

Loop Fire Burned Area Emergency Management Plan

Carlsbad Caverns National Park New Mexico

June 13 to 17, 2011



BURNED AREA EMERGENCY RESPONSE PLAN REVIEW AND APPROVAL

I. Project Leader approval that the Burned Area Emergency Response Plan meets approved land management plan management objectives.

Project Leader, Richard Gatewood

Date

II. Regional Fire Management Coordinator concurrence that the plan fits the technical definition for use of Emergency Stabilization funding.

Regional Fire Management Coordinator, Intermountain Region

Date

III. Emergency Stabilization Funding Approval (check one box below):

☐ Approved

☐ Approved with Revision (see attached)

☐ Disapproved

Regional Director, Intermountain Region

Date

IV. Emergency Stabilization Funding Approval (check one box below):

☐ Approved

☐ Approved with Revision (see attached)

☐ Disapproved

National Office

Date

Loop Fire
BURNED AREA EMERGENCY RESPONSE PLAN

UNIT: Carlsbad Caverns National Park

LOCATION: *Carlsbad, Eddy, New Mexico*

DATE: *August 8, 2011*

PREPARED BY: Carlsbad Caverns Resource Stewardship and Science Staff
Ken Schwarzkopf - Editor

Submitted By: _____ Date: _____
Burned Area Emergency Response Team Leader

EXECUTIVE SUMMARY

Introduction

This Burned Area Emergency Response Plan has been prepared in accordance with Department of the Interior and National Park Service Policy. This plan provides emergency stabilization recommendations for all lands burned within the Loop Fire perimeter and downstream impact areas including: public lands administered by the National Park Service and other jurisdictions if necessary. The primary objectives of the Loop Fire Burned Area Emergency Response Plan are:

- To prescribe cost effective post-fire stabilization measures, if necessary to protect human life, property, and critical cultural and natural resources.
- To promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter or downstream impact areas and mitigate damages caused by fire suppression operations in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

This plan addresses emergency stabilization treatments. The burned area emergency response ad-hoc team, comprised primarily of Carlsbad Caverns National Park staff, with assistance from seasonals, step and A.D. hires and SCA interns, conducted an analysis of fire damages on lands within Carlsbad Caverns National Park impacted by the Loop fire. The fire ecologist, with help from the fire effects crew assessed the overall watershed changes caused by the fire and is developing a burn severity map with the park's new GIS specialist. The Park Archeologists, inventoried suppression impacts for potential damage to cultural sites as well as initiating a cultural resource damage assessment. The park biologist, exotic plant management specialist and Chief of Science and Resource Stewardship evaluated and assessed fire damages and suppression impacts to vegetative resources, including threatened and endangered (T&E) species, and identified values at risk associated with vegetative losses. The park biologist conducted an assessment of T&E species and initiated and closed Section 7 consultations with U.S. Fish and Wildlife Service. The GIS specialists gathered the data layers necessary for the plan, coordinated GPS activities. The CAVE Fire Crew Supervisor inventoried fire damaged buildings and developed specifications for their stabilization and closure. The Facilities Maintenance Staff assessed the fires overall impact to the parks infrastructure. Visitor Protection developed a flash flood emergency response plan in the event flash flooding occurs within Walnut Canyon.

Individual resource Burned Area Assessment Reports produced by these specialists are in Appendix I. The individual emergency stabilization treatments specifications including effectiveness monitoring identified in the assessments can be found in Part F. A summary of the costs by jurisdictions is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains the Burned Area Emergency Response Plan maps. Appendix IV contains photo documentation. Appendix V contains supporting documentation.

Fire Background

The Loop Fire occurred in what has been to date an unprecedented year with little precipitation since the end of September when, a major flash flood occurred in Walnut Canyon, marking the beginning of the longest dry periods in recorded history then southeastern New Mexico and western Texas began. From the end of September to the start of the fire, 272 days, only 0.06 inches had fallen at the Bat Draw RAWS near the headquarters of Carlsbad Caverns National Park.

The Loop Fire was first reported on the afternoon of June 13, 2011 by biologist conducting research near the west end of the Loop Road at about 14:30. There had been no lightning in the area and a fire investigator determined that the fire was human caused, but inconclusive as to arson. At weather conditions were extreme as at 14:57 the Bat Draws RAWS reported a temperature of 98°, relative humidity of 6% and wind speeds of 15 mph gusting to 27 out of the southwest. When firefighting resources arrived on scene, the fire was about 40 acres and spreading rapidly to the east towards the park headquarters and visitors center 3.5 miles away. The Incident Commander (IC) immediately ordered air resources and initiated burnout operations with the initial objective to contain the fire within the boundary of the Loop road. However the fire soon jumped outside the road at the bottom of Walnut Canyon and began spreading north, east and west and shortly thereafter it jumped the Loop road to the south where it began spreading east and west along the southern edge of the escarpment. Sometime during this period an order was given to evacuate the park and a Type III incident management team (Pecos Zone) was ordered to manage the fire and bring with it additional resources. On the west end of the fire air tankers managed to check the westward spread of the fire with retardant drops on the north and south sides of Loop Road preventing the fire from burning into Rattlesnake Canyon. Two attempts, however, were made on the north side, as the fire burned through the initial line that was laid at about mid-slope. At 2200 hours the Pecos Zone Type III IMT took over the management of the fire by which time the fire had swept around the park headquarters on both the north and south sides and continued burning towards the east and north overnight. On day two (June 14th), a Red Flag day, the fire was large enough that it was divided into two zones; a North Zone which was primarily BLM managed lands north of the park and a South Zone which included, primarily Carlsbad Caverns and White's City. Early in the day the fire had not burned into the bottom of Walnut Canyon where the park entrance road runs but had remained overnight on the ridges above the bottom of the canyon. By noon the fire had flanked down the slopes and was actively burning in the bottom of the canyon. Fire crews had begun burnout operations around the town of White's City and were preparing to carry out a burnout along the sewage lagoon road west of the town. The fire remained on top of the escarpment and the operation was cancelled. Burnout operations began from White's City east along the north side U.S Highway 62/180 to establish the fire's southern and eastern boundary. By the end of the day the fire had exited the park with little remaining to be burned within the park. On days three and four the fire continued with activity primarily on the Northern Zone managed by the BLM, State and private lands. By Friday, day five, with the fire near 95% containment the management of the fire transitioned from the Type III to a Local BLM Type IV IMT until the fire was declared contained.

Because of the extremely dry conditions and the intense fire behavior the impacts to park resources was significant. The Burned Area Emergency Response plan will address the fire's impact to park cultural and natural resources, park facilities and infrastructure and potential threats to human health and safety and property due to the potential elevated risk from flash flooding in Walnut Canyon because of the severity of the fire.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

Although the fire behavior was intense and spread rapidly the fire crews and park staff managed to prevent the loss of any significant structures. The fire did impact components of the park's utility infrastructure. The park's telecommunications was disrupted when about 1000 feet of communication cable lying on surface of the ground was burned over by the fire. The fire, while not impairing the function of the 8-inch pipeline to the Walnut Canyon Storage Tank, it did damage the metal jacket encasing the friable asbestos insulation surrounding the pipe. This has created a potential human health issue to crews and may prevent the repair of the line from fire damage, this requiring further mitigation beyond the scope of this plan. Additionally wooden support blocks used to level the pipe on the concrete supports were also burned compromising the stability of the pipeline which may shift and begin leaking. Additional minor impacts to park infrastructure include numerous road and trail signs and interpretive displays burned by the fire and will require replacement. Minor damage was done to the boundary fence, where two wire gates were destroyed and it is planned to replace them with swinging metal ranch gates.

Most of the Walnut Canyon Watershed lost its vegetative cover because of the severity of the fire. This may elevate the potential for flash flooding in Walnut Canyon where the creek bed crosses the parks entrance road in multiple locations placing visitors and staff at risk from being stranded or swept downstream if they attempt to cross when flooding. Furthermore just beyond the park boundary as it exits Walnut Canyon, the creek bed runs through a private campground where a flash flood could threaten campers and RVers, particularly if flooding occurs in the late evening or early morning hours. Possibly at risk are buildings along the east bank of the creek, but probably to a lesser degree than the campground.

Well over a hundred cultural sites are documented to occur within the Loop Fire, many of which were burned over and are at risk of being damaged by wind or water erosion. However no mitigating actions are proposed on these sites other than monitoring for potential post fire impacts and for evidence of looting given that the sites are more exposed.

The fire also burned over populations of endangered Lee's pin cushion cactus. Many of the individuals appear to be significantly damaged by the fire, for others the impact is uncertain and others appear to be unscathed, however all are at risk of being buried by sediment from the slopes above. No mitigating actions are being proposed, however other than to monitor the population for further indirect impacts from the fire or otherwise. Additionally the grasslands unique to the park will be monitored for recovery.

Walnut Canyon is also habitat for a two sensitive species of snakes and two species of migratory neo-tropical birds. The habitat of all these species was severely impacted by the fire. One species is commonly found in the park, the mottled rock rattlesnake however the other, the grey banded kingsnake, is much rarer having been found in only two locations within the park, both in the Loop Fire. The two neo-tropical migratory birds, the grey vireo and varied bunting habitat loss may result in greater brown headed cow bird parasitism. It is proposed that all four species be monitored.

With the high severity fire being a significant disturbance, there is a greater potential for exotics to become established, particularly Lehmanns Lovegrass. It is being proposed that the establishment of this grass and other exotics be monitored and if establishment occurs appropriate management action be taken.

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PART A - FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Loop
Fire Number	NM-CCP-001110
Agency Unit	Carlsbad Caverns
Region	Intermountain Region
State	New Mexico
County(s)	Eddy
Ignition Date/Cause	June 13, 2011; Human
Zone	Pecos Zone
Date Fully Contained	July 30, 2011
Jurisdiction	Acres
NPS - CAVE	8233
BLM, State and Private	22254
Total Acres	30487
Date Contained	July 31, 2011

PART B - NATURE OF PLAN

Type of Action (check one box below)

☒	Initial Submission
☐	Amendment to the Initial Submission

PART C - EMERGENCY STABILIZATION ASSESSMENT

Emergency Stabilization Objectives

- *Assess the burn severity within Walnut Canyon and determine the elevated threat of flash flooding and identify values at risk*
- *As practical and necessary, restore natural conditions to areas disturbed by fire suppression actions.*
- *Prevent the establishment of non-native invasive plants.*
- *Facilitate as necessary the recovery of unique native plant communities*
- *Assess the impacts and threats to threatened and endangered species*
- *Assess the impacts to cultural resources.*
- *Assess impacts to park facilities and infrastructure*

PART D - TEAM ORGANIZATION, MEMBERS, AND RESOURCE ADVISORS

I. Burned Area Emergency Response Team Members: *(List of technical specialists used to develop the plan)*

Position	Team Member (Agency)
Team Leader	<i>Richard Gatewood (NPS)</i>
Document Editor and NEPA Compliance	<i>Ken Schwarzkopf (NPS)</i>
Operations	<i>Chuck Barton (NPS)</i>
Cultural Resources/Archeologist	<i>Dave Kayser (NPS)</i> <i>Zachary Seldon (Texas A&M University)</i> <i>Leigh A.R. Cominiello (University of New Mexico)</i> <i>Joel Lennon (New Mexico State University)</i>
Biologist (Vegetation & Wildlife)	<i>Renee West (NPS)</i>
GIS Specialist	<i>Jonena Hearst (NPS)</i> <i>Laura Schnapp (NPS)</i>
<i>Other Technical Specialists</i>	
Cultural Resources	<i>Sam Denman (NPS)</i>
Exotic Plant Management Specialist	<i>Patrick Wharton (NPS)</i>

III. Resource Advisors: *(Note: Resource Advisors are individuals who assisted the burned area emergency response team with the preparation of the plan. See Part H for a full list of agencies and individuals who were consulted or otherwise contributed to the development of the plan.)*

Name	Affiliation
<i>Kirstin Gallo</i>	<i>Chihuahuan Desert Inventory and Monitoring Program Manager (NPS)</i>
<i>Heath Bell</i>	<i>Fire Crew Supervisor CAVE Fire Management, (NPS)</i>
<i>Michael Martin</i>	<i>Hydrologist ,Water Resources Division, (NPS)</i>
<i>Michael McGee</i>	<i>Hydologist, Roswell Field Office, (BLM)</i>
<i>Dean Vernon</i>	<i>Telecommunications Specialist, CAVE, (NPS)</i>
<i>Lila Mohesky-Roybal</i>	<i>Chief of Visitor Protection, CAVE, (NPS)</i>

PART E - SUMMARY OF ACTIVITIES AND COSTS

The summary of activities and cost table below identifies emergency stabilization costs charged or proposed for funding from subactivity 9142 funding sources.

EMERGENCY STABILIZATION ACTIVITIES COST SUMMARY TABLE – LOOP FIRE

Spec #	Title	Unit	Unit Cost	# of Units	Work Agent	Cost
H-1	Rainfall Monitoring Stations	ea	\$9102	3	FA	\$27,156
O-1	Highway & Trail Sign and Marker Replacement	ea	26.09	487	FA	\$12,706
O-2	Pipeline Asbestos Assessment	ea	\$4,868	1	FA	\$4,868
O-3	Trenching for Communication Line Replacement	ft	\$5.00	1359	SC	\$6795
C-1	Cultural Assessment	yr	\$17,728	2	FA	\$35,456
VW-1	T&E Cacti Post-Fire Vegetation Recovery Monitoring	yr	\$17,817	3	FA	\$53,450
VW-2	Sensitive Bird Survey	yr	\$4,181	2	SC	\$8,362
VW-3	Sensitive Snake Survey	yr	\$4,843	3	SC	\$14,528
VW-4	Exotic Species Monitoring	yr	23,136	3	FA	\$69,408
TOTAL COST						\$232,729
Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer						

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Walnut Canyon Rainfall Monitoring for Flash Flooding Warning	PART E SPECIFICATION #	H - 1
NFPORS TREATMENT CATEGORY*	Protection & Warning	FISCAL YEAR(S) (list each year):	FY11,12,13
NFPORS TREATMENT TYPE *	Flood Warning System	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	White's City, NM; Carlsbad Caverns National Park HQ	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: A. General Description: Install two rainfall monitoring stations within Walnut Canyon watershed in addition to the Bat Draw RAWs monitor for flash flood conditions. When threshold conditions are met the system will automatically Alert Eddy County Dispatch that flash flood conditions are occurring. Eddy County dispatch will then notify park law enforcement, Eddy County Sheriff's Department and local authorities so that appropriate emergency response can be taken. Until rainfall monitoring stations are in place, purchase three hand held Wx radio with Specific Area Messaging Encoding (S.A.M.E.) to monitor for thunder storm and flash flood warnings issued for the Carlsbad Caverns forecast area out of the NWS Forecasting Office Area in Midland Texas. These radios will be issued to Park Law Enforcement Officers. B. Location/(Suitable) Sites: Three locations in Walnut Canyon watershed. One is located at the Bat Draw RAWs, the other two locations to be determined by a Line-of-Site analysis to the Eddy County repeater located at Loving NM. Exact location will require the assistance of park archeologist and biologist to avoid cultural sites and sensitive plant species. The sites will not be located in Wilderness. C. Design/Construction Specifications: The two systems shall monitor rainfall continually capable of determine when 0.8 inches per hr; 0.14 inches per 3 hrs; and 0.19 inches per 6 hours are met. The system shall be deployable to any location and operate independent of an external power supply. When conditions are met each station is capable of sending a voice alert over a specified VHF frequency programed by the Park's Communications Specialist. The Verbal alert will broadcast the following: "Alert; Alert; Alert; Station ID; rainfall amount and duration. The Bat Draws RAWs will be programed similarly. System status will be checked every two weeks for three years by CAVE Fire Management Staff. D. Purpose of Treatment Specifications: The intent of the specification is to mitigate flash flood threat to human safety and property until the vegetation recovers in the Walnut Canyon Watershed. E. Treatment Effectiveness Monitoring Proposed: n/a
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LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
GS-6 step 2 @ 20.14 x 208 hours x 2.19 years	
TOTAL PERSONNEL SERVICE COST	\$9186
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
Rainfall monitoring equipment @ 9910.00 ea station x 2 stations	\$17,820
Hand Held Weather Radios @ 50.00 ea x 3 radios	\$150
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$17,970
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY11	8/6/2011	8/30/2014	Force	ea	\$9910.00	Installed	\$19,820
FY11	6/24/11	9/30/2011	Force	ea	50.00	Installed	\$150
FY11	8/6/2011	9/30/2011	Force	40	\$20.14	Maintained	\$806
FY12	10/1/2011	9/30/2012	Force	208	20.14	Maintained	\$4,190
FY13	10/1/2012	9/30/2013	Force	208	20.14	Maintained	\$4,190
TOTAL							27,156

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	E
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.
Line of site analysis
Quotes.

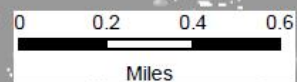
TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
NPS	na	\$27,156
	TOTAL COST	

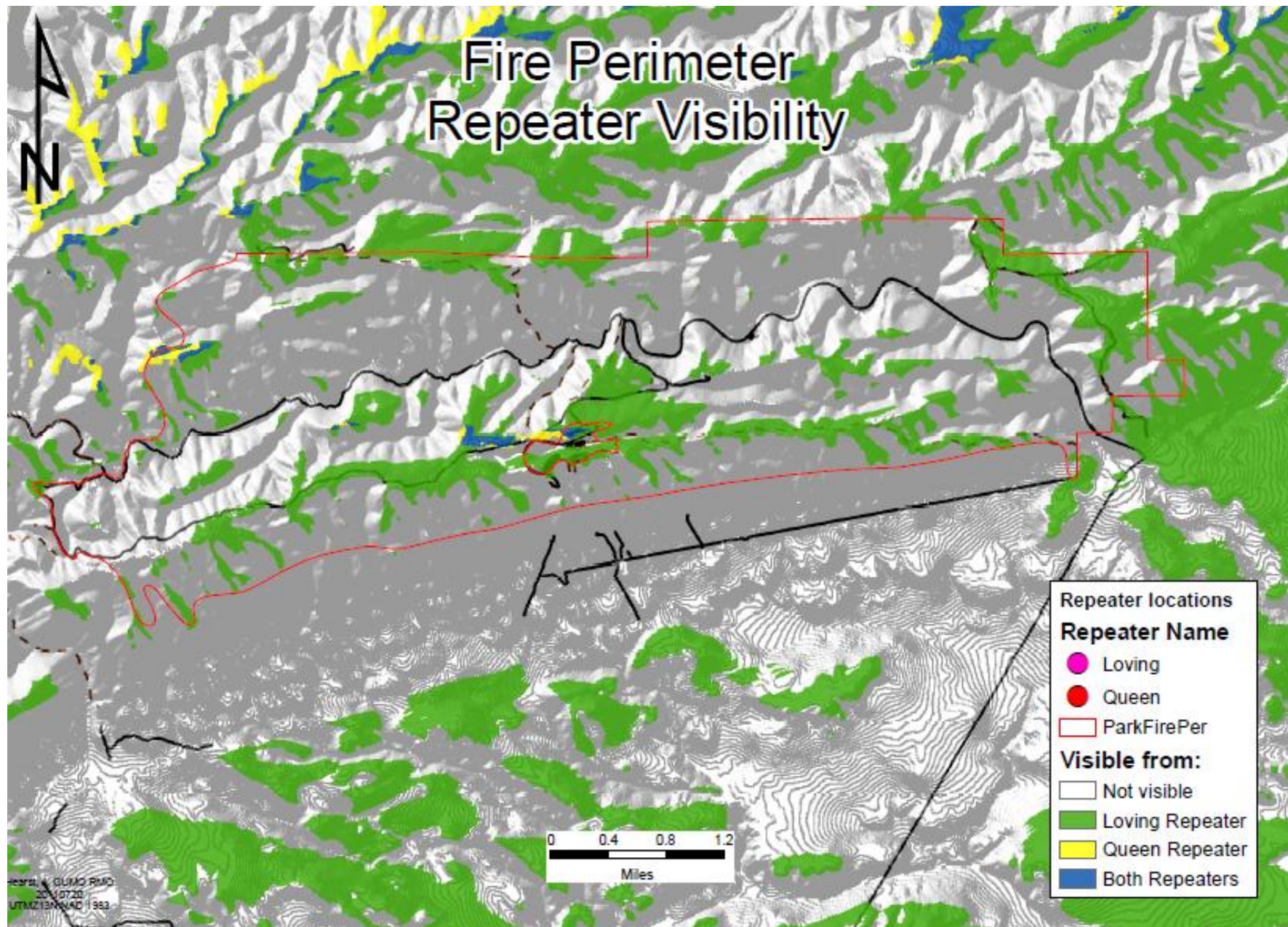
Fire Perimeter Repeater Visibility



- Repeater locations**
- Repeater Name**
- Loving
 - Queen
 - ParkFirePer
- Visible from:**
- Not visible
 - Loving Repeater
 - Queen Repeater
 - Both Repeaters



Hearst, J. GUMO RMO
20110720
UTM13N NAD 1983



PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Highway & Trail Sign and Marker Replacement	PART E SPECIFICATION #	O-1
NFPORS TREATMENT CATEGORY*	Roads	FISCAL YEAR(S) (list each year):	FY11
NFPORS TREATMENT TYPE *	Signs	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP; White's City, NM	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: A. General Description: Replace signs and markers along the Loop Road and the park entrance road (State Highway 7) damaged by the fire B. Location/(Suitable) Sites: Signs C. Design/Construction Specifications: 1. Specifications meet Department of Transportation 2. 3. D. Purpose of Treatment Specifications: Replace signs destroyed by the signs.. E. Treatment Effectiveness Monitoring Proposed: n/a
--

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
1. U.S. Department of Justice Multiple Highway signs (See attached quote for details)	\$6,229.15
2. 2"x 2" Square post 12", 12 ga (\$52.50 ea x 53 x 1FY) quote attached	\$2,782.50
3. Hex Bolt/Nut Set 5/16" x 3" (\$1.25 ea x 100 x 1FY) quote attached	\$125.00
4. 5/16 Breakaway Nut (\$0.95 ea x 100 ea x 1FY) quote attached	\$95.00
5. Carriage Head Bolt 5/16" x 3" (\$1.55 ea x 100 x 1 FY) quote attached	\$155.00
6. Carsonite Roadmarker CRM-375 (\$17.60 ea x 75 x 1 FY + \$150 shipping) quote attached	\$1,470.00
7. 30" x 20" x 0.090 Fiberglass – embedded Panels (\$124 ea x 2 x 1FY) quote attache	\$248.00
8. NPS Style Aluminum Low Profile Exhibit Base Direct Embed for 30" x 20" panel. (\$430 ea x 1 x 1FY)	\$430.00
9. NPS Style tradional Post & Frame – powder coated extruded aluminum (\$502.20 ea x 2 x 1 FY + \$165 shipping)	\$1,169.40
TOTAL MATERIALS AND SUPPLY COST	12703.55
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY11	09/01/2011	09/30/2011	FA	ea	\$26.09	487	\$12,706
FY__							
FY__							
FY__							
TOTAL							\$12,706

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	M
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.
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TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
NPS-CAVE	487	\$12,706
TOTAL COST		\$12,706



U.S. Department of Justice

Federal Bureau of Prisons
Product Support Center
Englewood
Littleton, CO 80123

Tuesday, June 28, 2011

Carlsbad Caverns National Park
3225 National Park Highway
Carlsbad, NM 88220
Ph. 505-785-2232
Fax: 505-785-2320
Email:

Description	Qty.	Price Per Unit	Value
12" x 18" .125 Alum (VIS)	2	\$61.00	\$122.00
30" x 30" .125 Alum (LF-HAIRPIN CURVE)	1	82.35	82.35
30" x 30" .125 Alum (RT-HAIRPIN CURVE)	1	82.35	82.35
10" x 18" .125 D10-1 (ONE-DIGIT) #3	2	19.70	39.40
10" x 18" .125 D10-1 (ONE-DIGIT) #6	2	19.70	39.40
48" x 30" .125 Alum (ROAD CLOSED)	1	118.80	118.80
29" x 13.5" Alupalite (NPS CUSTOM SIGN)	1	190.55	190.55
23" x 5" .080 Alum. (DBL-SIDED CHANGEABEL PANEL)	1	50.45	50.45
36" x 24" .125 Alum. (CUSTOM TRAFFIC SIGN)	1	110.15	110.15
12" x 8" .080 Painted Alum. (NPS TRAIL GUIDE)	1	50.10	50.10
24" x 30" .125 Alum. (TRAFFIC-R2-5a SIGN)	1	77.40	77.40
24" x 24" .125 Alum. (ADVIORY SPEED-W13-1) #30	2	60.00	120.00
24" x 24" .125 Alum. (TRAFFIC-R2-3 SIGN) #45	2	60.00	120.00
24" x 30" .125 Alum. (TRAFFIC-R2-1 SIGN) #40	2	77.40	154.80
30" x 30" .125 Alum. (WARN-W7-1 SIGN)	1	82.35	82.35
30" x 30" .125 Alum. (WARN-W1-5R SIGN)	1	82.35	82.35
30" x 30" .125 Alum. (WARN-W1-2R SIGN)	6	82.35	494.10
30" x 30" .125 Alum. (WARN-W1-2L SIGN)	6	82.35	494.10
18" x 18" .125 Alum. REC-SYMBOL (PS-042 NO CAMPFIRE)	1	39.25	39.25
24" x 30" .125 Alum. (TRAFFIC R2-1 SIGN) #15	3	77.40	232.20
61" x 31" Alupalite (NPS CUSTOM SIGN) Caverns/Maintenance w/arrows	1	468.05	468.05
70.5" x 23" .120 Fiberglass (NPS CUSTOM SIGN) Caverns w/arrow	1	193.20	193.20

66.3" x 41.3" Alupalite (NPS CUSTOM SIGN) Scenic Loop Road w/(3) Rec-Symbols	1	599.35	599.35
55.3" x 22" Alupalite (NPS CUSTOM SIGN) Use Pullouts When Parking	1	351.05	351.05
52" x 33" Alupalite (NPS CUSTOM SIGN) Exhibit Ahead	6	287.35	1,724.10
12" x 12" .080 Alum. REC-SYMBOL (RS-114 INTERPRETIVE TRAIL)	6	18.55	111.30

ALL SIGNS HAVE NPS PAINTED BACKS & .125 ALUMINUM PER UNIGUIDE SPECIFICATIONS.

.....
FINAL AMOUNT:

\$ 6,229.15

Vendor Name:	Karla D. Kunsemiller, UNICOR PCS	Phone	303-763-2588
Signature:		Fax	303-763-2526
Address:	9595 W. Quincy Ave.	Email	kkunsemi@central.unicor.gov
City, State, Zip	Littleton, CO 80123	TIN #	530205705
		DUNS #	103385519

UNICOR provides a quality product at a comparable price and on time delivery to all of our Federal Government customers. If there are any questions please do not hesitate to contact me.

Sincerely,

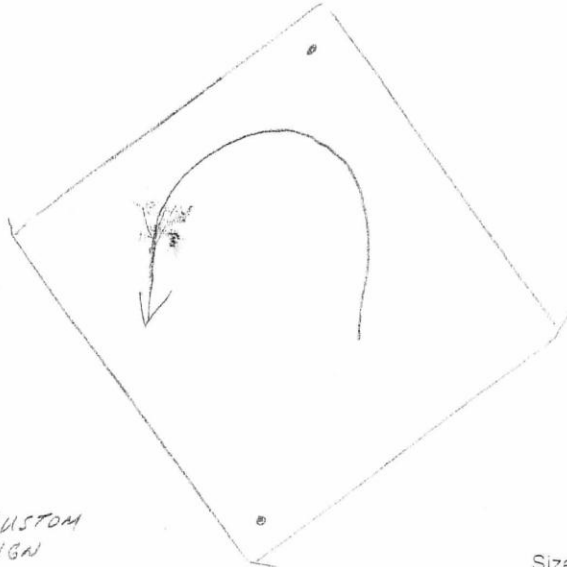
Karla Kunsemiller, Graphics Specialist

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decals per form.)

(Please use this area to sketch your requirement.)



Quantity: 1

CUSTOM
SIGN

Size: 30" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: EMBLEM

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: YELLOW BACKGROUND

BLACK EMBLEM & BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decal per form.)

(Please use this area to sketch your requirement.)



MUTCD # D10-1
STOCK # D10-1-10X18HA

Quantity: 2

Size: 10" x 18"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4" LETTERS, 6" #

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: LIGHT GREEN BACKGROUND
WHITE REFLECTIVE LETTERS, #, +
BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above.
- Size of holes: _____
- ☒ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

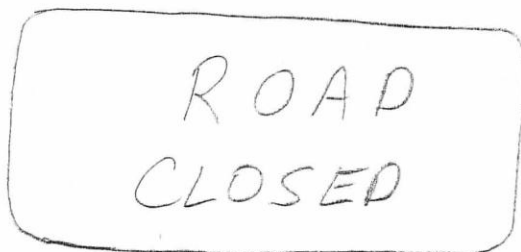
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)



Quantity: 1

MUTCD # R11-2

Stock # 9905-00-721-8423

Size: 48" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 8"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: WHITE BACK GROUND

BLACK LETTERING + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above

Size of holes: _____

- ☒ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

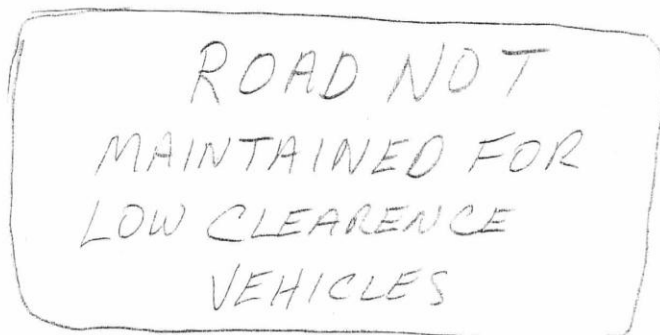
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decals per form.)

(Please use this area to sketch your requirement.)



Quantity: 1

CUSTOM SIGN

Size: 36" x 24"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 3 1/4"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: WHITE BACKGROUND
BLACK LETTERING + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above.
- Size of holes: _____
- ☒ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

Custom Sign and Decal Notation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decal per form.)

(Please use this area to sketch your requirement.)



MUTCO # R2-5a

Quantity: 1

Stock # R2-5a-24x30HA

Size: 24" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 6"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: WHITE BACKGROUND

BLACK LETTERING + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

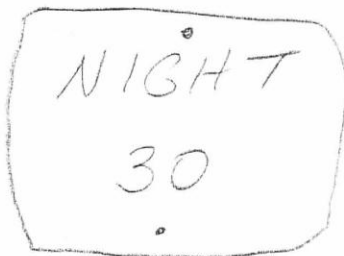
Special instructions: _____

Custom Sign and Decal Notation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decal per form.)

(Please use this area to sketch your requirement.)



MUTCD # R2-3

Quantity: 2 STOCK # R2-3-24x24 HA

Size: 24" x 24"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 3" LETTERS, 8 1/4" NO. 5

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: BLACK BACKGROUND
WHITE REFLECTIVE LETTERS, NO. 5, &
BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
- Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

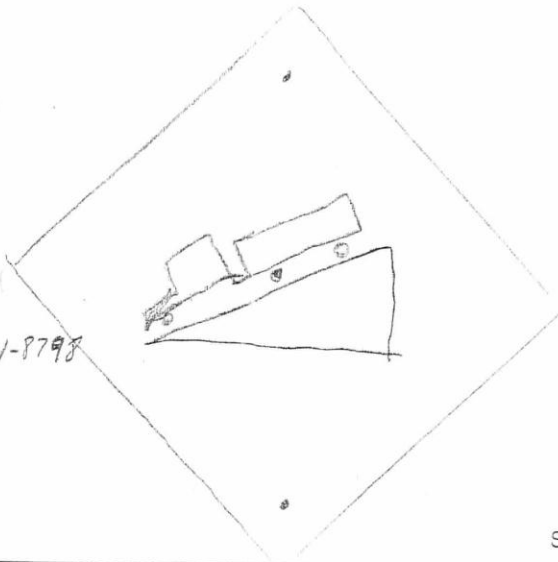
Custom Sign and Decal Notation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)

MATCO # W7-1
Stock # 9905-00-721-8798



Quantity: 1

Size: 30" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: EMBLEM

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: YELLOW BACKGROUND

BLACK EMBLEM + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
- Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)

MUTCD # W1-2R
STOCK # 9905-01-027-1874

Quantity: 16

Size: 30" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: EMBLEM

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: YELLOW BACKGROUND

BLACK EMBLEM + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.

Size of holes: 3/8"

- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

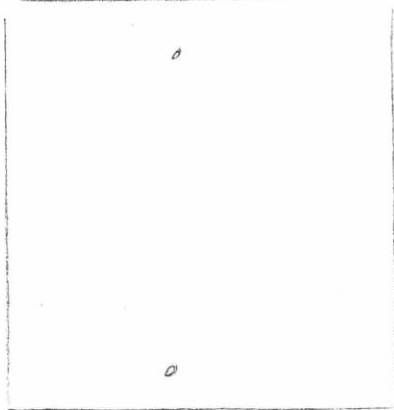
Loop 11d.

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)



CAMPFIRES W/RED PROHIBITIVE SLASH

RS-042-18X18 RA

Quantity: 1

Size: 18" x 18"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: CAMPFIRES W/RED PROHIBITIVE
SLASH

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: BROWN BACKGROUND
WHITE REFLECTIVE LETTERS + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
- Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)

Use Pullouts
When Parking

Quantity: 1

Size: 20" x 54"

Substrate:

- ☐ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4" LETTERS + 3" LETTERS

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: BROWN BACK GROUND
WHITE REFLECTIVE LETTERING + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign? 2 ALUMINUM Z BAR MOUNTS

- ☐ Yes—please specify location on drawing above.

Size of holes: _____

- ☒ No

Was this sign previously ordered?

- ☒ Yes P.O. # 7 Date 11/92
- ☐ No

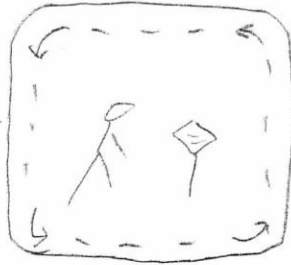
Special instructions: _____

Custom Sign and Decal Notation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)



EMBLEM

Quantity: 6

Size: 1' x 1'

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: EMBLEM FOR EXHIBIT
AHEAD

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: BROWN BACKGROUND
WHITE REFLECTIVE

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above.
Size of holes: _____
- ☒ No

Was this sign previously ordered?

- ☒ Yes P.O. # ? Date ?
- ☐ No

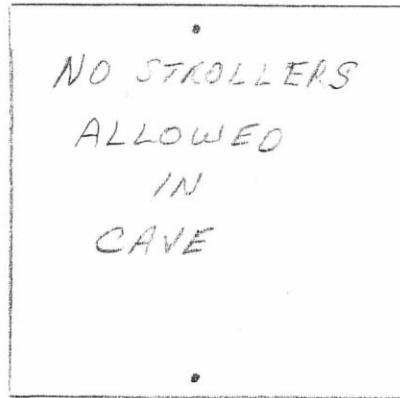
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decal per form.)

(Please use this area to sketch your requirement.)



Quantity: 2

Size: 12" x 12"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 1 1/2"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: WHITE REFLECTIVE BACK GROUND
GREEN LETTERING & BORDER

Name: RUPEN CASTILLO

Agency: CARLSBAD CAVERNS NATL. PARK

Street address: 15 REEF TOP CIRCLE

Phone: 575-785-3056

Fax: 575-785-2320

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

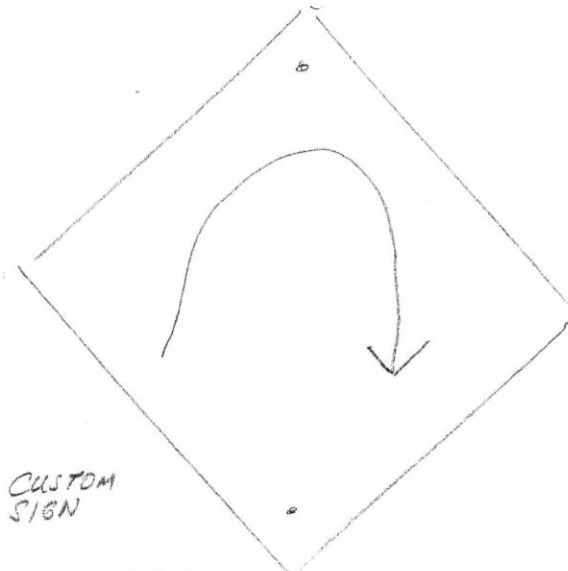
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decal per form.)

(Please use this area to sketch your requirement.)



Quantity: 1

Size: 30" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Size of letters: EMBLEM

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Holes for sign?

- ☐ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Colors: YELLOW BACKGROUND

BLACK EMBLEM + BORDER

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Name: _____

Special instructions: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Custom Sign and Decal Notation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decals per form.)

(Please use this area to sketch your requirement.)



Quantity: 2

MUTCD # D10-1
Stock # D10-1-10X18HA

Size: 10" x 18"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Size of letters: 4"

5 1/2"

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above.
- Size of holes: _____
- ☒ No

Colors: LIGHT GREEN BACKGROUND
WHITE REFLECTIVE LETTERS, NUM + BORDER

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Name: _____

Special instructions: _____

Agency: _____

Street address: _____

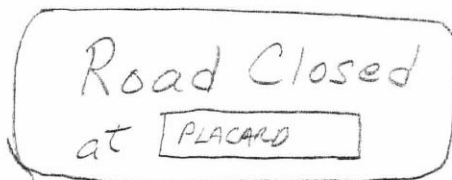
Phone: _____

Fax: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568 (Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)



NOTE: SLIDE IN PLACARD FOR TIMES OF 4:30 PM, 5:30 PM

Quantity: 1

CUSTOM SIGN

Size: 24" x 12"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 2" + 1 1/2"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: BROWN BACKGROUND

WHITE REFLECTIVE LETTERS + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above.

Size of holes: _____
☒ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

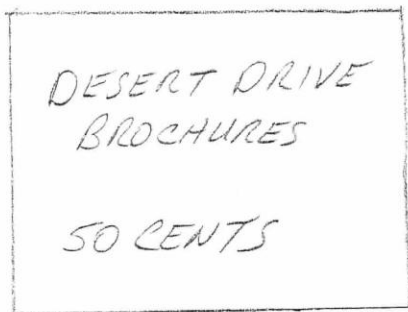
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decal per form.)

(Please use this area to sketch your requirement.)



Quantity: 1

CUSTOM SIGN

Size: 11" x 8"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 1"

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: BROWN BACKGROUND

WHITE LETTERING

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☒ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☐ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☐ Yes—please specify location on drawing above.

Size of holes: _____
☒ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

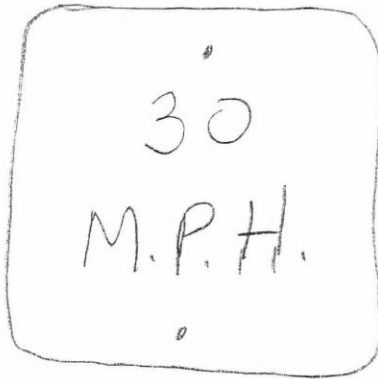
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decal per form.)

(Please use this area to sketch your requirement.)



MUTCD # W13-1
STOCK # W13-1-24X24HA

Quantity: 2

Size: 24" x 24"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4" & 10 1/4" #'s

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: YELLOW BACKGROUND

BLACK LETTERS, #'S, & BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decal per form.)

(Please use this area to sketch your requirement.)



MUTCD # R2-1
STOCK # R2-1-40-24X30HA

Quantity: 2

Size: 24 x 30

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4" LETTERING, 9 3/4" #1

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: WHITE BACKGROUND
BLACK LETTERING, #1, + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☐ No

Special instructions: _____

Custom Sign and Decal Notation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)

MUTCD# W1-5R
STOCK# 9905-00-721-8721

Quantity: 1

Size: 30" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: EMBLEM

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: YELLOW BACKGROUND

BLACK EMBLEM + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☒ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decals per form.)

(Please use this area to sketch your requirement.)

MUTCD # W1-2L
STOCK # W1-2L-30x30HA

Quantity: 6

Size: 30" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: EMBLEM

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: YELLOW BACKGROUND

BLACK EMBLEM + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☐ No

Special instructions: _____

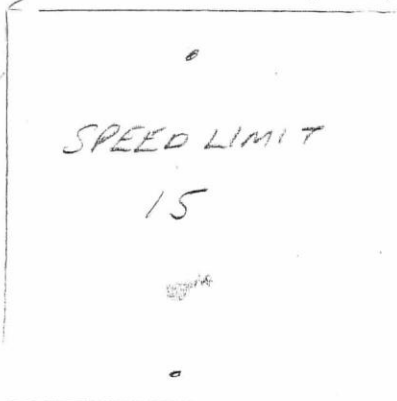
LOSP Rd.

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decal per form.)

(Please use this area to sketch your requirement.)



MUTCD # R2-1
STOCK # R2-1-15-24X30HA

Quantity: 3

Size: 24" x 30"

Substrate:

- ☒ Aluminum
- ☐ Plywood
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4", #5 10"

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: WHITE BACKGROUND

BLACK LETTERS + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign?

- ☒ Yes—please specify location on drawing above.
Size of holes: 3/8"
- ☐ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☐ No

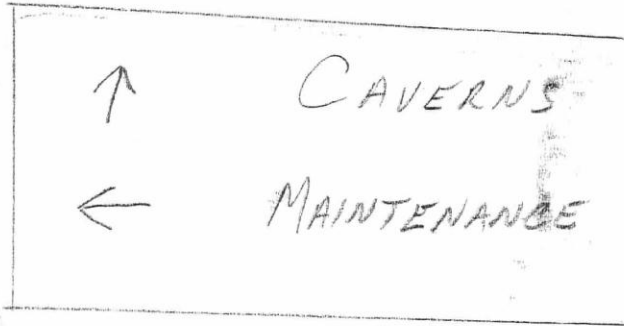
Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decal per form.)

(Please use this area to sketch your requirement.)



Quantity: 1

Size: 2' H x 86" L

Substrate:

- ☐ Aluminum
- ☒ Plywood 3/4"
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4 1/2" + 3" ALKOWS 5 1/2"

If unsure, can factory determine best size for your sign? ☐ Yes ☐ No

Colors: BROWN BACKGROUND
WHITE REFLECTIVE LETTERING &
BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign? 2 ALUMINUM 2 BAR MOUNT

- ☐ Yes—please specify location on drawing above.

Size of holes: _____
☒ No

Was this sign previously ordered?

- ☒ Yes P.O. # ? Date ?
- ☐ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with one sign/decals per form.)

(Please use this area to sketch your requirement.)

Scenic Loop Road
One Way Next 9.5 mi.
No Buses, Trailers,
Motorhomes

Quantity: 1

Size: 30" H x 78" L

Substrate:

- ☐ Aluminum
- ☒ Plywood 3/4"
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 4" + 2 3/4"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: BROWN BACKGROUND
WHITE REFLECTIVE LETTERING + BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign? 2 ALUMINUM Z BAR MOUNTS

- ☐ Yes—please specify location on drawing above.

Size of holes: _____
☒ No

Was this sign previously ordered?

- ☐ Yes P.O. # _____ Date _____
- ☐ No

Special instructions: _____

Custom Sign and Decal Quotation Form

FAX your request for quote to: (303) 763-2566 or -2568

(Copy this form as needed, with **one** sign/decal per form.)

(Please use this area to sketch your requirement.)

Exhibit
Ahead

Quantity: 10

Size: 30" W x 4' L

Substrate:

- ☐ Aluminum
- ☒ Plywood 3/4"
- ☐ Magnetic
- ☐ Fiberglass
- ☐ Plastic
- ☐ Decal

Size of letters: 6" x 4"

If unsure, can factory determine best size for your sign? ☒ Yes ☐ No

Colors: BROWN BACKGROUND
WHITE REFLECTIVE LETTERING &
BORDER

Name: _____

Agency: _____

Street address: _____

Phone: _____

Fax: _____

Reflectivity of sheeting:

- ☐ Non-Reflective
- ☐ Phosphorescent
- ☐ Retro-Reflective—Engineer Grade (meets LS 300 C)
- ☒ Retro-Reflective—High-Intensity (meets LS 300 C)

Radius corners:

- ☒ Yes
- ☐ No or Not Applicable

Holes for sign? 2 ALUMINUM Z BAR MOUNTS

- ☐ Yes—please specify location on drawing above.

Size of holes: _____
☒ No

Was this sign previously ordered?

- ☒ Yes P.O. # ? Date ?
- ☐ No

Special instructions: _____



SEARCH



NAVIGATION

BLINKERSIGN SOLAR LED
SIGNS
SIGNS
STREETSCAPE
POSTS & BASES
V-LOC ANCHOR SYSTEMS
HARDWARE & TOOLS
TRAFFIC CONTROL
WORKZONE
LED LIGHTS
DIGITAL SIGN MAKING
PARKING MANAGEMENT
GREEN
PRODUCTS
SILLY SIGNS

YOUR CART | 1 PAGE CHECKOUT | RECEIPT

shop for more items

ITEM	DESCRIPTION	QTY	EACH	TOTAL
	2" X 2" Square Post, 12', 12 ga.	53	\$52.50	\$2,782.50
	Hex Bolt/Nut Set 5/16" x 3"	100	\$1.25	\$125.00
	5/16" Breakaway Nut	100	\$0.95	\$95.00
	Carriage Head Bolt 5/16" x 3"	100	\$1.55	\$155.00

Click to remove an item from your cart
Empty My Entire Cart

Coupon code? Enter it here:

Total: **\$3,157.50**

Links

CLEARANCE



Proud Member

proceed to checkout

Click Proceed to Checkout to complete your order now.

On the next page you'll be able to create a personal account or checkout anonymously. If you choose to checkout anonymously, be aware that you will be unable to view your account and order detail history.

returning customers

Sign In for Faster Checkout

Email Address

OR
Password

[Forgot your password?](#)

Disclaimer

Please review your order. If you are ordering ADA Signs, please make sure that they meet your state requirements. A Federal ADA sign may not be compliant in your state. If everything looks good, proceed to checkout.

Due to the nature of the products we offer, freight cannot be calculated on this website. A \$6 handling fee is added to all orders regardless of the freight amount. If you need a freight quote prior to shipping, please e-mail jecclies@tapconet.com and we'll be happy to provide you with one. Also, if you have a preferred method of shipping, please indicate it in the "Comments" field during check out. However, be aware that signs 48"x48" and larger are

INGROUND DELINEATORS

HOME

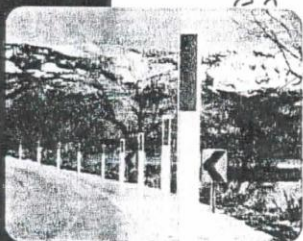
PRODUCTS

CARSONITE ROADMARKER CRM-375

Withstands High Speed Vehicle Impacts

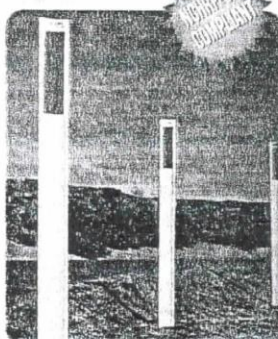
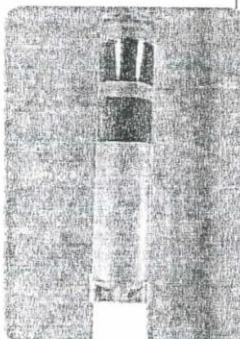
For use on straight-aways and general delineation, Carsonite's Roadmarker will withstand numerous vehicle impacts at various speeds and return to its original upright position. The unique "three-rail" design provides the optimum combination of flexibility and structural integrity for easy installation. The recessed surface protects sheeting from damage during vehicle impacts.

Material: Composite
Width: 3.75"(9.5cm)
Lengths: 62"(157.5cm), 66"(167.6cm),
72"(182.9cm), 78"(198.1cm),
84"(213.4cm)
Weight: 2.5 lbs.(1.1kg)(62")
Colors: White, Yellow, Brown, Orange,
Red, Green, Blue
Model: CRM-375



VISIBILITY ENHANCER

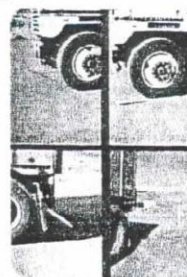
Imagine installing a 360° visibility marker without digging! Carsonite's Visibility Enhancer combines the drivable Roadmarker or Dual Sided Marker with a rugged 20-1/2" polyethylene sleeve. Perfect for intersections, medians, etc. Add reflective sheeting for nighttime visibility. Model: Visibility EN



CURV-FLEX CFR

Passed NASHTO and SASHTO Vehicle Impact Testing

Ideal for on/off ramps, curves and other high impact areas, Curv-Flex is designed for greater flexibility, enabling high speed vehicle impacts. Because of its greater flexibility, the Curv-Flex may require a small pilot hole in dense soil conditions before installation with PDR-1 Driver.



FLEXGUARD

Two-Piece Post for Simplified Installation, Replacement.

Combining an easily installed drivable ground anchor with an easily replaced flexible post, the FlexGuard system offers outstanding impact resistance and high visibility for daytime and nighttime roadway delineation and other marking applications. The tubular FlexGuard post will withstand multiple vehicle or tire impacts at speeds up to 55 m.p.h., in temperatures from -20 to +120 degrees F. Its durable polymer construction resists damage from vandalism, ozone, hydrocarbons, and UV light. The 18" corrosion-resistant FlexGuard socket can be driven into dense soils using common tools. Post insertion requires no tools at all, making FlexGuard the ultimate delineation system for ease of installation and remains in the ground; simply slide in a new post and the job is done.

Material: Plastic Polymer
Width: 2.25"(5.7cm)
Lengths: 60"(152.4cm), 66"(167.6cm), 72"(182.9cm), 78"(198.1cm)
Weight: 3.5lbs.(66")
Colors: White, Yellow, Orange
Model: Flexguard

Material: Composite
Width: 4"(10.2cm)
Lengths: 62"(157.5cm),
66"(167.6cm),
72"(182.9cm),
78"(198.1cm),
84"(213.4cm)
Weight: 1.98 lbs.(0.9kg) (62")
Colors: White, Yellow
Model: CFR



503.235.8531 / fax 503.235.5112 / sales@tssco.com
www.tssco.com

TRAFFIC SAFETY SUPPLY
COMPANY

QUOTATION

Pannier

Inquiry No. E013292

Page 1 of 1

06/30/11

Carlsbad Cavern National
Park
3225 National Parks highway
Carlsbad NM 88220

ATTN: Marie Marek
Phone: 575-785-3123 Fax:
PROJECT: CAVE ex 81 and 82

Quantity	Description	Unit Price	Total Cost
2	30"w x 20"h x .090 Fiberglass-Embedded Panels. Both different. Single-faced. Matte finish. Square cut. No holes. EX 81 and 82 from WO 22754.	\$124.00	\$248.00
1	NPS Style Aluminum Low Profile Exhibit Base Direct Embed for 30"w x 20"h panel. Visual area will be 29"w x 19"h. New Style base with 2x3 post.	\$430.00	\$430.00



TERMS AND CONDITIONS

- One proof of each original will be submitted for customer's approval.
- Bulk packed and one shipment.
- Prices effective for 90 days.
- FOB: Gibsonia
- Delivery: 15 - 20 Business days after proof approval.
- **Net 30 Days**

Sale Amount: \$678.00

Robin Heddaeus

Robin Heddaeus
Market Specialist
1-800-544-8428 X 220

Customer Acceptance/Date

Print Name and Title



Estimate
EnviroSigns, Ltd dba Sign Pro of Canton
 2700 Fulton Dr NW
 CANTON, OH 44718
 ph. 330-455-0909
 fax 330-455-2220
 email: sales@envirosigns.com

Estimate: 893944

Printed 6/30/2011 5:15:49PM

Created Date:	6/30/2011 5:15:38PM	Prepared For:	Carlsbad Caverns National Park
Entered By:	Lynn McSheehy	Contact:	Chuck Burton
Phone:	(330) 455-0909	Address:	3225 National Parks Highway Carlsbad, NM 88220
Fax:		Email:	chuck_burton@nps.gov
		Phone:	(575) 785-3050

NPS Traditional Exhibit Bases

Product	Qty	Sides	Height	Width	Unit Cost	Item Total
1 NPS Traditional 24x36 Color: Black Font: Description: NPS Style traditional posts (2) & frame - powder-coated extruded aluminum. ISO 9001-2000 certified Text:	2	1	24	36	\$502.2000	\$1,004.40
2 Shipping Charge Color: Font: Description: PLEASE READ CAREFULLY ... Go to http://envirosigns.com/shippingFAQ.pdf and see what we need to know to get an accurate shipping quote. Shipping costs are estimated and could be more or less depending on when these actually ship. They are based on delivery to a business. Delivery to a residential address will be more. It is important you give us the correct shipping address when ordering a job and let us know if this is a residential delivery or business delivery and a contact phone number must be included. IMPORTANT! Some of the product comes via trucking company so your location would need truck access and a way to unload large skids if applicable. If you feel you will need a lift gate, we need to know that - the additional cost for such is generally about \$250. This is the shipping companies additional charge - not ours - we have to pass that along. As stated, Shipments to home address cost more so we need to know that as well. all deliveries MUST BE INSPECTED upon delivery. Due to shipping regulations all damage not brought to our attention prior to 14 days after receipt cannot be replaced or repaired without charges. Text:	*	1	1	1	\$165.0000	\$165.00

Notes:

Line Item Total:	\$1,169.40
Tax Exempt Amt:	\$1,169.40
Subtotal:	\$1,169.40
Taxes:	\$0.00
Total:	\$1,169.40

Deposit Required: **\$584.70**

Company: Carlsbad Caverns National Park
 3225 National Parks Highway
 Carlsbad, NM 88220

Received/Accepted By: _____ / /

No proof needed: (initial/date) _____ / _____

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Pipeline Exposed Asbestos Assessment	PART E SPECIFICATION #	O-2
NFPORS TREATMENT CATEGORY*	Assessment	FISCAL YEAR(S) (list each year):	FY11
NFPORS TREATMENT TYPE *	Risk Assessment	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: A. General Description: Assess asbestos hazard from the pipeline insulation and soil below. B. Location/(Suitable) Sites: Carlsbad Caverns National Park; 8 in waterline to Walnut Canyon Water Tank.. C. Design/Construction Specifications: Standard procedures for asbestos testing of materials and soils. 1. 2. 3. D. Purpose of Treatment Specifications: Determine the extent of hazard for asbestos exposure. E. Treatment Effectiveness Monitoring Proposed: n/a.
--

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
See attached Quote	
TOTAL CONTRACT COST	\$4868

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY11			SC				\$4868
FY__							
FY__							
TOTAL							\$4868

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, E = Equipment M = Materials/Supplies, T = Travel, C = Contract, F = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report
See following quote.

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
NPS	Ea	\$4868
	TOTAL COST	\$4868

New Mexico

	GSA Classifications	Discipline Project Manager-XIII	Engineer Scientist-X	Engineer Scientist-V	Administrative Support-I	Technician XII (CADD)		
Task/Subtask Descriptions	GSA Labor Rates Base Year: 2011	\$154.49	\$119.49	\$76.73	\$60.20	\$76.48	Total Hours	Total Cost
								\$ -
Task 1 - Project Management		1					1	\$ 154.49
								\$ -
Task 2 - Field Investigation			12				12	\$ 1,433.88
								\$ -
Task 3 - Draft and Final Report			8		1	1	10	\$ 1,092.60
								\$ -
Task 4 - Conference Call		1	1				2	\$ 273.98
Total Baker Hours		2	21		1	1	25	
Total Baker Labor Cost		\$ 308.98	\$ 2,509.29	\$ -	\$ 60.20	\$ 76.48		\$ 2,954.95

July 1, 2011

NATIONAL PARK SERVICE COST ESTIMATE
Asbestos Investigation and Assessment
Carlsbad Cavern National Park
New Mexico

ATTACHMENT A.2

ESTIMATED TRAVEL COSTS

[illegible]

NATIONAL PARK SERVICE COST ESTIMATE
Asbestos Investigation and Assessment
Carlsbad Cavern National Park
New Mexico

ATTACHMENT A.3

ESTIMATED OTHER DIRECT COSTS

	2011	Copying	Postage Reports	Color Drawings	Binders (1")	Repro Costs	Sample/Equip Shipping	H & S Expendables	ODC's Subtotal
Task/Subtask Description		\$0.05 Each	\$25.00 Per Unit	\$1.95 Per Unit	\$4.00 Per Unit	\$55.00 Each	\$105.00 Per Unit	\$75.00 Person/Week	
									\$ -
Task 1 - Project Management									\$ -
									\$ -
Task 2 - Field Investigation							1	1	\$ 180.00
									\$ -
Task 3 - Draft and Final Report		50	1	6	2	1			\$ 102.20
									\$ -
Task 4 - Conference Call									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
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									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
									\$ -
Total Baker Units		50	1	6	2	1	1	1	
Total Baker ODCs Cost		\$ 2.50	\$ 25.00	\$ 11.70	\$ 8.00	\$ 55.00	\$ 105.00	\$ 75.00	\$ 282.20

NATIONAL PARK SERVICE COST ESTIMATE
Asbestos Investigation and Assessment
Carlsbad Cavern National Park
New Mexico

ATTACHMENT A.4

SUMMARY OF ESTIMATED LABORATORY COSTS

Description	Aqueous Samples				Solid Samples				Total Cost
	Number of Tests	Number of QA/QC Samples	Unit Price	Subtotal Cost	Number of Tests	Number of QA/QC Samples	Unit Price	Subtotal Cost	
Asbestos PLM (Bulk Material)				\$ -	3		\$ 12.00	\$ 36.00	\$ 36.00
Asbestos PLM (Soil)				\$ -	15		\$ 17.00	\$ 255.00	\$ 255.00
TOTAL ANALYTICAL COSTS				\$ -				\$ 291.00	\$ 291.00

NATIONAL PARK SERVICE COST ESTIMATE
Asbestos Investigation and Assessment
Carlsbad Cavern National Park
New Mexico

ATTACHMENT A.6

ESTIMATED SUBCONTRACTOR COST - SUB 1

[illegible]

NATIONAL PARK SERVICE COST ESTIMATE
 Asbestos Investigation and Assessment
 Carlsbad Cavern National Park
 New Mexico

ATTACHMENT A.4

	TOTAL
SUMMARY OF COST ESTIMATE	
1. Total Labor Cost (Reference to Attachment A.1)	\$ 2,954.95
2. Total ODCs- Including Equipment, excluding Subcontractors (Refer to Attachment A.3)	\$ 282.20
3. Total Subcontractor Costs (Refer to Attachment A.3)	\$ 291.00
4. Travel Costs (Refer to Attachment A.2)	\$ 1,340.00
5. Total Costs, Including Subcontractors (Lines 1+2+3+3+4)	\$ 4,868.15

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Telecommunications Trenching	PART E SPECIFICATION #	O-3
NFPORS TREATMENT CATEGORY*	Facilities & Infrastructure	FISCAL YEAR(S) (list each year):	FY12
NFPORS TREATMENT TYPE *	Repair Administrative Facilities	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task: A. General Description: A 1000' telecommunications cable was burned over and destroyed during the fire as it was laid on the surface of the ground at the parks direction and was therefore vulnerable to a fire. To protect the cable from future fires and exposure to harsh weather it is planned to re-locate the line and bury it along with the freeze damaged waterline in the same trench. B. Location/(Suitable) Sites: Trenching will begin where the overhead communication ends in the park adjacent to the sewage lagoon road. The trench would continue west paralleling the lagoon service until the road turns and heads toward the water treatment build where the replacement of the waterline begins. Windstream Communications will provide the cable and labor. C. Design/Construction Specifications: 1 ft. wide x 2-5 ft deep x 1359 ft. D. Purpose of Treatment Specifications: To place the telecommunications cable in a more secure location and protect from wildland fires. E. Treatment Effectiveness Monitoring Propose: n/a
--

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Trenching (\$5.00 linear foot x 1359 ft. x 1 FY)	\$6795
TOTAL CONTRACT COST	\$6795

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY 12	12/1/2011	09/30/2012	SC	1359	\$5.00	1359 ft	\$6795
FY__							
FY__							
FY__							
TOTAL							

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	X
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
NPS		
	TOTAL COST	



PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Archeological Technician-Monitor of 115 wildfire affected archeological sites at CAVE	PART E SPECIFICATION #	C-1
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	FY 2012, 2013.
NFPORS TREATMENT TYPE *	Treatment Effectiveness Monitoring	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns HQ; White's City, NM	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

- A. General Description: Hire one Archeological Technician (GS-193-07) for two seasons to monitor erosion, other burn effects, and looting on archeological sites caused by the burning of vegetation by the Loop Wildfire of 2011. One archeologist will perform inventory, write site forms updates and monitoring report in 6 months each year.
- B. Location/(Suitable) Sites: Loop Fire within CAVE: (about 100 sites are recorded as being within the fire area). Locations are sensitive information.
- C. Design/Construction Specifications: each year:
1. Archeological Technician will monitor 100 sites for potential erosion by precipitation events and possible looting because of increased exposure.
 2. Archeological Technician will monitor recovery of vegetation on sites (vegetation will limit or reduce erosion danger and visibility for looting).
 3. Archeological Technician will update required records in NPS ASMIS (Archeological Site Management Information System) and NMSHPO ARMS (Archeological Records Management System).
- D. Purpose of Treatment Specifications: to record effects of potential erosion and other burn effects upon sites and useful scientific information lost from 100 sites.
- E. Treatment Effectiveness Monitoring Proposed:

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
GS-193-7 seasonal Archeological Technician at (max estimate) \$ 16.28/hr + benefits at 7.5% = \$ 17.50 x 126 days x two FY + 1 % increase for FY 2013 year (\$176.00). Work to be performed is at the GS-193-7 level. TOTAL PERSONNEL SERVICE COST	\$ 35,456
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
ARMS fees (NMSHPO ARMS require a \$100 fee each year for using and entering data into their system). By NM State Law data must be entered into NMSHPO ARMS before a determination of effect on NHPA properties can be completed by the NMSHPO. FY 2012 = \$100, FY 2013 = \$100. TOTAL CONTRACT COST	\$200.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12	02/01/2012	08/31/2012		Month	\$2,940	6	\$ 17,640
FY13	02/01/2013	08/31/2013		Month	\$2,969	6	\$ 17,816
FY__							
FY__							
TOTAL							\$ 35,6 56

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. Site forms updated in NPS ASMIS and NMSHPO ARMS files. Site forms will include a GPS map of each site (if possible) showing pertinent data such as features and potential erosion lost areas.

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
	TOTAL COST	

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Biological Science Technician—Monitor Vegetation Recovery & Non-native Wildlife	PART E SPECIFICATION #	VW-1
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	2012, 2013, 2014
NFPORS TREATMENT TYPE *	Ecosystem Recovery	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP, White's City, NM	IMPACTED T&E SPECIES	Lee's Pincushion Cactus

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: Hire a Biological Science Technician for three seasons to monitor vegetation recovery and non-native wildlife in Loop Fire area.
B. Location/(Suitable) Sites: Loop Fire
C. Design/Construction Specifications:
1. Biotech will monitor the federally listed Pincushion cacti for recovery from fire. This work will be based partly on previous such monitoring studies in the park, as well as working in new areas (and with newer GPS technology).
2. Biotech will work with vegetation ecologists to devise and implement a study of grass recovery, especially in the park-unique communities of Curlyleaf Muhly, as well as black grama and other ecologically important groups.
3. Biotech will monitor the burn area for the presence and behaviors of non-native Barbary sheep.
D. Purpose of Treatment Specifications:
E. Treatment Effectiveness Monitoring Proposed:

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
GS-0404-7 seasonal Biological Science Technician at \$16.28/hour + benefits at 7.5%=\$17.50x8hours/day x 126 days x 3 FY=\$52,920 --plus 1% increase (estimate) for each ensuing FY (\$176 and \$178)	
TOTAL PERSONNEL SERVICE COST	\$53,450
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	0
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	0
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12	04/01/ 2012	09/30/2012		Month	\$2,940	6	\$17,640
FY13	04/01/ 2013	09/30/2013		Month	\$2,969	6	\$17,816
FY14	04/01/ 2014	09/30/2014		Month	\$2,999	6	\$17,994
FY__							
TOTAL							\$53,450

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
	TOTAL COST	

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Monitor 2 state threatened bird species	PART E SPECIFICATION #	VW-2
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	12, 13, 14
NFPORS TREATMENT TYPE *	Ecosystem Recovery	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP; White's City, NM	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: CCNP had possibly the largest breeding populations in the state of Gray Vireo and Varied Bunting, both listed as threatened by New Mexico. The area of the Loop Fire contained a primary breeding habitat for both, but now much of the live habitat is gone.
B. Location/(Suitable) Sites: Locations are sensitive information.
C. Design/Construction Specifications: The two species will be surveyed consecutively on the same day using standard survey protocols from NM Dept. of Game and Fish. Surveys will be done over two mornings, three times each breeding season. Surveys will be done for three years.
D. Purpose of Treatment Specifications: n/a
E. Treatment Effectiveness Monitoring Proposed: n/a

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	0
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Mileage—(assuming Santa Fe to Carlsbad) Round trip: 540 miles at \$0.51/mile for 3 trips=\$826 x 3FY=\$2,479 Per diem—(CONUS 77/46) lodging 2 nights/trip=\$154x3trips=\$462x3 FY=\$1,386 M&IE=\$73 per trip x 3 trips=\$219x3 FY=\$657	
TOTAL	\$4,522
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Personnel—Field work \$20/hr for 8 hours=\$160 x 3 trips=\$480 x 3 FY=\$1,440	
Personnel—Report Preparation \$20/hr for 20 hours=\$800x3FY=\$2,400	
TOTAL	\$3,840

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12	06/01/2012	09/30/2012	SC	Season	\$4,181	1	\$4,181
FY13	06/01/2013	09/30/2013	SC	Season	\$4,181	1	\$4,181
FY__							
FY__							
TOTAL							\$8,362

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	P,M
3.	Estimate supported by cost guides from independent sources or other federal agencies	P
4.	Estimates based upon government wage rates and material cost.	T
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
	TOTAL COST	

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Monitor 2 state endangered and threatened snake species	PART E SPECIFICATION #	VW-3
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	12, 13
NFPORS TREATMENT TYPE *	Ecosystem Recovery	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP; White's City, NM	IMPACTED T&E SPECIES	

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: CCNP is the only documented location of the state-endangered gray-banded kingsnake, and is a prime habitat for the state-threatened mottled rock rattlesnake. Both were known from within the area of the Loop Fire. We need to get an idea of their presence or absence and population size. Detailed ecological data (habitat, weather conditions, etc) will be collected. Data will also be collected on air temperature, humidity, and wind speed at each locality. Distributional data will be collected for all reptile and amphibian species encountered. B. Location/(Suitable) Sites: Locations are sensitive information. C. Design/Construction Specifications: Surveys will be conducted using three standard herpetological survey methods: 1. Driving roads and shining high-powered lights into road cuts 2. Walking transects 3. Funnel Traps. (Traps that have a mesh funnel on one end, placed in areas snakes are known to travel and/or placed in conjunction with metal fencing to direct the snakes toward the funnel trap, can be used to capture even elusive species.) Traps will not be used in wilderness. Two years' worth of surveys will be done over three years, once a month for about six months both before and after summer monsoon rains. Because the start of the fiscal year falls so late in the biological year, the first year's survey may have to be done in the spring. The endangered snake is nocturnal and very secretive, and the threatened snake is a rattlesnake (poisonous). The surveys must be done by expert herpetologists. D. Purpose of Treatment Specifications: E. Treatment Effectiveness Monitoring Proposed: n/a

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	0
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Funnel trap construction: Plywood, screws, wire mesh and wires, metal fencing and rebar, about \$500/site/year x 2FY = \$1,000 Misc. supplies (batteries, etc.) = \$500x2FY=\$1,000	
TOTAL MATERIALS AND SUPPLY COST	\$2,000
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Mileage—(assuming Santa Fe to Carlsbad) Round trip: 540 miles at \$0.51/mile for 6 trips x 2FY=\$3,304 Per diem—(CONUS 77/46) lodging 2 nights/trip=\$154x6trips=\$924x2 FY=\$1,848 M&IE=\$73 per trip x 6 trips=\$438x2 FY=\$876	
TOTAL TRAVEL COST	\$6,028
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Personnel—Field work \$20/hr for 120 hours=\$2,400x2FY=\$4,800	
Personnel—Report Preparation \$20/hr for 40 hours=\$800x2FY=\$1,600	
Personnel—Trap construction \$20/hr for 5 hours=\$100 (1 FY only)	
TOTAL	\$6,500

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12	04/01/2012	09/30/2012	SC	Season - Spring	\$6,476	1	\$3,957
FY13	10/01/2012	09/30/2013	SC	Season - Fall & Spring	\$3,476	2	\$7,214
FY14	10/01/2013	09/30/2014	SC	Season -Fall	\$3,476	1	\$3,357
FY__							
TOTAL							\$14,528

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	P
3.	Estimate supported by cost guides from independent sources or other federal agencies	P
4.	Estimates based upon government wage rates and material cost.	T
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.
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TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
	TOTAL COST	

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Exotic Species Monitoring	PART E SPECIFICATION #	VW-4
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	2012, 2013, 2014
NFPORS TREATMENT TYPE *	Ecosystem Recover Monitoring	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Carlsbad Caverns NP, White's City, NM	IMPACTED T&E SPECIES	Lee's Pincushion Cactus

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:

- A. General Description: Monitor for infestation of noxious and exotic plant species in the burned area; determine control treatments required.
- B. Location/(Suitable) Sites: CAVE
 1. Loop Road
 2. Walnut Canyon Road
 3. Vegetated areas surrounding housing area and visitor center
 4. Areas within burn area that have slope less than 30 %
 5. Sections of Juniper Ridge trail
- C. Design/Construction Specifications:
 1. Conduct short-term monitoring (twice a year for FY 12 – 14; beginning October 2011) of exotic/noxious plant infestation in the burn area and long perimeter. Surveys will include complete evaluation of area likely to be a source of exotic plants: Loop Road, Walnut Canyon Road, Juniper Ridge Trail, and the perimeter of the unburned area on top of the reef. Random transects will be placed in areas where slope is less than 30% in the burn area. Half of each of these areas will be sampled in spring and the remainder will be sampled in the fall (to capture different species with different life histories), so the entire area will be sampled each year.
 2. Established protocols developed by the NPS Vital Signs Inventory and Monitoring Program, Chihuahuan Desert Network will be implemented in accordance with current management plans. Monitoring was designed to give a general estimate of exotic plant density by species.
 3. All species identified as invasive according to CAVE Noxious Weed Management Plans or listed as a noxious weed by the state of New Mexico will be surveyed for in the burn area
 4. Photo document and map weed infestations.
 5. If monitoring reveals significant populations of exotic plants that may pose threats to the ecological integrity of native plant communities, prepare supplemental funding requests in a timely manner to the Regional BAER Coordinator to facilitate the treatment of these areas. Prioritize treatments based on jurisdictional weed management plans.
 6. If field surveys reveal additional populations of noxious weeds as a result of the fire in areas not identified in this spec, prepare supplemental funding requests in a timely manner to the Regional BAER Coordinator to monitor these populations and determine if control measures are necessary.
 7. Prepare final reports of findings for submission to NIFC for inclusion in the fire effects database.
- D. Purpose of Treatment Specifications:
 Purpose of Treatment Specifications: The objective of this specification is to identify the spread and potential threat of exotic plant infestation in burned areas. Data gathered will be used to facilitate prompt treatment to control exotic plant populations for the purpose of protecting native plant diversity and ecological integrity of the plant communities in the burned area.
- E. Treatment Effectiveness Monitoring Proposed: n/a

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
FY12-14: 2 person crew @ 15.00/hr X 80 hrs/pp X 8 pp/yr X 3 yrs X 2 people	\$57,600
Botanist @ 23.00/hr X 16 hrs/pp X 8 pp/yr X 3 yrs	\$8,832
TOTAL PERSONNEL SERVICE COST	\$66,432
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	0
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Vehicle FY12-14; 400 miles X 2 trips/yr X 3 yr X \$0.365/mile	\$876
Personnel Travel FY12-14: \$175/trip X 2 trips/yr X 3 yr X 2 people	\$2,100
TOTAL TRAVEL COST	\$2,976
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	\$69,408

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY12	10/01/2012	08/30/2012	F	Acres	\$8.68	2000	\$17,352
FY12	10/01/2012	08/30/2012	F	Miles	\$321.23	18	\$ 5,784
FY13	10/01/2013	08/31/2013	F	Acres	\$8.68	2000	\$17,352
FY13	10/01/2013	08/31/2013	F	Miles	\$321.23	18	\$ 5,784
FY14	10/01/2014	08/31/2014	F	Acres	\$8.68	2000	\$17,352
FY14	10/01/2014	08/31/2014	F	Miles	\$321.23	18	\$ 5,784
TOTAL							\$69,408

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	Estimate obtained from 2-3 independent contractual sources.	
2.	Documented cost figures from similar project work obtained from local agency sources.	
3.	Estimate supported by cost guides from independent sources or other federal agencies	
4.	Estimates based upon government wage rates and material cost.	P,M;T
5.	No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report.

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
NPS-CAVE	6000 acres	\$52,056
NPS-CAVE	54 miles	\$17,352
TOTAL COST		\$69,408

PART G - CONSULTATIONS

Laura Hudson, Vegetation Ecologist, U.S. Fish and Wildlife Service,
New Mexico Ecological Services Field Office, Albuquerque, NM

APPENDIX I - BURNED AREA ASSESSMENT REPORTS

HYDROLOGY ASSESSMENT REPORT

I. Objectives

- Determine the degree to which the vegetative cover was affected by the fire.
- Determine the changes in potential for soil and water movement on the slopes leading to erosion and flash flooding within Walnut Canyon.
- Identify values at risk with respect to human health and safety, threatened and endangered species, and cultural resources from erosion and flash flooding
- Make recommendations to mitigate risks.
- Identify future monitoring needs

II. Issues

- Potential threats to human life and property within and downstream of the Loop Fire from potential increases in overland flow that could cause accelerated surface erosion, debris flows, and flash flooding. The values at risk include homes on private property, highways, private campgrounds within and downstream of the fire.

III. Observations

The Loop fire impacted most of the vegetative cover within the Walnut Canyon watershed. The initial Burned Area Reflectance Classification (BARC) (EROS DATA Center) obtained from processing pre- and post- fire satellite imagery mapped burn severity over most of the fire as low, with some pockets of moderate severity. Twenty Composite Burn Index (CBI) plots (Key and Benson 2006) were established within the burned area to field validate the initial BARC classification. It was found that burn severity was misclassified, significantly under-estimating the area that burned at high and moderate severity. An analysis of the CBI plots found that 70% were high severity, 22% moderate, and 8% was low or unburned. The extent of area burned at high severity suggests that most of the vegetative cover was removed within the burned area and particularly Walnut Canyon and the contributing drainages. Almost all, 97%, of the soils within the burned area are in the hydrologic group D (Soil Survey Staff 2011)-- the group most likely to generate runoff, primarily because most the soils are shallow (less than 20 inches deep) (NRCS 2007). This, combined with the reduction in capacity to slow or store water on the slopes due to loss of vegetation, elevates the potential for significant soil movement on the slopes and flash flooding within Walnut Canyon.

The erosion potential places at risk threatened and endangered cacti and archeological sites or artifacts. The former is at risk of being buried and the latter from being buried, plus the potential of being displaced by sheet or rill erosion. Both the direct impacts of the fire and subsequent post-fire threats are addressed in the cultural and vegetation assessments. It is not recommended that any large scale erosion control measures (straw wattles, seeding, etc.) be implemented within the Loop Fire in a broad sense, although some cultural or threatened and endangered sites may warrant some protection, which should be addressed in their respective assessments.

Flash flooding places at risk park visitors and staff traveling along the Walnut Canyon Entrance Road (State Highway 7), the only egress into and out of the park. The highway runs along the bottom of Walnut Canyon, with a dry creek bed crossing the road in multiple locations. Additionally, campers and RVs who stay at the private campground located at the mouth of Walnut Canyon at Whites City are at risk. Park visitors and staff and campers and RVs at Whites City are particularly vulnerable to flash flooding occurring in the late evening and early morning hours. A flash flood event could leave visitors and staff stranded at the park visitor center for hours and potentially overnight.

The primary question regarding human safety is how much has the flash flood threat been elevated by the Loop Fire? Michael Martin, hydrologist with the NPS Water Resources Division, indicated that this would be difficult to determine because of the difficulty in modeling hydrologic response following a wildfire, because of the uncertainty associated with modeling runoff at a watershed level, coupled with changes in vegetative cover. He suggested that a sophisticated analysis to predict flash floods would provide little utility because of the varying combinations in storm size and duration that could result in flash flood events. He recommended using the flash flood guidance provided by the National Weather Forecast Office that has established minimal [rainfall rates](#) for the [Guadalupe Mountains](#) (NWS 2011) forecast area. When 0.8, 1.4 or 1.9 inches of rainfall has occurred over a 1, 3, or 6 hour period, respectively, flash flooding can be expected to occur. Rainfall should be monitored within the Walnut Canyon at several locations to determine if these thresholds are met, so that appropriate emergency response can be taken both by Carlsbad Caverns National Park and Eddy County authorities.

Hydrologic Group Summary by Map Unit — Loop Fire Carlsbad Caverns National Park, New Mexico

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DP	Dev-Pima complex, 0 to 3 percent slopes	A	210.2	2.8%
EC	Ector stony loam, 0 to 9 percent slopes	D	2,131.8	28.3%
EE	Ector extremely rocky loam, 9 to 25 percent slopes	D	736.0	9.8%
LT	Limestone rock land	D	4,414.8	58.6%
RE	Reagan-Upton association, 0 to 9 percent slopes	B	23.3	0.3%
UG	Upton gravelly loam, 0 to 9 percent slopes	C	11.9	0.2%
Totals for Area of Interest			7,528.4	100.0%

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

IV. Recommendations

a. Management (Specification Related)

- To provide for human health and safety and protect property, rainfall at a minimum of three locations should be monitored within Walnut Canyon Watershed continually for a period of three years or until the vegetation has recovered sufficiently within the watershed. Rainfall should be monitored to determine if the NWS thresholds have been met and an alert should be sent to the Eddy County Dispatch Center that operates 24 hours a day. The park should develop a Flash Flood Emergency Response Plan, and coordination should be implemented with county and local (White's City) officials.
- Purchase three handheld weather radios that are S.A.M.E. capable to be carried by on-duty law enforcement and to monitor at their residences during the overnight hours when not on duty.

b. Specification Monitoring (specification related) None

c. Management (non-specification related)

- Continue to monitor the recovery of vegetation within the watershed. An extended assessment (CBI) at the end of the second growing season in 2012 should be conducted to determine vegetation recovery within the Loop Fire and relate the recovery to the initial post-fire burn severity.

V. Consultations

McGee, Michael, June 2011. Hydrologist BLM; Roswell Field Office; New Mexico

Martin, Michael. July 7, 2011. Hydrologist, National Park Service Water Resources Division, Personal Communication.

LOOP FIRE FACILITIES DAMAGE ASSESSMENT REPORT

I. Objectives

- To assess the impacts of the fire to the following park facilities and infrastructure:
 - Utilities: Water supply and Telecommunication
 - Roads signs
 - Interpretive signs
 - Wayside exhibits
 - Buildings
 - Boundary Fence
 - Roads

II. Issues

- Fire may have damaged road signs critical for human safety.
- Fire caused a loss of telecommunications because the cable was in a compromising location
- Fire burned were the pipeline feeding the Walnut Can water tank is located and may have compromised the outside metal jacket encasing the friable asbestos insulation. This may pose a significant hazard to crews conducting repairs on the line.
- Wooden supporting blocks to the pipeline were burned possibly affecting the stability of the line.
- Fire may have damaged the boundary fence allowing for trespass grazing onto the park which may inhibit recovery.

III. Observations

Road and Trail Signs

A total of 53 roadside signs and 11 custom-made aluminum interpretive signs were damaged by the fire. We have replaced some of the MUTCD regulatory signs from our stock. Other informational/directional signage is custom-fabricated and we have RFQs out on those.

Wayside Exhibits

Two large cast aluminum exhibit panels, one located on the Walnut Canyon Overlook Trail and the other at the Archeo Site, were partially melted . These castings were unique and probably not replaceable. The gable roof over the WCOT exhibit was destroyed by the fire. The roof will not be rebuilt, but the two damaged wayside exhibits will be replaced with the standard NPS stanchions. We'll obtain appropriate slide in graphic panels for these stanchions.

8" Water Main

Potable water for the park's main developed area including the Visitor Center, concessions operation, housing area, and administrative offices, is provided by an NPS-owned water supply system. An 8" diameter steel pipeline carries water from a one million-gallon storage reservoir, located about 2 ½ miles from the developed area. Failure of this pipeline would result in an immediate loss of water service to the aforementioned facilities and operations. An 8,400 foot-long section of the 8" water main is constructed above ground and was impacted by the Loop Fire after it burned under the pipeline. This water pipeline is mounted on concrete supports with wooden leveling blocks placed underneath. Protection against freezing is provided by an insulation wrap consisting of layers of friable asbestos, combustible asphalt-impregnated paper, covered by a sheet metal exterior. Intermittent thrust restraint is provided by thin steel "U" straps that pass over the assembly at the concrete supports, secured by anchor bolts.

Heat from the fire melted the restraining straps and portions of the metal insulation covering, exposing the asbestos-containing material contained within. Many wooden leveling blocks were charred and some of the asphalt-impregnated paper inside the insulation pack was burned up. Due to the high hazard posed by the presence of exposed asbestos, we did not conduct a close inspection of the damage. At this time, the pipeline remains in service and is not leaking.

Impacts to the water line from the Loop Fire are not contiguous over the length of the pipe. Approximately 40% of the above-ground portion of the line is affected. It will not be possible to carry out repairs to the insulation and support systems until the asbestos covering has been abated. I remain concerned about the loss of insulation value and vulnerability of the line to freezing temperatures 6 months from now. Also, this line is 50+ years old. The cost/benefit of repairing the insulation system on this pipe, only to have to replace the line itself 10 – 15 years from now, should be weighed against installing a new, buried pipeline that would not require insulation, and that would be better protected against damage from such events in the future.



A section of the park's 8" surface-constructed water main showing melted insulation covering and strap



A section of the park's 8" surface-constructed water main showing exposed friable asbestos.



A section of the park's 8" surface-constructed water main showing charred pipe support blocking and lost restraint strap with exposed insulation underneath.

Telecommunication Line

The telecommunication line serving the entire park and the Town Office, was damaged during the Loop Fire. A 1000-foot length of line was burned up. This caused a service outage that lasted about 24 hours. The line has been temporarily patched together by the utility owner/provider. A more durable repair or re-routing of the line will be required.

The telecommunication line is owned by Windstream Telecom and was installed on the surface of the ground, at the park's direction. The surface-laid line is exposed to damage by the elements and has been the source of service interruptions in the past. Dean Vernon has been in discussions with Windstream in regard to the line. One option being discussed is to run the line underground from the last utility service pole (located along the Water Treatment Plant road) up the arroyo with the new water transmission line (to be installed in early FY2012). The line would cross the VC access road through an existing culvert and pass behind the VC. The new route would actually be shorter, plus the area covered by the route is "previously disturbed. A significant portion of the line would be buried in the upcoming water line excavation. The re-route would also allow the removal of six utility poles (improve the viewshed), and the remaining surface-laid utility line could be removed from the Nature Trail area and Bat Cave Draw.

The current route of the telecommunication line precludes access by the equipment required to carry large wire spools. The (proposed) new route will be much easier to access and should require no equipment incursions into undisturbed areas. Details and map to follow.

North Boundary Fence

Ruben has inspected about 8 miles of the north boundary fence that was burned over by the fire. That portion of the boundary fence was mostly of steel "T" post construction and suffered very little damage. A 400-foot section of the fence is down, but repairable. Two gates with wooden posts were lost. We'll replace those gates with "ranch-style" swinging type.

Inspection of the fence along the park's northwest "stairstep" boundary has not been completed due to difficulty of access and terrain. We believe a portion of that fence section is constructed of wooden posts and may have been lost during the New Fire. We'll be inspecting that fence line in the coming days.

IV. Recommendations

- Management Recommendations (Specification Related)
 - Replace damaged signs and marker
 - Assess asbestos and come up with a long-term solution for the pipeline
 - Relocate telecommunications line to more secure location

Prepared By:

Chuck Barton; Chief of Facilities and Maintenance; Carlsbad Caverns National Park

Loop Fire – June 2011

Vegetation and Wildlife Resource Assessment

I. OBJECTIVES

II. ISSUES

- Impacts to plant communities and vegetation resources
- Threatened, Endangered and Sensitive Wildlife and Plant species
- Impacts to wildlife habitat
- Compounded effects of severe drought before, during, and after the fire

III. Observations

A. Background

The effects of this fire on the park's wildlife and plants are compounded (to an unknown degree) by the extremely hot and dry weather being experienced in 2011. Last year was an above-average rainfall year, and on the evening of September 22, 2010, Walnut Canyon received approximately 2.5 inches of rain in two hours. The canyon flooded, closing the park road overnight, and much vegetation was uprooted and washed downstream.

From the time of that rainstorm until ignition of the Loop Fire—8.5 months, or 265 days—the park received only 0.08 inches of precipitation. The National Weather Service has declared “exceptional drought conditions in all of southeast New Mexico,” the highest drought rating category (NWS 2011). Drought intensity is measured from D0 (abnormally dry) through D4 (exceptional). This drought condition is continuing more than a month beyond the ignition date. Summer rains have failed to develop at a normal time, leaving the plants and wildlife extremely stressed.

Vegetation Communities

The authors of the park's vegetation map noted that, “The vegetation communities of Carlsbad Caverns NP are diverse and in several cases unique.” (Muldavin *et al.* 2003).

The map authors also described the tremendous plant diversity that is at least partly facilitated by its unusual geology, stating, “The same unusual Permian limestone reefs that house the caverns give rise to diverse vegetation communities that provide habitat and forage for a plethora of wildlife.

“We identified 85 plant associations ranging from desert shrublands and semi-grasslands of the lowland basins and foothills up through montane grasslands, shrublands and woodlands of the highest elevations. Of these, 20 were considered well established associations described elsewhere in the Southwest; 37 were considered provisional types with more limited documentation, and the remaining 28 are new associations... that had not been previously described elsewhere.” (Muldavin *et al.* 2003).

A high percentage of the park’s acreage of several of these unique vegetation units was burned in the Loop Fire, including 57 percent of the Curlyleaf Muhly Grassland with Pinchot Juniper type and 35 percent of Curlyleaf Muhly Grassland. Additionally, 83 percent of the Oak-Madrone Band Cove Woodland type and 61 percent of the Pinchot Juniper Shrubland were burned (see Table 1).

The Curlyleaf Muhly grassland types “give the mid-elevation slopes their distinctive character and are part of what sets the landscape of CCNP apart from most others in the Southwest. Curlyleaf is almost entirely restricted to the Chihuahuan Desert where it occurs sporadically and mostly on rocky, limestone slopes. While similar Curlyleaf Muhly-dominated communities are found occasionally throughout the range, none are known to dominate their respective landscapes as those on CCNP do. (emphasis added) Again, this may be driven by the unusual geology that makes this a unique landscape...” (Muldavin *et al.* 2003)

The Oak-Madrone Band Cove Woodlands are “typically found in horizontal bands associated with the contact between the Tansil and Yates geological formations. At this contact, water accumulates, often creating seeps and springs, and more mesic conditions for the development of woodlands. The stands are particularly prevalent in the headslope “coves” of drainages (hence we refer to them as “band-cove woodlands”). The canopies can reach 85% or more cover... The shrub layers are diverse... [T]hese band-cove woodlands are important wildlife corridors that provide cover and browse at lower elevations where they are imbedded in a matrix of semi-desert grasslands and desert grasslands.” (Muldavin *et al.* 2003)

Pinchot Juniper has a relatively small distribution in the world compared to other junipers, growing only in New Mexico, central and west Texas, and west Oklahoma. In New Mexico, Pinchot Juniper’s main distribution is in the Guadalupe Mountains, which include CCNP.

Threatened, Endangered, and Sensitive Plant Species:

The following list contains plant taxa that are known to occur within the area burned by the Loop Fire and are designated as threatened, endangered, or sensitive (species of concern) by the state or federal governments.

Lee pincushion cactus *Escobaria sneedii* var. *leei* (Cactaceae)
[also: *Coryphantha sneedii* var. *leei*]

Regulatory Status: Federal Threatened; New Mexico Endangered



Figure 1--Lee pincushion cactus

Sneed pincushion cactus *Escobaria sneedii* var. *sneedii* (Cactaceae)
[also: *Coryphantha sneedii* var. *sneedii*]

Regulatory Status: Federal Endangered; New Mexico Endangered

--These two varieties are discussed together in the following text.

Lee pincushion cactus is found almost entirely in Carlsbad Caverns National Park. It is mostly restricted to limestone in areas of broken terrain and steep slopes in desert shrub vegetation, at 4,000 to 5,000 feet in elevation. Some populations of this plant in the park were documented in NPS surveys between 1984 and 2006. This variety can be common within its very restricted area of distribution.

A cactus population morphologically indistinguishable from Sneed pincushion occurs in the park in the same general area and habitat types as Lee pincushion. Closely related to Lee pincushion cactus, Sneed pincushion cactus is known to occur in two separate populations in the Franklin Mountains southwest of the park.

Thus the presence of Sneed pincushion in the park is in dispute. The unidentified plants in the park have been variously assigned to Sneed pincushion, Lee pincushion, or as intermediates between Lee pincushion and another similar species (Guadalupe pincushion). There is no agreement as to whether these populations are in fact Sneed. Recent work indicates that there are *Coryphantha sneedii* in the park that are not obviously var. *leei*, and that they are morphometrically intermediate between var. *sneedii* and *leei* (Baker and Johnson 2000). Therefore, the park acknowledges that Sneed pincushion is possibly present. But because there are no good field characteristics for distinguishing the two, they are generally lumped together. Some of the populations are readily identified as var. *leei*, but many are impossible for park staff to be sure of.

According to the New Mexico Rare Plant Technical Council, "In Flora of North America,... all taxa in the *Escobaria sneedii* Complex, which includes *Escobaria sneedii*

var. *leei*, have been submerged into a single highly variable species, *Coryphantha sneedii*, without recognition of subspecific taxa. The NMRPTC notes the subjectivity involved in taxonomic decisions within this complex and will continue to consider *E. sneedii* var. *leei* to be a distinct entity. Although the population of *E. sneedii* var. *leei* is distinct as a whole, it may be difficult to assign some plants to a specific taxon without detailed analysis because it intergrades with *E. guadalupensis* that is found at higher elevations toward the southern end of the Guadalupe Mountains. Some call these intermediate plants *E. sneedii* var. *sneedii*.”

Some taxonomists place the Sneed and Lee pincushion cacti in the genus *Escobaria*, citing a combination of characters that make these and several other species distinct from other members of the genus *Coryphantha*. Benson retains all species of *Escobaria* within *Coryphantha*. Both treatments are frequently used, but these taxa are listed under the genus *Coryphantha* in the Federal Register.

Life History

Many aspects of the life history of these cacti are unknown. Various sources indicate that Lee pincushion, and probably Sneed, begins life as a very small, matchstick-sized stem that is almost impossible to see since its coloration is similar to the limestone areas it inhabits. Flowering usually occurs in April and May, with fruiting bodies not evident until late summer.

Habitat Association

Both pincushion cacti primarily inhabit cracks and shallow soils on broken limestone shelves and the steep slopes of Chihuahuan desert scrub, though small populations have been found outside of these strict parameters. Since many other species of plants grow on limestone, competition for space may restrict the cactus.

Establishment

The recovery plan for both varieties discussed their establishment from seeds: “Seeds need a proper combination of moisture and temperature to germinate. The best germination and survival occurs when seeds fall onto a layer of fine limestone pebbles over a large flat stone slab which traps soil moisture above the impermeable rock... Seeds probably germinate during the summer rainy season. For successful seedling establishment, rains need to come within a certain number of days of each other and not fall hard enough to wash out or dislodge the tiny seedlings. Only after several months to a year will the seedlings emerge above the pebbly surface and become visible.” (FWS 1986).

Effects of fire

Fire effects studies in the park in the 1990s showed steady decline in plant condition and increase in mortality up to three years after prescribed burning (NPS 1997). The recovery plan reflects the overall complexity of the issue: “A natural fire or intentional burn could have a devastating impact on the Lee pincushion cactus. Conversely, although fires may destroy some plants, the overall effect could be beneficial if competing species are eliminated.”

Status

Lee pincushion cactus was listed as threatened on October 25, 1979 and Sneed pincushion cactus was listed as endangered on November 7, 1979. Neither species was listed with critical habitat. The recovery plan lists both collection and habitat destruction as threats to these species. Status and population of these cacti across their range are unknown.

Guadalupe penstemon *Penstemon cardinalis* ssp. *regalis* (Plantaginaceae)

Regulatory Status: Federal and New Mexico Species of Concern

Guadalupe penstemon grows among broken rock and boulders in limestone canyon bottoms and on steep slopes in the burned area. Even though the plant is restricted in range, it is locally abundant and occurs in several remote canyons of the Guadalupe Mountains of New Mexico and Texas.

Five-flowered rock daisy *Perityle quinqueflora* (Asteraceae)

Regulatory Status: Federal and New Mexico Species of Concern

Five-flowered rockdaisy grows in crevices on limestone cliffs. It is found in many of the park's canyons, including in the burned area.

Supreme sage *Salvia summa* (Lamiaceae)

Regulatory Status: Federal and New Mexico Species of Concern

Supreme sage occurs in scattered populations in six mountain ranges in New Mexico, Texas, and Mexico. In the Guadalupe Mountains, the plant is found growing from crevices and rock ledges on north-facing and partly shaded limestone cliffs and on canyon bottoms along watercourses. It occurs within the burned area.

Guadalupe jewelflower *Streptanthus sparsiflorus* (Brassicaceae)

Regulatory Status: Federal and New Mexico Species of Concern

Little is known of the distribution and habitat requirements of Guadalupe jewelflower. It is considered endemic to montane shrublands in limestone canyon bottoms of the Guadalupe Mountains of New Mexico and Texas. It occurs in the park and is locally abundant within this range. It is a spring-blooming annual that occurs in the burned area.

Cliff nama, yellowseed nama *Nama xylopodum* (Hydrophyllaceae)

Regulatory Status: Federal and New Mexico Species of Concern

Yellowseed nama is a member of the crevice and rockface plant community in the Guadalupe and Franklin mountains, New Mexico and Texas. It is found growing from partly shaded limestone cliffs and outcrops in montane scrub to piñon-juniper-oak woodland. It occurs within the burned area.

Shining coralroot *Hexalectris nitida* (Orchidaceae)

Regulatory Status: Federal Species of Concern; New Mexico Endangered

Shining coralroot is known only from Coahuila, Mexico, and in the Guadalupe Mountains of Texas and New Mexico. The plant inhabits the mountain canyons along the

escarpment in the heavy leaf litter and partial shade afforded by oak groves and junipers. The plant is extremely rare throughout its range and is known in New Mexico from a single observation at Carlsbad Caverns in 1977. That observation was within the burned area, but the population seems to have died out years ago, perhaps choked by the Bermuda grass that resulted from the park's development at the spring where it was originally found.

Hershey's cliff daisy *Chaetopappa hersheyi* (Asteraceae)

Regulatory Status: Federal and New Mexico Species of Concern

Hershey's cliff daisy is endemic to the steep canyons of the Guadalupe Mountains. It has been found in the park, but its status in the burned area is not known.

Scheer pincushion cactus *Coryphantha scheeri* var. *scheeri* (Cactaceae)

Regulatory Status: New Mexico Endangered; Federal Species of Concern

Scheer pincushion cactus occurs in open desert grassland and desert scrub communities and prefers gravelly or silty alluvial soils and rocky benches on limestone or gypsum. The variety is little studied, but appears limited to the Pecos River drainage in western Texas and southeastern New Mexico, and possibly in adjacent Mexico. It has been found in the park, but its status in the burned area is not known.

Guadalupe milkwort *Polygala rimulicola* var. *rimulicola* (Polygalaceae)

Regulatory Status: Federal and New Mexico Species of Concern

Guadalupe milkwort is found in the Guadalupe Mountains of New Mexico and Texas and in the Sierra Diablo of Texas. This delicate perennial is found growing along limestone cliffs and crevices at moderate elevations, in association with montane scrub to lower montane coniferous forest at 5,000 to 8,000 ft. The species is listed for the park, but unlikely to have been impacted by the fire due to its higher elevation range.

Chapline's columbine *Aquilegia chaplinei* (Ranunculaceae)

Regulatory Status: Federal and New Mexico Species of Concern

Chapline's golden columbine occurs in limestone seeps and springs in the montane scrub or riparian canyon bottoms at 4,700 to 5,500 ft. in southern New Mexico and adjacent Texas. The plant is found "along perennially moist to wet limestone canyon walls, moist leaf litter, and humus among boulders in wooded mountain canyons." It has been found in the park, but its presence in the burned area is unlikely.

Threatened, Endangered, and Sensitive Wildlife Species:

The following list contains wildlife taxa that are known to occur within the area burned by the Loop Fire and are designated as threatened, endangered, or sensitive (species of concern) by the state or federal governments.

Gray-banded kingsnake *Lampropeltis alterna*

Regulatory Status: New Mexico Endangered

The gray-banded kingsnake is a secretive nocturnal inhabitant of the Chihuahuan Desert, occupying dry rocky limestone hills and mountain slopes vegetated with succulents and shrubs. In New Mexico it is known only from Eddy County. Both sightings of this snake within the park have been inside the burned area.



Figure 2--Gray-banded kingsnake

Gray vireo *Vireo vicinior*

Regulatory Status: New Mexico Threatened

The gray vireo is a bird that has not been well studied. In the park survey (West 2003), a minimum of 42 probable nesting territories were located, several in the burned area. This is probably the largest nesting group in the state. It is most often found in arid juniper woodlands on foothills and mesas, sometimes associated with oaks. Habitat usually has a well-developed grass component. Threats include loss of juniper[or oak]-grassland habitat, and brown-headed cowbird parasitism.



Figure 3--Gray vireo

Varied bunting *Passerina versicolor*

Regulatory Status: New Mexico Threatened

The varied bunting is primarily a Mexican bird that summers in southern New Mexico, where it prefers dense shrubby vegetation associated with relatively arid canyons. The park hosts what is possibly the largest breeding population in the state. The 2003 survey and subsequent studies have found several breeding pairs in the burned area. Loss of shrubby riparian habitat and brown-headed cowbird parasitism are listed as threats.



Figure 4--Varied bunting male

Mottled rock rattlesnake *Crotalus lepidus lepidus*

Regulatory Status: New Mexico Threatened

The Guadalupe Mountains are at the northern edge of the range of the mottled rock rattlesnake and the only place it occurs in New Mexico. It is rarely found away from rocky canyons or hillsides. Most of its New Mexico habitat is in the park, where it is relatively common.



Figure 5--Mottled rock rattlesnake

Peregrine falcon *Falco peregrinus*

Regulatory Status: New Mexico Threatened

USFWS de-listed the peregrine falcon in 1999, but the New Mexico Department of Game and Fish opposed the move. NMDGF has seen an increase in occupancy of breeding sites over time, but it argues that population numbers are not yet self-sustaining. Breeding sites are unknown for the park, but may be near or even within the burned area. Peregrines nest in scrapes and depressions dug in gravel on cliff ledges and feed primarily on other birds.

Mexican spotted owl *Strix occidentalis lucida*

Regulatory Status: Federal Threatened,

New Mexico Sensitive (New Mexico Chapter 17 status "Provides full protection")

The Mexican spotted owl occurs in the park, but its primary habitat (higher elevation dense mixed conifer forests to steep-walled rocky canyons) does not occur in the burned area (Ward, pers. comm.).

Other Species of Park Concern:

Bats are among the park's principal visitor attractions. With numerous caves, cliffs, trees, and outcrops throughout the park providing ample roosts, bats are among the more common animals in the park. Researchers have documented 16 species of bats in the park since the 1970s. They are the big free-tailed bat, Brazilian free-tailed bat, pocketed free-tailed bat, big brown bat, California myotis, cave myotis, fringed myotis, hoary bat, long-legged myotis, pallid bat, eastern red bat, silver-haired bat, small-footed myotis, western big-eared bat, western pipistrelle, and eastern pipistrelle. Seven of these are listed as sensitive by the State of New Mexico (NMDGF 2002). They are: eastern red bat, small-footed myotis, fringed myotis, cave myotis, long-legged myotis, western big-eared bat, and big free-tailed bat.

Also of unique interest to park visitors is the colony of cave swallows that nest during the summer months just inside the entrance to Carlsbad Cavern and other caves. The Carlsbad Cavern colony is one of the largest and most viewable in the world.

All of the park's bats, as well as the cave swallows, are insectivorous. The compounded effects of the exceptional drought and the large fires in the entire area in 2011 have greatly reduced their food supply. As a result, their reproduction is reduced.

Wildlife Habitat:

Lechuguilla (*Agave lechuguilla*) is important in diets of Chihuahuan Desert mule deer. In the park, lechuguilla was especially important to mule deer following "poor growing" seasons (such as in this drought year). Mule deer consume flower stalks, fruit, and the rosettes of leaves.

Lechuguilla is not highly adapted to fire, and populations typically suffer losses when burned. Harsh desert conditions following fire may delay recovery or increase the

potential for delayed mortality of recovering plants. Observations made after visiting 10 burned sites in the Chihuahuan Desert (cited in USDA FEIS) revealed that when more than 50% of lechuguilla's green leaves are scorched by fire, plants typically die. Seedling establishment is rare in lechuguilla. Though each lechuguilla produces hundreds of seeds, seedlings are rare under field conditions. The species appears to reproduce almost entirely by rhizomes with populations being composed of a series of clones.



Figure 6--Badly burned patch of lechuguilla in Loop Fire

According to the FEIS database, a study in Big Bend NP found that thirteen breeding bird species utilized lechuguilla-creosotebush-cactus habitats for nesting. Common nesters included Say's phoebes, verdins, mockingbirds, black-tailed gnatcatchers, house finches, ash-throated flycatchers, and cactus wrens, all important species in CCNP.

Many lizards and snakes also utilize habitats where lechuguilla is important. The lechuguilla-creosotebush-cactus vegetation in the Chisos Mountains of BBNP supports populations of canyon lizards, round-tailed horned lizards, tiger whiptails, Couch's spadefoot, coachwhips, western patch-nosed snakes, and western diamond-backed rattlesnakes. Greater earless lizards, round-tailed horned lizards, and common checkered whiptails were significantly associated with succulent desert vegetation in Guadalupe Mountains National Park (cited in USDA FEIS).

B. Reconnaissance Methods and Findings

Ground surveys and consultation with experts were utilized for reconnaissance of the impacted area.

Plants: Ground surveys were conducted within the burned area June 28-29, and July 1 to gain an initial assessment of fire effects on T&E cacti. Ground reconnaissance included attempting to relocate previously GPSed pincushion cacti and to assess their condition. These GPS data points were acquired between 1996 and 2002, so their original accuracy wasn't always good. There was no way to tell if a missing plant was not found because it was already dead, because the GPS data were too far off, or if the searchers just couldn't find it (always a problem with these cacti). Another hillside—with a known (but not

GPSed) pincushion population—was surveyed one afternoon. It was also surveyed for several of the other sensitive plant species known to occur there.

The park's vegetation map (Muldavin *et al.* 2003) was used for vegetation community assessments in GIS.

T&E plants: Ecologists from the USFWS have been discussing the situation with the park biologist, and they made a site visit to the burned area July 27.

T&E Wildlife: Ornithologists from NM Department of Game & Fish surveyed for Gray Vireos and Varied Buntings in Walnut Canyon after the fire. This included preliminary observations on June 25, as well as two netting and banding sessions July 17-18.

C. Findings

Vegetation Communities:

Table 1 shows the various plant communities impacted by the Loop Fire, as determined in GIS. It also shows the percentage burned of the total acreage of each vegetation type within the park. Table 2 is a compilation of some fire recovery data of selected common park species from the USFS Fire Effects Information System database.

The unique communities of Curlyleaf Muhly Grasslands made up nearly half the vegetation in the burned area – a total of 3,546 acres.

According to the vegetation map report, “The direct effects of fire on Curlyleaf Muhly are not known at this time... Fire likely reduces Curlyleaf Muhly cover in the short term, along with succulents and rosette shrubs such as lechuguilla and sotol. Accordingly, it appears that some burned sites may undergo a successional process whereby communities such as the Sideoats Grama/Green Sotol or Sideoats Grama/Tanglehead/Green Sotol dominate early post-fire conditions and then give way to Curlyleaf Muhly as they recover over the following decade.” (Muldavin *et al.* 2003).

Seeding with other grasses could have a detrimental impact on the natural post-fire succession described above, perhaps even crowding out the dominant grass that gives the park's landscape its uniqueness. Seeding would also interfere with an opportunity to monitor fire recovery in the Curlyleaf communities, which is a recognized need (see above).

The ecologist who mapped the park's vegetation stated, “I think you always have to be careful when seeding, even with short-lived species... Once a grass like sideoats owns a piece of ground, it won't give it up easy. I would not even think of putting *Aristida* in! These are fire-adapted systems, so I think the muhly will find its way back and you don't want to impede that given that I think this still is the largest extant occurrence anywhere in the U.S.” (Muldavin, pers. comm.)

Table 1 – Plant Communities Impacted by the Loop Fire, from the Carlsbad Caverns NP Vegetation Map (Muldavin *et al.* 2003)

Vegetation Group	Total Area within burn	Total area in park	% burned of community
Curlyleaf Muhly Grassland	2198	6249	35%
Curlyleaf Muhly with Pinchot Juniper	1327	2338	57%
Mariola-Goldeneye Shrubland	1275	3282	39%
Cactus-Ocotillo Desert Succulent Shrubland	872	2118	41%
Pinchot Juniper-Oak Shrubland	540	2750	20%
Pinchot Juniper Shrubland	515	844	61%
Grama Grassland	178	1206	15%
Viscid Acacia Desert Shrubland	131	2497	5%
Canyon/Bajada Arroyo Riparian Shrubland	124	503	25%
Grama Terrace Grassland	112	290	39%
Desert Willow Arroyo Riparian Shrubland	80	300	27%
Cresote-Viscid Acacia Desert Shrubland	75	1088	7%
Mixed Arroyo Riparian Shrubland	58	315	19%
Oak-Madrone Band Cove Woodland	42	51	83%
Arroyo Riparian Woodland	29	164	18%
Tobosa Grassland	26	328	8%
Moderate Oak-Mountain Mahogany Shrubland	25	7766	0%
Curlyleaf Muhly with Oak and Mountain Mahogany	21	3356	1%
Green Sotol-Apache Plume Arroyo Riparian Shrubland	20	243	8%
Grama-Juniper Mix	18	178	10%
Tarbrush-Littleleaf Sumac Desert Shrubland	15	250	6%
Grama Grassland with Desert Shrubland	4	641	1%

Another grass of concern is black grama, a grass that has declined dramatically over its range and is fire sensitive. The FEIS database describes a situation very similar to the Loop Fire conditions, “Periods of hot, dry weather increase black grama's susceptibility to serious damage. Hot fires due to relatively large amounts of fine-stemmed, dry herbaceous fuels may result in high mortality for black grama. Black grama recovery is best when above-average summer precipitation occurs after fire. **Recovery is very slow when plants are subject to drought and grazing after fire, or if plant vigor was low prior to fire.**” (emphasis added) Given the current drought and lack of rain before and after the fire, black grama in the burn area could be in serious trouble. Seeding with more aggressive grasses could be damaging to black grama.

Table 2 – Some plants in the Loop Fire area and their capability to recover via resprouting or growth from seeds (from USFS FEIS database).

Common Name	Scientific Name	Resprouts	Recovers via Seeds
Pinchot juniper	<i>Juniperus pinchotii</i>	Yes	Yes
Lechuguilla	<i>Agave lechuguilla</i>	Sometimes	No
Ocotillo	<i>Fouquieria splendens</i>	Sometimes	
Catclaw acacia	<i>Acacia greggii</i>	Yes	
Catclaw mimosa	<i>Mimosa aculeaticarpa</i> var. <i>biuncifera</i>	Yes	
Black grama	<i>Bouteloua eriopoda</i>	Poorly, especially during drought	
Four-winged saltbush	<i>Atriplex canescens</i>	No	
Gray oak	<i>Quercus grisea</i>	Yes	No
Netleaf hackberry	<i>Celtis reticulata</i>	Yes	
Desert willow	<i>Chilopsis linearis</i>	Yes	
Algerita	<i>Mahonia trifoliolata</i>	Yes	Some

Threatened, Endangered, and Sensitive Plant Species:

Of the 103 pincushion cacti found and GPSed during this assessment, 34 were determined to be alive, 16 were probably dead, and 53 were unknown. These arbitrary categories were difficult to be certain of because after a fire, plants that are severely charred and look dead could still have some live tissue within the stems or roots. Fire effects studies in the park in the 1990s showed steady decline in plant condition and increase in mortality up to three years after burning (NPS 1997). Obviously with so much unknown, a true mortality assessment will require the passage of time.

On the other hillside with a known pincushion population, all plants found appeared to be dead.

Below are photos representative of the alive, dead, and unknown categories.



Figure 7--Alive



Figure 8--Dead



Figure 9--Unknown



Figure 10--Unknown

The other sensitive plants that are known to occur on cliffs in the burned area and appear to have suffered high mortality include: Guadalupe penstemon (*Penstemon cardinalis* ssp. *regalis*), Five-flowered rock daisy (*Perityle quinqueflora*), Supreme sage (*Salvia summa*), and Cliff nama (*Nama xylopodum*). One brief afternoon survey on a heavily burned cliff with known populations of several of these species revealed most were dead, and species identification was not possible because they were burned beyond recognition.

Guadalupe jewelflower is a spring-blooming annual that occurs in the burned area, and it should have been in the seed stage at the time of the fire. Seed survival is unknown. The status of Hershey's cliff daisy and Scheer pincushion cactus were unknown before the fire and remains so. Guadalupe milkwort and Chapline's columbine probably were not present. Shining coralroot has not been seen in the park since 1977 and is probably not extant.

Threatened, Endangered, and Sensitive Wildlife:

Since the fire, NMDGF ornithologists have noted "the large reduction in the Walnut Canyon population due to the fire, up to a third of the known Varied Bunting breeding population." (Walker, pers. comm.) After the fire, "only two good habitat patches remain in all of Walnut Canyon." In two days of netting operations in upper Walnut Canyon, only one Varied Bunting was found.

The Gray Vireo population is also "really low" following the fire. Only one Gray Vireo was found in upper Walnut Canyon post-fire.

Non-native Wildlife:

Barbary sheep (*Ammotragus lervia*) from northern African have been documented in the park since 1959. Their population has been increasing in recent decades. The effect of the fire on Barbary sheep use of the area is unknown, but they were seen in the burn a month after the Loop Fire.



**Figure 11--Non-native Barbary sheep in burned area one month after Loop Fire
(photo courtesy of Hira Walker, NMDGF)**

IV. RECOMMENDATIONS

Rehabilitation Specifications

V – 7. Sensitive Plant Monitoring – BAR

A. Emergency Stabilization Specifications

None

B. Rehabilitation Specifications

Monitor Vegetation Recovery (T&E and rare communities) - BAR

The park needs to document to the extent possible the damage and mortality caused by the fire on federally listed Pincushion cacti. We will work with botanists to devise a monitoring plan that will best assess mortality and recovery. This work will be based partly on previous such monitoring studies in the park, as well as working in new areas (and with newer GPS technology). We will also work with vegetation ecologists to devise and implement a study of grass recovery, especially in the park-unique communities of Curlyleaf Muhly, as well as black grama and other ecologically important groups. In the course of doing the field work, we will also monitor the burn area for the presence and behaviors of non-native Barbary sheep. It will take years to truly determine mortality on many of the cacti and other perennial plants. We will hire a Biological Science Technician for three seasons to monitor vegetation recovery and non-native wildlife in Loop Fire area.

Monitor NM-Listed Birds - BAR

CCNP had possibly the largest breeding populations in the state of Gray Vireo and Varied Bunting, both listed as threatened by New Mexico. The area of the Loop Fire contained a primary breeding habitat for both, but now much of the live habitat is gone. The two species will be surveyed consecutively on the same day using standard survey protocols from NM Dept. of Game and Fish. Surveys will be done over two mornings, three times each breeding season. Surveys will be done for three years, under contract or agreement.

Monitor NM-Listed Snakes - BAR

CCNP is the only documented location of the state-endangered Gray-Banded Kingsnake, and is a prime habitat for the state-threatened Mottled Rock Rattlesnake. Both were known from within the area of the Loop Fire. We need to get an idea of their presence or absence and population size. Detailed ecological data (habitat, weather conditions, etc) will be collected. Data will also be collected on air temperature, humidity, and wind speed at each locality. Surveys will be conducted using three standard herpetological survey methods: Driving roads and shining high-powered lights into road cuts; walking transects; and funnel traps. (Traps that have a mesh funnel on one end, placed in areas snakes are known to travel and/or placed in conjunction with metal fencing to direct the snakes toward the funnel trap, can be used to capture even elusive species.) Traps will not be used in wilderness. Two years' worth of surveys will be done over three years, once a month for about six months both before and after summer monsoon rains. Because the start of the fiscal year falls so late in the biological year, the first year's survey may have to be done in the spring. The endangered snake is nocturnal and very secretive, and the threatened snake is a rattlesnake (poisonous). The surveys must be done by expert herpetologists, under contract or agreement.

Management Recommendations – Non-Specification

Post-fire efforts should be targeted toward protecting the most sensitive biotic resources – the endangered and threatened wildlife and plants, as well as the unique vegetation communities. They should be allowed to recover naturally, and that process should be monitored. Seeding with grasses should not be undertaken because of the myriad difficulties such a project would present:

--It is potentially harmful to listed species, both plants and wildlife, in a variety of ways. Any ecological shift in succession can adversely affect their survival. A memo from the U.S. Fish and Wildlife Service on the subject stated that, “Based on what we know about the Lee and Sneed pincushion cacti life history, unique habitat associations, germination and establishment requirements, past revegetation and seeding efforts, and previous wildland fire effects, we would recommend... [a]voiding seeding in known and potential Lee and Sneed pincushion cacti habitat to minimize short- and long-term impacts to these federally listed species.” (USFWS 2011).

V. Consultations

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EXOTIC PLANT COMPONENT OF THE BAER PLAN FOR THE LOOP FIRE.

Prepared by Patrick Wharton, Kent Schwarzkopf, Kirsten Gallo, and Heath Bell

BACKGROUND

Exotic plant and animal species are acknowledged as posing the greatest threat to biodiversity in the United States, second only to direct habitat loss.

Sixty species of exotic plants have been identified at Carlsbad Caverns National Park (NPSpecies). It is important to note that these data are presence/absence, not abundance/distribution. Seven of these (see below) are under some form of active management in the area associated with the Loop Fire.

In general, exotic plant management typically consists of the following elements: Prevention (including education), Inventory/Detection, Response (planning and treatments), Monitoring, and, if necessary, Site Rehabilitation.

Due to a lack of resources, exotic plant management activities by CCNP staff have been limited over the past decade. Inventory and Mapping data are most notably lacking. This is a point of concern, since the locations and extent of exotic plant occurrences away from developed areas and roadsides is very limited.

Since 2000, exotic plant management activities at CCNP have primarily been conducted by the Chihuahuan Desert/Southern Shortgrass Prairie Exotic Plant Management Team (CD/SSP-EPMT). Since this team is tasked with providing exotic plant management to 15 NPS units in several Southwestern states, management activities have been primarily focused on exotic plant control. Many of the exotic plant treatments at CCNP have been focused at Rattlesnake Springs, an 80-acre disjunct unit of CCNP, which was not effected by the Loop Fire.

Management policies mandate the control of exotic species up to and including total eradication, when practical, or whenever such species threaten protection or interpretation of resources being preserved on NPS lands.

Authorities to control exotic plants on park lands include, but are not limited to, the following Public Laws and Federal Regulations:

- (1) Federal Land Policy and Management Act of 1976, as amended, Public Law 94-579;
- (2) Reclamation Act of 1902, 32 Stat 388;
- (3) The "Carlson-Folry Act" Public Law 90-583;
- (4) Federal Noxious Weed Act of 1974, Public Law 93-629, as amended;
- (5) Endangered Species Act. Public Law 93-205, as amended;
- (6) National Park Service Organic Act, 39 Stat 535;
- (7) Departmental Manual, Pesticide Use Policy, 517; and
- (8) Executive Orders 11514, 11738, and 11987.

PRIMARY EXOTIC PLANT SPECIES OF CONCERN AT CARLSBAD CAVERNS NATIONAL PARK

There are seven primary exotic plant species that have been identified at CAVE that are within the area burned by the Loop Fire in June, 2011. Each of the seven species below have been under some form of exotic plant management since 2000.

Lehmann lovegrass (*Eragrostis lehmanniana*)

Bermudagrass (*Cynodon dactylon*)

Johnsongrass (*Sorghum halpense*)

Malta starthistle (*Centaurea melitensis*)

White horehound (*Marrubium vulgare*)

Woolly mullein (*Verbascum thapsus*)

Houndstongue (*Cynoglossum officinale*)

Of the above listed species, Lehmann lovegrass, Johnsongrass, and Bermudagrass remain as species of high concern. Lehmann lovegrass is the most problematic of the exotic species known to be present within or adjacent to the burned area, due to its invasiveness, fire adaptation, among other deleterious characteristics (see below). Johnsongrass and Bermudagrass are also problem exotics, due to the difficulty of controlling them and due to the recent discovery of disjunct patches in the park. Malta starthistle, Houndstongue, White horehound, and Woolly mullein have been controlled by the Chihuahuan Desert/Shortgrass Exotic Plant Management Team to the point of absence or incidental occurrence; however, woolly mullein should be of particular interest in monitoring activities, due to its ability to occupy rocky niches.

Summary of attributes for monotypic stands of Lehmann lovegrass:

Increases above-ground biomass-fuel loading

Readily occupies disturbed sites

Readily displaces fragmented native grass stands

Prolific seed producer

Seeds easily transported by vehicle tires

Seed bank producer

Fire adapted – fast recovery post fire

Decreases insect, bird, and rodent abundance, alters distribution

Reduced palatability/available forage in summer

Vegetative and seed increaser

CURRENT STATUS

Lehmann Lovegrass:

The introduction source of Lehmann lovegrass in CCNP is unknown. Lehmann lovegrass is well represented and very problematic in the unburned Developed Area, Bat Cave Draw, and the Reeftop generally, and it was present in portions of the Developed Area that burned. Just outside the entrance to the park at White's City are monotypic stands of Lehmann lovegrass on private property, parts of which are marginally controlled by mowing. Since 2009, herbicide treatments of Lehmann lovegrass in the Developed Area were reduced to revegetation sections within the Developed Area, due to the lack of follow-up assets at CCNP and the production of large amounts of hazard fuels, which would limit the effectiveness of herbicide treatments. Lehmann lovegrass constitutes a significant component of the remaining hazard fuel load in the Developed Area.

The Developed Area is completely surrounded by the area burned in the Loop Fire. This area currently supports approximately 4.35 acres of mature Lehmann lovegrass (Chihuahuan Desert Inventory and Monitoring Network (CHDN) I&M survey 7/5/2011).

Bermudagrass:

Bermudagrass has been planted as a landscape cover within the Developed Area of the park. Patches of Bermudagrass persist in the Developed Area, and this species is not being managed in the Developed Area, except where it is intruding in the revegetation areas. Isolated patches of Bermudagrass were discovered in the riparian area of Walnut Canyon in 2010, and they were treated the same year. These patches are assumed to have originated in the Developed Area.

Johnsongrass:

The introduction of Johnsongrass in CCNP is assumed to have occurred from outside the park. In 2010, Johnsongrass was found and treated in the revegetation area and in an isolated patch in Walnut Canyon.

THREAT TO RESOURCE - PRIMARY CONCERNS

- **POTENTIAL EXISTS FOR THE BURNED AREA TO CONVERT TO EXOTIC PLANT DOMINANCE DUE TO MOVEMENT WITHIN AND OUTSIDE THE BURNED AREA.**
- **ALTERATION OF FIRE REGIME/ADDITIONAL EFFECTS DUE TO INCREASED FUEL LOADING BY EXOTICS.**

CCNP is located in Eddy County, New Mexico. Noxious Weed Right-of-Way treatment data for Eddy County in 2010 show 2,400 acres infested with a suite of exotic plants, all capable of vectoring into the burned area (Carlsbad Soil and Water Conservation District). The City of Carlsbad, where the majority of CCNP employees reside, supports numerous exotic plants. Vehicle entrances on the Walnut Canyon Entrance Road through the burned area are numerous all year long, with 146,004 vehicles recorded throughout 2010 (Standard Monthly Public Use Report, 2011).

Lehmann Lovegrass

Lehmann lovegrass is a fire adapted species which has the potential to dominate burned areas and remnant mixed stands, due to its ability to establish from seed more easily than the grama suite. Lehmann lovegrass has an outstanding ability to quickly establish itself from seed after fire or other disturbance. Though Lehmann lovegrass plants are easily killed by fire, new plants become established quickly from seed already in the soil. The species is particularly well adapted to elevations from 3,400 feet to 4,100 feet in areas of 13-17 inches of rainfall, and in these conditions, it will eventually dominate a stand and drastically reduce native grasses, according to a 30-year study of Lehmann lovegrass in southern Arizona (Cable, 1971).

Once established, Lehmann lovegrass is able to spread rapidly, and quickly comes to dominate an area. The species crowds out most native plants and tends to support a greatly reduced variety and abundance of native wildlife (Bock, 1996). Lehmann lovegrass is quick to invade bare areas in native grass stands left after fire (Cox and Ruhle, 1986). Fire enhances the species ability to germinate rapidly (Ruyle, Roundy, and Cox, 1988; Tapia and Schmutz, 1974). Although several studies have indicated that the germination and establishment of Lehmann lovegrass is enhanced by fire, one study found that fire had neither a positive or negative influence on Lehmann lovegrass (Geiger and McPherson, 2005) and another study found that native grasses had higher survival rates on both burned and unburned plots (Mc Donald, 2009). Lehmann lovegrass can be spread by birds, and it is a favored nesting material of the cactus wren in the Chihuahuan Desert (Milton, Dean, Kerley, Hoffman, and Whitford, 1998). One study indicated that the spread of Lehmann lovegrass can be curtailed by restricting vehicular use through desirable areas of native grasses, especially where Lehmann lovegrass is absent (Robinett, 1992).

Other Exotic Plant Species

In addition to the seven problematic exotic plant species previously noted that are currently in CCNP, the following exotic plants are among those that have the potential to spread into CCNP:

Malta Starthistle (*Centaurea melitensis*)
African Rue (*Peganum harmala*)
Russian Thistle (*Salsola kali*)
Kochia (*Kochia scoparia*)
Field bindweed (*Convolvulus arvensis*)
Saltcedar (*Tamarix spp.*)
Lovegrass suite (*Eragrostis*, *barreliera*, *cilianensis*)
Brome suite (*Bromus catharticus*, *rubens*, *japonicum*)
White horehound (*Marrubium vulgare*)
Salsify (*Tragopogon spp.*)
Woolly mullein (*Verbascum thapsus*)

RECOMMENDED ACTIONS

For the Loop Fire Burn Area

A portion of the Developed Area that was burned in the Loop Fire contained Lehmann lovegrass. As previously noted, different scientific studies have arrived at different conclusions on the impact of fire on Lehmann lovegrass, with some studies indicating that Lehmann lovegrass presence could increase with fire and other studies indicating that fire had no effect on or decreased the presence of Lehmann lovegrass.

Some studies indicate that Lehmann lovegrass is quick to invade bare areas after burns. If that is the case, there would be good potential for the 4.35-acre area of Lehmann lovegrass in the unburned portion of the Developed Area to spread into adjacent areas that were burned during the Loop Fire. Other exotic plants present in the unburned Developed Area might also spread into the area burned area. It is also possible that the very large number of vehicles entering CCNP on a daily basis will bring additional exotic plant seeds into the park.

We propose to monitor the Loop Fire burned area for the presence of exotic plants at least twice a year to determine whether exotic plants are moving into the burn area from the unburned portion of the Developed Area, the Walnut Canyon Entrance Road, the Loop Road, or park trails. If exotic plants are found in the burned area, funding will be sought for treating them, or if the occurrences are very small, they may be spot treated by existing EPMT or park staff. Monitoring by park staff and others will determine to what extent native vegetation returns to the area burned by the Loop Fire. If native vegetation is not adequately returning to the burned area, consideration will be given to planting early succession native plant seeds within some portions of the burned area, excluding areas where native plant seeds might negatively impact threatened and endangered species.

More specifically, we propose to conduct short-term monitoring of exotic plant species in the burn area twice a year from FY 2112 (beginning in October, 2011) through FY 2014. The area surveyed would be within the burned area and along the perimeter of the burned area. Surveys will include complete evaluation of areas likely to be a source of exotic plants: the Walnut Canyon Road, Loop Road, Juniper Ridge Trail, and the perimeter of the unburned portion of the Developed Area. Random transects will be placed in areas where the slope is less than 30% in the burned area. Half of each of these areas will be sampled in the spring and the remainder will be sampled in the fall (to capture different species with different life histories), so the entire area within the transects will be sampled each year. All exotic plant species identified within this Exotic Plant Section of the BAER Plan will be surveyed for within the burned area. Established protocols developed by the NPS Vital Signs Inventory and Monitoring Program, Chihuahuan Desert Network will be implemented in accordance with current management plans. Monitoring was designed to give a general estimate of exotic plant density by species. There will be photo documentation and mapping of weed infestations.

If monitoring reveals significant populations of exotic plants that may pose threats to the ecological integrity of native plant communities, supplemental funding requests will be prepared in a timely manner to the Regional BAER Coordinator to facilitate the treatment of these areas. If very small spot occurrences of exotic plants appear in the burned area, these may be treated by EPMT or park staff, as time permits.

The objective of this monitoring specification is to identify the spread and potential threat of exotic plant infestation in the Loop Fire burned areas. Data gathered will be used to facilitate prompt treatment to control exotic plant populations for the purpose of protecting native plant diversity and ecological integrity of the plant communities in the burned area. Final reports of the findings of this project will be submitted to National Interagency Fire Center (NIFC) for inclusion in the fire effects database.

Proposal for the Unburned Portion of the Developed Area

In order to reduce the potential spread of Lehmann lovegrass from the unburned portions of the Developed Area to the Loop Fire burned area, the EPMT and Fire Management staff of CCNP recommend that a low intensity prescribed fire, followed by chemical treatments of Lehmann lovegrass, be undertaken within the Developed Area of CCNP. Currently about 4.35 acres of Lehmann lovegrass are found within about 60 acres of unburned vegetation in the Developed Area. This 60-acre area extends from the unburned vegetation around the Carlsbad Caverns Visitor Center area across Bat Draw to the unburned area around the park residences and offices.

The following summarizes the proposal of the EPMT and Fire Management staff of CCNP for actions in the unburned portion of the Developed Area:

Aggressively treat Lehmanns lovegrass and other hazard fuels in the Developed Area of CCNP

- Prescription burn Lehmann lovegrass and other grasses and forbs in the Developed Area
- Herbicide treatment of flushed seed bank
Americorps Crew, 8 people 8 days = \$10,000.00
Herbicide + \$0.00, CCNP holds a large inventory of Glyphosate product Honcho
- Reseed bareground, as needed
- Use supplemental water, as needed, to increase survivability in reseeded areas

Due to the thick layer of fine dead fuel inside the unburned portion of the Developed Area, traditional herbicidal treatment on exotic plants is not effective. From a Fire Management point of view, the Fire Management Staff of CCNP recommends burning the 4.35-acre area of Lehmann lovegrass in a manner that would reduce the dead vegetation layer and give the Exotic Plant Management Team (EPMT) a foothold to continue treating the area in the future.

The Fire Management Staff at Carlsbad Caverns NP and Guadalupe Mountains NP recommends that a low intensity prescribed burn be undertaken in the 60-acre portion of the Developed Area that was not burned during the Loop Fire. A prescribed fire in this area, proposed as the Doughnut Hole prescribed burn, is proposed for multiple reasons, including exotic plant management, resource and structure protection, hazardous fuel reduction, as well as visitor protection. The focus of this prescribed burn would be to burn off grasses and other herbaceous plant material. Salvage from the denser stands of cactus should be considered for outplanting to the burned areas.

As noted in a study conducted by Carl and Jane Bock in 1984, a hot summer burn on Lehmann lovegrass greatly reduced the amount of vegetation compared to nearby plots (Bock, 1992). Although it has been seen that Lehmann lovegrass returns as quickly as native species (Bock, 1988), the attempt would be to burn off the existing biomass layer, and fight the returning Lehmann lovegrass using herbicides.

A prescribed burn over the entire 60 acres of the Developed Area that were not burned by the Loop Fire would also greatly reduce the risk of another fire starting inside the unburned area, potentially preserving historical structures. Although Firewise clearing of vegetation (CCNP Firewise Plan, 2010) has been conducted up to 30 feet around the structures in the Developed Area, the Fire Management staff believes that by burning this area, we will have a more successful chance at structure protection in the future. As indicated in the BLM's Guide for Resource Specialist, reducing the amount of fire on historic structures will prolong the life of the given structure (Winthrop, 2011).

Any threatened or endangered plants could be excluded from the prescribed fire. This would protect them from future danger of fire, as well as give them a healthier chance to sustain encroachment from exotic fuels. The technique used in excluding individual plants would be to identify specific plants, and to treat around them before prescribed fire is introduced.

The hazardous fuel reduction of the proposed prescribed burn would also protect park visitors and employees from potential wildland fire. By eliminating the threat of the hazardous fuel load inside the Developed Area, it is believed that multiple goals can be achieved.

The Fire Management Staff would like to proceed with a prescribed fire as soon as possible for two reasons. First, Lehmann lovegrass encroachment is greatly reduced during hot burn times (McDonald, 2011), making it a preferential time to treat before winter comes and we consider a colder burn. Secondly, we have a containment area from the Loop Fire, entirely surrounding the proposed burn area. We will not have a chance to have this margin of safety again after the fuels in the burned area have grown.

Environmental compliance and assessment of the impacts of the proposed prescribed burn on natural and cultural resources still needs to occur.

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CULTURAL RESOURCE ASSESSMENT REPORT

**Separate Document on file at
Carlsbad Cavern Nation Park Resource Stewardship and Science**

IV. RECOMMENDATIONS

A. Emergency Stabilization Specifications

None

B. Rehabilitation Specifications

Monitor Historic Properties/Archeological Sites – BAR

CCNP's Resource Stewardship and Science Division, Cultural Resource Branch recommends monitoring all the archeological sites in the Loop Fire area over the next two years to identify potential and actual erosion events, looting and/or unauthorized excavation at the sites.

Documentation of the effects of the Loop Fire upon the park's eligible and potentially eligible historic properties is required to update NPS Archeological Sites Information System (ASMIS) and the NMSHPO Archeological Records Management System (ARMS) records. Monitoring is required to assess potential erosion upon the properties and also to identify possible looting of artifacts and or unauthorized excavation because the wildfire removed covering protective vegetation.

CCNP files record 113 recorded archeological sites within the Loop Fire area. Most of the sites date to the prehistoric period (ca.10,000 BC- AD 1600) and contain various plant processing and cooking features, stone artifacts, and/or basal rock outlines of structures. Some sites also contain ceramic sherds. The historic period (ca. AD 1600 – 1950) sites exhibit middens containing metal, glass, and other objects. On some historic sites are remains of various foundations of houses, animal husbandry devices, and other structural features.

CCNP archeologists will work with other NPS staff and fire ecology specialists to develop a monitoring plan that will most effectively and efficiently assess and record erosion and looting and/or unauthorized excavations at the sites. The monitoring plan will be based partly on previous monitoring studies conducted in the park, but use more advanced GPS technology and new GIS recording techniques for cultural resources.

The park proposes to hire one Archeological Technician (GS-193-07) for two seasons to monitor erosion, other burn effects, and looting on archeological sites caused by the burning of vegetation by the Loop Fire of 2011. One archeologist will work for 6 months each year visiting each site, updating site forms and write a monitoring report. The archeological technician will also work with vegetation ecologists to monitor the recovery of vegetation on sites, as vegetation growth will limit or reduce erosion danger and visibility for looting. The technician will also update required records in NPS ASMIS and NMSHPO ARMS. Site location and content is sensitive information, and distribution of such information may be restricted by law.

APPENDIX II - ENVIRONMENTAL COMPLIANCE

Federal, State, and Private Lands Environmental Compliance Responsibilities

All projects proposed in the Loop Fire Burned Area Emergency Response Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Department of the Interior and National Park Service. This Appendix documents the burned area emergency response team considerations of NEPA compliance requirements for prescribed emergency stabilization and monitoring actions described in this plan for all jurisdictions affected by the Loop Fire.

Related Plans and Cumulative Impact Analysis

Loop Fire Burned Area Emergency Response Plan (*approval date*). The Loop Fire Burned Area Emergency Response Plan was reviewed and it was determined that actions proposed in the Loop Fire Burned Area Emergency Response Plan within the boundary of the Loop Fire are consistent with the management objectives established in the General Management Plan and the Resource

Cumulative Impact Analysis

Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The emergency stabilization treatments for areas affected by the Loop Fire, as proposed in the Loop Fire Burned Area Emergency Response Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

Applicable and Relevant Categorical Exclusions

The individual actions proposed in this plan for Loop are Categorically Excluded from further environmental analysis as provided for in the relevant departmental and agency Categorical Exclusions listed below. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the Burned area emergency response team and documented below.

Applicable Department Categorical Exclusions

43 CFR § 46.210 and 516 DM 12 [Director's Order - 12](#)

3.4 CEs for Which a Record Is Needed

C. Actions Related to Development.

5. Installation of signs, displays, kiosks, etc.

[Guidance: Other examples include wayside exhibits, small solar collectors on poles, boundary marking signs, and small solar or wind generator system installations on a building.](#)

15. Installation of underground utilities in previously disturbed areas having stable soils, or in an existing utility right-of-way.

[Guidance: Previously disturbed area means an area showing clear evidence of recent human disturbance or areas within an existing road prism. An example includes installation of water and sewer lines in existing utility right-of-ways.](#)

E. Actions related to Resource Management and Protections

5. Nondestructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring activities.

[Guidance: This CE applies to many I&M activities, including vegetation plots and monitoring, soil surveys, species monitoring, and other nondestructive research activities which require a research permit. This CE should be used for activities which are not covered under the CE for day to day resource management \(see 3.3 Y\).](#)

Applicable National Park Service Categorical Exclusions

3.3 CEs for Which No Formal Documentation is Necessary

Y. Day-to-day resource management and research activities.

[Guidance: This CE applies to cultural and natural resource management and research activities that have no impact on the human environment and that are not otherwise listed in section 3.4.](#)

Statement of Compliance for the Loop Fire Burned Area Emergency Response Plan.

This section documents consideration given to the requirements of specific environmental laws in the development of the Loop Fire Burned Area Emergency Response Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Loop Fire Burned Area Emergency Response Plan:

- National Historic Preservation Act (NHPA).
- Executive Order 11988. Floodplain Management.
- Executive Order 11990. Protection of Wetlands.
- Executive Order 12372. Intergovernmental Review.
- Executive Order 12892. Federal Actions to Address Environmental Justice in Minority and Low-income Populations.
- Endangered Species Act.
- Secretarial Order 3127. Federal Contaminated
- Clean Water Act.
- Clean Air Act.

CONSULTATIONS

Laura Hudson, Vegetation Ecologist, U.S. Fish and Wildlife Service,
New Mexico Ecological Services Field Office, Albuquerque

NEPA Checklist: If any of the following exception applies, the Burned Area Emergency Response Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)

- ☐ (x) Adversely affect Public Health and Safety
- ☐ (x) Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
- ☐ (x) Have highly controversial environmental effects.
- ☐ (x) Have highly uncertain environmental effects or involve unique or unknown environmental risks.
- ☐ (x) Establish a precedent resulting in significant environmental effects.
- ☐ (x) Relates to other actions with individually insignificant but cumulatively significant environmental effects.
- ☐ (x) Adversely effects properties listed or eligible for listing in the National Register of Historic Places
- ☐ (x) Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
- ☐ (x) Threaten to violate any laws or requirements imposed for the "protection of the environment" such as Executive Order 11988 (Floodplain Management) or Executive Order 11990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

- ☒ (x) None
- ☐ () Ground disturbance did occur and an archeologist survey, required under section 110 of the NHPA will be prepared. A report will be prepared under contract as specified by the Burned Area Emergency Response Plan.

A NHPA Clearance Form:

- ☐ () Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I).
- ☒ (x) Is not required because the Burned Area Emergency Response Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes) (No)

- ☐ (x) Does the Burned Area Emergency Response Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
- ☐ (x) Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted.

I have reviewed the proposals in the Loop Fire Burned Area Emergency Response Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore it is categorically excluded from further environmental (NEPA) review and documentation. Burned area emergency response team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

Burned Area Emergency Response Team Environmental Protection Specialist	Date
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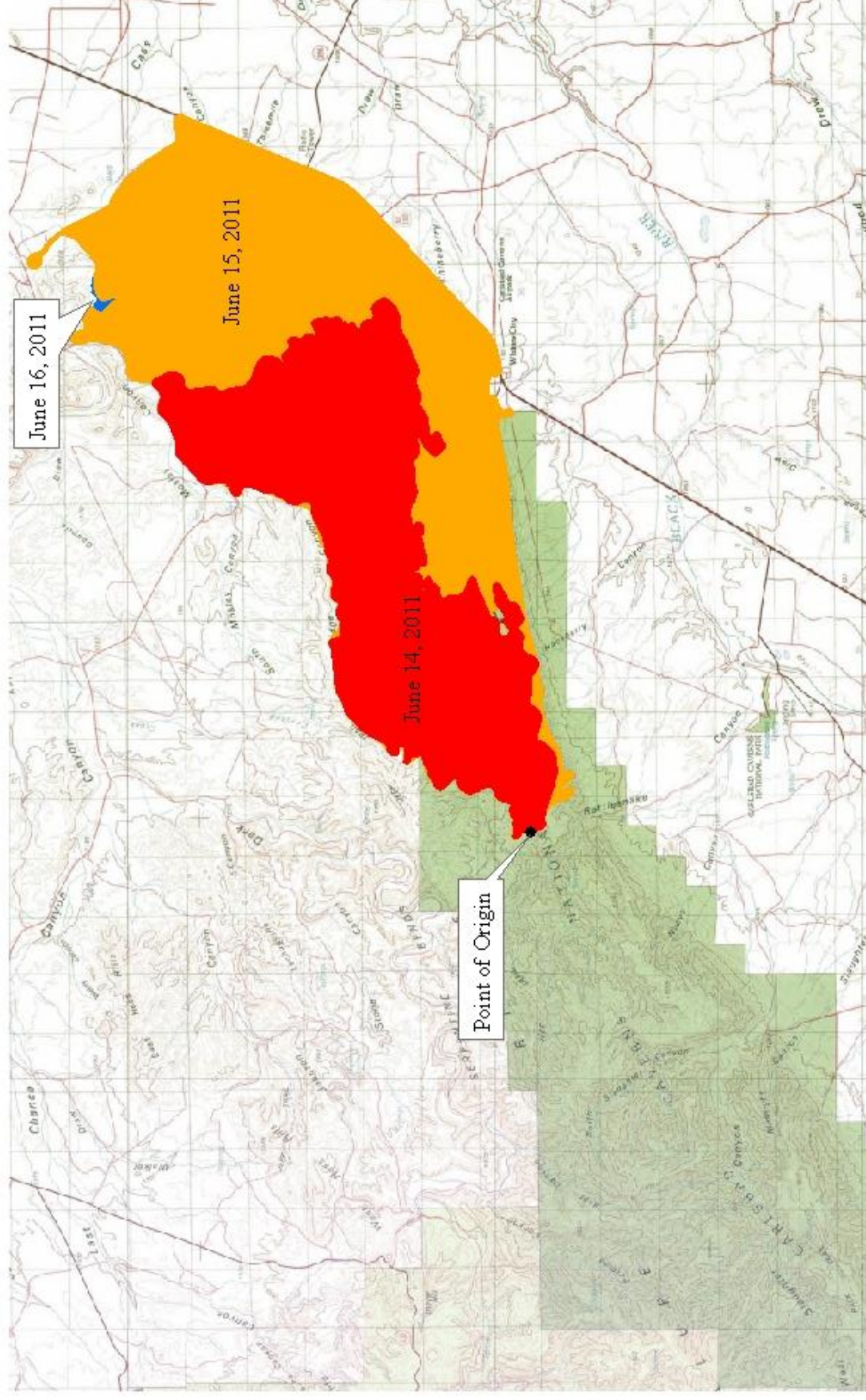
Project Leader, XXXXX	Date
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APPENDIX III - MAPS

- *Fire Perimeter and progression map*
- *Suppression Impacts*
- *Soils*
- *Burn Severity (Pending)*
- *Vegetation Communities (Pending)*
- *Utilities*



Progression of the Loop Fire June 14 - 16, 2011

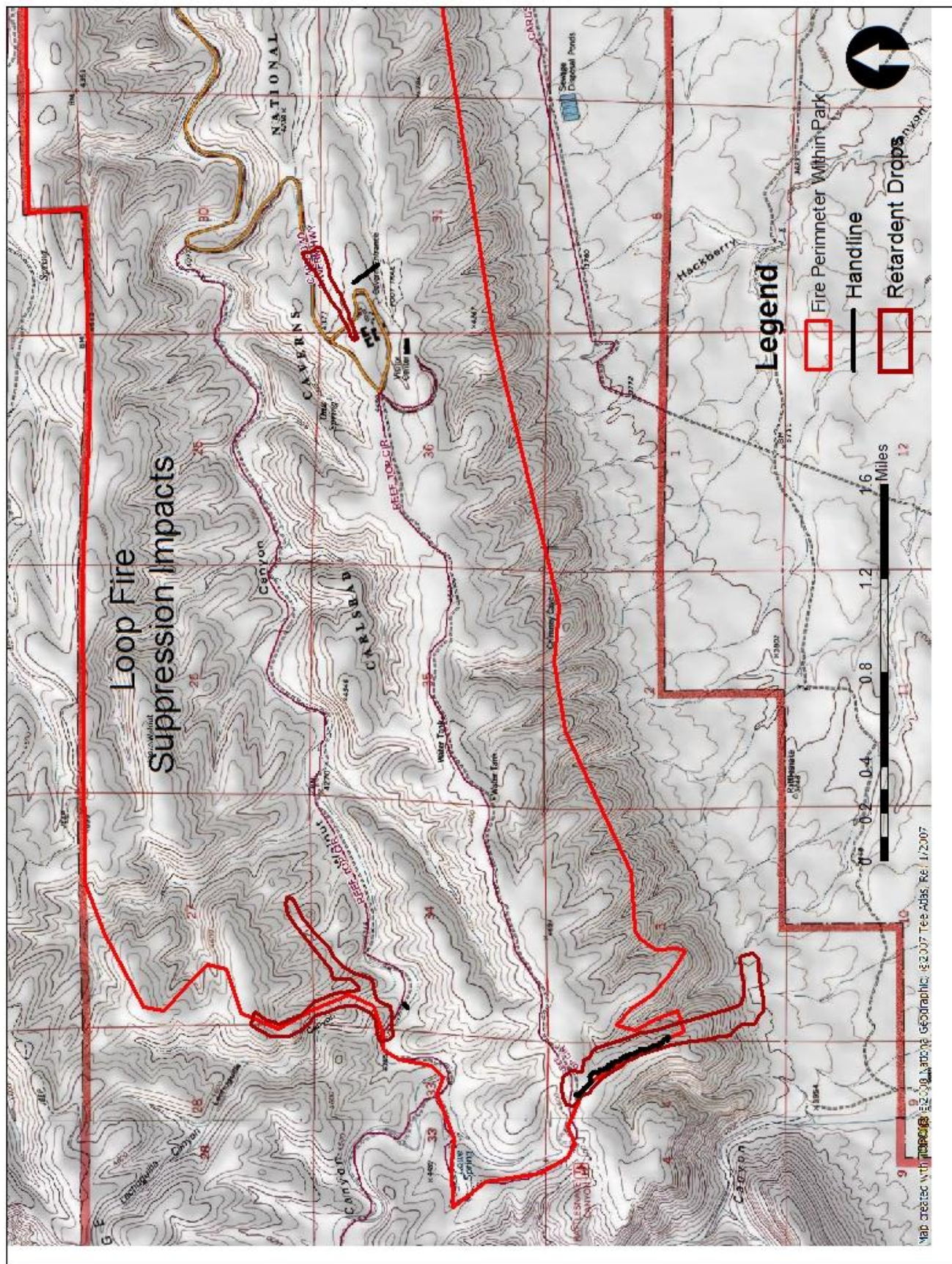


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Produced by S. Norman, GIS Specialist

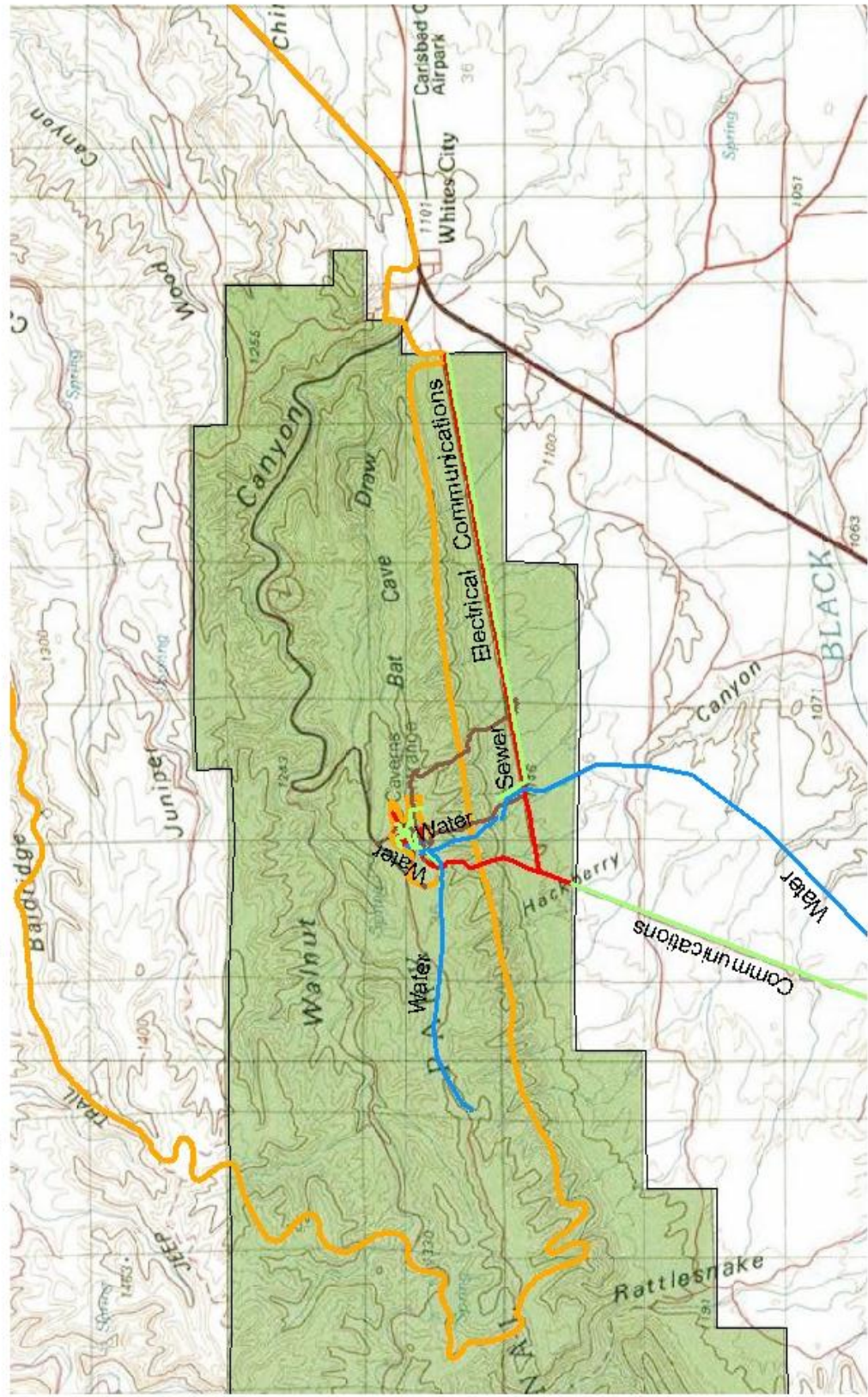


August 2011





Facilities Impacted by the Loop Fire



Produced by S. Norman, GIS Specialist



August 2011

APPENDIX V - SUPPORT DOCUMENTS

DATE: July 22, 2011

TO: John Benjamin, Superintendent, Carlsbad Caverns National Park
Ken Schwarzkopf, Chief of Resources, Carlsbad Caverns National Park
Renee West, Supervisory Biologist, Carlsbad Caverns National Park
Burned Area Emergency Rehabilitation (BAER) Team Leader,
Loop Wildland Fire

FROM: Laura Hudson, Vegetation Ecologist, U.S. Fish and Wildlife Service,
New Mexico Ecological Services Field Office, Albuquerque

RE: Post-Fire Recommendations for the Protection of Lee and Sneed Pincushion Cacti

Now that suppression efforts and full containment have been formally announced for the Loop Fire, the U.S. Fish and Wildlife Service (USFWS) would like to provide some recommendations to Carlsbad Caverns National Park (CAVE) and the BAER team for the continued protection of two listed species most directly impacted by this fire. The two species are the Lee (*Escobaria sneedii* var. *leei*) and Sneed (*Escobaria sneedii* var. *sneedii*) pincushion cacti; listed as federally threatened and endangered, respectively.

The BAER team is apparently considering the use of aerial seeding with a native plant species mix within the Loop Fire footprint to prevent further spread of exotic species already present in and around the vicinity of the fire. Based on what we know about the Lee and Sneed pincushion cacti life history, unique habitat associations, germination and establishment requirements, past revegetation and seeding efforts, and previous wildland fire effects, we would recommend:

1. Avoiding seeding in known and potential Lee and Sneed pincushion cacti habitat to minimize short- and long-term impacts to these federally listed species.
2. Utilizing Lee and Sneed pincushion cacti habitat as a baseline “control” area for a long-term wildland fire effects monitoring program. This monitoring program would further our understanding of fire effects in this unique ecosystem, but also determine the effectiveness of revegetation efforts outside of the control area. In addition, this monitoring program would be extremely beneficial in providing much needed ecological information on the population status of Lee and Sneed pincushion cacti.

In summary, we understand that during emergency events such as wildland fire, protecting human life and property should come first; therefore, our objective is to provide recommendations for minimizing adverse effects to species without impeding your response efforts. No constraints for protection of species are ever recommended if they place human lives or structures (e.g., houses) in danger. If you have any questions concerning these post-fire recommendations, please contact Laura Hudson at 505/761-4762.