

O. Vegetation Types: Pinyon-Juniper, Mixed conifer and scattered riparian tree and shrubs in Deer Creek Drainages.

P. Dominant Soils:

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
716	Troughspring very gravelly loam, 4 to 15 percent slopes	98	3.6%
805	Buckspring-Fletcherpeak-Seralin association	1090	39.5%
865	Mackscanyon very gravelly silt loam, 15 to 50 percent slopes	113	4,1%
866	Goodwater-Doespring association, 15 to 50 percent slopes	1,457	52.8%
Totals for Area of Interest		**2758**	**100.0%**

Q. Geologic Types: The landscape that the fire burned over is predominately derived from cemented Pleistocene era alluvial fans and fan remnants on the North half of the fire area which is composed of the deer creek drainages. On the Southeastern 2/3 portion of the fire, the geology and subsequent soils are comprised of limestone and dolostone of the Birdspring formation.

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	1.1
INTERMITTENT	14.4
EPHEMERAL	0
OTHER (DEFINE)	0

S. Transportation System:

Trails: *National Forest (miles): 0* *Other (miles):*
Roads: *National Forest (miles): 1.0* *Other (miles):*

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	38	0	0	0	38	1%
Low	255	0	0	0	255	9%
Moderate	2455	0	0	0	2455	89%
High	10	0	0	0	10	<1%
Total	2758					100%

B. Water-Repellent Soil (acres): Based on field hydrophobic testing approximately 20 percent exhibited surficial hydrophobicity that translates to 550 acres.

C. Soil Erosion Hazard Rating: 55% Low, 45% moderate.

D. Erosion Potential: not assessed **Sediment Potential:** not assessed.

F. Estimated Vegetative Recovery Period (years): The nearby Carpenter 1 fire in the Harris watershed started showing signs of regrowth the following year after the fire. Within 5 years shrubs and forbs ground cover effectively started capturing rainfall, effectively reducing runoff events. I anticipate a similar vegetative recovery for the Mahogany fire of 3-5 years for shrubs, grasses, and forbs. Much longer for the tree species.

G. Estimated Hydrologic Response (brief description): Increased watershed response to short duration, high intensity precipitation events is expected to occur within the burned area. Pre and post fire storm runoff modeling was completed using the WILDCAT5 model. The design storm selected for modeling was a 5-year, 10-minute event that would produce an estimated 0.608" of rain. This type of event is expected to occur during the summer monsoon season. The peak flow analysis indicates that pre-fire flows weighted by area were on average 9.7 cubic feet per second per square mile, and 110.6 cubic feet per second per square mile for post-fire flows. This increased watershed response to high intensity, short duration rainfall is expected to persist for approximately 3-5 years. As time passes the threat of damaging flash floods and debris flows will lessen as watershed conditions recover. An additional assessment of post-fire debris flow threats was conducted by the USGS. At the peak 15-minute intensity of 24mm/hour (equivalent to approximately .25" of rain in 15 minutes) the highest probability of debris flow initiation is 20-40% in the larger basins that were modeled. When the peak 15-minute intensity of 40mm/hour was modeled (equivalent to approximately 0.40" of rain in 15 minutes), the highest probability of debris flow initiation in the larger basins increases to 60-80%.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

Click here to enter text.

A. Describe Critical Values/Resources and Threats (narrative):

Table 5: Critical Value Matrix

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**

See attached Critical Value Table.

1. Human Life and Safety (HLS):

a. Injury to or loss of life for Forest visitors and employees traveling on NFS roads.

Probability of Damage or Loss: Possible. Flooding from storm events could trap off road vehicle users in canyons resulting in SAR

Magnitude of Consequences: Major. Vehicles and users could get caught in the canyons during events resulting in loss of life and/or property

Risk: High

Narrative: Road 560 and 560A approach the lower end of the fire, with 560A traveling through the heel of the fire. The roads are a class 2 road, high clearance vehicles only. The roads travel up in the Deer creek drainages. Some of the portions of the canyons are narrow and do not provide a turn around spot or escape routes in case flash flooding may occur from the fire. The risk is during Monsoon season when upstream storms can provide surprise flood events catching the users onff guard and unable to get out of the floods way.

b. Dispersed recreation users from Deer Creek recreation areas.

Probability of Damage or Loss: Likely. The upper Deer Creek canyon is popular with hikers, picnickers, rock climbers and dispersed campers. With no evidence, of the fire at the parking area on Deer Creek highway, hikers and campers will unknowningly or even knowingly hike down that

canyon to check out the fire and put themselves at risk to the inherent hazards within and outside of the fire perimeter.
Magnitude of Consequences: Major. Thunderstorms and associated incsreased flooding risk could catch recreationists by suprise, fire damaged trees could fall at anytime, hidden stump holes could cause injuries.
Risk: High

2. **Property (P):**Road prisms on NFS lands
Probability of Damage or Loss: Likely
Magnitude of Consequences: Moderate
Risk: High
Narrative: Post-fire runoff modeling indicates that watershed response to the design storm will result in runoff increases of greater than an order of magnitude. USGS post fire debris flow modeling indicates the probability of debris flows in the larger modeled basins is 60-80%. Both routes are Maintenance Level 2 (suitable for high clearance 4x4 vehicles) and lack significant engineering and capital investments. There are no stream crossing structures present. Given the landscape position of the roads and lack of stream crossing infrastructure, the BAER team was unable to identify reasonable measures to protect the routes from storm runoff. Ongoing maintenance is minimal at best and any reconstruction following flood events would be limited to minor template reshaping and debris removal to facilitate use by high clearance 4x4 vehicles.

3. **Natural Resources (NR):**
    a. Native Plant Communities

Probability of damage or Loss: Likely. Fire vehicles arrived from out of state and no wheel wash was available for them to wash there vehicles before going out on the fire line. Star thistle was found at ICP so the possibility exist for vehicles to pick that up in their tires before heading up to the fire. There are also known populations of puncturevine near the fire that could easily get picked up by fires. Fire vehicles have driven off road into the fire area possibly transporting weed seed into the habitat.
Magnitude of Consequences: Moderate. No known populations exist on the SMNRA. Once established it could be hard to eradicate. Noxious weeds could compete with the successful establishment of the natural vegetation. Could potentially have a type conversion event. At the lower elevations cheat grass can easily move in, as seen in the Carpenter 1 fire.
Risk: High.

    b. Soil Productivity and Hydrologic Function

Probability of Damage or Loss: Possible. Soils are relatively steep, particularly along drainages. Storms can wash sediment, debris and topsoil from the slopes and carry down the channels. Soil properties as determined by NRCS in their soil mapping shows these soils as having a low or moderate erosion hazard.
Magnitude of Consequences: Moderate. Erosion will result in topsoil, and debris being transported downstream
Risk: Intermediate
Narrative: Nearly 90 percent of the fire burned as moderate burn severity. The fire also burned very rapidly resulting in incomplete consumption of debris in most of the area, with the exception of where heavier prefire ground fuelsl occurred. The soil surface shows high amount of rock cover, 30-70 percent based on visual observation and photos by the READS, especially on the ridgetops, that adds to suface roughness and would capture some of the sediment coming off the slope. The geomorphic features indicate steep and but short slope lengths. The combination of high surface rocks and short slope lengths will minimize the magnitude of soil loss off the hillslopes.
The only immediate value at risk would be the level two road 560 and 560A. They will most likely be impacted by any debris flows. As these are low value roads, limited to occasional 4X4 users, dispersed campers, the magnitude is only moderate.
Deer Creek does travel under Hwy 95 several miles downstream, and while the risk does exist for debris flows from traveling that far, a combination of only 17% of the watershed being affected by the fire, heavy vegetation below the fire, willows and other shrubs, and a wide flat fan piedmont above the hwy that will be capable of the flows to be spread out and deposited across the fan makes risk of hwy impact low.

Cultural and Heritage Resources: None Identified

B. Emergency Treatment Objectives: A. Natural Resources: EDRR The objective of proposed treatments is to prevent the establishment of Malta star-thistle (a population of which was found at ICP) and other invasive weed species (which may have been transported in by suppression equipment and personnel before wash stations arrived) within the burned area and at suppression activity locations adjacent to the burned area. B. Human Life and Safety – Instituting a closure to the fire area and access road, 560 and 560a to prevent, and protect people from entering the fire area due to unsafe conditions until the fire has a chance to heal itself naturally. This will include signage, and gate along the roads and access points outside the fire.

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

Land 75% **Channel** None Recommended

Roads/Trails Click here to enter text. **Protection/Safety** 100 %

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	>90%	N/A	N/A
Channel	N/A	N/A	N/A
Roads/Trails	N/A	N/A	N/A
Protection/Safety	95%	95%	N/A

E. Cost of No-Action (Including Loss): Click here to enter text.

Loss	**Estimated Value**
Native Plant Communities	$965,300 (if burn area of 2,758 acres converted entirely to an annual grassland and had to be treated at the current contracting rate listed in 2020 BAER reports).
Road 560 and 560A	As the road is a low maintainence road, any repairs may be minimal from flood events. Vehicle recovery could run several thousand dollars, ($1,500 dollar base response fee plus hourly rates apply to off road wrecker)
Fire area visitors	Tow bill is the most likely cost but there is a small potential for loss of injury or loss of life. SAR costs.

Native and Naturalized plant communities: It is difficult to place monetary value on the loss of the native and naturalized plant community within the Mahogany Burn Area. Furthermore, it is difficult to place monetary value on wildlife habitat. If the proposed BAER treatment is not funded, it is expected that non-native invasive annual grasses and noxious weeds will spread throughout the burned area. The expected consequences include loss of native and naturalized plant community, diminishing the quality of wildlife habitat and decreasing the recreation value. A conservative prediction would be that if the fire scar is left to recover naturally with no chemical treatment intervention that the native and naturalized plant community would experience a loss of at least 50% to noxious weeds. This would exponentially increase the cost in subsequent years to treat the new infestations if small pilot populations are not controlled in year one. Failure to address the potential spread of noxious weeds found within the Mahogany fire perimeter could lead to the native plant community converting to noxious weeds, including annual grasslands in 3-5 years.

Unmeasurable items: loss of soil productivity and decrease in forage production for wildlife.

F. **Cost of Selected Alternative (Including Loss):** $20,000 for the herbicide treatment proposal of 119.67 acres as opposed to $965,300 (if burn area of 2,758 acres converted entirely to an annual grassland and had to be treated at the current contracting rate listed in 2020 BAER reports like the Poeville Road Fire).

G. Skills Represented on Burned-Area Survey Team:

☒ Soils ☒ Hydrology ☒ Engineering ☒ GIS ☐ Archaeology
☒ Weeds ☐ Recreation ☐ Fisheries ☐ Wildlife
☐ Other:

Team Leader:
Email: James Hurja **Phone(s)**702-515-5407 Cell: 702-595-0490

Forest BAER Coordinator: John McCann
Email: john.mccann@usda.gov **Phone(s):** 775-355-5339

Team Members:*Table 7: BAER Team Members by Skill*

Skill	Team Member Name
Team Lead(s)	Jim Hurja
Soils	
Hydrology	Brendan Waterman
Engineering	Troy Jorgenson
GIS	Demetrius Purdie-Williams
Archaeology	
Weeds	Meagan Carter
Recreation	
Other	

H. Treatment Narrative:

Land Treatments: Conduct EDRR and treat 119.67 acres of noxious weeds that are predicted, based on nearby mapped weeds infestations and areas being disturbed by suppression activities, resulting in an unacceptable risk to natural resources. This risk can be easily mitigated at relatively low cost by comparison through the District contract with the National Parks Service to get ahead of noxious weeds and annual grass germination while implementing EDRR in the first year after the fire. This alternative was selected because early treatment of smaller acreages proves to be more economically efficient than trying to rehabilitate the landscape once these populations have expanded and converted to noxious weed monocultures or annual grasslands..

Channel Treatments: N/A

Roads and Trail Treatments: N/A

Protection/Safety Treatments: Instituting a fire closure of the fire area, see map for boundaries, for up to 5 years. Post signs on roads that run adjacent to fire, i.e., Lucky strike Mine road, Deer Creek parking area. Put a gate and sign at road 560 jct with Lee Canyon hwy. Put fence up along top of hill behind restroom at Deer Creek to prevent people from going down hill. Have NWS coordinate with NDOT for early warning system for possible debris flow events reaching hwy 95. Install fencing and signage at Deer Creek and Mahogany group site to discourage visitors from accessing the fire.

Costs:

Gates –	$10,850
Fencing -	$1,460
Signage -	$3,690
Overhead/labor –	$3,000
Total -	$19,000

I. Monitoring Narrative:

Land Treatments: Monitoring would be conducted by the weeds crew as a function of the implementation. Monitoring would include EDRR for invasive species and efficacy of treatments.

Protection and Safety: Access points will be patrolled by LEO's and FPO's as part of their normal duties.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			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											
Fire EDRR				$3,369	$0			$0		$0	$3,369
Suppression EDRR				$12,330	$0			$0		$0	$12,330
Insert newitems above this line!				$0	$0			$0		$0	$0
Subtotal Land Treatments				$15,699	$0			$0		$0	$15,699
B. Channel Treatments											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert newitems above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treatments				$0	$0			$0		$0	$0
C. Road and Trails											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert newitems above this line!				$0	$0			$0		$0	$0
Subtotal Road and Trails				$0	$0			$0		$0	$0
D. Protection/Safety											
Closure gate, fencing				$13,810	$0			$0		$0	$13,810
Signage				$5,190	$0			$0		$0	$5,190
Insert newitems above this line!				$0	$0			$0		$0	$0
Subtotal Protection/Safety				$19,000	$0			$0		$0	$19,000
E. BAER Evaluation											
Initial Assessment	Report			$15,276	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert newitems above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				$15,276	$0			$0		$0	$0
F. Monitoring											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert newitems above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$0	$0			$0		$0	$0
G. Totals				$49,975	$0			**$0**		**$0**	**$34,699**
Previously approved											
Total for this request				**$49,975**							

PART VII - APPROVALS

1. CHEVA GABOR Digitally signed by CHEVA GABOR Date: 2020.07.21 15:47:48 -07'00' 7/21/20

(FOR) Forest Supervisor Date