Date of Report: July 29, 2020

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: Murphy Trail Head Fire

B. Fire Number: CO-PSF-1412

C. State: KS

D. County: Morton

E. Region: R2

F. Forest: PSICC

G. District: Cimarron NG

H. Fire Incident Job Code: P2M90420

I. Date Fire Started: 7/17/2020

J. Date Fire Contained: 7/18/2020

K. Suppression Cost: $210,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates):

1. **Fireline repaired (miles):** N/A
2. **Other (identify):**

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
110400020601	Cimarron River	29,595	135	<1%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	135
OTHER FEDERAL (LIST AGENCY AND ACRES)	
STATE	
PRIVATE	
TOTAL	135

O. Vegetation Types: Cottonwood, Tamarisk, Sagebrush

P. Dominant Soils: 1170-Happyditch loamy fine sand

Q. Geologic Types: Alluvium, Holocene to Pleistocene, unconsolidated sand, silt, clay and gravel

R. Miles of Stream Channels by Order or Class: Total 0.8 miles

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	
INTERMITTENT	0.8 Cimarron River
EPHEMERAL	
OTHER (DEFINE)	

S. **Transportation System:**
Trails: *National Forest (miles):* 0 *Other (miles):*
Roads: *National Forest (miles):* 0 *Other (miles):*

PART III - WATERSHED CONDITION

A. Burn Severity (acres): This fire contained approximately 50% moderate and 50% low soil burn severity. The areas right within the dense cottonwood stand was the lowest burn severity, while the areas around these small sections were at a moderate burn severity.

B. Table 4: Burn Severity Acres by Ownership: NA

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned						
Low						
Moderate						
High						
Total						

C. Water-Repellent Soil (acres): NA

C. Soil Erosion Hazard Rating: NA

D. Erosion Potential: NA

E. Sediment Potential: NA

F. Estimated Vegetative Recovery Period (years): By treating this area the cottonwood trees that do survive will be able to regenerate and would spread through this area of the Cimarron River. Without treatment recovery of the cottonwood gallery would be greatly reduced and even unlikely until treatment of tamarisk occurs in the future. This would require a much greater investment in tamarisk treatment as it likely would have spread throughout this entire stretch of the Cimarron River.

G. Estimated Hydrologic Response (brief description): NA

PART V - SUMMARY OF ANALYSIS

Introduction/Background

This is a small fire along the Cimarron River with Moderate to Low burn severity. Fire supression activities included direct and indirect tactics including dozer line, handline, and natural barriers. The Cimarron River contains the only healthy riparian area in southwest Kansas. The Cimarron National Grasslands contains 70% of the public land in Kansas and the Cimarron River itself is an important component of this National Grassland.

The river corridor contains cottonwood with the understory of tamarisk in the outer edges. The fire bured at a low soil burn severity in the center of the cottonwood gallery and up on the terraces along the river corridor in the grassland. The moderate burn severity was along the river corridor outside of the center of the cottonwood gallery, where there was some tamarisk that carried the fire and increased the soil burn severity. The fire scorched to the top of some of the cottonwood trees. The majority of the cottonwood were burned 1/2 to 2/3 of the way up their trunks. It is likely that at least half the cottonwood trees in the area will be killed due to this fire.

This fire gives tamarisk an increasing advantage of outcompeting native vegetation. The Riparian Invasion Research Laboratory (Riverlab) in California states that tamarisk are considered “among the world’s top 100 invaders and one of the most damaging invasive weeds in the western US.” Tamarisk invades riparian systems and forms dense stands, so that invaded areas often become completely dominated by tamarisk with few other plants present. Tamarisk consumes a greater amount of water due to its excessive evapotranspiration and also distributes salt along the ground, increasing soil salinity. Tamarisk provides poor habitat for birds, amphibians, and other wildlife, narrows stream channels, and promotes erosion. Therefore, it is important to treat this species while there is a high liklihood of success of allowing the native cottonwood and willow to outcompete it, rather than letting it take over this area. Once it has become dominant in this stretch of river the cost and time associated with removing it will be much greater.

This section of the river has not been taken over by tamarisk and still contains some intact cottonwood areas that will provide beneficial riparian habitat. If no treatment occurs it is likely that the cottonwood and willow galleries in this stretch of river will be reduced or be completely obliterated due to the tamarisk invasion. There was no tamarisk treatment along the Cimarron River after the Tunner fire of 2011. After this fire the amount of tamarisk increased while the overstory cottonwood and willow has decreased and or been completely wiped out of the area. By treating the tamarisk now we can prevent this from happening again. There has been treatment of the tamarisk in the past just east and west of the burn that was extremely effective. While cottonwood and willow species can resprout following fire, tamarisk may be better adapted to the post-fire environment than native species. Tamarisk is likely to persist following fire and expand its dominance with burning of riparian plant communities (Busch and Smith, 1993). Riverlab states that tamarisk may also cause increases in fire frequency within riparian habitats as they are readily flammable even when healthy and green (https://rivrlab.msi.ucsb.edu/invasive-species/tamarisk).

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**

1. **Human Life and Safety (HLS):** NA
2. **Property (P):**NA
3. **Natural Resources (NR):**As mentioned above tamarisk can outcompete willow and cottonwood after fire. Once they have moved into an area they can completely take over changing the character of the riparian area for wildlife, increasing water consumption, and possibly increasing erosion. The probability of damage is LIKELY in the moderate burn severity areas, since the cottonwood overstory will be reduced due to mortality from the fire allowing tamarisk to move in more quickly. The magnitude of consequences is Moderate leading to a HIGH risk rating.

4. **Cultural and Heritage Resources:**NA

B. Emergency Treatment Objectives: Reduce the tamarisk population in the burned area of the Cimarron River so that the native cottonwood and willow is allowed to recover and regenerate.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: 90%
Channel: NA
Roads/Trails: NA
Protection/Safety: NA

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%	85%	85%
Channel			
Roads/Trails			
Protection/Safety			

E. Cost of No-Action (Including Loss): Cost of treatment for the tamarisk is $300 per acre. This cost is based on an NRCS contract that was used a few years ago to do the same type of treatment. There is no way to estimate the cost of revegetation of native vegetation. The success rate of planting and trying to restore native vegetation is less than 50% according to historical plantings along the river corridor. It is easier to maintain the current native vegetation than to try to restore it if it is outcompeted by tamarisk and requires restoration in the future. This type of tamarisk treatment was used on the Cimarron River downstream and upstream of this area between 2009-2012 with great success. Approximately 4,000 acres has been treated in the river corridor. If no treatment is done within the Murphy Trail Head fire area the investment that has been put into reducing tamarisk along Cimarron River will be reduced and may be lost.

F. Cost of Selected Alternative (Including Loss): The total cost of the selected alternative is $21,831. This includes the treatment of 60 acres using a contract ($300/acre x 60 acres = $18,000), and contract administration costs (10 hours = $3,831). The 60 acres proposed for treatment are those acres within the riparian corridor that burned at a moderate soil burn severity and are at risk from tamarisk invasion due to the proximity of tamarisk to the area. The acres within the core cottonwood gallery that burned at a low soil burn severity were not included for treatment.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Jamie Krezelok
Email: jamie.krezelok@usda.gov **Phone(s): 970-903-7615**

Forest BAER Coordinator: Jamie Krezelok (acting for Steve Sanchez)
Email: jamie.krezelok@usda.gov Phone(s): 970-903-7615

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

Skill	**Team Member Name**
Team Lead(s)	Jamie Krezelok
Soils	
Hydrology	
Engineering	

Skill	Team Member Name
GIS	
Archaeology	
Weeds	Nancy Brewer
Recreation	
Other	

H. Treatment Narrative:

Land Treatments: The tamarisk will be treated with a chemical and surfactant solution using the basal application method or cut stump treatment. Spraying the tamarisk 18 inches up from the ground, coating all stems. The spraying should be conducted while the tamarisk is actively growing. This type of treatment has been done in the past along the Cimarron River with great success. This type of treatment has reduced or removed tamarisk allowing the natural riparian community to dominate the river corridor. This provides a multitude of benefits for the Cimarron National Grasslands; including improved wildlife habitat, improved recreational experience, and protection of stream function. Many other types of tamarisk treatment have been tried in the past, including the release of the tamarisk beetle, but this has had limited success.

Channel Treatments: NA

Roads and Trail Treatments: NA

Protection/Safety Treatments: NA

I. Monitoring Narrative: The Grassland staff will treat and monitor the tamarisk for the next few years. The treatment information will be entered into the TESP-IS national database for invasive species by the Grassland staff.

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											
Tamarisk spraying	Acres	300	60	$18,000	$0			$0		$0	$18,000
contract development and a	Days	383	10	$3,831	$0			$0		$0	$3,831
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Land Treatments				$21,831	$0			$0		$0	$21,831
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 Treatments				$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 and 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 Protection/Safety				$0	$0			$0		$0	$0
E. BAER Evaluation											
Initial Assessment	Report			---	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert new items above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				$0	$0			$0		$0	$0
F. Monitoring											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$0	$0			$0		$0	$0
G. Totals				$21,831	$0			**$0**		**$0**	**$21,831**
Previously approved											
Total for this request				**$21,831**							

PART VII - APPROVALS

DIANA TRUJILLO

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Date: 2020.07.31 10:00:04 -06'00'

Diana M. Trujillo
Forest and Grassland Supervisor
Pike and San Isabel National Forests
Cimarron and Comanche National Grasslands