

USDA-FOREST SERVICE

FS-2500-8

Date of Report: **July 15, 2014**

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 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)
- ☐ 2. Interim Report
 - ☐ Updating the initial funding request based on more accurate site data or design analysis
 - ☐ Status of accomplishments to date
- ☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

- | | |
|---|---|
| A. Fire Name: <u>Gulch Fire</u> | B. Fire Number: <u>CA-MDF-000344</u> |
| C. State: <u>California</u> | D. County: <u>Modoc County</u> |
| E. Region: <u>R5 Pacific Southwest</u> | F. Forest: <u>Modoc National Forest</u> |
| G. District: <u>Devils Garden Ranger District</u> | H. Fire Incident Job Code: <u>P5H62R</u> |
| I. Date Fire Started: <u>July 3, 2014</u> | J. Date Fire Contained: <u>July 8, 2014</u> |
| K. Suppression Cost: <u>\$2,050,000</u> | |
| L. Fire Suppression Damages Repaired with Suppression Funds <ul style="list-style-type: none"> 1. Fireline waterbarred (miles): <u>14.7 miles</u> 2. Fireline seeded (miles): <u>None</u> 3. Other (identify): <u>None</u> | |
| M. Watershed Number: <u>HUC 6 Watersheds: 180200020901 Blacks Canyon and 180200020903 Canby-Pit River</u> | |
| N. Total Acres Burned: <u>Total Acres (1,471) NFS Acres (791) Other Federal (0) State (0) Private (680)</u> | |
| O. Vegetation Types: <u>Sagebrush/Juniper habitat type in the hilly country, with components of bitterbrush, Western black oak, mountain mahogany, native perennial bunchgrasses, and some annual grasses. At the base of the hills on Forest Service lands are rocky flats vegetated with sparse low sagebrush and perennial grasses. Medusahead grassland may have been present, particularly on private lands.</u> | |

P. Dominant Soils: Deven cobbly loams; Pass Canyon very cobbly loams and loams; Keating cobbly clay loams; Bieber very cobbly loams

Q. Geologic Types: basaltic, andesitic, and volcanic tuffs; weathered basalt

R. Miles of Stream Channels by Order or Class: Ephemeral Channels = 2.7 miles

S. Transportation System

Trails: No trails within fire area

Roads: 3.1 Miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1,256 (low) 74 (moderate) 0 (high) 148 (unburned/v.low); See Appendix A for Soil Burn Severity Map

B. Hydrophobic Soils: 366 (314 slight severity @ 0-3 cm depth; 52 mod @ 2-6 cm)

C. Soil Erosion Hazard Rating (acres): 1,404 (low) 74 (moderate) 0 (high)

D. Erosion Potential: (tons/acre) 2yr – 0.0; 5-yr – 2.5; 10 yr – 4.0

E. Sediment Potential: (cubic yards / square mile) 2.5-3,395 for a 2yr to 10yr runoff event

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	<u>3</u>
B. Design Chance of Success, (percent):	<u>90%</u>
C. Equivalent Design Recurrence Interval, (years):	<u>2</u>
D. Design Storm Duration, (hours):	<u>6</u>
E. Design Storm Magnitude, (inches):	<u>0.82</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>4.46</u>
G. Estimated Reduction in Infiltration, (percent):	<u>10%</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>5.50</u>

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Gulch Fire started on July 3, 2014 and is approximately 1,471 acres in size. The fire includes burnt areas within the Howards Gulch area north of the town of Canby, CA. The Gulch Fire burned flat to moderately steep sub-watersheds north of the Pit River. The watersheds are characterized by steep, bedrock dominated drainages and with abundant rock outcrop formations. Soils are fairly well-structured, somewhat compact and have an associated bedrock and large boulder component that slows erosion. The climate is arid overall and precipitation in the fire area is moderate, averaging 14 inches per year at Canby, most precipitation occurs during the winter months with the exception of summer convective storms when there is some potential for

intense and localized rainfall can occur. Vegetation consists of pine, oak, various upland shrub species found on the slopes and willow, cottonwood, laurel, grasses and other riparian species found along relatively narrow stream corridors. The fire burn severity was mostly low overall with a few small areas where moderate burn severity occurred.

It is anticipated that watershed response will be no be significantly increased with exception of one small sub-watershed flowing into Howards Gulch where moderately increased responses as a result of fire are predicted, particularly the first year post-fire that could negatively affect values at risk such as property, life and resources which are the focus of this report.

Summary of Watershed Response

Hydrologic Response: The Gulch Fire is likely to increase peak flows and erosion in the watersheds affected by the fires as a result of reduced infiltration and surface roughness. Peak flows are estimated to increase in watersheds affected by the Gulch Fire by factors ranging from 1.03 to 1.95. Overall, increases in peak flows and erosion are expected to be relatively modest owing to large unburned areas in the affected watersheds, low soil burn severities, high surface rock cover, and low topographic gradients. The Howards Gulch (cinder pit) tributary is an exception, owing to relatively steep topographic gradients and a high proportion of watershed burned by the fire. Other steep south-facing drainages within the Gulch Fire may also have increased runoff and erosion. Values at risk for flooding and sedimentation resulting from the fire include NFS roads and infrastructure including homes, roads, and a railroad. In general, the estimated increases in peak flows are unlikely to cause major damage to values at risk. The railroad crossing of the cinder pit tributary to Howards Gulch on the Gulch Fire, on private land downstream of NFS lands, appears to be the most likely location for damage resulting from increased runoff and sediment transport from burned areas.

Erosion Response: Soils within the Gulch Fire perimeter are formed from various tuffs of basaltic, andesitic, and volcanic origin, as well as weathered basalt. Flat uplands are capped by volcanic flows, underlain by the tuffs upon sideslopes with concave vertical profiles. Most soils are cobbly to extremely cobbly loams, shallow, and hydrologic group D. BARC imagery was not available for preliminary assessment. Field review estimates about 10% unburned, 85% low SBS, and 5% moderate SBS. Erosion hazard ratings in the unburned and low SBS are all low EHR. The moderate SBS areas are moderate EHR; several polygons of moderate SBS were hand-mapped, with the remainder of the 5% total being too small and disjunct to map. In total there are 1,404 acres of low EHR and 74 acres of moderate estimated. About 25% of the low SBS area has water repellency of slight degree at about 0-1 inches depth; about two-thirds of the moderate SBS areas have moderate water repellency at 1-3 inches depth. Water repellency is quite patchy, and not expected to significantly contribute to elevated watershed response.

Cursory ERMiT modeling was done for the dominant soil types representative of the “flats” on top and the sideslopes below. Erosion estimates range from 0-4.0 tons per acre for 2-year to 10-year runoff events, plus or minus 50% per stated model accuracy. These erosion levels are not expected to impair soil productivity or water quality, and hydrologic flow increases (if any) should produce relatively sediment-free flows.

Values at Risk

The following values (Table 1) were identified during the initial phase of the Gulch Fire BAER assessment process as “at risk” from the effects of the fire including increased runoff and debris flows, rock and debris fall, erosion, and sedimentation. There is little risk to these values due predominantly to low soil burn severity and the steep rock armored slopes, little watershed response above unburned levels is anticipated. This fire also burned in a rural area.

Table 1: Values-At-Risk, Risk Assessment, and Recommendations for the Gulch Fire

Value at Risk	Probability of Loss	Magnitude of Consequences	Risk	Notes/Recommendations
Canby	Unlikely	Moderate	Low	This is a small community below the fire area, town has some relief from

				flooding, located on a terrace, recommend checking well location (NRCS), almost all low soil burn severity, distance from fire area. No treatments are recommended.
Highway 139	Unlikely	Major	Intermediate	Low soil burn severity, rock armored small watersheds, good culvert capacity (currently cleaned), flood plain located between Railroad and Highway. Recommend Storm Patrol/Culvert Maintenance to Cal Trans.
Rail Road Tracks	Possible	Major	High	Small culvert, partially blocked, almost all of these watersheds burned, specifically culvert in section 22, watershed is almost entirely private. Recommend advising train company and NRCS
Vernal Pools south of Duncan Reservoir	Unlikely	Moderate	Low	Threatened plant species present in pool, small amount of watershed burned, low soil burn severity, flat rocky watershed, between burn and pool. A road located between burn and pool would capture some sediment. Some sediment could affect plant, however this would only temporarily affect populations. No treatment is recommended.
NFS Road 42N54 and spurs	Likely	Minor	Low	ML2 Road, nuisance sediment, no threat to life, some blading of road may be needed, no damage to existing road bed. No treatments recommended.
NFS Road 42N06 and spurs	Possible	Minor	Low	ML2 Road, Quarry Road, nuisance sediment, no threat to life, some blading of road may be needed, no damage to existing road bed. No treatments recommended
Private Road past 42N06	Possible	Moderate	Intermediate	42 inch culvert, culvert currently clean. No

				recommendations.
Noxious Weeds	Very Likely	Major	Very High	Evidence of suppression vehicles have driven through existing weed sites close to fire perimeter, T&E species adjacent to fire, Northeastern most oak habitat. Recommend monitoring and spot treatments.
Arch Sites	Unlikely	Minor to Major	Very Low to Intermediate	Sites covered by brush from suppression repair, route into site blocked by a fallen log, low soil burn severity, erosion potential low. No treatments recommended.
Visitor/Employee Safety	Unlikely	Major	Intermediate	Risk to Woodcutters/employees, very few people visit this area, low exposure time, some risk from burnt trees. Recommend installing 2 warning signs at the entry points into the fire area.
Gas & Utility Lines on Private Land	Unlikely	Moderate	Low	Both Utilities Underground, no recommendations.

B. Emergency Treatment Objectives

As noted above, threats to life, property, and natural resources from increased flooding, snags, and noxious weeds exist within the fire area. For these reasons the primary treatment objectives are to minimize loss of life and risk to human safety. Noxious weed treatments are identified to reduce the risk of degradation of significant botany resources.

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

Land N/A % Channel N/A % Roads/Trails N/A % Protection/Safety 100 %

C. Probability of Treatment Success

Year:	1	3	5
Land	90	n/a	n/a
Channel	n/a	n/a	n/a
Roads/Trails	n/a	n/a	n/a
Protection/Safety	100	100	100

E. Cost of No-Action (Including Loss): No property or infrastructure loss is expected as a result of this fire. Assessment Cost are \$11,696.

F. Cost of Selected Alternative (Including Loss): Assessment costs plus costs of proposed treatments \$20,581.

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range	<input type="checkbox"/> Public Information
<input type="checkbox"/> Forestry	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering	<input type="checkbox"/> Inter-agency coordinator
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/> NRCS
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

Team Leader Trainee: Christopher Stewart

Email: csstewart@fs.fed.us

Phone: (530) 233-8853

FAX: (530) 233-8700

Core Team Members:

- Christopher Stewart – Team Leader (Trainee)
- Dave Young – Team Leader/Soil Scientist (Trainer)
- Mary Flores – Soil Scientist (Trainee)
- Barry Hill – Hydrologist
- Celia Yamagiwa – GIS
- Forest Gauna – Botany
- Susan Frye – Archaeology

H. Treatment Narrative

The proposed treatments on National Forest System lands can help to reduce the impacts of the fire from precipitation events, but treatments will not completely mitigate the effects of the fire.

The treatments listed below are those that are considered to be the most effective on National Forest System lands given the local setting including topography and access.

Land Treatments

Noxious Weeds: Weed detection surveys would be needed to determine if weeds have been introduced. Treatments of any weed sites found should take place the season following the fire, early enough in the year to ensure that weeds don't have an opportunity to set seed. Early detection and rapid response is the most effective means of controlling noxious weeds: once weeds become established, they provide a seed source for further spread to unimpacted and uninfested areas via livestock, wildlife, and human activities. The Forest Service portion of the burn, as well as associated fire lines, would be surveyed between April and July 2015 for newly established weed occurrences. Monitoring would include documentation and hand-pulling of small new weed occurrences at the time of inspection. New weed occurrences will be pulled to root depth and, if necessary, placed in sealed plastic bags to prevent seed from dropping, and properly disposed.

Outputs of weed detection and treatment surveys:

- GPS record of survey tracks
- GPS polygon of any noxious weed occurrences discovered
- Incorporate data into GIS spatial databases
- Record treatment method
- Dates of treatment

Cost Estimate

3 days Supervision/Report Writing at \$320 per day: \$960

10 days for a botany survey crew consisting of 4 GS-5 technicians at \$165 per technician per day: \$6,600

Miscellaneous supplies such as gas: \$440

Total Cost Estimate: \$8,000

Channel Treatments

None recommended.

Road and Trail Treatments

None recommended

Protection/Safety Treatments

Hazard Signs: Hazard trees are present in the burned interior of the fire, away from roads. This is a hazard to FS employees or the public in the area, with an unlikely probability but major potential consequence if someone were to be struck by a falling tree. Because of the unlikely probability, administrative closure is not considered warranted; signage would be a low-cost alternative to mitigate risk and liability. Two warning signs with the narrative "Entering Burned Area – Stay on Roads and Trails" are proposed on FS lands at the west and east entry points to the burned area.

Item	Unit	Unit Cost	# of Units	Cost
Warning Sign Minor (Small 2' x 4')	each	\$250	2	\$500
Installation Materials	each	\$30	2	\$60
Installation Labor	days	\$325	1	\$325
Total Request				\$885

I. Monitoring Narrative

Other than noxious weed monitoring, no effectiveness monitoring is proposed for the Gulch Fire.

Recommendations

The following recommendations are for 1) informing other agencies or responsible parties of possible hazards detected during assessment, or 2) longer-term rehabilitation recommendations for the FS that would not be applicable under the BAER program:

- Check well site for Canby for possible flooding impacts, advise NRCS.
- Advise Cal Trans of possible highway impacts to HWY 139
- Advise Train Company of possible impacts to Tracks and culvert in section 22, advise to contact NRCS and to remove existing log/debris from culvert, possible storm patrol.
- Suppression repair needs to rehab fire/dozer line above train culvert in section 22. Pull line back out of channel, waterbar fire/dozer line, advise NRCS.
- Monitor potential T&E sites (botany) for sediment impacts (vernal pools).
- Follow up on arch sites within and near spot fires (delayed assessment)
- Inventory and repair utilized range fences (burned and down).
- Recommend removal of relic old barbed wire fences (on ground, example section 16 within Gulch Fire).



This report is an initial funding request based on a rapid assessment. If additional treatment needs are identified through more site specific on the ground investigation in cooperation with interested agencies, and noxious weed detection surveys, interim requests for additional funding will be filed. These funding requests will identify the purpose for each treatment, and specific treatment specifications, locations, and number of each treatment.

Part VI – Emergency Stabilization Treatments and Source of Funds

Line Items	Units	Unit Cost	# of Units	WFSU SULT \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	Total \$
A. Land Treatments										
Noxious Weeds				\$8,000	\$0		\$0		\$0	\$8,000
Warning Signs				\$885	\$0		\$0		\$0	\$885
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$8,885	\$0		\$0		\$0	\$8,885
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$0	\$0		\$0		\$0	\$0
D. Structures										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
Assessment Team				\$11,696	\$0		\$0		\$0	\$11,696
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Evaluation				\$11,696	\$0		\$0		\$0	\$11,696
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals				\$20,581	\$0		\$0		\$0	\$20,581

PART VII - APPROVALS

1. /s/Amanda McAdams July 15, 2014
Forest Supervisor (signature) Date

2.  7/31/2014
 Regional Forester (signature) Date

Appendix A: Maps and Figures

Figure 1: Soil Burn Severity Map

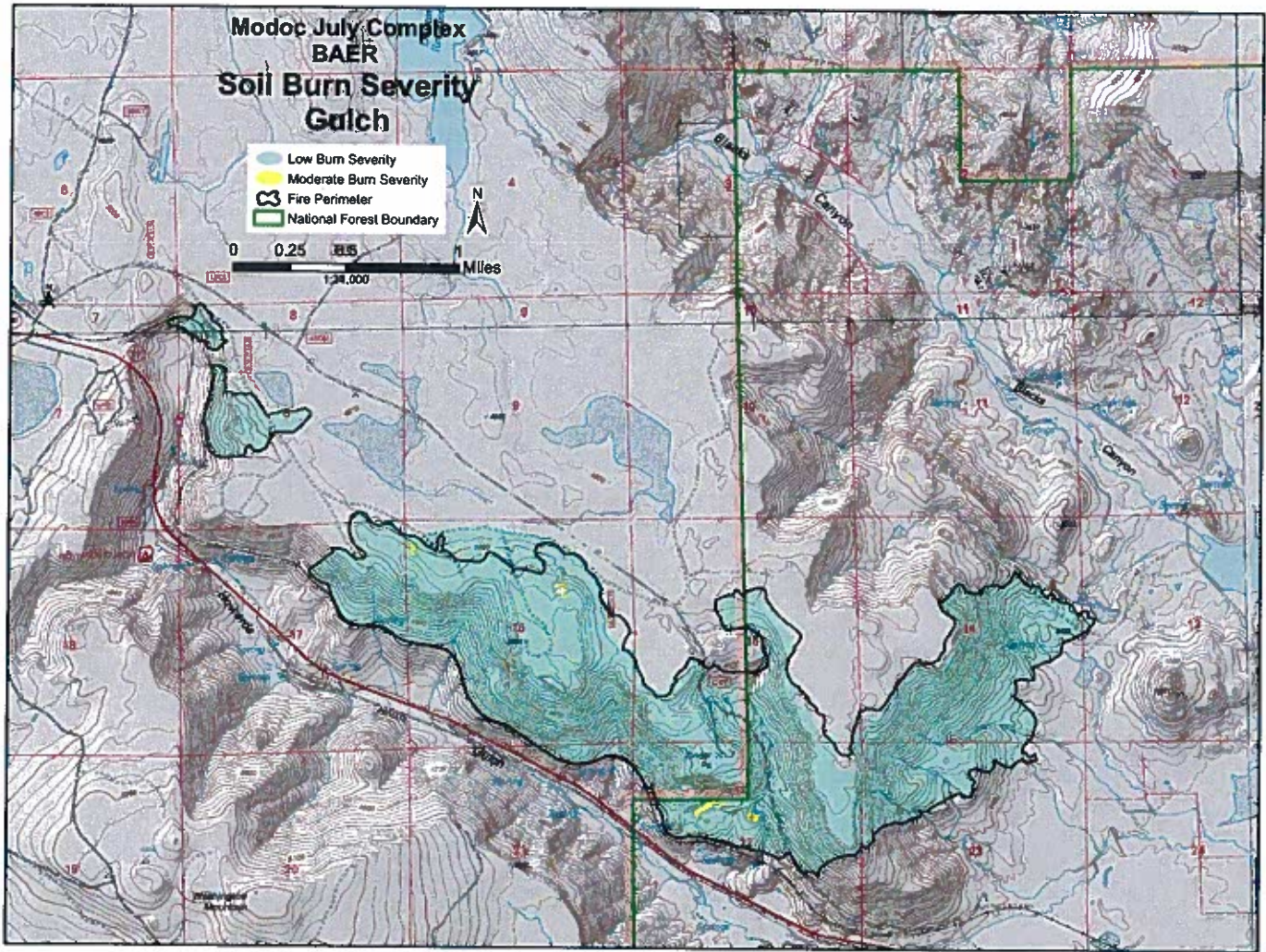
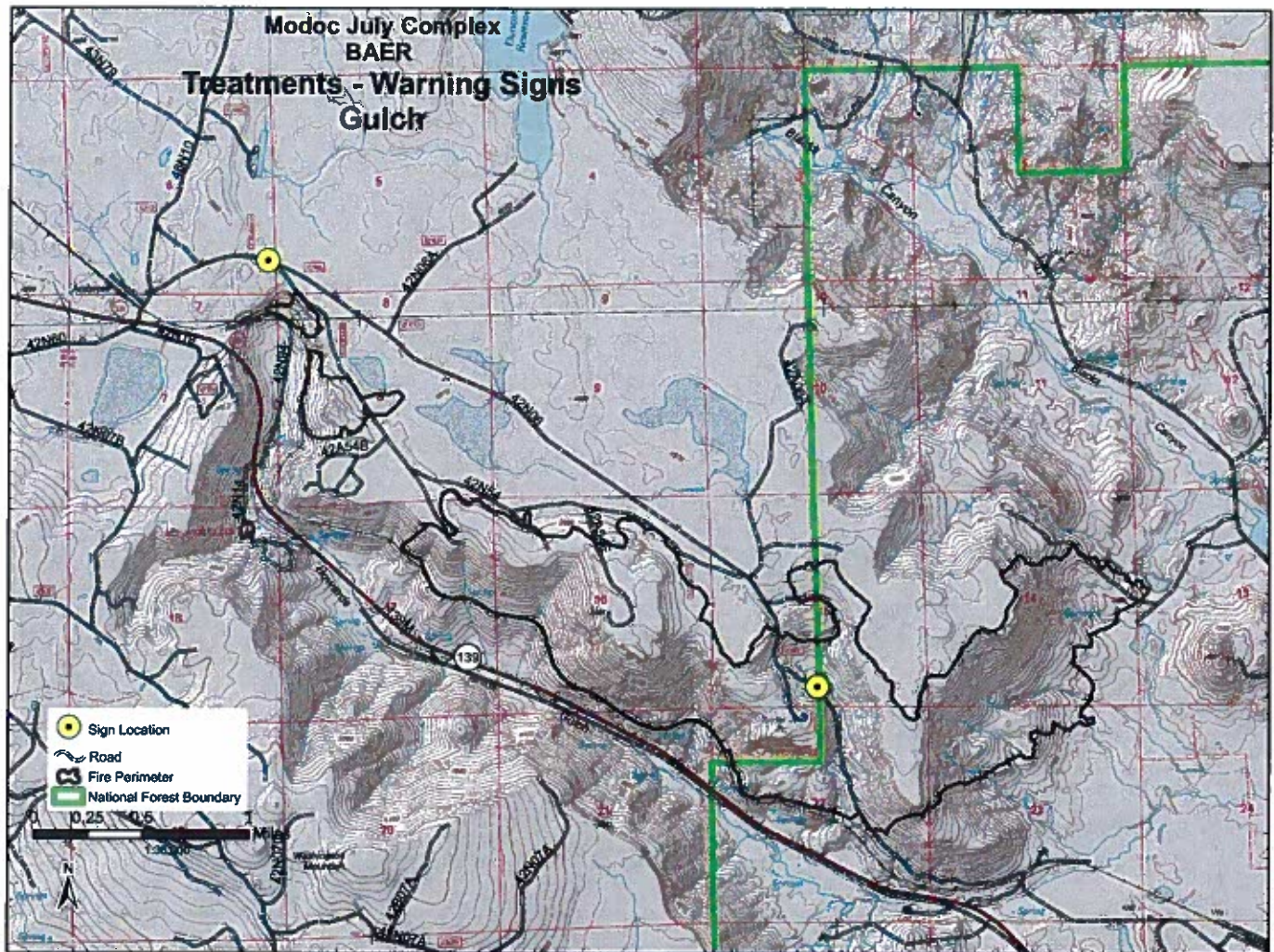


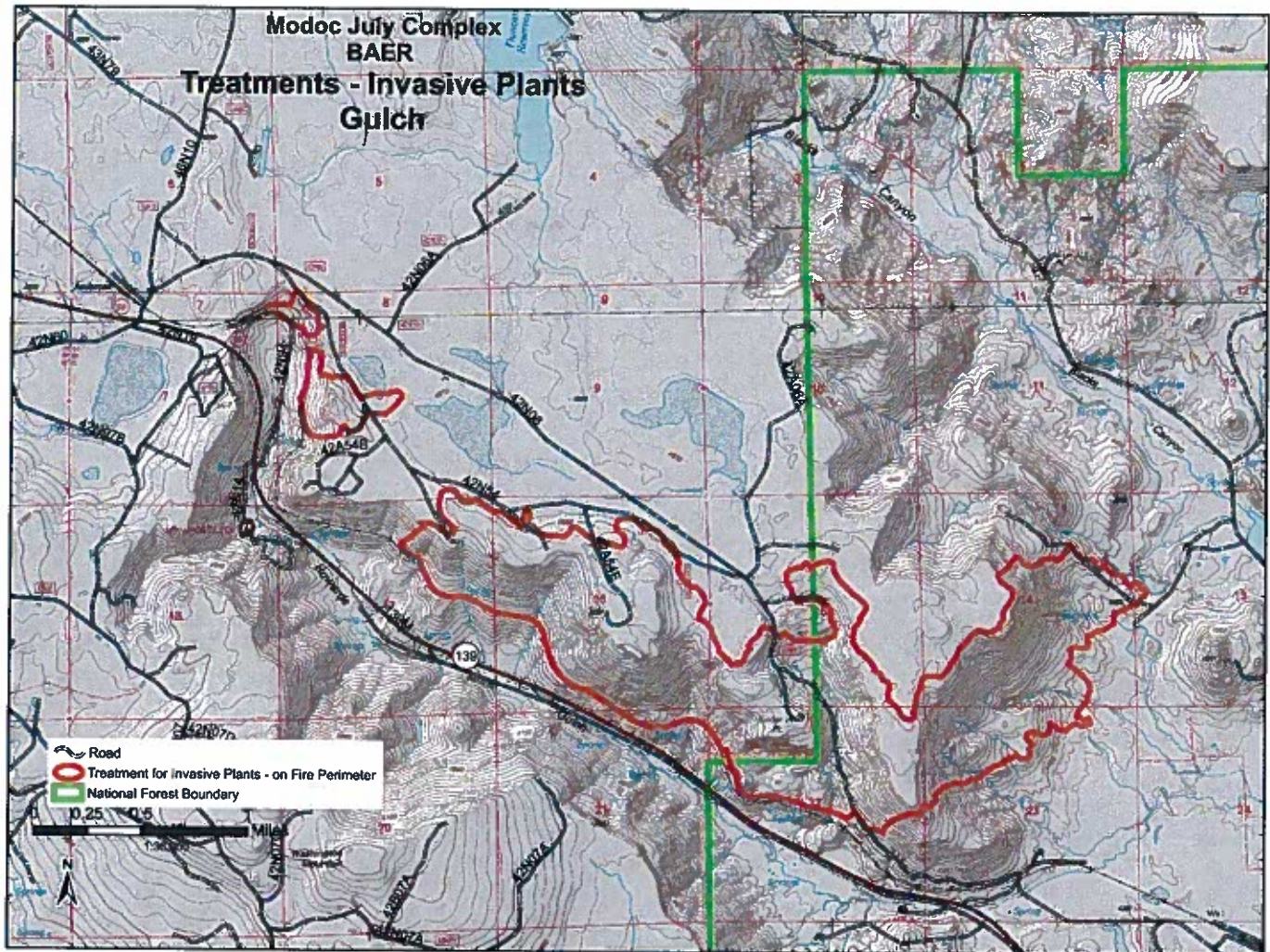
Figure 2: Proposed Warning Sign Treatments



7/13/2014
cyamagwa

File: D:\2014_JulyLightning\projects\BAER\TreatmentsGulch_BAER8x11P_ModocJulyComplex.mxd

Figure 3: Proposed Noxious Weed Treatments



7/13/2014
cyamagiwa

File: D:\2014_JulyLightning\projects\BAER\TreatmentsGulch_BAER8x11P_ModocJulyComplex.mxd