

Date of Report: 10/6/2022**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: NPC 2022 Fires**

The Bitterroot National Forest experienced numerous lightening caused fires during August thunderstorm events within the Selway-Bitterroot and Frank Church-River of No Return Wilderness areas. Four of these fires impacted the Magruder Corridor Fires and were appropriately sized to consider BAER assessment. These fires varied in acreage from 560 to 8953.

B. Fire Number:

Indian Ridge: MTBRF-022131
Cayuse: MT-BRF-22275
Cayuse Mountain: ID-NCF-000554
Twist: MT-BRF-22237

C. State: MT**D. County: Ravalli****E. Region: 1****F. Forest: Bitterroot****G. District: West Fork****H. Fire Incident Job Code: P1P1YP22****I. Date Fire Started: July 8, 2022****J. Date Fire Contained: 11/03/2022****K. Suppression Cost: \$187,000****L. Fire Suppression Damages Repaired with Suppression Funds (estimates): \$190,000**

1. Fireline repaired (miles): 0
2. Other (identify): 0

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170603010403	Magruder Creek-Selway Creek	22804	1910	8%
170603010402	Indian Creek	32016	15763	49%
170603010502	Sheep Creek	15458	150	1%
170603010703	Crooked Creek-Selway	27270	230	0.8%
170603010503	Eagle Creek	16127	216	1%
170603010402	Deep Creek	36317	18120	50%
170602070401	Hamilton	107708	1809	0.4%
170603010201	Upper Little Clearwater	98376	756	0.2%
170602070402	Upper Sabe	158919	491	0.01%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	39,445
OTHER FEDERAL (LIST AGENCY AND ACRES)	0
STATE	0
PRIVATE	
TOTAL	39,445

O. Vegetation Types:

The Bitterroot National Forest Magruder Corridor Fires assessment includes evaluation of 4 fire areas spanning a 217 square mile area with variability in vegetation and soil types. The Magruder Fires are predominately in Wilderness Areas and lack the detailed vegetation and habitat mapping completed for National Forests in Region 1. The riparian areas along the Selway River trend toward moist habitats with Western Red Cedar (*Thuja plicata*), the lower to mid elevations tend to be mixed conifer forests dominated by Grand Fir, Douglas Fir habitat types to Lodgepole Pine and Subalpine habitats at higher elevations with the drier south facing aspects having more prevalent Ponderosa Pine habitats with grass understories.

P. Dominant Soils:

The burned areas evaluated for further treatment include a variety of stream breaklands (dissected and undissected), avalanche chutes, and glaciated topography. Soils are most commonly classified as Typic Haploxerepts and Vitrandic Haploxerepts with varying ash depths or presence depending on local topography. Slopes in these soil textures are generally gravelly loam with shallow surface rock, colluvium, and numerous rock outcrops. Soils have high potential for sheet, rill, and gully erosion features from loose, granitic parent material.

Q. Geologic Types:

The underlying geology of the Magruder Fires is granite primarily of plutonic rock with other different aged granitic plutonic intrusions in places.

R. Miles of Stream Channels by Order or Class:**Table 3: Miles of Stream Channels by Fire**

Stream Type	Indian Ridge	Cayuse	Cayuse Mtn	Twist
Perennial	22.0	2.2	9.44	0.14
Intermittent	8	0.9	4.8	0
Ephemeral				

S. Transportation System:

Trails: *National Forest (miles):* 22.9 *Other (miles):* 0

Fire Name					
	Indian Ridge	Cayuse	Cayuse Mtn	Twist	Total
Trail Miles	11	0	10.6	1.6	23.2

Roads: *National Forest (miles):* 8.7 *Other (miles):* 0

Fire Name					
	Indian Ridge	Cayuse	Cayuse Mtn	Twist	Total
NATIONAL FOREST SYSTEM ROAD (miles)	0.3	0.1	6.4	1.9	8.7

PART III - WATERSHED CONDITION**A. Burn Severity (acres):**

Maps and soil burn severity acreages for each fire are available in 2500-8 Appendix A. The numbers in table 4 are summed across all 4 fires.

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total
Unburned	5425				5425
Low	7580				7580
Moderate	6562				6562
High	1971				1971
Total	21537				21537

B. Water-Repellent Soil (acres): 1971 acres (9% of burned area soils)

Soil scientists completed hydrophobic soil tests (water drop test) in only a few areas of Indian Ridge and Cayuse Mountain fire. Some areas of high soil burn severities showed signs for moderate hydrophobicity up to 4 centimeters below the soil surface. In areas of heavy surface rock, field personal detected no hydrophobicity regardless of soil burn severity. In moderate soil burn severity, weak hydrophobicity was found. In an adjacent, unburned area soil hydrophobicity was weak with minimal water repellency at the soil surface and moderately strong repellency up to 1 centimeter deep. Water repellent soil conditions diminish over time through natural freeze-thaw cycling and vegetation re-establishment. Hydrophobic conditions are anticipated to last 1 to 2 years post-fire, until grass and forb reestablishment can stabilize soil water infiltration rates.

C. Soil Erosion Hazard Rating:

NRCS SSURGO data was used to evaluate soil erosion hazard ratings on steep slopes in representative fire areas in the fires. On average, soil erosion hazard ratings were listed as 70 – 90% “severe” – meaning there is a very high likelihood of natural erosion on the steep slopes in these landscapes under normal, unburned conditions. Ridge tops, rolling foothills, and toe slopes had low to moderate erosion hazard ratings. These soils were also ranked as “Highly susceptible” to damage from post-fire conditions due to sandy soil substrata and increased hydrophobicity.

D. Erosion Potential:

Erosion potential was not calculated for this highly variable burned area. Though the erosion hazard rating was elevated because of these sandy soil substrates, burned condition and steep slopes, the post-fire soil erosion potential for the Magruder Corridor is considered a low risk to soil productivity because any erosion events will be localized in magnitude and extent. The variable slopes and numerous rocky outcrops make this even more difficult to assess by number. Soil mass movement may occur but is a normal geomorphic process in these landscapes.

E. Sediment Potential:

Sediment potential like erosion potential will be a function of microtopography and soil burn severity. Throughout the Magruder Corridor the overall potential sediment delivery is low with models of Disturbed WEPP predicting 0 delivery on slopes under 40%; however, the steeper catchments with higher burn severity will likely deposit sediment into perennial waterway and onto the Magruder Corridor in debris torrent channels if there are storms of sufficient intensity. Natural sediment stabilizing features, including large woody debris, surface rock, and micro-topographic landscape features that capture sediment are present throughout these hillslopes to alleviate some erosion risk. However, sediment is still very likely to reach streams because of the very steep breakland topography that is now overlaid with moderate and high soil burn severity. Sediment potential is particularly high in Indian Creek Drainage where steep catchments are above the main channel.

F. Estimated Vegetative Recovery Period (years):

Years to achieve effective ground cover are variable based on habitat type. Understories dominated by grass - 1-3 years, shrubs 5 – 10 years, and conifer species 20 – 50 years.

G. Estimated Hydrologic Response (brief description):

The fire will have varying effects to hydrologic response based on the burn intensity and soil burn severity. The consumption of above-ground vegetation and the elimination of tree canopy will reduce precipitation interception and reduce evapotranspiration. Areas of moderate and high soil burn severity are accompanied by degraded soil structure, loss of forest floor and hydrophobic layers, which reduces infiltration and increases runoff, especially in stream breaklands where stream gradients can exceed 50% slope. Any elevated hydrologic response post-fire would subside as vegetation re-establishes.

Along the Magruder Corridor Fires, approximately 25-40 inches of precipitation falls annually, with the wettest months being November to May of each year. Mass slope failure and road drainage failures have occurred during summer convective thunderstorms that exceed an inch per hour. At the subwatershed-scale the two watersheds most impacted by 2022 wildfires are Deep Creek and Indian Creek. Approximately 15% of the Deep Creek drainage burned with about 25% of that burn rated as moderate and/or high soil burn severity. Approximately 31% of the Indian Creek subwatershed burned in 2022 and about 50% of that burn was rated as moderate or high soil burn severity. Both Indian Creek and Deep Creek will experience post-fire runoff changes in the next 5-10 years with elevated sedimentation, flow, and debris; however, the size of the watersheds and gradients of the streams should provide some for attenuation of the effects making changes in water quality temporary following storms but returning to normal following the runoff events. In general, runoff in both the Indian and Deep Creek drainages may increase by about 15% following storms. However, the runoff effects will be magnified in the smaller, steep catchments of the burned area. The small first order catchments are not easily modeled, and the best predications are based on what has happened historically in similarly catchment types following fires. According to Engineers on the Bitterroot, in the steep face catchments with slopes averaging greater than 40% when they are over 50% burned are prone to debris torrent floods in the first three years following fires after strong convective thunderstorms. The bulk of the post-fire hydrologic impact in terms of potential detrimental effects to Critical Values such as infrastructure will be from these steep face drainages and steep first-order tributaries in the impacted watersheds where burned areas are proportionally higher and the slopes and landtype will funnel the increased runoff and debris onto infrastructure below (see Figures in Appendix). Estimates based on past events described in local knowledge in the areas show that precipitation of the amount and intensity equivalent to a 10 year event could result in flow events closer to the 500 year events in steep drainages that are extensively burned.

PART V - SUMMARY OF ANALYSIS**Introduction/Background****A. Describe Critical Values/Resources and Threats (narrative):**

BAER Critical Values were assessed for 4 fires on the Bitterroot National Forest, ranging from 560 acres to nearly 9,000 acres in size. An initial GIS assessment reviewed likelihood of damaging events from these burned areas; several fires were dismissed based on proximity to BAER critical values, difficulty in access for implementation, and low risk to human life and safety. This BAER critical values section will summarize the concerns brought forward from this GIS. A summary of findings from these fires is available below.

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

BNF Magruder Corridor Fires – BAER Critical Values							
Fire Name	Critical Values	Value Name	Description of Threat	Probability of Damage or Loss	Magnitude of Consequences	Risk Level	Treatment Recommendations
All Fires	Native Plant Communities	Native Plants	Noxious weeds are considered a threat to native plant communities; these invasive species are more likely to spread when soil is disturbed by fire. The lack of direct fire suppression tactics mean introductions of new invaders should be less from Suppression Efforts, but highly likely from isolated populations of new invaders which recreation traffic could spread into moderate and high severity burned areas in previously unestablished invasives in sensitive wilderness areas.	Likely	Major	High	P1a. Invasives EDRR
All Fires	Human Life and Safety	Forest Road #468 (Magruder Corridor)	Forest employees and Forest Users driving the Magruder Corridor road could be injured from rock fall, falling trees, or road failure.	Possible	Major	High	R11. Upsized Culvert
	Property		The Magruder Road is one of the most important recreational access roads on the Bitterroot. There is a pinch point at Steep Gulch where the watershed above burned with high severity across 70% of the watershed and the culvert remains undersized to pass the expected storm flow. The culvert has fill 30 feet down to the channel.	Likely	Major	High	
All Fires	Human Life and Safety	Forest trail systems	Trail wash outs, falling trees, and rockfall causing injury to people.	Possible	Major	High	T1. Trail Drainage Stabilization
	Property		Trail wash outs, falling trees, and rockfall from increased post-fire runoff	Very Likely	Major	Very High	T1. Trail Drainage Stabilization
Indian Ridge	Property	Indian Creek Bridge	Flash flooding, debris flows, and log jams backing up behind an existing log jam just upstream of the bridge. The combination of post-fire debris and pre-	Possible	Moderate	Intermediate	No BAER Treatment

BNF Magruder Corridor Fires – BAER Critical Values							
Fire Name	Critical Values	Value Name	Description of Threat	Probability of Damage or Loss	Magnitude of Consequences	Risk Level	Treatment Recommendations
			existing debris may not pass under the bridge and cause it to fail.				
	Human Life and Safety	Indian Creek Bridge	Flash flooding, debris flows, and log jams backing up behind an existing log jam just upstream of the bridge. The combination of post-fire debris and pre-existing debris may not pass under the bridge and cause it to fail and harming people.	Unlikely	Major	Intermediate	No BAER Treatment
	Property & Human Life and Safety	Indian Creek Campground	Flash flooding from the Indian Creek drainage could cause flooding of the Indian Creek Campground.	Unlikely	Major	Intermediate	No BAER Treatment
All Fires	Soil and Water Quality & Aquatic Habitat	Loss of Soil Productivity and degraded water quality in Indian Creek, Deep Creek and Selway	Sedimentation from post-fire erosion	Likely	Minor	Low	No BAER Treatment

B. Emergency Treatment Objectives:

Human Life and Safety: The trail stabilization treatments will clear hazards in the work area to address worker safety. The road treatment will lower the risk to recreation and forest worker traffic stranded in this remote backcountry setting.

Property: Protect or minimize damage to NFS investments in roads and stream crossing infrastructure by installing drainage features capable of withstanding potential increased stream flows and/or debris flows. Minimize damage to key NFS travel routes. Increase drainage on FS trails to prevent the infrastructure from failing from post fire runoff.

Natural Resources: Protect native plant communities by limiting spread of invasive plant species into the burned area.

Non-Forest Service Values: Assist cooperators, other local, State, and Federal agencies with the interpretation of the assessment findings to identify and address potential post-fire impacts to communities and residences, domestic water supplies, public utilities (including power lines, roads, and other infrastructure). No non-forest values impacted.

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

Land: N/A

Channel: N/A

Roads/Trails: 85%

Protection/Safety

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
Land	NA	NA	NA
Channel	NA	NA	NA
Roads/Trails	85	85	85
Protection/Safety	85	85	85

E. Cost of No-Action (Including Loss): \$625,000

In the absence of BAER treatments, approximately the Magruder Corridor road is likely to fail as a result of inadequate drainage. The cost of rebuilding the road at this site would be approximately \$200,000 because of deep fills and remote access and the price of the culvert required. The loss of the trails and the cost to rebuild would be approximately \$5000.00/mile for 5 miles = \$25,000. Eradicating new invasive plant populations if they became established could be extraordinarily expensive even above \$100,000 each year. Potential loss of life and injury and threats to native species both terrestrial and aquatic could also occur, however we recognize that it is impossible to factor a monetary loss for these resources. Just using hard costs, a low estimate is \$225,000

F. Cost of Selected Alternative (Including Loss): $\$109,980 + 0.15(\$100,500) = \$125,055$ **G. Skills Represented on Burned-Area Survey Team:**

- | | | | | |
|---|--|---|---|--------------------------------------|
| <input checked="" type="checkbox"/> Soils | <input checked="" type="checkbox"/> Hydrology | <input checked="" type="checkbox"/> Engineering | <input checked="" type="checkbox"/> GIS | <input type="checkbox"/> Archaeology |
| <input type="checkbox"/> Weeds | <input checked="" type="checkbox"/> Recreation | <input type="checkbox"/> Fisheries | <input type="checkbox"/> Wildlife | |
| <input type="checkbox"/> Other: | | | | |

Team Leader: Rebecca Lloyd
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Phone(s):

Forest BAER Coordinator: Rebecca Lloyd
Email: rebecca.lloyd@usda.gov **Phone(s):**

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

Skill	Team Member Name
Team Lead(s)	Rebecca Lloyd
Soils	Rebecca Lloyd
Hydrology	Rebecca Lloyd
Engineering	Rebecca Lloyd with Jim Stuart and Jake Pintok
GIS	Rebecca Lloyd
Archaeology	
Weeds	Rebecca Lloyd
Recreation	Mark Smith
Other	Jeremy Pickle for field assistance

H. Treatment Narrative:

Land Treatments:

P1a. Invasives EDRR

Early Detection and Rapid Response of noxious weeds is a known and cost-effective treatment to minimize the spread of noxious weeds into native plant communities in burned areas. EDRR treatments will be focused in wilderness areas that currently have no known weed populations, and where fire disturbed soils are most susceptible to new invader establishment. In the Magruder fire perimeters, the primary vector for noxious weeds was motorized roads and trails. During field assessments noxious weed populations were not prevalent and native species dominated roadside conditions. EDRR will require trail weed spraying treatments focus along high use locations in the Wilderness that are at very high risk for weed spread because of moderate and high soil burn severity. The most successful approach is to focus spot spraying where known weed vector areas such as outfitter campsites and disturbed areas around trail junctions can spread into the fire area.

The Bitterroot National Forest plans to pursue contracted weed spraying and seasonal crews to successfully implement treatments in a timely manner; this implementation method will allow them to also support the Forest's rigorous treatment workload. Costs are estimated based on trail miles and high value sites. The estimated acreage is 46 acres where EDRR targets 50 feet either side of the trail where crossing high and moderate burn severity and an additional 23 acres around priority sites with where weeds could spread from known locations.

TREATMENT ITEM	UNITS	UNIT COST	NUMBER OF UNITS	TOTAL COST
P1A. INVASIVES EDRR	cost/acre	\$120	79	\$9,480
TOTAL				\$9,480

Channel Treatments: *No channel treatments are recommended.*

Roads and Trail Treatments:

Only those FS roads and trails within or below areas that burned at moderate or high SBS and have increased risk of damage resulting from post-fire conditions are recommended for emergency response. Proposed treatments will improve drainage at stream crossings and along adjacent slopes in

order to remove higher levels of runoff from trails before extensive damage or loss of infrastructure can occur. Road treatment will focus on a specific crossing where a steep draw likely will experience extreme post fire runoff. Roads and trails proposed treatments follow practical and economic designs to mitigate existing risk to acceptable levels.

R11. Culvert Upsizing at Steep Gulch Crossing

The existing stream crossing culvert at Steep Gulch is currently inadequately sized for the anticipated 2-year post-fire storm event hydrologic flows (50 cfs) and additional expected bulking debris that would double to 100 cfs. The depth of fill on the road is 30 feet, with a 10 foot inlet depth. The drainage area is 533 acres, 70% of which burned with high severity in this steep catchment. See Appendix A for photos and map. The culvert is at very high risk for failure with subsequent damage to Forest Service Road 468 and closing off vital access in this remote setting. Options considered for increasing the drainage capacity and protecting FSR #468 included closing the road, installing critical dips on either side of the crossing, and replacing the culvert with a drivable low-water crossing that would pass debris. The following were eliminated from consideration:

1. Closing the road. The Magruder Corridor road is the only motorized Administrative route to the Paradise Ranger Station which is staffed during summer and fall. Additionally, the road is extremely high use during the summer and fall seasons by both Forest Users and Forest Employees. FSR #468 provides the only motorized access for both the Bitterroot National Forest and the Nez Perce Clearwater National Forest to access and extract people who are recreating or working on the Selway River corridor. While many users access this area by raft, horse, or by foot, the only motorized way to get them out in an emergency is to either evacuate by helicopter or by driving all the way out to Hamilton via Forest Road #468. Closing the road is not an option for the Bitterroot and Nez Perce – Clearwater NF.
2. Critical dips. The confined nature of the drainage, the steepness of the slopes, and depth of fill make adding critical dips not an effective way to protect the integrity of the road during a high flow event. The fill depth is 30 feet on the road downside.
3. Driveable low water crossing or ford. A hardened, driveable crossing in many ways would be the preferred method for increasing capacity for both flow and debris likely following a storm event. However, the steep and deep fills for this spot mean the structure that meets the geomorphic needs of the channel would be so steep sided it may not even be drivable to high-clearance trucks and certainly not passable to any vehicle with a towed trailers which is currently possible on the road.

All road treatments were analyzed for cost effectiveness using the BAER critical values cost-benefit analysis tool (see Specialist Inputs, Engineering Report). Failure and subsequent replacement of this crossing is estimated at \$200,000; this treatment will greatly reduce the associated risks. The BNF believe work can be complete the following summer to effectively limit the risk. The BNF acknowledges there's a possibility for debris flow failure which the proposed treatment could not accommodate. However, there's also a possibility where runoff results in hyperconcentrated flow that the new culvert capacity could adequately facilitate. The tradeoff is based on the professional judgement from long time engineering staff.

The Bitterroot National Forest would cost share culvert replacement to the appropriately sized Q100 pipe with BAER funding.

Road Treatments	Units	Unit Cost	Quantity	Total
R11. Upsize culvert the existing 24" diameter culvert to 72" squash pipe. The Depth of Fill is 30', the inlet depth is 10', and the Road Width is about 20'. The price includes removal of existing pipe, mobilization, and installation of the new pipe.	each	\$85,500	1	\$85,500

TOTAL**\$85,500**

T1. And T2. Trail Structure Stabilization: The trails cross several sections where the fires burned with high and moderate fire severity across slopes where post fire erosion would threaten the trail prism. The proposal is to address the drainage and stabilize these crossings for the short term. A BAR request will be submitted to build and re-enforce these crossings for longer term restoration given the likelihood of failure in the short term and ability to rebuild sufficiently in a back country setting. These treatments will prevent erosion and further failure of the trail tread. Hazard trees will be felled to secure safety of forest service personnel in work areas.

BNF Magruder Corridor Fire Treatment T1. And T2. Trail Drainage Stabilization	Unit	Unit Cost	#Units	Total \$
Personnel: Seasonal Crew of 4 for the 5 miles of trail in moderate and high soil burn severity areas.	Miles	3000.00	5	\$15,000
Total				\$15,000.00

Protection/Safety Treatments:

I. Monitoring Narrative:

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

A. Land Treatments										
P1a. Invasives EDRR	cost/acre	120	79	\$9,480	\$0		\$0		\$0	\$9,480
<i>Subtotal Land Treatments</i>				<i>\$9,480</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$9,480</i>
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treatments</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
C. Road and Trails										
R11. Upsize culvert	cost/mile	85,500	1	\$85,500	\$0		\$0		\$0	\$85,500
T1. and T2. Trail Stabilization	miles	3,000	5	\$15,000	\$0		\$0		\$0	\$15,000
<i>Subtotal Road and Trails</i>				<i>\$100,500</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$100,500</i>
D. Protection/Safety										
S1a. Road Hazard Signs	each	0	0	\$0	\$0		\$0		\$0	\$0
S1b. Trail/Recreation Hazard Signs	each	0	0	\$0	\$0		\$0		\$0	\$0
S2. Physical Safety Closure	each	0	0	\$0	\$0		\$0		\$0	\$0
<i>Subtotal Protection/Safety</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
E. BAER Evaluation										
Initial Assessment	Report	\$0	0	-	\$3,000		\$0		\$0	\$3,000
<i>Subtotal Evaluation</i>				<i>-</i>	<i>\$3,000</i>		<i>\$0</i>		<i>\$0</i>	<i>\$3,000</i>
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
G. Totals				\$109,980	\$3,000		\$0		\$0	\$112,980
Previously approved										
Total for this request				\$109,980						

PART VII - APPROVALS

1. _____
Forest Supervisor

Appendix A: Photos

Steep Gulch Culvert on Magruder Corridor below extensive burned area (Indian Ridge Fire)



Figure 1. Inlet-24" cmp



Figure 2. Outlet-80% blocked

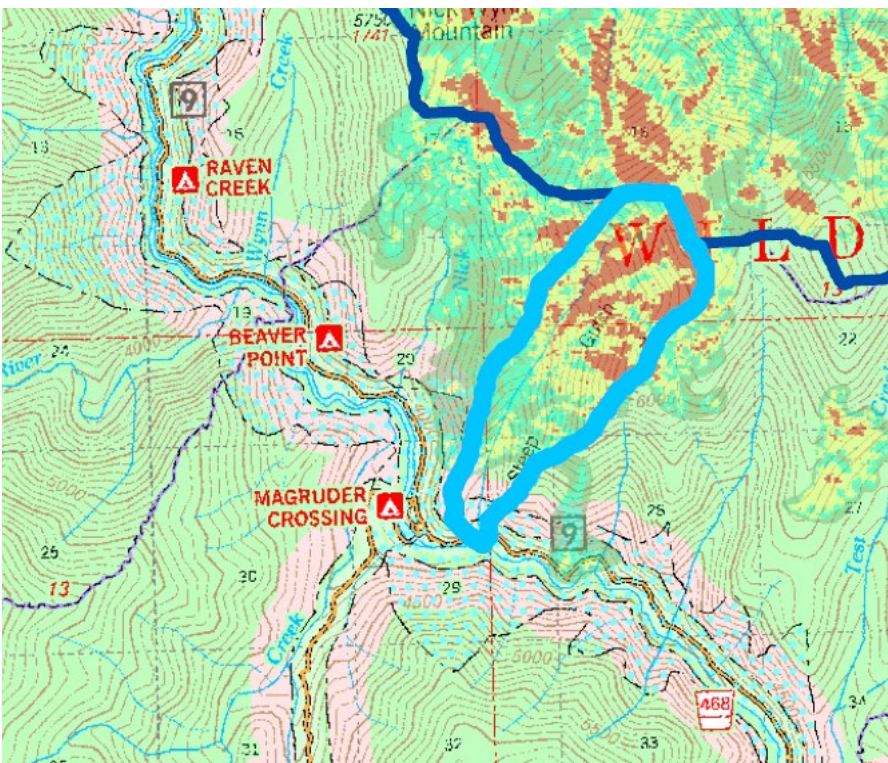
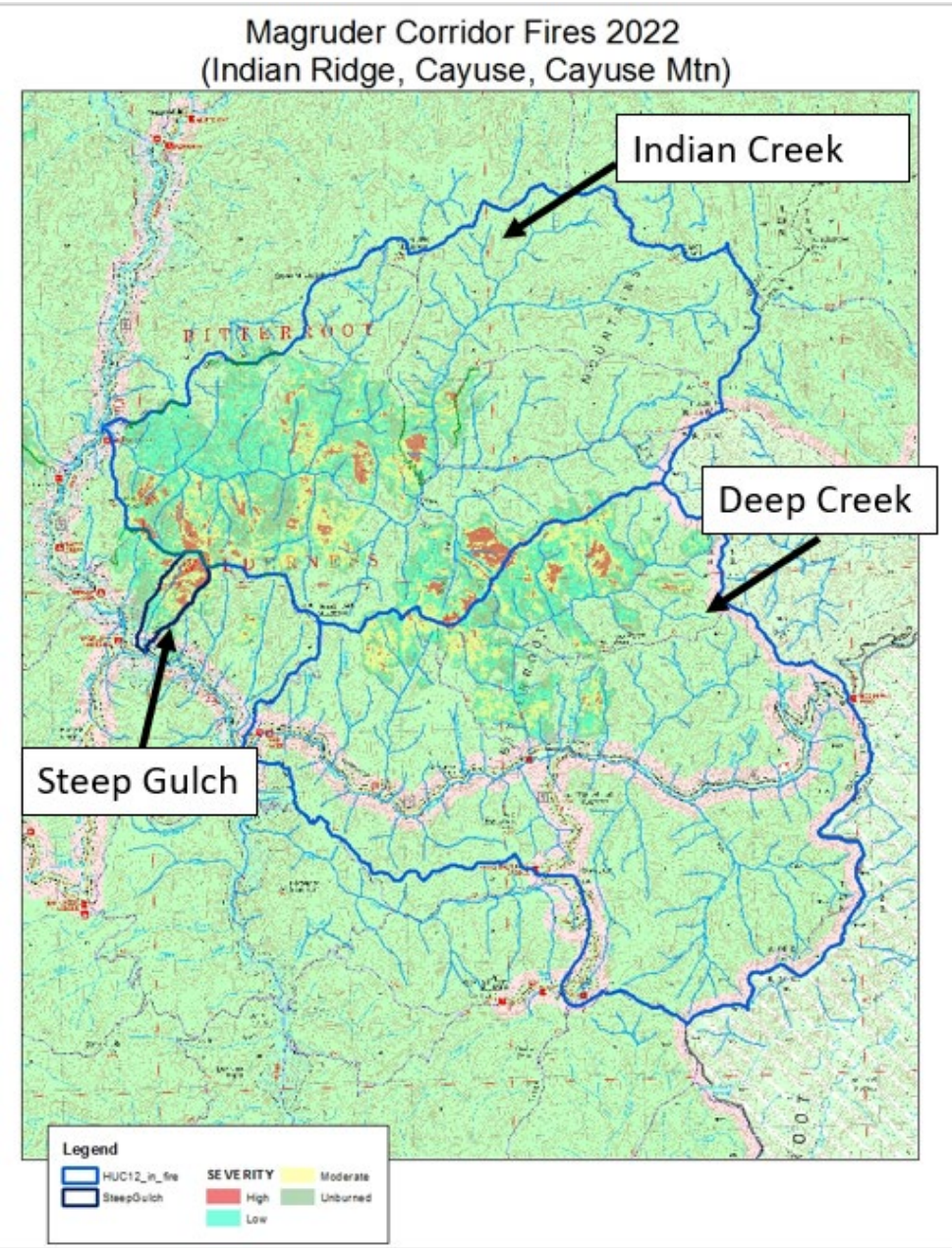


Figure 3. Location of the Steep Gulch Culvert

Indian Creek Crossing Pictures



Appendix B: Maps



Magruder Corridor Fires 2022: Twist Fire

