USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report:7/16/2017

All Text in Red is associated with this Interim #1 Interim 1: Date of Report:8/09/2017

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[XX] 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)

[XX] 2. Interim Report #1
[ ] 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:Frye

B. Fire Number:AZ-CNF-000467

C. State:Arizona

D. County: Graham

E. Region:Southwestern Region 03

F. Forest: Coronado

G. District: Safford

H. Fire Incident Job Code: P3K1R9 (0305)

I. Date Fire Started: June 7th 2017

J. Date Fire Contained: Estimated July 30th 2017
July 30th 2017

K. Suppression Cost: 24.2 Million as of 7/14/17
$26 Million

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 26.5 miles
2. Fireline seeded (miles):
3. Other (identify):N/A

M. Watershed Number:
Jacobson Creek-150400050604
Marijilda Wash-150400050605
Lower Stockton Wash 150400050606
GraveyardWash-150400050702
FryeCreek-150400050703

AshCreek-150400050707
Middle Wash 150400050708
Lower Cottonwood Wash-150400050710
Pitchfork Canyon Wash-150502010201
Goudy Canyon Wash-150502010202
Grant Creek-150502010204

N. Total Acres Burned: 48,302 acres
NFS Acres(45,880) Other Federal ( ) State (2,360) Private (62)

O. Vegetation Types: Pien/Abla/Abco, Psmeg/Pipos, Pipos/Quhy, Pinyon/Juniper, Shrub/Grassland

P. Dominant Soils: Lithic Ustochrepts, Typic Ustochrepts, Typic Dystrochrepts, Dystric Cryochrepts with many areas of rock outcrop.

Q. Geologic Types: Granite

R. Miles of Stream Channels by Order or Class: Perennial = 34.44, Intermttent = 24.34, Ephemeral =147.04

S. Transportation System

Trails:62 miles Roads:51 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 31,447 (low) 5,318 (moderate) 1,917 (high)

B. Water-Repellent Soil (acres): 7,235

C. Soil Erosion Hazard Rating (acres):
1,111 (low) 15,174 (moderate) 26,662 (high)

D. Erosion Potential: 7.2 tons/acre

E. Sediment Potential: 659 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 4-8 years

B. Design Chance of Success, (percent): 75%

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): Range from 2 to 2.7 due to large change in elevation

F. Design Flow, (cubic feet / second/ square mile): 500

G. Estimated Reduction in Infiltration, (percent): 60

H. Adjusted Design Flow, (cfs per square mile): 854

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

A lightning strike ignited the Frye Fire on June 7, 2017 in the old burn scar of the 2004 Nuttall Complex Fire. The Fire was initially managed by a Type 3 Fire team then transitioned over to a Type 2 Fire Team then to a Type 1 Fire Team then back to a Type 2 Fire Team.

The Mount Graham area is a moist and cool “sky island” in an otherwise desert environment. Elevation range is 4,000 feet to 10,400 feet. State highway 366 (the Swift Trail Road) runs through the south western potion of the burned area and may be affected by debris flows at several location. The highway is the sole access to the Mount Graham International Observatory (MGIO), numerous residences, and special use permits. During the summer monsoon season this topographic highland develops intense thunderstorms. Specific hazards stem from potential flood flows moving ash and debris into the road drainage system, blocking culverts and eroding the road prism. This could result in blocking egres for the public and personnel at the MGIO as well as a loss of property should the highway be compromised.

Risk to Human Life and Safety:

Potential hazard to life, property and safety by rolling rocks and debris along the Swift Trail Highway and other areas of the burned area with high and moderate burn severity.

Forest Road 88 experienced approximately 1 mile of high severity burn up to Webb Peak and the historic lookout located there. The is a risk to life and safety along this route due to hazard trees and potential loss of segements of the road. The historic fire lookout also poses a risk to public safety as it was damaged by the heat from the high seveity fire.

Forest Road 508 is at risk of failure where it intersects 3 headwater tributaries of Ash Creek. These crossings have 36 inch culverts with high and moderate burn severity above them. The first culvert on FR 508 is prior to reaching the Arizona Bible School. If the road was to be lost at this site people could potentially be stranded at the Bible School. The second and third culverts also poses the same risk of strading people with no way out.

Forest Roads 4554 and 4559 pose risk to public safety in high and moderate burn severity areas due to bad road conditions and hazard trees.

Risk to public safety also exists on Forest trails within the burned area from flood flows, hazard trees, and rolling rocks.

Risk to Property:

Potential hazard to the Swift Trail highway, the only access road to the MGIO, electronic sites, summer homes and recreational facilities by increased channel flow potentially blocking culverts in some areas. In particular a section of the Swift Trail highway is potentially at risk of failure due to sedimentation or debris flows.

Forest roads 803, 88, 89, and 507 are at risk of damage in areas of high and moderate burn severity if culverts are not cleaned and additional drainage features are not added.

The Swift Trail highway is also a heavily-used road and is an important access route. Early-alert of potential hazards on the road is essential.

Potential ash and sediment delivery to the Frye Reservoir a permitted special use resevoir located on FS lands, Pima well heads, diversions, and numerous valley structures by increased channel flow and debris from burned watersheds.

Risk to Natural and Cultural Resources:

Soils

There is a high risk of increased levels of soil erosion and sediment delivery predicted to result as an effect of the burn severity within the Frye Fire burned area. Modeling shows that erosion will increase from pre-fire levels just over 0 tons per acre to post fire levels of over 56 tons per acre. The initiation of new surface erosion sources from moderately steep and steep slopes pose an extreme threat to long-term soil productivity, increased risk of water quality impacts, and threats to downstream resources, property and life from bulking of flood flows.

Hydrologic Function

Hydrologic function will be greatly reduced due to loss of vegetative overstory, vegetative ground cover, and the duff layer. The loss of these layers in the ecosystem has profound negative effects to hydrologic function. In a functioning watershed these layers intercept and slow raindrop impact, absorb and slow overland flow, and provide a natural resistance to excessive erosion. Recovery of watershed condition and hydrologic function can take many years to stabilize.

Water Quality

Water quality will be greatly degraded due to post fire ash and sediment deposition in several of the 6th code watersheds affected by the burn.

Threatened and Endangered Species

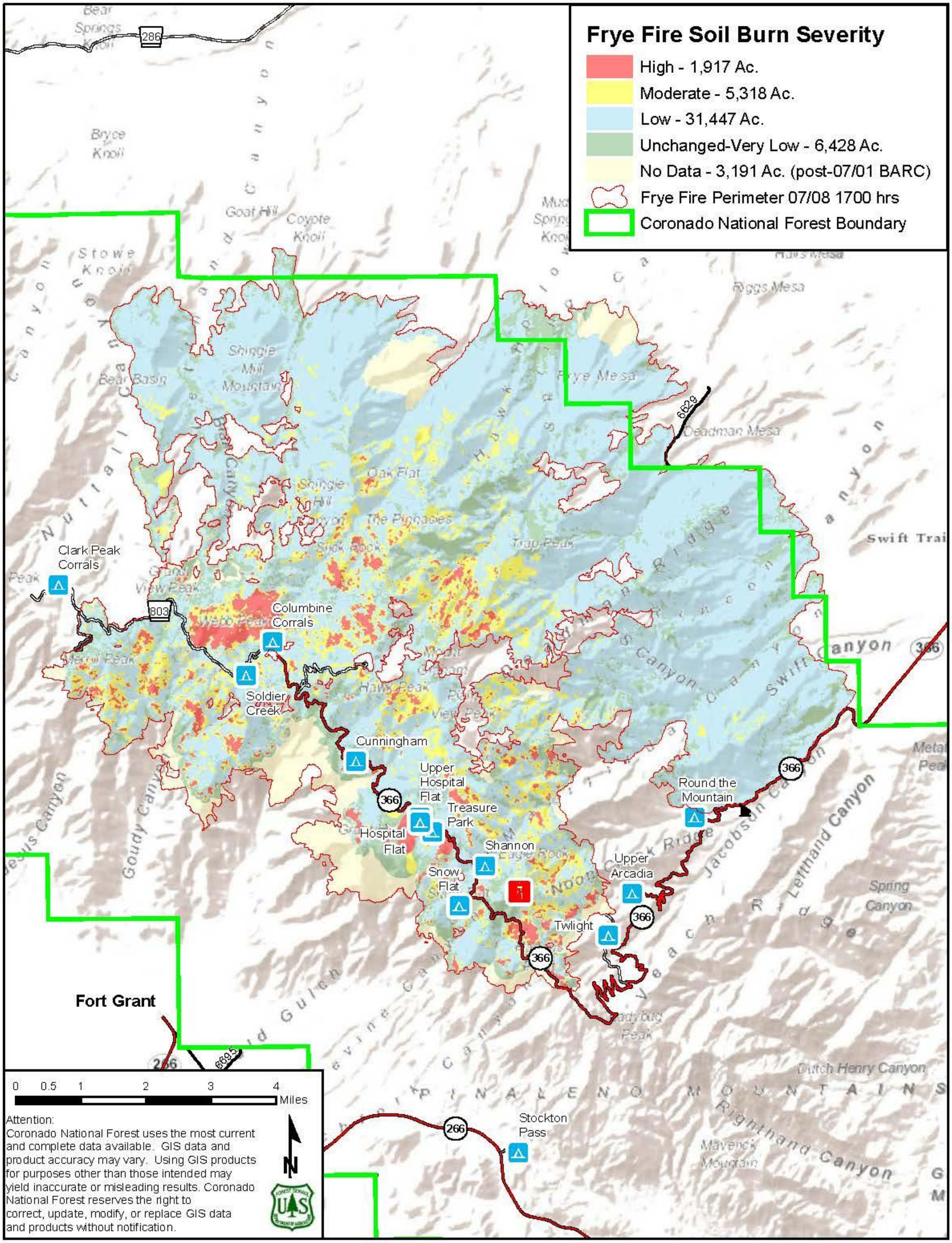
The main concern is for habitat for the Mount Graham red squirrel (MGRS) and Gila trout that exists within the Frye fire perimeter. There is a potential to have continued loss of habitat for these species as a result of post fire ash flow in Ash and Frye Creeks as well as a loss of high elevation spruce-fir habitat for the MGRS from beetle infestation.

Frye and Ash Creeks harbor the only locations of Gila trout on the Safford Ranger District and the Coronado National Forest. The concern is that post fire monsoon rain events will flush ash and sediment into these occupied creeks from areas with high burn severity in the upper watersheds. The result is likely to be direct and indirect mortality as fish by suffocation, change in water quality, loss of pools habitat from sediment deposition.

Habitat for the MGRS was significantly reduced from the 2004 Nuttall Fire that removed 867 acres from the 1,920 of designated critical habitat for the species. The Frye Fire further reduced the amount of habitat by 463 acres resulting in only about 590 acres of habitat remaining after both fires. There is a high probability for a post fire response from bark beetle, especially Douglas-fir beetles that could result in degrading the remaining habitat and reducing survivorship of MGRS.

Cultural Resources

There are numerous cultural and sacred Native American sites within the burned area. The historic site associated with the Webb Peak lookout tower is of concern due to the high severity fire associated with Webb Peak.


Frye Fire Soil Burn Severity
High - 1,917 Ac.
Moderate - 5,318 Ac.
Low - 31,447 Ac.
Unchanged-Very Low - 6,428 Ac.
No Data - 3,191 Ac. (post-07/01 BARC)
Frye Fire Perimeter 07/08 1700 hrs
Coronado National Forest Boundary
Clark Peak Corrals
Columbine Corrals
Soldier Creek
Cunningham
Upper Hospital Flat
Hospital Flat
Treasure Park
Shannon
Snow Flat
Upper Arcadia
Twlight
Round the Mountain
Stockton Pass
Fort Grant
Shingle Mill Mountain
Oak Flat
The Pinnacles
Trap Peak
Frye Mesa
Deadman Mesa
Riggs Mesa
Webb Peak
Merrill Peak
Hawk Peak
Bear Basin
Goat Hill
Coyote Knoll
Bryce Knoll
Stowe Knoll
Swift Trail
Goudy Canyon
Jacobson Canyon
Lefthand Canyon
Righthand Canyon
Spring Canyon
Dutch Henry Canyon
Maverick Mountain
PINALENO MOUNTAINS
286
803
366
266
6629
6695
0 0.5 1 2 3 4 Miles
Attention:
Coronado National Forest uses the most current and complete data available. GIS data and product accuracy may vary. Using GIS products for purposes other than those intended may yield inaccurate or misleading results. Coronado National Forest reserves the right to correct, update, modify, or replace GIS data and products without notification.

Critical Values Identified
Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assessment are: Human life and safety, property, natural resources and cultural/heritage resources. The BAER team evaluated the risk to those critical values using the BAER Risk Assessment (FSM 23235.1 Exhibit 02).

The following risk matrix shown below, Exhibit 2 of Interim Directive No.: **2500-2017-1**, was used to evaluate the Risk Level for each value at risk identified during Assessment:

BAER Risk Assessment

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**

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The Very High and High Risk are unacceptable risk levels due to threats to human life, property, infrastructure and resources, therefore treatments should be applied. An Intermediate Risk could be unacceptable if human life or safety is the critical value at risk.

A full list of values at risk that were analyzed and assigned ratings during the assessment can be found in Appendix A.

B. Emergency Treatment Objectives:

Human Life and Safety: Protection:
Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on roads and trails, mitigate post fire affects at forest road stream crossings, and communicate hazard of flooding, debris flows, and rock fall. Communicate to cooperating agencies and community groups. Consider temporary closures to protect public users of NFS lands and recreation facilities.

Hazard Warning signs will be posted on the Swift Trail highway warning the public they are entering a burned area and the hazards they may encounter. Additionally signs will also be posted at trailheads throughout the burned area. Existing gates will be shut and locked on FR 88 going to Webb Peak, FR 508 past the Arizona Bible School. Gates will be installed at 3 locations on FR 4554 and 4559 that are located in high and moderate burn severity and have poor road conditions and hazard trees, to exclude public access into these areas.

Property/Infastructure:
Protect or minimize damage to NFS investments in roads by installing drainage features capable of withstanding potential increased overland ash and debris flows. Minimize damage to key NFS travel routes.

Forest roads 803, 88, 89, and 507 are at risk of damage in areas of high and moderate burn severity if culverts are not cleaned and additional drainage features are not added. Prepare these roads with additional drainage to prevent road failure due to excessive flows and sedimentation from post fire rain events. Clean culverts, lead out ditches and add additional drainage features such as rolling dips to minumize post fire effects to the roads. Treatments are intended to prevent road failure. The objective of cleaning culverts and installing rolling dips is to keep water from concentrating and washing this infrastructure out. On FR 508, 3 culverts that intersect tibutaries of Ash Creek will have inlets and outlets cleared of brush and floatable material will be removed from the drainage above the culverts so that culverts are not plugged during high flow events resulting in potetial

loss of the road. Storm Patrol will be implemented, and clearing of post-fire sediment and debris from culverts will maintain this infrastructure.

Natural and Cultural Resources:
Mitigate potential post-fire impacts to critical natural and cultural resources within the burned area. Seed with certified weed free seed, approximately 1,090 acres of high burn severity. This is to provide for relatively quick establishment of vegetative ground cover to assist the burned area in maintaining soil productivity. This treatment will also assist in reducing the amount of erosion and loss of control of water that the burned area will experience. This treatment should reduce the negative impacts to the Forest Service road system, T&E Gila trout populations found in Ash Creek, water quality and assist in stabilizing the historic cultural site associated with Webb Peak. This treatment has an additional benefit of assisting to stabilize soils above the Swift Trail highway.

Treat invasive plants that are a threat to naturalized ecosystems by minimizing the expansion of existing populations in the burned area and control of expected invasion of noxious weeds within and adjacent to the area where soils and vegetation was disturbed as a result of fire suppression activities.

Use anti-aggregation pheromone treatment in unburned habitat for the endemic and endangered Mount Graham Red Squirrel. The objective is to reduce the additional loss of high elevation Douglas fir and spruce fir that comprises habitat for MGRS. MCH pheromone has been used on the Safford District in the past with good success. This technique was also used after the Wallow Fire to protect trees around recreation sites from beetle kill.

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

Land **70** % Channel **80** % Roads/Trails **80** % Protection/Safety **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	80	90
Channel	80	90	90
Roads/Trails	60	70	70
Protection/Safety	90	95	95

E. Cost of No-Action (Including Loss): $5,489,200

F. Cost of Selected Alternative (Including Loss): $1,321,300
$2,001,370

G. Skills Represented on Burned-Area Survey Team:

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

[ ] Fisheries [ ] Research [ ] Landscape Arch [x] GIS

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BAER Team Members

Salek Shafiqullah (BAER Coordination)
Will Amy (Wildlife)
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Maureen Yonovitz (Soils)
Sarah Brame (Soils Trainee)
Brian Park (GIS)
Bill Barfuss (Archy)
Katie VinZant (Botany)
Tom Runyon (Hydrology)
Jorge Guevara (Hydrology Trainee)
Garret Port (Hydrology Trainee)
John Reis (Hydrology)
Paul Barfus (Archy)
Dave Watson (Soils)

H. **Treatment Narrative:**

Land Treatments: *Aerial Seed approximaetly ~~1,090~~ 1,023 acres of high severity burn in the Spruce fir and mixed conifer vegetation types with non-persistent annual barley and a small percentage of native grass species. Funded in initial request.*

In the initial funding request, one of the proposed treatment blocks was within a Wilderness Study Area. This block was removed from the seeding plan and therefore the treatment acres was reduced.

This treatment is proposed to provide relatively quick establisment of vegetatative cover in areas of high burn severity. The objective of this treatment is to reduce soil erosion rates and aid in slope stabilization. This treatment is expected to reduce hillside erosion and sediment delivery by an appreciable amount and assist in stabilizing burned slopes. Re-establishment of vegetation over the longer term will assist in site stabilization, assisting in maintenance of long-term site productivity. The certified weed free seed mix would be comprised of a quick growing annual non persistent cereal barley. ~~and a small percent of high elevation native seeds to give the burned areas a jump start in recovery.~~ From many years of personal experience in the Southwest Region high elevation seeding with annual barley has been proven to be a successful treatment in site stabilization.

Certified Weed Free Seed Mix

Species	Seeds/ft2 Contribution from Planting Rate
Barley (*Hordeum vulgare*)	16
~~Prairie Junegrass (*Koeleria macrantha*)~~	~~1~~
~~Muttongrass (*Poa fedleriana*)~~	~~3~~
Total	~~20~~ 16

Native seed grasses were removed from the seeding plan since a local source was not available. Introducing imported native seeds from another county or state could change the local genetics.

Noxious Weed Inventory and Monitoring: Not funded in initial request. Additional funding is now requested to address this important work.

Early weed detection is proposed to assess ground disturbing activities related to the Frye Fire Incident for new or expansion of noxious weed infestations. Expansion of weeds can be anticipated considering the amount of suppression disturbance in and around the fire (e.g. 9 miles of dozerline, 22.3 miles of road, 8.5 miles of

handline). Weed monitoring will begin in 2017 during the flowering periods of weed species should be accomplished by early fall of 2018. For species that establish with winter rains, weed detection would occur during the late spring and early summer of 2018. Completion of surveys in dozerlines, roads, staging areas, and safety zones would be the first priority.

Note: 9 miles of Dozer lines were completed on the fire and these areas will only be evaluated during the spring/summer 2018 monitoring as fire suppression funding is planning to be utilized during the fall 2017 monitoring season.

Completion of surveys along roads, dozerlines, riparian areas, staging areas, safety zones, known invasive plant populations and BAER hillslope treatment areas will be the first priority. The second survey priorities will be along hand lines, and drop points. Surveys of trails and general habitats in the burned area will be the lowest priority. All locations of weed species will be mapped, using the Coronado NF, "Invasive Weeds" list.

Surveying will include documentation, mapping and hand pulling/herbiciding small, localized weed occurrences at the time of inspection. New weed occurrences will be pulled to root depth, placed in sealed plastic bags, and properly disposed or sprayed with appropriate and approved herbicides. See Appendix B for details of this monitoring plan.

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST
2017	GS-12 Invasive Spp Coordinator	$400/Day	3	$1,200
	GS-11 Range Staff/COR	$330/Day	4	$1,320
	Summer 2017 IDIQ Rate Road Survey	$100/Mile	23	$2,300
	Summer 2017 IDIQ Rate Dozerline, Handline and Riparian Survey	$350/Mile	~~29~~ 20	~~$10,150~~ $7,000
	Summer 2017 IDIQ Rate by Acre Basis	$200/Acre	3	$600
2018	Spring 2018 IDIQ Rate Road Survey	$125/Mile	23	$2,875
	Spring 2018 IDIQ Rate Dozerline, Handline and Riparian Survey	$375/Mile	29	$10,875
	Spring 2018 IDIQ Rate by Acre Basis	$225/Acre	4	$900
TOTAL				~~$30,220~~ $27,070

Implementation days: Initial funding request was designed for AD support for contracting, logistics and Public Information. That work has been sucessfull.

Interim 1 funding request continues this support and transitions implementation management to local resources. With interim 1, the magnitude of the implementation tasks are now better understood and therefore, reflect the funding needed to sucessfully implement many of the elements in the Frye Fire 2500-8.

Anti-aggredation Pheromone: New Request:
Use anti-aggregation pheromone treatments in unburned habitat for the Endangered and endemic Mount Graham Red Squirrel (MGRS). The objective is to reduce the additional loss of high elevation Douglas fir and spruce fir that comprises habitat for MGRS. Natural Resouce risk from the wildfire is high.

Prefire population estimate is 252 total for this entire sub species. Primary habitat is mature, old-growth spruce-fir (Engelmann spruce and corkbark fir forest). Primary food items are seeds from spruce and fir

cones. Found only on Mt. Graham, the MGRS has had potentially over $10 Million dollars spent on trying to keep it from becoming extinct. Many partners are involved including US Fish and Wildlife Service, Rocky Mountain Reserch, AZ Game and Fish, Univerisity of Arizona, AZ Department of Transportation, Mount Graham International Observatory, and the Phoenix Zoo.

Habitat for the MGRS was significantly reduced from the 2004 Nuttall Fire that removed 867 acres from the 1,920 of designated critical habitat for the species. The Frye Fire further reduced the amount of habitat by 463 acres resulting in only about 590 acres of habitat remaining after both fires. Trees stressed from the Frye Fire may not be able to defend against a bug attack. There is a high probability for a post fire response from bark beetle, especially Douglas-fir beetles that could result in degrading the remaining habitat and reducing survivorship of MGRS.

A treatment to support the old growth spruce Fir is well tested and successful. MCH pheromone has been used on Mt. Graham in the past with good success (2004-2005 post Nuttal Fire). This technique was also used after the Wallow Fire (2011 on the A-S NF in AZ) to protect trees around recreation sites from beetle kill.

This treatment utilizes bubble capsules containing anti-aggregation pheromone to repel beetles from uninfested trees. The application of the spruce-fir beetle's anti-aggregation pheromone, MCH, in areas where beetle densities are low or absent is the proven technique. The anti-aggregation pheromone serves to prevent overcrowding and optimize brood survival. In simple terms, MCH acts as a "no vacancy" signal to beetles, causing them to avoid that tree or log. The emergency stabilization proposal is to treat 300 acres. Request is for time and materials for the pheromone treatment.

Background information: the USFWS' recovery plan.
https://www.fws.gov/southwest/es/arizona/Documents/RecoveryPlans/MtGrahamRedSquirrel.pdf

Fire effects to MGRS:
https://uaconservationresearch.wordpress.com/2017/06/18/what-do-we-know-about-fire-and-mt-graham-red-squirrels/

Channel Treatments: *Culvert cleaning, inlet/outlet brushing and woody debris removal above road culverts that have high severity burn above them.*

Culvert cleaning, brushing culvert inlets/outlets and removal of floatable debris will increase the likelihood that post-fire peak flows are able to pass through culverts and minumize the risk of infrastructure damage due to culvert blockage by flaotable debris and sediment within channels draining high burn severity.

Culvert cleaning was funded in the initial request (2 days). That work is complete. Additional funding is now requested to continue this work (8 additional days). Prison crews were utilized with the initial funding and the production was excellent. These crews used chain saws to cut out floatable woody debris out of the channels upstream of road crossings. Additional floatable woody debris is plugging channels and causing flow restrictions and diversions. This plugging has caused and continues to cause mini dam breach flooding scenarios. The interim 1 proposal is for a minimum of 8 channels to be cleared with chainsaws. Note: Culvert cleaning was not a part of this treatment as that is covered under the Roads Treatments section.

Roads Treatments: *Clean culverts, prep road ditches and add additional drainage features in the form rolling dips to Forest roads that are adjacent or downslope of high severity burn areas.*

There are several historic structures within the Frye Fire perimeter and the associated roads and their drainage structures (e.g. culverts). Many of these were constructed with intricate stone work constructed by the Civilian Conservation Corps (CCC) during the 1930's and are important cultural features to protect. Areas that have these types of structures include Webb and Heliograph Peak, Columbine Work center, and several campgrounds on the District. These historic structures cannot be cleared with heavy equipment without risk of damage and loss to historic significance. Therefore, cleaning and clearing around these structures will need to be done by hand.

Culvert cleaning was funded in the initial (2 days). That work is complete. Additional funding is now requested to continue work already in progresss (8 additional days). Similar to the Channel Clearing, prison crews were utilized and production was excellent. However, these crews are digging crews, not chainsaw crews. They used shovels and picks to clean out the culverts and get them functioning. Additional culverts are in need of cleaning.

Storm Patrol was funded in the initial. That work has resulted in emergency stabilization of numerous road crossings. Additional funding is now being requested to continue this important work. One of the numerous tasks is supporting the culverts which are not part of the CCC hand cleaning as well as removal of rocks and debris, stablizing eroded roads, trash rack installation and maintenance, and removal of the CCC structure at Wet Canyon.

Storm Patrol continued: A CCC structure at Wet Canyon is immediately upstream of an ADOT bridge. The ADOT bridge is elevated and has room for storm flows to pass under it. However, the CCC structure does not, therefore, is causing a high risk to the ADOT bridge during flooding events by overtopping and causing erosion and damage of the ADOT bridge foundation and gurad rails. A recent storm event has caused significant risk to the ADOT bridge. Now, removal of the CCC structure is an emergency treatment needed to stablize the ADOT bridge. Removal has support from ADOT, USFS historic specialists, and State regulatory Agencies as evidenced by the different agencies or specialists concurring to the removal. Storm Patrol equipment funding is proposed to support removal of the CCC structure and thereby minimizing risk to the ADOT bridge.

Trash Racks are proposed for the inlets of select non CCC culverts. Metal cattle guards are proposed to be installed as trash racks. This treatment can reduce the risk of catastrophic culvert failure in areas downstream of large burned watersheds or small contributing areas with high burn severity. Storm Patrol is proposed to support the maintenance of the trash racks while the patrol function is ongoing on the mountain.

Protection/Safety Treatments*: Hazard warning sign along State Highway 366 (Swift Trailand another one in the Ladybug Saddle area entering the burned area on the top of the mountain. ~~Implement Storm Patrol on sections of Forest roads identified as high risk.~~ Post Hazard warning signs at trailheads throughout the burned area.*

Storm Patrol was deleted out of Protection/Safety Treatments and moved to Road Treatments.

Areas proposed for implementation along some roads still pose a risk from hazard trees. These trees will need to be removed to mitigate this risk and provide for worker safety. The extent of this treatment is relatively small as many hazard trees were cleared by fire crews on the incident. However, some still remain.

Hazard Tree Removal was funded in the initial (1 Day). That work is complete. Additional funding is now requested to continue that work (5 additional days). Force Account is proposed

I. **Monitoring Narrative:**

Aerial Seeding for Land Treatment: Level 1 Effectiveness Survey. Plan is proposed under separate cover. Funding for this is requested in Interim 1.

Pace transects, photos and ocular estimation is proposed to evaluate if seeding did germinate and produce vegetative ground cover.

~~Funding for weed detection to determine whether seeding of 1,090 acres have resulted in the introduction of invasive weeds. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. The spring season costs are slightly higher due to the greater potential for invasive plant germination. The Coronado Forest BAER Coordinator will submit a detailed monitoring plan to the Southwestern Regional Office outlining objectives and methodologies.~~

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST
2017	GS-12 Invasive Spp Coordinator	$400/Day	3	$1200
	GS-11 Range Staff/COR	$330/Day	3	$990
	Summer 2017 IDIQ Rate by Acre Basis	$200/Acre	25	$5,000
2018	Spring 2018 IDIQ Rate by Acre Basis	$240/Acre	25	$6,000
TOTAL				**$13,200**

Part VI – Emergency Stabilization Treatments and Source of Funds Interim # 1

** (TASKS COMPLETED)			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										
**Aerial Seeding	acres	120	1090	$130,800	$0		$0		$0	$130,800
~~Nox Weed Detection~~	~~acres~~	~~530~~	~~57~~	~~$0~~	$0		$0		$0	$0
**Implementation Team	days	1642	14	$22,988	$0		$0		$0	$22,988
Implementation Team	days	2000	30	$60,000	$0		$0		$0	$60,000
Nox Weed Detection	Lump	27070	1	$27,070	$0		$0		$0	$27,070
Pheromone	acres	400	300	$120,000	$0		$0		$0	$120,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$360,858	$0		$0		$0	$360,858
B. Channel Treatments										
**Channel Clearing	miles	8000	2	$16,000	$0		$0		$0	$16,000
Channel Clearing	days	8000	8	$64,000	$0		$0		$0	$64,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$80,000	$0		$0		$0	$80,000
C. Road and Trails										
Rolling Dips	each	800	80	$64,000	$0		$0		$0	$64,000
**Culvert prep/cleaning	days	8000	2	$16,000	$0		$0		$0	$16,000
Culvert prep/cleaning	days	8000	8	$64,000	$0		$0		$0	$64,000
Trash Racks	each	2500	10	$25,000	$0		$0		$0	$25,000
Storm Patrol/Resonse	days	10000	30	$262,293	$0		$0		$0	$262,293
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$431,293	$0		$0		$0	$431,293
D. Protection/Safety										
**Gates	per	3000	3	$9,000	$0		$0		$0	$9,000
**road hazard warn sig	each	250	12	$3,000	$0		$0		$0	$3,000
**trail hazard warning s	each	147	34	$4,998	$0		$0		$0	$4,998
**Hazard Tree removal	days	3000	1	$3,000	$0		$0		$0	$3,000
**Storm Patrol/Resons	days	2450	10	$24,500	$0		$0		$0	$24,500
Hazard Tree removal a	days	3000	5	$15,000	$0		$0	0	$0	$15,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$59,498	$0		$0		$0	$59,498
E. BAER Evaluation										
estimated cost	each	99,000	1	---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
seed treatment weeds	acres	12	1100	$0	$0		$0		$0	$0
Aerial Seed Effectivene	Lump	1	5000	$5,000	$0		$0		$0	$5,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$5,000	$0		$0		$0	$5,000
** (TASKS COMPLETED)										
G. Totals				$936,649	$0		**$0**		**$0**	**$936,649**
Previously approved				$294,286						
Total for this request				**$642,363**						

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date

APPENDIX A – Frye Fire BAER Critical Values Tracking T

Value Category	Value-at-Risk (VAR)	Description of Threat	Specific Location	BAER Critical Value (Y/N)	Probability	Magn
Health Life Safety	National Forest Visitors & Agency Personnel	Concern of post fire conditions threat to human life and safety.	Riggs Lake CG & Rec. Site	Y	Unlikely	Ma
			Soldier Creek	Y	Unlikely	Ma
			Webb Peak Lookout and trailhead.	Y	Possible	Ma
			Columbine Corral DG	Y	Unlikely	Ma
			Columbine Work Center	Y	Unlikely	Ma
			Old Columbine (SUP Leases)	Y	Unlikely	Ma
			Arizona Bible School (SUP)	Y	Unlikely	Ma
			Fort Grant Vista Point	Y	Unlikely	Ma
			Mount Graham International Observatory	Y	Unlikely	Ma
			Cunningham CG	Y	Possible	Ma
			Grant Hill Loop trailhead	Y	Possible	Ma
			Upper Hospital Flat	Y	Unlikely	Ma
			Hospital Flat	Y	Unlikely	Ma
			Treasure Park CG	Y	Likely	Ma

Value Category	**Value-at-Risk** (VAR)	**Description of Threat**	**Specific Location**	**BAER Critical Value** (Y/N)	**Probability**	**Magn**
Health Life Safety	National Forest Visitors & Agency Personnel	Threats to human life and safety from hazard trees and post fire flooding.	All trails within the Frye Burn area.	Y	Possible	Major
Health Life Safety Property	Safford Municipal Water	Threats to public water supply and water systems administered under a Special Use Permit with the City of Safford located on NFS lands that supply water to adjacent land owners from flooding, sedimentation, and debris flows.	Frye Reservoir	Y	Very Likely	Major
Property	Communities	Concern of post fire conditions threat to human life and safety.	Pima Community	Y	Possible	Mode
Property	Forest Roads & Bridges	Threats to Forest roads from flooding and debris flows. Undersized culverts are likely to plug and severely damage road infrastructure with loss of NFS investment. [List potential routes needing field/site visits & analysis validation]	FR 88	Y	Very Likely	Mode
			NFSR 803, approx. 1/3 mile near Peters Flat	Y	Likely	Mode
			FR 508 goes to the Arizona Bible School. At the road crossing on a tributary of Ash Creek.	Y	Likely	Mode
			FR 508 past Bible School to the 302 trail head	Y	Likely	Mode
			FR 4554 and FR 4559 off of FR 89 in Treasure Park	Y	Likely	Ma
			FR 89 into Treasure Park	Y	Likely	Mode
			FR 507	Y	Likely	Mode

Value Category	**Value-at-Risk** (VAR)	**Description of Threat**	**Specific Location**	**BAER Critical Value** (Y/N)	**Probability**	**Magn**
Property	Cluff Property Reservoirs	Threats from post fire effects.	Cluff and Evans Ponds	Y	Unlikely	Mir
Natural Resource	Soil Productivity	Threat of an increase of soil erosion and loss of forest soil productivity.	All areas within the fire perimeter with high soil burn severity.	Y	Very Likely	Ma
Natural Resource	Threatened and Endangered Species	Post fire loss of habitat for the Mount Graham Red Squirrel from increased insect infestation in surrounding unburned high elevation forest.	Across Webb Peak, Mount Graham, and Heliograph Peak	Y	Likely	Ma
		Loss of Habitat for the Mexican Spotted Owl	Upper elevations of the fire throughout the Pinaleno Mountain Range	Y	Possible	Mir
		Reduction of water quality from ash flow for Gila Trout likely to result in fish mortality.	Ash Creek, about 5.4 miles	Y	Very Likely	Mode
			Frye Creek,	Y	Likely	Mode
		Reduction of water quality from ash flow for Apache Trout likely to result in fish mortality.	Grant Creek	Y	Likely	Mode

APPENDIX B

Noxious Weed Early Detection and Rapid Response and BAER Hillslope Treatment Weed Monitoring Plan

Fire Name: Frye Fire
Month and Year: July, 2017
Prepared by: Katie VinZant, Coronado NF
Revised by: William Amy, Santa Fe NF

Background

Forest Service policy mandates the Forest to minimize the establishment of non-native invasive species to prevent short and long-term degradation of burned areas. The combination of denuded soil and disturbance creates conditions highly favorable to invasion by weeds. Invasive weeds hinder the recovery of habitat, especially in arid and riparian ecosystems, by aggressive colonization. Non-native invasive weeds degrade the value of native plant communities for wildlife habitat and watershed function. Once established, non-native species can persist and spread, permanently altering habitat function and ecosystem stability.

Many non-native plants are found in Arizona wildlands, and some are included on the Federal and AZ State Noxious Weed Lists (see Appendix A). Invasive weed detection surveys are proposed for the first year following the Frye Fire to determine the fire's impact within the burned area on the spread of existing weed populations, and the introduction of new weed populations resulting from the fire and from activities associated with fire suppression. However, monitoring for at least one year post-fire is necessary due to the highly variable timing and amounts typical of precipitation in southeast Arizona and the episodic establishment of invasive species.

Management Concerns

Fire fighting vehicles and equipment are common vectors that spread non-native invasive weeds. Although Forest Service policy requires washing of all equipment mobilizing onto wildfires to prevent the introduction of weeds into the burned area during suppression activities, it was not conducted during initial attack on this incident.

Crews and equipment working on the fire were brought in from other areas known to have non-native invasive weed problems. In addition, invasive weeds are known to exist along roadsides and on private property near the fire area and within the area of the Incident Command Post. In part because vehicles and equipment were not washed prior to entering fire area, and because vehicles and equipment originated in areas with serious weed infestations, there is a high likelihood that suppression activities on the Frye Fire have vectored weed seed from one or more locations both local and regional. Invasive weed seeds may have been introduced to roadsides, staging areas, drop points, and hand lines within the fire area.

In addition to suppression activities, invasives could be introduced via BAER hillslope treatments (e.g. seeding, mulching). This can occur due to the difficulty in completely ridding seed or hay stock of invasive seeds that may be intermixed in those materials, even if they are labeled "weed free". "Weed free" seed or hay may also contain non-native plant species that are invasive in wildlands, as that labeling is typically in reference to State listed noxious weed species, which are typically weeds of agricultural settings.

Much of the burned area does not have known invasive weed infestations, although several high priority invasives are known nearby and along routes to the burn. If new infestations are established, the magnitude of the consequences could be significant and long-term as weed invasions interfere with habitat recovery and ecosystem health. In particular, weeds hinder the recovery of burned habitat, especially in arid and riparian ecosystems, by aggressive colonization and reduction of water quality and quantity.

Survey Objectives

The objective of post-fire weed surveys is to determine if the fire, associated ground disturbing activities and BAER hillslope treatments have promoted the establishment and spread of weeds and what eradication efforts

are necessary. Early detection dramatically increases the likelihood of successful treatment.

Survey Locations
In and along dozerlines, roads, handlines, drop points, safety zones, riparian areas, adjacent to known invasive plant populations and BAER hillslope treatment areas.

Proposed Treatment Areas	
Dozerline	9 miles
Handline/Trails	8.5 miles
Roads	22.3 miles
~~Hillslope treatments~~	~~1000 ac.~~

Survey Design and Methodology
Southeast Arizona typically has a bimodal precipitation regime, with approximately 40 percent of rain falling during the winter and the other 60 percent during the summer monsoon. Monitoring for annual and perennial invasive species that establish with summer rains should be accomplished during mid-late summer and early fall of 2017. For species that establish with winter rains, monitoring should occur during the late spring and early summer of 2018. 9 miles of Dozer lines were completed on the fire and these areas will only be evaluated during the spring/summer 2018 monitoring as fire suppression funding is planning to be utilized during the fall 2017 monitoring season.

Completion of surveys along/in roads, dozerlines, riparian areas, staging areas, safety zones, known invasive plant populations and BAER hillslope treatment areas will be the first priority. The second survey priorities will be along hand lines, and drop points. Surveys of trails and general habitats in the burned area will be the lowest priority. All locations of weed species will be mapped, using the Coronado NF, “Invasive Weeds” list.

Surveying will include documentation, mapping and hand pulling/herbiciding small, localized weed occurrences at the time of inspection (funding to treat larger infestations will be requested in a supplemental BAER report). New weed occurrences will be pulled to root depth, placed in sealed plastic bags, and properly disposed or sprayed with appropriate and approved herbicides.

Reporting
Weed survey parameters include survey areas, species, locations, population size, invasive potential (see Appendix B and C).

Documentation of weed infestations will include:
- Record GPS coordinates for both negative and positive inspection results
- Map perimeters of infestations
- Establish photo points
- Complete Weed Monitoring and Treatment Form (Appendix B)
- Complete Weed Occurrence Form (Appendix C)
- Incorporate data into local GIS spatial database
- Enter data into National Resource Information System (NRIS) database
- Enter data into FACTS database
- Monitor and evaluate success of treatment in subsequent years

Costs:
Weed Detection and Rapid Response Surveys for One Year = ~~$30,220~~ $27,070
Funding for weed detection to determine whether the Frye Fire and/or ground disturbing activities related to the fire have resulted in the establishment or expansion of invasive weeds are requested for the first year following

the fire. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. The spring season costs are slightly higher due to the greater potential for invasive plant germination.

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST
2017	GS-12 Invasive Spp Coordinator	$400/Day	3	$1,200
	GS-11 Range Staff/COR	$330/Day	4	$1,320
	Summer 2017 IDIQ Rate Road Survey	$100/Mile	23	$2,300
	Summer 2017 IDIQ Rate Dozerline, Handline and Riparian Survey	$350/Mile	~~29~~ 20	~~$10,150~~ $7,000
	Summer 2017 IDIQ Rate by Acre Basis	$200/Acre	3	$600
2018	Spring 2018 IDIQ Rate Road Survey	$125/Mile	23	$2,875
	Spring 2018 IDIQ Rate Dozerline, Handline and Riparian Survey	$375/Mile	29	$10,875
	Spring 2018 IDIQ Rate by Acre Basis	$225/Acre	4	$900
TOTAL				~~$30,220~~ $27,070

~~**Monitoring of Hillslope Treatments for Weed Detection and Rapid Response = $13,200**~~

~~Funding for weed detection to determine whether roughly 1,090 acres of hillslope treatments (e.g. seeding, mulching) within the Frye Fire have resulted in the new establishment of invasive weeds is requested. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. The spring season costs are slightly higher due to the greater potential for invasive plant germination.~~

~~FISCAL YEAR~~	~~**UNIT**~~	~~UNIT COST~~	~~**# OF UNITS**~~	~~**COST**~~
~~2017~~	~~GS-12 Invasive Spp Coordinator~~	~~$400/Day~~	~~3~~	~~$1200~~
	~~GS-11 Range Staff/COR~~	~~$330/Day~~	~~3~~	~~$990~~
	~~Summer 2017 IDIQ Rate by Acre Basis~~	~~$200/Acre~~	~~25~~	~~$5,000~~
~~2018~~	~~Spring 2018 IDIQ Rate by Acre Basis~~	~~$240/Acre~~	~~25~~	~~$6,000~~
~~**TOTAL**~~				~~**$13,200**~~

Selected Known and Potential Invasive Plants on the Coronado National Forest

Species Common Name	Scientific Name	Lifeform
Cheatgrass	*Bromus tectorum*	Winter/spring annual
Yellow starthistle	*Centaurea solstitialis*	Winter/spring annual
Malta starthistle	*Centaurea melitensis*	Winter/spring annual
Canada thistle	*Cirsium arvense*	Perennial forb
Russian knapweed	*Acroptilon repens*	Perennial forb
Sweet resin bush	*Euryops subcarnosus*	Perennial subshrub
Salt cedar	*Tamarix spp.*	Tree
Bull thistle	*Cirsium vulgare*	Biennial forb
Sahara mustard	*Brassica tournefortii*	Winter/spring annual
Tree of Heaven	*Ailanthus altissima*	Tree
Pentzia	*Pentzia incana*	Perennial subshrub
Buffelgrass	*Pennisetum ciliaris*	Perennial grass
Fountain grass	*Pennisetum setaceum*	Perennial grass
Giant reed	*Arundo donax*	Perennial grass
Johnsongrass	*Sorghum halepense*	Perennial grass
Lehmann lovegrass	*Eragrostis lehmanniana*	Perennial grass
African sumac	*Rhus lancea*	Tree

CNF Weed Monitoring and Treatment Form

Project: _____ Date: ___/___/___
NEPA Document Title: _____
Signed by: _____ Date Signed: ___/___/___
Surveyor's Name(s): _____
Number of hours spent per person: _____
FS Job Code(s) Used: _____
Site Name/General Location: _____
UTMs: N_____ E_____
Target Weed Species: _____
Monitoring
SUID/Date of Last Treatment: _____
Treatment Effectiveness (check the appropriate category)

- □ 1-5% - FAILURE, little to no effect on target species
- □ 6-25% - POOR, Treatment killed < ¼ of target species
- □ 26-50% - MARGINAL, < ½ of target species controlled
- □ 51-75% - FAIR, > ½ controlled
- □ 75-90% - GOOD, treatment successful at killing most of target sp.
- □ 91-99% - EXCELLENT, nearly all of target sp. killed by treatment
- □ 100% - COMPLETE CONTROL, no individuals observed

Distribution of Population:
Isolated Scattered Patchy Linear Continuous Other
Treatment
Unique Polygon Code: _____
Name of Shapefile: _____
 # Plants Removed: _____
Acres Treated (min. 0.1 acre): _____
Method of Treatment: Hand Pull Herbicide Other: _____
Biomass Removed from Site?: Yes No
Certified Herbicide Applicator Name: _____
Herbicide Application Method: Cut/Daub Other: _____
Herbicide Type (i.e. Rodeo, Garlon):_____
Herbicide Label Rate (% in original form): _____
Volume of Herbicide Concentrate Used: _____
Additive Type: _____ Surfactant Type: _____
Concentration of Surfactant: _____
Volume of Additive: _____ Volume of Surfactant: _____
Mix Ratio: _____% Herbicide _____% Additive ____% Surfactant
Notes (continue on back if needed):

USDA Forest Service
Weed Occurrence Form
Region_3_ Forest: Coronado District: Nogales

Species**:**_____ Date**:** _____**ID confidence**___**%** **ID Auth:**_

Project	Current land use:
Surveyor	Current/potential threats:
Directions to site:	Other biota: None
	Existing EO? Yes No #_____.
	Entire extent of pop mapped? Y N
	Photographer
Site descrip:	Repository
	Vouch spec # Repository
	Look-alike species: None
	Research needs
(circle) **Point Polygon Line**	
GPS Unit: XT GeoEx3 Ipaq1 Ipaq2 Mag # __ Thales Other	Conserv/Mngt concerns
GPS Staff ID:	# _____ **individuals, genets** est, precise
Unique ID #: #____pts/poly4EO	Vigor? vfeeble feeble normal vigor exvirg N/A Method:
Northing: Easting:	(circle) Disease Predation Herbivory None Explain
Elevation (feet):	
Quad name:	Distribution/Density: prominent common scattered patchy rare
T-R-S: T R S ¼ of ¼ of	**Gross (Total) area:** est, precise **Infested** (Weed cover only) **area** :
Slope Min. _____% Max _____%	**Cover: Sp**._____% Grd_____%
Aspect (°):	
Substrate:	**Phenology** method: est, count
Soil text: sand, loam, silt, clay, other	% seedlings % leaf % bud
Moisture regime: mesic xeric hydric	% flwr %immat frt % mature frt
Soil moisture: dry moist saturated inundated seasonal seepage other	% dispersing seed % senescent
	Treated before: Y N
Horz dist. to H2O vert.	**Method of treatment:**
Light expos: full sun part shade full shade	Fr suc: Exlt Gd Marg Pr Unkn Fair None
Veg series:	Germ suc: Exlt Gd Marg Pr Unkn Fair None
Ass. tree/shrubs:	Repro: Exlt Gd Marg Pr Unkn Fair None
Canopy: _____% Shrub: _____% Forb: _____%	Dispersal: Exlt Gd Marg Pr Unkn Fair None
Assoc plants (include other non-natives):	Estab: Exlt Gd Marg Pr Unkn Fair None
	Veg suc: Exlt Gd Marg Pr Unkn Fair None
	Fl suc: Exlt Gd Marg Pr Unkn Fair None
	General observations
Disturbance:	Condition: Exlt Gd Marg Pr Unkn Fair None
	Quality: Exlt Gd Marg Pr Unkn Fair None
	Defense: Exlt Gd Marg Pr Unkn Fair None
	Rank: Exlt Gd Marg Pr Unkn Fair None
	Viability: Exlt Gd Marg Pr Unkn Fair None