

Coyote Fire Burned Area Rehabilitation Plan

Guadalupe Mountains National Park

Texas



September 2016

BURNED AREA REHABILITATION PLAN REVIEW AND APPROVAL

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


Project Leader, D.W. Ivans


Date

II. Regional Fire Management Coordinator concurrence that the plan fits the technical definition for use of Burned Area Rehabilitation funding.

Regional Fire Management Coordinator, Intermountain Region Date

III. Burned Area Rehabilitation Funding Approval (check one box below):

- Approved
- Approved with Revision (see attached)
- Disapproved

Regional Director, Intermountain Region Date

IV. Burned Area Rehabilitation Funding Approval (check one box below):

- Approved
- Approved with Revision (see attached)
- Disapproved

National Office Date

Coyote Fire

BURNED AREA REHABILITATION PLAN

UNIT: Guadalupe Mountains National Park

LOCATION: Pine Springs, Culberson County, Texas

DATE: September 14, 2016

PREPARED BY: Coyote Fire Burned Area Emergency Response Team, D.W. Ivans, Team Leader

Submitted by:



Burned Area Emergency Response Team Leader

Date:

September 14, 2016

EXECUTIVE SUMMARY

Introduction

This Burned Area Rehabilitation Plan (Plan) has been prepared in accordance with Department of the Interior and National Park Service policies. This plan provides field assessments and rehabilitation specifications for lands burned within the Coyote Fire perimeter that are administered by the National Park Service. No emergency stabilization actions are necessary or recommended.

The primary objectives of the Coyote Fire Plan are:

- To prescribe cost-effective post-fire rehabilitation measures necessary to enhance visitor and employee safety and to protect park infrastructure, cultural and natural resources.
- To apply emergency stabilization techniques to prevent further degradation of affected resources within the fire perimeter and to 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.

With the exception of cultural site stabilization and data recovery activities, this plan addresses primarily non-emergency burned area rehabilitation (BAR) treatments and other post-fire resource management recommendations. The assessments were completed and treatments recommended by an ad hoc BAER team under the direction of D.W. Ivans (NPS-BITH). This plan was assembled from multiple sources by Janet Coles (NPS-OLYM). Brian Haas (USFS-Grand Mesa, Uncompahgre, and Gunnison NF) and Jeremy Pribyl (NPS-GRCA) completed the cultural assessments with support from GUMO archeologist Alycia Hayes. D.W. Ivans completed the hazard tree, trail, and backcountry campground assessments with assistance from Jeanne Dawson (USFS-Cibola NF) a Resource Advisor on the fire incident. Janet Coles assessed the direct and indirect impacts of fire and suppression on rare plants, plant communities, and exotic plant infestations. Fire Ecologist Richard Gatewood wrote the fire effects and Mexican Spotted Owl assessments. Geoff Clark (ROMO), Marie Landis (BIBE) and Jonena Hearst (GUMO) provided GIS support for this report.

Part E of this report summarizes costs of recommended BAER and BAR activities. Specifications for post-fire rehabilitation activities identified in the assessments, appear in Part F. Individual resource Burned Area Assessment Reports produced by these specialists appear in Appendix I. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains the Burned Area Rehabilitation Plan maps. Appendix V contains other supporting documentation.

Fire Timeline

A lightning-ignited fire was discovered near Coyote Peak in the northwest corner of Guadalupe Mountains National Park at 1:30 p.m. on Saturday, May 7. By afternoon of May 9, the Coyote Fire had burned approximately 4500 acres. High winds pushed the fire east and north over the Texas-New Mexico state line (and out of the park). The Pecos Zone Type 3 Incident Management Team directed hotshot crews working with engine and air support to control the

northern boundary of the fire and favorable northern winds pushed the fire back into the park. On May 10 the fire expanded to 9000 acres with all of the spread to the east and south within the park boundary. Management of the fire transitioned and was passed to Southwest Incident Management Team #3 on May 11.

The arrival of a cold front late on May 11 brought cooler temperatures, lower winds, higher humidity and occasional wetting rains that moderated fire behavior. Burnout operations on May 14 protected a patrol cabin, a Remote Automated Weather Station, and the historic Bowl Cabin. The fire was allowed to burn within a pre-determined area bounded by the Hunter Peak-Bush Mountain ridgeline trail on the west and the unnamed ridge that forms the east side of the Bowl on the east. The Pecos Type 3 Team returned on May 17 to manage the incident, now at 11,820 acres, with conditions allowing takeover by a Type IV team on May 21.

However, on May 22, red flag conditions returned and the fire expanded beyond the containment lines into the head of Pine Canyon on the west and into the head of multiple tributaries of South McKittrick Canyon on the east. The entire park, except for the Visitor Center and the Salt Basin, was closed to the public on May 23. On May 25, Southwest Incident Management Team #5 took command of the fire as it threatened to spread toward the Visitor Center and private lands to the east and south.

Retardant drops and hand crews slowed spread of the fire in Pine Canyon and contained the slopover below Bush Mountain to about 125 acres. Little could be done to slow eastern spread of the fire in McKittrick Canyon due to extremely rugged topography and the presence of Mexican spotted owl activity areas. Most fire growth since May 25 has been in this area.

Another series of cold fronts arrived beginning on May 29 and again moderated fire behavior. The Southwest Incident Management Team #5 handed the incident to the Saguaro Type IV team on May 31. To date, the fire has burned approximately 14,108 acres of Guadalupe Mountains National Park, 104 acres of private lands, 206 acres of State of New Mexico lands, and 24 acres of Bureau of Land Management-managed lands. Fire behavior modeling conducted by Southwest Incident Management Team #5 on May 29 determined that the fire would not grow beyond its current boundaries and only needed to be monitored until monsoonal precipitation put the fire out. The Coyote Fire was declared out on June 30, 2016.

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

The Coyote Fire alternated between periods of intense, rapid, wind-driven spread and slower growth and creeping fire behavior forced by the arrival cold fronts and wet storms. For the most part this fire resulted in beneficial impacts to natural resources, opening up the understory and increasing patchiness of vegetation. Mexican spotted owl nesting success was certainly affected by the fire, but the exact extent of the impact is unknown. Park infrastructure suffered minimal damage, with some trail signs, water bars and campsite crib logs lost to the fire. Historic properties perhaps suffered the most, with the total loss of ranching-era Cox Cabin and direct impacts to several archeological sites; however, most of these sites have burned multiple times in previous centuries.

Facilities affected

- North boundary fence. Fire crews observed no direct fire damage to this all-metal fence,

but several hazard trees threaten to fall and damage it. **Removing these trees is not an emergency action, but they should be mitigated as soon as possible under Burned Area Rehabilitation guidelines.**

- Dog Canyon Ranger Station, campground, and associated buildings and infrastructure. These were not affected directly by the fire, other than slight scorching of a post-and-rail cedar fence near the trailhead. **No emergency or rehabilitation treatments are necessary.**
- Trails. A number of wooden water bars were damaged or destroyed by fire in the forested southern half of the fire. **Replacement of these bars is recommended as an action under Burned Area Rehabilitation guidelines.**
- Backcountry campgrounds. Marcus, Blue Ridge, Mescalero, Tejas, Pine Top, and Bush Mountain backcountry campgrounds were directly affected by fire. The cribbing supporting three tent pads was damaged badly enough to warrant non-emergency replacement. **Repair of damaged tent pads is recommended as an action under Burned Area Rehabilitation guidelines.**
- Signs. Most signs within the burned area are engraved metal on metal posts and survived the fire unharmed, but some older signs with wood, plastic, or fiberglass elements were damaged or destroyed. **Replacement of signs is recommended as an action under Burned Area Rehabilitation guidelines.**

Cultural resources affected

- Archeological sites. Review of park files revealed 120 documented archeological sites in the burned area. Eighty-three sites were assessed by BAER Team archeologists. Of these, six were recommended for stabilization or data recovery. **Completion of site assessments, stabilization and data recovery are recommended as actions under Burned Area Emergency Stabilization guidelines.**
- Historic structures. The burned area contains two wood cabins used for ranching operations before Guadalupe Mountains National Park was established in 1972. Neither structure has been evaluated for eligibility for the National Register of Historic Places. The Bowl Cabin was wrapped in fire-resistant material and the surrounding vegetation removed in a burnout operation on May 14. It survived the fire and wrapping without significant impact. Cox Cabin was very close to the point of ignition and burned to the ground on the first or second day of the fire. Two other historic structures in lower McKittrick Canyon, Pratt Cabin (on the National Register) and Hunter Line Shack (eligible for the National Register), were wrapped in case the fire reached them but it never came close. These structures came through the incident without impact. **No emergency or rehabilitation treatments are necessary.**
- Mine shafts and pits. From the late 1800s to the mid-1930s, the Calumet and Texas Copper mines operated intermittently in the Guadalupe Mountains. Four mine openings within the burn area were closed in 1994 using welded metal bat gates. The area containing the gated shafts was not burned. **No emergency or rehabilitation treatments are necessary.**

Natural resources affected

- Exotic plants. Exotic plant species that are known to occur within the Coyote Fire include Russian thistle (*Salsola tragus*), horehound (*Marrubium vulgare*), and woolly mullein (*Verbascum thapsus*). Three other species are known from the Dog Canyon Ranger Station area with high potential to spread into adjacent areas burned by the Coyote Fire: cheatgrass (*Bromus tectorum*), Lehmann's lovegrass (*Eragrostis lehmanniana*), and Malta starthistle (*Centaurea melitensis*). **Treatment of known weed infestations, as well as limited planting of native grasses in areas where no native seed bank is present are recommended actions under Burned Area Rehabilitation guidelines.**
- Mexican spotted owl PACs. It is unknown whether owls were occupying the 11 protected activity centers in the park at the time the Coyote Fire started, as the last complete survey was in 2010. However, in recent years owls have been seen and heard regularly by staff and visitors in upper Dog Canyon, Pine Canyon, and McKittrick Canyon. One owl Protected Activity Center (PAC) was completely burned over, as were parts of four others. Fire effects in the burned owl PACs were low to moderate, and structurally the PACs remain good habitat for owls. **No emergency or rehabilitation treatments are necessary, but (unfunded) surveys for owl occupancy and breeding is strongly recommended.**
- Sensitive plant communities. Park vegetation is generally fire-adapted and recovers readily after a burn. Most of the Coyote Fire area burned with low to moderate severity; the BAER Team has no concerns regarding the fire's impact on sensitive vegetation. **No emergency or rehabilitation treatments are necessary, but (unfunded) monitoring of aspen and riparian stand within the burn is recommended, as are re-surveys of rare plant populations.**
- Hazard Trees. A number of hazard trees were noted along trails and in backcountry campgrounds, as well as threatening the north boundary fence. Fire crews mitigated most of the trees in order to maintain their own operational safety. Trees damaged by the fire may take a year or more to die and become a hazard. **Monitoring (and mitigating if necessary) of hazard trees in backcountry campgrounds for one year post-fire is recommended under Burned Area Rehabilitation guidelines.**

Wilderness

Lightning-ignited wildfire is a natural process fully compatible with wilderness. Fire control activities in wilderness constitute trammeling, and under the park's Fire Management Plan (2005), Minimum Impact Suppression techniques are preferred. Although the intent from day one of the Coyote Fire was suppression, no heavy machinery was used in the park and once the fire was herded back into the park boundary, retardant was dropped only in one location to keep fire from spreading down Pine Canyon toward the Visitor Center. Few hand lines were dug; burnouts were primarily used to set containment positions. Hazard trees were cut using chainsaws, leaving stumps where trails crossed areas of higher burn intensity. Suppression repair activities completed by the fire crews mitigated most of the evidence of these activities. **No emergency or rehabilitation treatments are necessary to restore elements of wilderness character.**

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PART A - FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Coyote
Fire Number	TX-GUP-000208
Agency Unit	Guadalupe Mountains
Region	Intermountain
State	Texas
County	Culberson
Ignition Date/Cause	May 7, 2016 / Lightning
Zone	Pecos
Date Declared Out	6/30/2016
Jurisdiction	Acres
NPS – GUMO	14,108
BLM, State and Private	334
Total Acres	14,442
Date Contained	N/A

PART B - NATURE OF PLAN

Type of Action (check one box below)

X	Initial Submission
	Amendment to the Initial Submission

PART C – EMERGENCY STABILIZATION ASSESSMENT

It is the professional opinion of the Burned Area Emergency Response Team members that no emergency stabilization actions are necessary to protect watershed values, natural resources or park infrastructure. Six archeological sites are recommended for stabilization or data recovery activities under emergency stabilization guidelines. Otherwise, this report consists of non-emergency rehabilitation specifications and recommendations.

PART D - TEAM ORGANIZATION, MEMBERS, AND RESOURCE ADVISORS

Burned Area Emergency Response Team: *(Technical specialists who contributed to the plan)*

Position	Team Member (Agency)
Team Leader / Facilities / Hazard Tree Specialist	D.W. Ivans (NPS-BITH)
Document Editor and NEPA Compliance	Janet Coles (NPS-OLYM)
Cultural Resources/Archeologist	R. Brian Haas (USFS-Grand Mesa, Uncompahgre, and Gunnison NF) Jeremy Pribyl (NPS-GRCA)
Plant Ecologist/Exotic Plant Specialist	Janet Coles (NPS-OLYM)
GIS Specialist	Jonena Hearst (NPS-GUMO) Geoff Clark (NPS-ROMO) Marie Landis (NPS-BIBE)
Other Technical Specialists and Advisors	
BAER and BAR Processes and Policies	Richard Schwab (NPS-WASO)
Fire Ecology and Fire Effects	Richard Gatewood (NPS)
Cultural Resources	Alycia Hayes (NPS-GUMO)
Resource Advisor	Jeanne Dawson (USFS-Cibola NF) Geoff Clark (NPS-ROMO)

PART E - SUMMARY OF ACTIVITIES AND COSTS

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

Emergency stabilization and rehabilitation activities cost summary for the Coyote Fire.

Spec #	Title	Unit	Unit Cost	# of Units	Work Agent	Cost
C-1	Cultural Site Assessments	Site	\$193	41	FA	\$7,920
C-2	Cultural Site Stabilization	Site	\$3,938	4	FA	\$15,750
C-3	Cultural Site Data Recovery	Site	\$10,125	2	FA	\$20,250
F-1	Trail, Campsite, and Sign Repairs	Item	\$371.43	35	FA	\$13,000
F-2	Hazard Tree Mitigation	Camp	1,748	6	FA	\$10,490
V-1	Exotic Species Control	Acre	\$34.50	1,356	FA	\$46,780
V-2	Seed Russian thistle areas	Ft ²	\$1.60	13,500	FA	\$21,600
O-1	BAER Team	Team	\$37,848	1	FA	\$37,848
O-2	Implementation Leader	Leader	\$15,610	1	FA	\$15,610
TOTAL COST						\$189,248
Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permittee, SC=Service Contract, V=Volunteer						

PART F - INDIVIDUAL SPECIFICATIONS

Specification #	Title
C-1	Cultural Site Assessments
C-2	Cultural Site Stabilization
C-3	Cultural Site Data Recovery
F-1	Trail, Campsite, and Sign Repairs
F-2	Hazard Tree Mitigation
O-1	BAER Team
O-2	Implementation Leader
V-1	Exotic Species Control
V-2	Seed Russian thistle areas

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Cultural Resource Assessments	PART E SPECIFICATION #	C1
NFPORS TREATMENT CATEGORY*	Heritage Resources	FISCAL YEAR(S)	2017
NFPORS TREATMENT TYPE *	Risk Assessment	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	N/A	IMPACTED T&E SPECIES	N/A
		FUNDING SOURCE (ES, BAR, OTHER)	ES

* 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:
<p>A. General Description: Assess and document current condition of 41 cultural sites within the 2016Coyote Fire area. This specification completes the cultural resources assessments, including time for conducting additional record searches and managing field data. We will request mule support and water caching for this project, as it will require multiple days in the backcountry.</p> <p>B. Location: Forty-one known cultural resource sites, primarily archeological sites, within the Coyote Fire boundary. Most of the sites are in the southern half of the burn area.</p> <p>C. Design/Construction Specifications: The assessment will follow the protocol used by the Coyote Fire BAER Team, including documenting post-burn observations and photographic records of resource condition and threats. Compile, process, and archive field data to (GPS data, digital photographs, and field notes) to prepare a report that includes recommendations for stabilization treatments, monitoring (Specification C2), or data recovery (Specification C3), as needed.</p> <p>D. Purpose of Treatment Specifications: BAER archeologists were unable to access 37 known sites within the Coyote Fire due to safety considerations (the fire was still active). Four other sites could not be relocated in the limited time available to the BAER team (bad map locations). All 41 sites need to be assessed for fire damage and susceptibility to erosion, and other fire-related impacts to determine any needed stabilization treatments. If identified, additional funding will be requested to perform treatments.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Complete all proposed post-burn archaeological site inspections and assessments and, determine if additional emergency stabilization treatment specifications are needed. Present results in an accomplishments report and supplemental BAR plan request if needed.</p>

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
Archeologist GS-11 @ \$45/hr x 40 hrs (8 hrs/day x 5 days) x 1 FY	\$ 1,800
Archeological Technician GS-7 @ \$27/hr x 160 hrs (10 hrs/day x 16 days) x 1 FY	\$ 4,320
WG8 Packer \$35/hr x 40 hrs x 1 FY	\$ 1,400
TOTAL PERSONNEL SERVICE COST	\$ 7,520
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require justification that demonstrates cost benefit over leasing/renting.	COST / ITEM
N/A	-
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$ 0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Pack animal supplies \$50/day x 4 days x 1 FY	\$ 200
TOTAL MATERIALS AND SUPPLY COST	\$ 200
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Backcountry per diem (\$20/day x 10 days x 1 FY)	\$ 200
TOTAL TRAVEL COST	\$ 200
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
N/A	
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
2017	10/01/16	5/30/17	F	Sites	\$ 193	41	\$ 7,920
TOTAL					\$ 193	41	\$ 7,920

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.	M
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P, 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

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TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS – Guadalupe Mountains National Park		\$ 7,920
	TOTAL COST	\$ 7,920

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Cultural Resource Stabilization	PART E SPECIFICATION #	C2
NFPORS TREATMENT CATEGORY*	Heritage Resources	FISCAL YEAR(S)	2017
NFPORS TREATMENT TYPE *	Site Stabilization	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	N/A	IMPACTED T&E SPECIES	N/A
		FUNDING SOURCE (ES, BAR, OTHER)	ES

* 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:
<p>A. General Description: Implement site stabilization for seven archeological sites inside the Coyote Fire burn. Gully and sheet erosion are the primary concern at six of the seven sites, with a hazard tree threat at the seventh. We will request mule support and water caching for this project, as it will require multiple days in the backcountry.</p> <p>B. Location: Stabilization treatments are recommended for the following sites: 41CU96, 2009-38, 2011-1 and 41CU790. Sites and structures are generally located close to trails within designated wilderness.</p> <p>C. Design/Construction Specifications: Stabilization treatments include using native brush and slash to slow or halt gully and sheet erosion through sites, with jute erosion matting as a backup to be used in severe cases. Installation will be by WG-5 laborers under the supervision of an archeological technician. Native materials only are recommended for sites in designated wilderness. In one site, a fire-damaged tree could potentially threaten a site if it dies and uproots.</p> <p>D. Purpose of Treatment Specifications: To prevent damage to or loss of archeological sites, structures, and museum collections due to fire killed trees and erosion.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Complete scheduled post-burn stabilization treatments. Present results in an accomplishment report and update ASMIS records.</p>

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
Archeologist GS-11 @ \$45/hr x 40 hrs x 1 FY	\$ 1,800.00
Archeological Technician GS-7 @ \$27/hr x 160 hrs (10 hrs/day x 16 days) x 1 FY	\$ 4,320.00
2 WG-5 Maintenance Mechanic (trails) \$44/hr x 160 hrs x 1 FY	\$ 7,040.00
1 WG-8 Packer \$35/hr x 40 hrs x 1 FY	\$ 1,400.00
TOTAL PERSONNEL SERVICES COST	\$ 14,560.00
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Miscellaneous Supplies @ \$500 x 1 FY	\$ 500.00
Pack animal supplies \$50 day x 5 days x 1FY	\$ 250.00
TOTAL MATERIALS AND SUPPLY COST	\$ 750.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Backcountry per diem \$20/day x 22 days	\$ 440.00
TOTAL TRAVEL COST	\$ 440.00

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
2017	10/01/2016	05/30/2017	F	sites	\$ 3,937.50	4	\$ 15,750
TOTAL							\$ 15,750

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, 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.	M
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P, 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

Miscellaneous supplies include jute erosion matting, and hand tools to support installation of stabilizing material.

TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS – Guadalupe Mountains National Park	4	\$ 15,750
	TOTAL COST	\$ 15,750

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Cultural Site Data Recovery	PART E SPECIFICATION #	C3
NFPORS TREATMENT CATEGORY*	Heritage Resources	FISCAL YEAR(S)	2017
NFPORS TREATMENT TYPE *	Site Treatment	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	N/A	IMPACTED T&E SPECIES	N/A
		FUNDING SOURCE (ES, BAR, OTHER)	ES

* 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:
<p>A. General Description: Conduct background research, field sampling and laboratory analysis of two archeological sites in Guadalupe Mountains National Park that are threatened or deteriorating due to erosion resulting from the Coyote Fire. This project will require mule support as it will require multi-day trips by the contractor into the Guadalupe Mountains Wilderness.</p> <p>B. Location: Two archeological sites in the Guadalupe Mountains Wilderness: 41CU150 and 41CU151.</p> <p>C. Design/Construction Specifications: Data recovery will follow established standards and guidelines, and will be conducted by a reputable professional archeological services company with experience in this activity. Analyses will include at least one C14, pollen sample and macrofossil sample from each site. The park archeologist will consult with the Texas SHPO prior to recovery work to obtain concurrence and will act as COTR on the contract with the archeological services firm.</p> <p>D. Purpose of Treatment Specifications: The two sites have been compromised by deep gully erosion and are at risk of complete loss within 1-2 years, as erosion in these areas will be exacerbated by the effects of the Coyote Fire. Recovery of data from the sites is critical before site integrity is irrevocably lost.</p> <p>E. Treatment Effectiveness Monitoring Proposed: A detailed final report summarizing research findings, field notes, photographs, and laboratory analysis for each site.</p>

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
Archeologist GS-11 @ \$45/hr x 80 hrs x 1 FY	\$ 3,600
WG8 Packer \$35/hr x 40 hrs x 1 FY	\$ 1,400
TOTAL PERSONNEL SERVICE COST	\$ 5,000
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Pack animal supplies \$50/day x 5 days x 1 FY	\$ 250
TOTAL MATERIALS AND SUPPLY COST	\$ 250
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Qualified archeological services company (\$7500/site x 2 sites x 1 FY)	\$ 15,000
TOTAL CONTRACT COST	\$ 15,000

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
2017	10/01/16	5/30/17	F	Site	\$ 10,125	2	\$ 20,250
TOTAL							\$ 20,250

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

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	C
2. Documented cost figures from similar project work obtained from local agency sources.	M
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

N/A

TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS – Guadalupe Mountains National Park	2	\$ 20,250
	TOTAL COST	\$ 20,250

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Coyote Facilities Repair	PART E SPECIFICATION #	F1
NFPORS TREATMENT CATEGORY*	Facility & Infrastructure	FISCAL YEAR(S) (list each year):	2017
NFPORS TREATMENT TYPE *	Repair Recreation Facility	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None
		FUNDING SOURCE (ES, BAR, OTHER)	BAR

* 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:
<p>A. General Description: Repair facilities damaged in the Coyote wildfire: trail water bars, directional signs, tent pad crib walls.</p> <p>B. Location/(Suitable Sites): See attached list with UTM locations.</p> <p>C. Design/Construction Specifications: For water bars and cribbing use native stone collected on site with archaeologist's approval.</p> <p>D. Purpose of Treatment Specifications: Allow safe and stable access to public and employees using trails and campgrounds in the Coyote burn area.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Inspect work for effective construction as per BAER Treatment Catalog (e.g., page 155: rock water bar)</p>

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
2 WG-5 Maintenance Mechanic (trails) \$44/hr x 160 hrs x 1 FY	\$ 7,040
1 WG - 8 Packer \$35/hr x 40 hrs x 1 FY	\$ 1,400
1 GS-5 Archeologist intern \$22/hr x 80 hrs x 1 FY	\$ 1,760
TOTAL PERSONNEL SERVICE COST	\$ 10,200
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
N/A	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$ -
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
pack animal supplies \$50 day x 5 days	\$ 250
Signs: five at \$170 each x 1 FY	\$ 850
Miscellaneous hand tools and grip hoists for moving and shaping rock x 1 FY	\$ 1,000
TOTAL MATERIALS AND SUPPLY COST	\$ 2,100
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Backcountry per diem - 35 days x 20/day x 1 FY	\$ 700
TOTAL TRAVEL COST	\$ 700
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
N/A	
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
FY 16	10/01/16	09/30/17	F	35	\$ 371.43	35	\$ 13,000
						TOTAL	\$ 13,000

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.	
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

See attached List with UTM coordinates of specific project locations. Highlighted records are those targeted for treatment in this specification.

TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
Guadalupe Mountain NP	35	\$ 13,000
	TOTAL COST	\$ 13,000

Specification Form Created September 23, 2006

Facilities Inspection Summary, Coyote Fire 2016. Highlighted sites are those covered in in this specification.

TYPE	NAME	DESCRIPTION	POINT_X	POINT_Y	UTM	Date_
Campsite	Blue Ridge 2	8 feet of cribbing burned	-104.8720601	31.94842475	13N 512091E / 3534726N	2016-05-28
Campsite	Blue Ridge 3	4 feet of cribbing burned	-104.8715846	31.94849415	13N 512136E / 3534733N	2016-05-28
Campsite	Marcus 4	8 feet of cribbing burned	-104.8767916	31.98128784	13N 511640E / 3538368N	2016-05-27
Sign	Tm 1	burned, Carsonite trail marker	-104.8734809	31.98457539	13N 511952E / 3538732N	2016-05-27
Sign	Tm 2	burned, sign "no horses"	-104.8737387	31.98450884	13N 511928E / 3538725N	2016-05-27
Sign	Tm 3	burned, Carsonite trail marker	-104.8885031	31.97027218	13N 510534E / 3537146N	2016-05-27
Sign	Tm 4	old trail sign, needs back haul	-104.879372	31.94794916	13N 511400E / 3534672N	2016-05-28
Sign	Tm 5	unreadable sign , "No horses"	-104.8592109	31.9440908	13N 513306E / 3534247N	2016-05-28
Water bar	Trail bar 1	burned timber water bar	-104.865853	31.98799278	13N 512672E / 3539112N	2016-05-27

Water bar	Trail bar 2	three burned log water bars	-104.8477189	31.93298771	13N 514394E / 3533018N	2016-06-02
Water bar	Trail bar 3	burned timber water bar	-104.8514519	31.94275724	13N 514039E / 3534100N	2016-06-03
Water bar	Trail bar 4	burned timber water bar	-104.8382977	31.91520425	13N 515287E / 3531048N	2016-06-05
Water bar	Trail bar 5	burned timber water bar	-104.829248	31.92540997	13N 516141E / 3532180N	2016-06-05

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Hazard Tree Mitigation	PART E SPECIFICATION #	F2
NFPORS TREATMENT CATEGORY*	Facility & Infrastructure	FISCAL YEAR(S) (list each year):	2017
NFPORS TREATMENT TYPE *	Stabilize/Secure/Protect Structures	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None
		FUNDING SOURCE (ES, BAR, OTHER)	BAR

* 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: One year post-fire inspection for tree mortality and hazard tree mitigation at backcountry campgrounds.
B. Location: Marcus, Blue Ridge, Mescalero, Tejas, Bush Mountain, and Pine Top campgrounds.
C. Design/Construction Specifications: In each campground, inspect trees and rate the hazard potential of fire-damaged trees. Mitigate (pull down or cut) any tree with a hazard rating greater than 5. Use wilderness travel and minimum impact techniques as per wilderness management plan.
D. Purpose of Treatment Specifications: Allow safe and stable public access to designated campsites within the Coyote burn area.
E. Treatment Effectiveness Monitoring Proposed: Utilize modified USFS SW Region hazard tree evaluation form protocols to rate hazard trees for mitigation.

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
1 GS-9 Type I qualified faller with wilderness experience \$46 hr x 120 hrs	\$ 5,520
1 WG-8 Packer \$35/hr x 96 hrs x 1 FY	\$ 3,360
TOTAL PERSONNEL SERVICE COST	\$ 8,880
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require 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
Pack animal supplies \$50 day x 6 days	\$ 300
Miscellaneous tree falling supplies (wedges, chains, rope, pulleys)	\$ 500
TOTAL MATERIALS AND SUPPLY COST	\$ 800
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Backcountry per diem - 16 days x \$20/day 1 FY	\$ 320
Travel per diem - 6 days (Faller travel from home park)	\$ 490
TOTAL TRAVEL COST	\$ 810
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
FY 17	10/01/17	09/30/17	F	6	\$ 1,748.33	6	\$ 10,490
						TOTAL	\$ 10,490

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.	
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

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TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
Guadalupe Mountains NP	6	\$ 10,490
	TOTAL COST	\$ 10,490

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Coyote Fire /BAR Plan Prep	PART E SPECIFICATION #	O1
NFPORS TREATMENT CATEGORY*	Planning	FISCAL YEAR(S) (list each year):	2016
NFPORS TREATMENT TYPE *	ES/BAER Plan	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None
		FUNDING SOURCE (ES, BAR, OTHER)	ES

* 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):

<p>A. General Description: Specialists from Guadalupe Mountains National Park, other NPS park units and programs, and the USDA Forest Service developed the BAR Plan for the Coyote Fire incident. The team assembled at Guadalupe Mountains NP to conduct field assessments and coordinated the Plan with the WASO BAER Leader.</p> <p>B. Location/(Suitable) Sites: Team was based out of Pine Springs, Texas. This plan covers the 14,108 acres of the Coyote Fire within the park boundary; another 334 acres of BLM, State of New Mexico and private lands that also burned are not included in the plan.</p> <p>C. Design/Construction Specifications: Complete a BAR Plan ("Post-Fire Rehabilitation Plan") for the Coyote Fire.</p> <p>D. Purpose of Treatment Specifications (relate to damage/change caused by fire): No emergency or rehabilitation treatments are prescribed under this specification. The planning activity is submitted as a specification in order to detail BAR planning costs for full transparency.</p> <p>E. Treatment consistent with Agency Land Management Plan (identify which plan): Park GMP and Wilderness Stewardship Plan; specifically actions to protect visitor safety, wilderness character, and park infrastructure.</p> <p>F. Treatment Effectiveness Monitoring Proposed: Not applicable</p>

LABOR, MATERIALS AND OTHER COSTS:

PERSONNEL SERVICES:	COST / ITEM
Botanist / Writer-Editor (Coles)	\$ 11,500.00
Cultural staff (Haas, Pribyl)	\$ 12,217.00
Forester / Facilities (Ivans)	\$ 9,400.00
Other (GISS)	\$ 160.00
TOTAL PERSONNEL SERVICE COST	\$33,277.00
TRAVEL COST:	
BITH staff travel, rental car (Ivans)	\$ 817.00
GRCA staff travel and per diem (Pribyl)	\$ 752.00
OLYM staff travel and per diem, airline, rental car (Coles)	\$ 2,058.00
USFS staff travel and per diem (Haas)	\$ 680.00
In-park lodging (Ship on the Desert, Dog Canyon, Pine Springs, Pine Top Cabin)	\$ 264.00
TOTAL TRAVEL COST	\$4,571.00

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
FY16	5/21/16	7/21/2016	F	Plan	\$37,848.00	1	\$37,848.00
TOTAL							\$37,848.00

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

Specifications for emergency treatments, rehabilitation treatments, and future assessment needs for (1) Cultural resource protection, (2) Exotic plants, (3) Hazard trees, (4) Minor facilities, (5) Implementation. Maps of treatment sites included in the report.
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TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS – Guadalupe Mountains National Park	1	\$37,848.00
	TOTAL COST	\$37,848.00

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	BAR Implementation Leader	PART E SPECIFICATION #	O2
NFPORS TREATMENT CATEGORY*	Administration	FISCAL YEAR(S) (list each year):	2017
NFPORS TREATMENT TYPE *	Contract Administration	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None
		FUNDING SOURCE (ES, BAR, OTHER)	ES, BAR

* 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):

<p>A. General Description: An Implementation Leader will ensure timely and effective implementation of post-fire rehabilitation specifications.</p> <p>B. Location/(Suitable) Sites: Facilities, sites, and resources directly and indirectly affected by the Coyote Fire in Guadalupe Mountains National Park. Most sites are in designated wilderness.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Coordinate all aspects of Year 1 actions approved in the Coyote Fire Rehabilitation Plan, including writing contracting scopes of work based on treatment specifications, administering contracts, implementation monitoring and documentation, tracking costs and maintaining financial records, reporting progress, submitting supplemental requests for funding, ensuring completion of all approved treatments, completing and filing required documentation, coordinating with GUMO park staff, the Texas SHPO, and the U.S. Fish and Wildlife Service NM Ecological Services unit. 2. Coordinate on-the-ground implementation of treatments, including site orientation of contractors, developing daily/weekly work plans and supervising implementation activities. 3. Monitor implementation activities to ensure compliance with all relevant Federal laws and regulations, including NEPA, NHPA, ESA, and Wilderness Act. Monitor to ensure that mitigations are followed and OSHA safety standards and regulations are met. 4. Document accomplishments and expenditures: Provide quarterly accomplishment reports in NFPORS, written fiscal year annual accomplishment reports detailing the percentage of each specification that is completed, completion reports, funds expended, quality control inspection reports, and treatment effectiveness monitoring reports. 5. At the conclusion of the one-year funding cycle for treatments, prepare an annual accomplishment report and budget request for the following year. Park staff will complete reports for years 2 and 3 (Specification V1 and V2 only), as well as the final comprehensive report detailing results and lessons learned from application of specifications. <p>D. Purpose of Treatment Specification (relate to damage/change caused by fire): To provide financial support for proper administration and documentation of the short-term rehabilitation treatments prescribed for the Coyote Fire.</p> <p>E. Treatment consistent with Agency Land Management Plan (identify which plan): GUMO GMP and Wilderness Stewardship Plan; specifically, actions to protect visitor safety, wilderness character, and park infrastructure, and to facilitate visitor access to wilderness.</p> <p>F. Treatment Effectiveness Monitoring Proposed: The Implementation Leader will review projects, assume financial responsibility, and provide written and electronic monitoring reports as prescribed by DOI policy and by the BAR plan.</p>
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LABOR, MATERIALS AND OTHER COSTS (FY17):

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-9/8 Implementation Leader @ \$46/hr x 320 hours x 1 FY	\$14,720
TOTAL PERSONNEL SERVICE COST	\$14,720
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.	
N/A	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
N/A	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel per diem while physically in park (10 days @\$89 / day / 1 FY)	\$890
TOTAL TRAVEL COST	\$890
CONTRACT COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
N/A	
TOTAL CONTRACT COST	

TOTAL SPECIFICATION COST	\$15,610
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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
2017	10/1/2016	9/30/2017	F	Year		1	\$15,610
TOTAL							\$15,610

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales, 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	
4. Estimates based upon government wage rates and material cost.	P, 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:

N/A

TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
NPS – Guadalupe Mountains National Park	1	\$15,610
	TOTAL COST	\$15,610

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Control Exotic Plants	PART E SPECIFICATION #	V1
NFPORS TREATMENT CATEGORY*	Invasive Plant Species	FISCAL YEAR(S) (list each year):	2017, 2018, 2019
NFPORS TREATMENT TYPE *	Chemical/Hand Treatment	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None
		FUNDING SOURCE (ES, BAR, OTHER)	BAR

* 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:
<p>A. General Description: Treat known noxious weed infestations treated annually to reduce potential for spread within the Coyote Fire burn area. Mule support will be necessary for multi-day trips in the backcountry and for backhauling bags of weed seed heads.</p> <p>B. Location: Dog Canyon Ranger Station, Dog Canyon & west tributaries, West Dog Canyon & tributaries, Cox Tank, and the Bowl/Frijole Ridge.</p> <p>C. Design/Construction Specifications: Visit known weed infestations between May and September and use appropriate methods (manual, chemical) to remove plants before they set seed. Remove any flowering or fruiting heads from burned area.</p> <p>D. Purpose of Treatment Specifications: Prevent Malta starthistle, Lehmann's lovegrass, Johnsongrass, and cheatgrass from becoming established in the Coyote Fire burn area; reduce vigor of established Russian thistle, woolly mullein, and horehound infestations to maintenance levels.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Repeat photographs from fixed points before and after treatments in 2017, 2018, and 2019. Redraw gross infested area boundaries for final report in 2019.</p>

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
Two GS-5 seasonal biotechs (320 hrs x \$21/hr x 3 fiscal years) - apply manual and chemical control to known infestations	\$ 20,160.00
GS-7 biotech crew lead (200 hrs x \$26/hr x 3 fiscal years) - apply manual and chemical control; documentation and permitting	\$ 15,600.00
WG-8 Packer \$35/hr x 40hrs x 3 FY	\$ 4,200.00
TOTAL PERSONNEL SERVICE COST	\$ 39,960.00
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
N/A	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$ -
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Hand tools (picks, hoes, clippers; 6 @ \$50 ea x 1 fiscal year)	\$ 300
Heavy duty trash bags (for flower head and seed heads; 2 boxes x \$50 ea x 3 fiscal years)	\$ 300
Herbicide (aminopyralid/glyphosate tank mix; 6 quarts (ap) and gallons (glyp) per year @\$150 x 3 fiscal years)	\$ 2,700
Adjuvants for herbicide (spreader-sticker, dye; pH conditioner; \$250/year x 3 fiscal years)	\$ 750
TOTAL MATERIALS AND SUPPLY COST	\$ 4,050
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Backcountry per diem (3 people x \$22/day x 14 days x 3 fiscal years)	\$ 2,770

TOTAL TRAVEL COST	\$ 2,770
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
N/A	
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
FY 17	05/01/17	09/30/17	F	acre	\$ 34.50	452	\$ 15,593
FY 18	05/01/18	09/30/18	F	acre	\$ 34.50	452	\$ 15,593
FY 19	05/01/19	09/30/19	F	acre	\$ 34.50	452	\$ 15,593
TOTAL						1356	\$ 46,780

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.	
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

Gross infested area map located in the Vegetation Assessment is relevant to this specification.

TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Guadalupe Mountains National Park	1356	\$ 46,780
	TOTAL COST	\$ 46,780

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Seed Native Grasses	PART E SPECIFICATION #	V2
NFPORS TREATMENT CATEGORY*	Invasive Plant Species	FISCAL YEAR(S) (list each year):	2017, 2018, 2019
NFPORS TREATMENT TYPE *	Prevention/Seeding/Native Seed Coll.	WUI? Y / N	No
IMPACTED COMMUNITIES AT RISK	None	IMPACTED T&E SPECIES	None
		FUNDING SOURCE (ES, BAR, OTHER)	BAR

* 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:
<p>A. General Description: Reseeding is not usually considered a "best practice" in NPS post fire management. The exception is when no native seed bank exists, as is the case in four locations in West Dog Canyon. These sites were either stock ponds or stock concentration areas (corrals) for many decades. The only plants that will now grow in these sites are noxious weeds, especially Russian thistle (tumbleweed). Reseeding with natives grasses, combined with herbicide control of the thistle (specification V1) will interrupt the cycle of weed-bare ground-weed that currently prevails.</p> <p>B. Location/(Suitable Sites): Seed will be collected in the Dog Canyon Ranger Station area from meadows near the corral and RV campground. Seed will be installed in filled stock ponds and former stock corrals in West Dog Canyon, 3.5 miles away vial foot/horse trail (map in vegetation assessment report).</p> <p>C. Design/Construction Specifications: June-September: Collect mature seed of slender needlegrass, blue grama, black grama, galleta, and alkali sacaton from existing stands near the Dog Canyon ranger station. May: Treat reseeding areas in West Dog Canyon with herbicide to kill emerging Russian thistle (may need to re-treat in June if May is wet). October: Spread uncleaned seed thinly in 10m x 10m patches within the reseeding areas, cover with jute netting, and pin or weight down the netting with rocks. Walk over the completed area to ensure good seed contact with soil.</p> <p>D. Purpose of Treatment Specifications: Proposed treatment sites are stuck in a dead-end cycle of Russian thistle infestation-bare ground-reinfestation that has prevented recovery to native bottomland grassland for more than 40 years. Removing Russian thistle (Specification V1) from these areas and seeding them to native grasses will break the cycle, reduce weed density and vigor, and help to control erosion of fine-textured bottomland soils.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Repeat photographs from fixed points before and after treatments in 2017, 2018, and 2019.</p>

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
Two GS-5 and one GS-7 seasonal biotechs (160 hrs x \$21/hr x 3 fiscal years) - collect and spread seed	\$ 10,080
GS-7 biotech crew lead (100 hrs x \$26/hr x 3 fiscal years) - collect and spread seed; documentation and reporting	\$ 7,800
TOTAL PERSONNEL SERVICE COST	\$ 17,880
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
N/A	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$ -
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Large muslin bags for collecting drying, and storing seed (8 x \$25 ea x 1 fiscal year)	\$ 200
Galvanized 40 gallon rodent-proof steel trash cans for storing uncleaned harvested seed (2 x \$40 x 1 fiscal year)	\$ 80

Coarse open-mesh jute erosion fabric to hold seed in place (Five 4x225' rolls @ \$75/roll x 3 FY)	\$ 1,125
Replacement parts for hand-held seed harvester (whips; 1 x \$243 x 3 fiscal years)	\$ 730
TOTAL MATERIALS AND SUPPLY COST	\$ 2,135
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Three personnel x \$22/day x 8 days x 3 fiscal years	\$ 1,585
TOTAL TRAVEL COST	\$ 1,585
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
N/A	
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
FY 17	08/01/17	09/30/17	F	square ft	\$ 1.60	4,500	\$ 7,200
FY 18	08/01/18	09/30/18	F	square ft	\$ 1.60	4,500	\$ 7,200
FY 19	08/01/19	09/30/19	F	square ft	\$ 1.60	4,500	\$ 7,200
TOTAL						13,500	\$ 21,600

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

See vegetation assessment report for map of areas to be treated.
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TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS	13,500	\$ 21,600
TOTAL COST		\$ 21,600

PART G - CONSULTATIONS

Endangered Species. The park initiated consultation by telephone with the US Fish and Wildlife Service New Mexico Ecological Services Field Office on the morning of May 16, 2016. The park received an emergency consultation case number and initial recommendations later that day. The park provided telephone and email updates through May 25, and requested additional guidance when new tactics were proposed. As of September 14, 2016, the consultation is ongoing and will continue through the period of recovery activities. Copies of email correspondence between Guadalupe Mountains National Park and the US Fish and Wildlife Service appear in Appendix V.

Cultural Resources. The park initiated informal consultation by email with the Texas State Historic Preservation Officer on May 18 (correspondence appears in Appendix V). Subsequent consultation has been by telephone. The park has kept the SHPO apprised of actions taken to protect, assess, and document cultural features within the fire perimeter.

APPENDIX I – BURNED AREA ASSESSMENT REPORTS

1. Cultural Resources Assessment (Hass and Pribyl)
2. Facilities Assessment (Ivans)
3. Hazard Tree Assessment (Ivans)
4. Mexican Spotted Owl Habitat Assessment (Gatewood)
5. Vegetation Assessment (Coles)

2016 COYOTE FIRE –RESOURCE DAMAGE ASSESSMENT REPORT

Cultural Resources

R. Brian Haas and Jeremy Pribyl

ABSTRACT

An Emergency Post-Fire Site Inspection of the 2016 Coyote wildfire in Guadalupe Mountains National Park, west Texas, was conducted by BAER archeologists R. Brian Haas and Jeremy Pribyl with support from park staff. One hundred-twenty previously discovered archeological sites lie within or adjacent to the fire perimeter. Sixty-nine archeological sites in the northern half of the fire were visited by BAER Archeologist R. Brian Haas between May 22 and May 29. BAER Archeologist Jeremy Pribyl assessed 14 sites in the southern half of the fire between June 2 and June 6. These visits represented 69% of the total sites known to be within or adjacent to the fire area. The remaining thirty seven sites were deemed unsafe to access due to radio communication blackout zones, fire weakened trees, snags and active fire. Burn intensity on sites covered all three severity classifications, low (72), moderate (3) and high (1). Three sites within or adjacent to the burn perimeter were unburned and four previously recorded sites were not relocated. One site displayed evidence of direct impact from the fire. No sites displayed evidence of suppression damage. Fourteen sites were recommended to receive follow-up management action. Three new sites were encountered and minimally recorded.

INTRODUCTION

Based on the Burn Area Reflectance Classification (BARC) map provided by the USGS EROS Data Center and the existing Geographic Information System (GIS) data provided by the Guadalupe Mountains National Park staff it was determined that 120 known archeological sites may have potentially impacted by the Coyote Fire - either by the fire itself or activities that took place during the suppression / mop-up phase.

83 of the 120 (69%) archeological sites were visited by BAER Archeologist R. Brian Haas, Jeremy Pribyl, and supporting staff. An Emergency Post-Fire Site Inspection Record sheet was completed for each site visited. Digital photographs were taken at most sites. All original documentation forms were given to Guadalupe Mountains National Park personnel. The following is a summary of our findings and recommendations.

BURN INTENSITY

Of the 83 archeological sites visited, 72 sites showed characteristics of low burn intensity, three showed characteristics of moderate burn intensity, one site showed characteristics of high burn intensity, three were unburned and four were not relocated. Burn intensity was determined based on a standardized BAER form provided by the National Park Service:

- Low Intensity: Duff partially consumed, little to no ladder fuels burned, and no canopy burned

- Moderate Intensity: Duff consumed, ladder fuels burned, and isolated crown fires or torching; tree crowns partially or entirely brown.
- Severe Intensity: Duff, ladder and crown completely consumed.

Fire Effects:

Of the 83 archeological sites visited, one displayed evidence of direct impacts from fire.

- **41CU222**: Site is a multicomponent site consisting of a small lithic scatter, ring midden bisected by the trail, and historic axe cut logs. During the current visit, the axe cut logs could not be relocated and have likely burned. Ash stain and burned limestone are hard to discern from the surrounding rocks; we therefore suggest that the site be tested to confirm the presence of a ring midden. Otherwise, site is stable and in good condition.

Suppression Damage:

Of the 83 archeological sites visited, none showed evidence of suppression damage, although two sites had been driven through by ATVs during suppression. This was a one-time event and not expected to have lasting effects on either site.

RECOMMENDED MANAGEMENT ACTIONS

Sites on ridge tops and slopes, as well as anywhere where the geology is primarily broken limestone, will not be affected by the fire or erosion. In the valley bottoms however, future floods caused by the lack of vegetation left by the fire can quickly erode new channels and gullies, and widen existing gullies. Of the 83 archeological sites visited, 14 were recommended to receive additional management action, with ES funding recommended for action at six sites. Scope and costs are detailed in the indicated specifications.

Assessments (Specification C1)

For various reasons, 37 of the 120 known archeological sites were not assessed by BAER team archeologists. Several others were not found because of inaccurate locational data. Under this specification, trained archeological staff would complete post-fire assessments. If additional sites need stabilization or data recovery, they will prepare and submit a supplemental BAR funding request.

Stabilization (Specification C2)

Due to the fire's location in wilderness, we suggest stabilization using local native materials such as brush, slash, and fallen trees as much as possible to achieve the desired effect. Otherwise, jute erosion fabric is acceptable, as it will degrade over time.

- **41CU96**: Site is an extensive and diverse site that needs to be updated and recorded to modern standards. The site is composed of several ring middens, a pictograph panel, and a historic corral and "kid goat shelters." The kid goat shelters are at risk of destruction due to flooding. A shallow gully runs through the meadow (84m in length), less than a meter from several shelters. These features are not in a wilderness area, and can be stabilized with jute matting.

Finally, the pictographs at the site are stable and in good condition, the fire did not burn in the area of the rock shelter. We suggest ground based photogrammetry and laser

scanning to fully record the pictographs; if that is not possible, a basic recording using photographs and sketches is needed.

- **2009-38:** The site consists of two ring middens separated by shallow gully. Some erosion may occur at the shallow gully separating the middens due to effects from the Coyote Fire. The gully may be stabilized using slash (dead tree limbs and dead shrubs) rather than jute matting due to its location in wilderness.
- **2011-1:** Site is a lithic scatter primarily sub surface, all artifacts were found in gullies and head cuts 6-12” below surface. Site needs to be stabilized with brush and slash (due to wilderness) as site has data potential. Site is in fair condition. Sheet wash is the primary concern for future data loss.
- **41CU790:** Site consists of several ring middens, thermal features, and associated artifact scatters. UTV tracks cross the site; this is likely a onetime event during efforts to suppress the fire, and is not an impact to the site. Features F4 and F2 have small erosional features alongside, these could be stabilized with slash and brush, however the site will likely self-stabilize with heavy grasses. Monitor for 1 year, if erosion takes place, stabilize with slash and brush

Data Recovery (Specification C3)

These two sites were judged to be at imminent risk of irretrievable loss of features and information due to erosion from surrounding burned slopes.

- **41CU151:** The site was found to be as described. Site is in danger of loss due to flash flooding exacerbated by the Coyote Fire. The site needs to be re-recorded to modern standards, and monitored within the next 6 months, preferably before monsoon. A data recovery plan should be made for the second roasting pit that includes charcoal samples, soil samples, pollen samples, and residue samples.
- **41CU150:** Site is a multi-component site consisting of a lithic scatter, three ring middens, and a historic barn and corral with historic artifacts. The barn was described after the Cutoff Fire as “a ruin,” with burned posts and detached sheet metal, the barn’s current condition is as described in 2010. One of three prehistoric features was relocated. During the 2010 Cutoff Fire assessment, all three of these features are on the edge of a gully. At that time, data recovery was suggested due to the likelihood that the gully would widen. It is possible that two of the features have since been lost. Data recovery should take place at the relocated ring midden. Overall, site is in poor condition.

Monitoring (Non-specification recommendations)

- **41CU98:** This site is an excellent example of a ring midden or roasting pit. The ring is intact, and stands out against its environment. The midden retains its integrity and research potential. The site is stable and in good condition. An updated map is suggested though this is not an effect of the fire. A cut bank on the south side of the site may pose a threat if flash flooding occurs, this should be monitored regularly. If erosion due to flooding becomes an effect to the site, a data recovery plan should be made.
- **41CU791:** Site is a multicomponent site consisting of ring middens, lithics and a historic campsite. The site is as recorded. Previous records indicated that future erosion and site damage may take place due to already-eroded trail. Trail maintenance will alleviate the

problem. The site is in good condition however, due to the risk of flooding from the Coyote Fire, site should be monitored after or during the monsoon.

- **41CU783:** Site is a prehistoric site consisting of a lithic scatter and five ring middens. Site is in fair to poor condition. Soils are highly erodible and site is affected by sheet wash and head cuts. We suggest the site be thoroughly assessed for stabilization needs.
- **41CU219:** Site consists of a single ring midden and associated lithic scatter. When site was recorded in 2011, it was suggest that the four established trees within the ring midden be cut to prevent damage to the feature. I do not believe this is the appropriate action, the trees are well established, and are not forming new roots, the damage has already occurred, cutting the trees while live would cause new growth of new plants and new roots, further damaging the feature. During the Coyote Fire, a low level intense fire did burn the roots of the trees within the feature, increasing bioturbation, however, the trees may still be alive, and may still be protecting the feature from bioturbation from new growth. The site should be monitored annually for the next three years.
- **41CU172:** Site consists of a ring midden originally recorded in 1973. Since that time, the site has not been monitored and no map is included. The site is in good condition; the gully on the north side of the site should be monitored for increased erosion.
- **41CU161:** Site is a multicomponent site consisting of ring middens, lithics and an historic cabin. The site is known as the Bowl Cabin. A 36”+ DBH live Douglas-fir tree took fire in a lightning scar up the entire length of the tree. The tree is alive and healthy. The tree does *not* appear to have a distinctive lean towards the cabin. During the next monitoring session the monitor should assess the condition of the tree for potential die-off and eventual collapse of the tree.

Other Needs (Non-specification recommendations)

- **41CU783:** Site is a prehistoric site consisting of a lithic scatter and five ring middens. Site is in fair to poor condition. Due to inadequate maps, features were not relocated. It is suggested that the site be re-recorded to modern standards.
- **41CU219:** Site consists of a single ring midden and associated lithic scatter. When site was recorded in 2011, it was suggest that the four established trees within the ring midden be cut to prevent damage to the feature. If the trees within the feature die, they should be cut to prevent damage to the feature when the tree falls and uproots.

INCIDENTAL DISCOVERIES

While conducting post-fire inspections of known archeological sites, three previously unrecorded sites were encountered. Due to time constraints, only a brief site description was completed. A GPS point was captured using a Trimble GPS receiver, although note the GPS data is already proving to be *very* inaccurate while the location description is fairly good.

- 2016-1: A newly discovered site consisting of a single 5x5 m ring midden and a ground stone artifact. The site is located on a bench above (west) of the Dog Canyon wash. The midden is also adjacent to an historic road, and purple glass was found on. The historic artifacts and road are likely associated with an 1880-1915 site occupation of the corrals in

site 41CU96. The site was not fully recorded due to lack of time. The site is stable and in good condition. The area was not burned and no stabilization is needed.

- NAD83 UTM Zone 13 North; 512343.6mE, 3534621.7mN
- 2016-2: Site is the historic Cox Cabin. The site does not appear to have been previously recorded. If the site already has a Smithsonian number, this documentation is an update. Site appears to be a cabin dating as early as 1935 (can opener opened cans) to as late as the proclamation of the park (1972). The collapsed structure is made from galvanized corrugated metal sheets with a stone floor, wood stove, and associated glass and can scatter. Hikers regularly visit the site. No work is needed other than research and fully recording the site. Site is in poor condition.
 - NAD83 UTM Zone 13 North; 510693.8mE, 3537208.5mN
- 2016-3: Site is a 3x2 m mineshaft 2-3 m deep. No waste rock or other historic noted. Site is stable and in good condition, no stabilization work needed.
 - NAD83 UTM Zone 13 North; 512,342.0mE, 3,534,622.6mN

REFERENCES

- Brown, Emily J. 2010. NRCS Soil Scientist Monitoring, Guadalupe Mountains National Park. Manuscript on file. Guadalupe Mountains National Park, Texas.
- Pribyl, Jeremy. 2010. Burned Area Emergency Response, Emergency Post Fire Inspection – Cutoff Fire. Manuscript on file. Guadalupe Mountains National Park, Texas.

ADDENDUM – Illustrated Individual Site Assessment Summaries

41CU252

Site is a prehistoric lithic scatter located on a ridge top; the site burned with low intensity. The site was visited in 2010 after the Cutoff Fire; at that time the recorders noted that only one flake was found. The current condition is the same as previous assessments. No stabilization or further work other than periodic monitoring is needed.



Figure 1: 41CU252 overview facing north.

41CU139

Site is a prehistoric lithic scatter and ring midden located on a ridge top. The site was found to be as described after the Cutoff Fire. The south side of the site burned with moderate intensity, while the north side burned with low intensity. The site is stable due to grasses, shallow soil and low slope angle. The ring midden has a 60 cm head cut on the northwest side that should be monitored for future erosion; this erosion will not likely be enhanced as a result of fire effects. The site is stable, in good-fair condition (due to head cut), and no further work is recommended.



Figure 2: 41CU139 overview facing north.



Figure 3: 41CU139 head cut in midden.

41CU781 / 2010-22

Sites 41CU781 and 2010-22 were originally identified as two sites; when fully recorded we determined that they were the same site, and temporary site number 2010-22 was nullified. GIS and site files should be updated to reflect this change.

Site is a sparse lithic and seven rock middens. The historic component consists of an earthen dam and campsite. In its current condition, the site appears as recorded in 2011. As stated in the original documentation, erosion is the main threat to this site. See Specification V-2 for recommended work to stabilize this site to minimize future erosion.



Figure 4: 41CU781 overview facing north.



Figure 5: 41CU781 Feature 8 facing north.



Figure 6: 41CU781 Feature 12 facing north.

41CU782

Site is a multicomponent site consisting of a lithic scatter and associated rock middens, as well as an historic fence and associated historic artifacts. The site is located above the flood plain and is stabilized with natural grasses already growing on site. Features do not appear to be adjacent to the gully. No stabilization work is needed.



Figure 7: 41CU782 overview facing north.

41CU783

Site is prehistoric, consisting of a lithic scatter and 5 ring middens. Site is in fair to poor condition. Soils are highly erodible and site is affected by sheet wash and head cuts. Due to inadequate maps, features were not relocated. It is suggested that the site be re-recorded to modern standards then assess condition and stabilization needs. No photo taken.

41CU151

The site was found to be as described. Site is in danger due to flash flooding exacerbated by the Coyote Fire. The site needs to be re-recorded to modern standards, and monitored within the next 6 months, preferably before monsoon. A data recovery plan should be made for the second roasting pit that includes charcoal samples, soil samples, pollen samples, and residue samples.



Figure 8: 41CU151 Feature 1, ring midden.



Figure 9: 41CU151 Feature 2 Ring midden in danger of erosion.

41CU792

Site is multicomponent, consisting of a lithic scatter, three ring middens and an historic road. Only one isolated chert flake was found; no features were located possibly due to an inadequate map. Historic materials and remains of historic road have not previously been recorded. One limestone rock pile (unburned) created during road construction may have been mistakenly recorded as a ring midden. Recommendations include updating the site record and map. Site is stable and in fair condition due to inadequate recording. No stabilization is necessary.

41CU791

Site is a multicomponent site consisting of ring middens, lithics and an historic campsite. The site is as recorded. Previous records indicated that future erosion and site damage may take place due to already eroded trail. Trail maintenance will alleviate the problem. The site is in good and stable condition however, due to the risk of flooding from the Coyote Fire site should be monitored after or during the monsoon.



Figure 10: 41CU791 Feature 4.



Figure 11: 41CU791 Feature 3.



Figure 12: 41CU791 Feature 2.



Figure 13: 41CU791 Feature 1.



Figure 14: 41CU791 overview facing north.

41CU97

In 2014, the Center for Big Bend Studies split the large site (41CU97) into five separate sites due to a lack of artifacts linking the features together. At that time, CBBS found that only 25-50% of 41CU97 was intact. Based on the current site form and GIS information, it is unclear what the new site numbers are or where they are located. Features noted along the road in the original 41CU97 site form could not be relocated, possibly due to road construction.

Approximately 50% of the site burned. During the Coyote Fire, the park entrance road was used as a fire line, leaving the west half of the site lightly burned and the east half unburned. Due to the thick grasses in unburned areas, features on the east side of the site could not be relocated.

The site is in poor condition, and may no longer be considered a site. No further work or stabilization is needed.

41CU98

This site is an excellent example of a ring midden or roasting pit. The ring is intact and stands out against its environment. The midden retains its integrity and research potential. The site is stable and in good condition. An updated map is suggested. A cut bank on the south side of the site may pose a threat if flash flooding occurs, this should be monitored regularly. If erosion due to flooding becomes an effect to the site, a data recovery plan should be made.



Figure 15: 41CU98 overview facing south.



Figure 16: 41CU98 overview of cut bank from south (facing north).

41CU99

Site was originally described as a three ring middens and two possible “teepee” or “Wikiup” rings. A site form was not available; only one large, intact, well-preserved ring midden was located. Others features may have been obscured by soil. The site is stable and in good condition. No further work is recommended.



Figure 17: 41CU99 overview facing north.

41CU561

A form was not available at the time of the visit. Site is a 2m-diameter excavated pit with native rock walls 2 courses high. The pit is situated on an overlook above Dog Canyon; it may have functioned as a look out, hunting blind, or food storage. No burned material was noted, leaving me to believe the pit is not a ring midden. Burn severity is low, and the site is in good and stable condition due to thin soils. No further work is necessary.



Figure 18: 41CU561 overview facing southeast.

41CU??

Site is labeled in GIS as 41CU?? – a site number needs to be added. The site is just north of site 41CU561 and consists of a ring midden. No form was available at the time of visit. The site is in good and stable condition and burn severity is low; no further work is needed.



Figure 19: 41CU?? overview facing south.

41CU96

Site is an extensive and diverse site that needs to be updated and recorded to modern standards. The site is composed of several ring middens, a pictograph panel, a historic corral and “kid goat shelters.” We agree with a pending suggestion that the site be broken into at least three sites.

Site file should be updated to include a description of the “kid goat shelters”, including their number and purpose. This portion of the site should be recorded as its own historic site needing a separate eligibility statement. As it stands, the kid goat shelters are at risk of destruction due to flooding. These features are not in a wilderness area and can be stabilized with jute matting.

Ring middens F7, F5 and F3 were relocated. Other features were not. Feature F3 is damaged by erosion and trail construction. The feature’s integrity has been lost. No suggestions for stabilization have been made regarding these features.

The pictographs at the site are stable and in good condition as the fire did not burn around the rock shelter. I suggest ground-based photogrammetry and laser scanning to fully record the pictographs. Alternatively, a basic recording using photographs and sketches is a necessity. Suggestions regarding the pictographs are not related to the fire or an emergency.

In conclusion, the site is in stable and good condition, with the exception of Feature 3 and a gully forming in the goat rocks meadow that must be stabilized. Feature 3 is already impacted by erosion and trail and possesses no integrity. The remainder of the site is stable but needs to be recorded to modern standards.



Figure 20: 41CU96 Feature 7 facing south.



Figure 21: 41CU96 Feature 5 facing south.



Figure 22: 41CU96 Feature F3 facing west with trail destruction.



Figure 23: 41CU96 "Kid goat rock".



Figure 24: 41CU96 several "kid goat rocks" with channel that needs stabilization.



Figure 25: 41CU96 "kid goat rocks" aligned along what may be an historic road, showing that the features may be historic.



Figure 26: 41CU96 overview of pictographs.



Figure 27: 41CU96 close-up of pictographs.



Figure 28: 41CU96 overview of rock shelter.

GUMO-2016-1

A newly discovered site consisting of a 5x5 m ring midden and a ground stone artifact. The site is on a bench above (west) of Dog Canyon wash. The midden is adjacent to an historic road and purple glass occurs on site. The historic artifacts and road are likely associated with 1880-1915 use of the corrals in 41CU96. This site was not fully recorded due to lack of time. The site is stable and in good condition. The area was not burned, and no stabilization actions are needed.



Figure 29: GUMO-2016-1 overview facing south.



Figure 30: GUMO-2016-1 ground stone artifact.

41CU251

A form was not available and site was not relocated. Site does not exist at GPS location and it seems that the GIS location is incorrect. Based on the site form, the site is located on the slope above the confluence of two drainages to the east. In the area described in the original recording the soils are shallow, the site rests on broken bedrock, and stabilizing grasses grow throughout the area. We feel that the site is stable and no further work is needed.

41CU250

According to the original recording, the site is a lithic scatter located in a small saddle. No artifacts were found at this location. Site was originally plotted on a 15-minute map, then transferred to a 7.5-minute map, then digitized and added to a GIS. It is highly likely that the site has been mis-plotted. Regardless, this area, like ridge tops throughout the area, has shallow soils and will not experience much erosion due to the fire. Area is stable; no further work is needed other than relocating the site.

41CU253

Site is a lithic scatter on a ridge top. A form was not available. The GPS location was found to be incorrect, possibly due to mis-plotting the site's location from a 15-minute map. A new GPS location was recorded. The site is located in a small patch of pinion and juniper. It is stable due to the shallow soils; no stabilization work is suggested.



Figure 31: 41CU253 overview facing southeast.

41CU205

Site is a lithic scatter, found to be as described in previous recording. Site is stable and in good condition; no stabilization treatments are necessary.



Figure 32: 41CU205 overview facing east.

41CU204

Site experienced high burn severity, including a crown fire and rock spalling. Site is a lithic scatter located near the top of a ridge on broken bedrock. Site will not be affected by fire effects or erosion. No further work is needed.

41CU567

Site is an historic prospect pit and rock cairns. Cairns may or may not be historic. The site was found to be as described. No stabilization work is recommended and the site does not need to be visited after future fires.



Figure 33: 41CU567 overview facing north.



Figure 34: 41CU567 Feature 1 facing west.



Figure 35: 41CU567 Feature 2 facing southeast.



Figure 36: 41CU567 Feature 3 facing southeast.



Figure 37: 41CU567 Feature 4 facing north.

41CU565

Site is a historic mine adit that has been filled. Components are bedrock and will not be affected by fire. No stabilization work is needed and there is no need to visit the site after future fires.



Figure 38: 41CU565 facing northwest.

GUMO-2009-36

The site has not been formally recorded and a site map is not included in the informal documentation; not all features were relocated. The site is stable and in good condition, there is little chance for erosion and no chance of flooding due to the site's shallow slope and thick grass cover. Additionally, the site is mostly subsurface, further protecting it from effects of sheet erosion. No stabilization work is needed.



Figure 39: GUMO-2009-36 site overview facing south.

41CU174

Site was originally recorded in 1973 as a sparse scatter of lithics, “but more so than usual for PX flats.” The site has not been mapped, or monitored since that time. PX Flat is a large basin east of Cutoff Ridge that collects windblown dust and sand, allowing cultural material to become subsurface. The site is in good and stable condition, No stabilization work needed.



Figure 40: 41CU174 site overview facing north.

GUMO-2009-37

The site has not been formally recorded and a site map is not included in the informal documentation, as such not all features were relocated. The site is stable and in good condition, there is little chance for erosion and no chance of flooding due to the site's shallow slope and thick grasses. Additionally, the site is mostly subsurface, further protecting it from erosive effects of sheet washing. No stabilization work is necessary.



Figure 41: GUMO-2009-37 site overview facing north.

GUMO-2009-38

The site consists of two ring middens separated by a shallow gully. The site has not been formally recorded and a site map is not included in the documentation. Some erosion may occur in the gully separating the middens due to effects from the Coyote Fire. The gully could be stabilized using dead tree limbs and shrubs rather than Jute matting due to its location in wilderness. Site is in good condition although we recommend stabilizing the site.



Figure 42: GUMO-2009-38 overview of feature facing north.

41CU172

Site consists of a ring midden originally recorded in 1973. Since that time, the site has not been monitored and no map is included. The site is in good condition; a gully on the north side of the site should be monitored for increased erosion.



Figure 43: 41CU172 possible feature facing south.

41CU778

Site consists of a prehistoric lithic scatter located on the slope of a ridge. A site form was not available at the time of visit. Site is in good and stable condition; no stabilization needed.



Figure 44: 41CU778 facing north.

41CU150

Site is a multi-component site consisting of a lithic scatter and three ring middens as well as a historic barn and corral with historic artifacts. Pictures of the barn taken after the 2010 Cutoff Fire are not included in the site file, so no condition assessment can be made. However, the barn was described after the Cutoff Fire as “a ruin,” with burned posts and detached sheet metal, the barn’s current condition is as described in 2010.

One of three prehistoric features was relocated. During the 2010 Cutoff Fire assessment, all three of these features were found to be on the edge of a gully. At that time, data recovery was suggested do to the likelihood that the gully would widen. It is possible that two of the features have since been lost. Data recovery should take place at the relocated ring midden.

Overall, site is in poor condition.



Figure 45: 41CU150 burned wall supports in barn.



Figure 46: 41CU150 burned corral.



Figure 47: 41CU150 ring midden in gully needs data recovery.

GUMO-2016-2

Site is the historic Cox Cabin. At the time of monitoring, it did not appear that the site has been previously recorded. If the site has a Smithsonian number already, use this documentation as an update. Site appears to be a cabin dating as early as 1935 (Can opener opened cans) to as late as the proclamation of the park (1972). The collapsed structure is made from galvanized corrugated metal sheets, with a stone floor, wood stove, and associated glass can scatter. Evidence is present of visitation from hikers. Site is in poor condition. We recommend fully recording and researching the site.



Figure 48: GUMO-2016-2 Cox Cabin.

41CU147

Site is a prehistoric ring midden and associated lithic scatter. Site is as described; no stabilization is necessary. Site is in good condition and stable. We recommend updating site record to include a better map as well as notes about disturbance caused by construction of Cox Tank and the pipeline from the spring.



Figure 49: 41CU147 ring midden facing west.



Figure 50: 41CU147 overview facing east.

GUMO-2011-1

A site form was not available. Site is a lithic scatter primarily subsurface; all artifacts were found in gullies with head cuts 6-12" below surface. Site needs to be stabilized with brush and slash (to protect wilderness character) as site has data potential. Site is in fair condition. Sheet wash is the primary concern and could cause future data loss.



Figure 51: GUMO-2011-1 diagnostic projectile point found 12" below surface in sheet wash.



Figure 52: GUMO-2011-1 overview of sheet erosion.

41CU200

Site could not be relocated based on the site form. No artifacts were found at the recorded location. Site was originally plotted on a 15-minute map, then transferred to a 7.5-minute map, then digitized and added to a GIS. It is highly likely that the site has been mis-plotted. Area is stable, no stabilization work needed. Needed work includes relocating the site.

41CU199

Site could not be relocated based on the site form. No artifacts were found at the recorded location. Site was originally plotted on a 15-minute map, then transferred to a 7.5-minute map, then digitized and added to a GIS. It is highly likely that the site has been mis-plotted. Area is stable, no stabilization work needed. Needed work includes relocating the site.

41CU198

Site consists of four ring middens and a lithic scatter situated on a saddle along Blue Ridge. Site is in good and stable condition, no stabilization work is needed. In the future, the site may need to be re-recorded and tested to confirm if F1 is a ring midden, and if F2 and F3 are separate middens or one large midden.



Figure 53: 41CU198 features 2 and 3 facing north.



Figure 54: 41CU198 overview facing north.

41CU227

The original site record describes a lithic scatter located 30 meters from Blue Ridge campground. The area is in good and stable condition, no stabilization work is needed. The site may not have been relocated by the 2009 crew, who only found one flake. During the current visit, only one flake was found as well. It is suggested that the site be relocated based on the original record.



Figure 55: 41CU227 overview facing east.

GUMO-2016-3

Site is a 3x2 m mineshaft 2-3 m deep. No waste rock or other historic artifacts or debris noted. Site is stable and in good condition, no stabilization work needed.



Figure 56: GUMO-2016-3 overview facing west-southwest.

GUMO-2009-34

Site may be a lithic source site. Site form was not available. No cultural material was found, possibly due to duff. Though the site is on a 30 degree south slope, the site is stable due to lack of soil and being near the top of a ridge. No stabilization work. In the future the site should be revisited and re-recorded using modern standards and research.



Figure 57: GUMO-2009-34 overview facing southeast.

41CU222

Site is multicomponent, consisting of a small lithic scatter, ring midden bisected by the trail, and historic axe-cut logs. During our visit, the axe cut logs could not be relocated and have likely burned. Ash stain and burned limestone are hard to discern, therefore we suggest that the site be tested to confirm the presence of a ring midden. Otherwise, site is stable and in good condition, No stabilization work needed.



Figure 58: 41CU222 overview facing southeast.

41CU224

Site is a multicomponent site consisting of a ring midden, lithic scatter, historic can scatter and a low rock wall. The site was found to be as described and in good and stable condition, No stabilization work is necessary.



Figure 59: 41CU224 Feature 1 facing south-southeast.



Figure 60: Low rock wall (historic) facing south.

41CU221

Site consists of five ring middens, a lithic and ceramic scatter. The site was found to be as described and in good and stable condition, with no stabilization work necessary.



Figure 61: 41CU221 overview facing north.

41CU219

Site consists of a single ring midden and associated lithic scatter. When site was recorded in 2011, it was suggested that the four established trees within the ring midden be cut to prevent damage to the feature. I do not believe this is the appropriate action; the trees are well established and are not forming new roots. The damage has already occurred; cutting live trees would encourage new plant growth, further damaging the feature. During the Coyote Fire, a low level intense fire did burn the roots of the trees within the feature, increasing bioturbation, however, the trees may still be alive, and may still be protecting the feature from increased bioturbation. The site should be monitored annually for the next 3 years. If the trees within the feature die, they should be cut to prevent damage to the feature from uprooting when the dead trees fall.



Figure 62: Ring midden facing south-southeast.



Figure 63: 41CU219 overview facing north.

41CU218

Site consists of five ring middens and an associated lithic scatter, in what used to be the Mescalero Campground. The campground has been relocated though elements, including the old trail, can still be seen. The site is in good and stable condition; no stabilization work needed.



Figure 64: 41CU218 Feature 2 facing south.



Figure 65: 41CU218 Feature 3 facing south.

41CU536

Site is a ring midden and associated lithic scatter. The site was found to be as described. The site is in good and stable condition. No stabilization work is needed.



Figure 66: 41CU536 overview facing southeast.

41CU780

Site consists of several prehistoric ring middens and an associated artifact scatter. The site was found as described, though the GPS data do not match the site map; possibly the site has been updated since 2010. The site has experienced surface erosion; this will continue but will not be enhanced by the effects of the Coyote Fire as the immediate area is unburned. No stabilization work needed.



Figure 67: 41CU780 site overview facing south.

41CU787

Site consists of three ring middens and an associate artifact scatter. The site is as described after the Cutoff Fire. BAER suggestions after the Cutoff Fire included stabilizing a gully through the site; however, it does not appear this was done. As such, it appears that the site self-stabilized after the Cutoff Fire, and will self-stabilize after the Coyote Fire; no further work needed.



Figure 68: 41CU787 Features 2 and 3 facing southeast.



Figure 69: 41CU787 Feature 1 facing southeast.

41CU149

Site is a multicomponent site consisting of several prehistoric ring middens and associated artifact scatter, as well as an historic earthen dam, spillway, and historic artifacts. Prehistoric component is on a south slope comprised of exposed bedrock and will not experience erosion. Historic component is a well-built dam with rock spillways. Site is in good and stable condition, no stabilization work needed.

41CU788

Site is a prehistoric lithic scatter. The site is good and stable as described. The site is primarily on private land in New Mexico. Because permission was not granted to cross fence the north end of site was not inspected. No stabilization work needed.



Figure 701: 41CU788 facing north.

41CU789

Site is a prehistoric lithic scatter and ring middens. The site was found as described, in stable and in good condition. UTV tracks cross the site; this is likely a onetime event during efforts to suppress the fire. No stabilization work is recommended.



Figure 712: 41CU789 overview facing north with UTV tracks.

41CU790

Site consists of several ring middens, thermal features, and associated artifact scatters. UTV tracks cross the site; this is likely a onetime event during efforts to suppress the fire, and is not an impact to the site. Features F4 and F2 have small erosional features that could be stabilized with slash and brush; however the site will likely self-stabilize with grasses regrowth. Monitor for 1 year, if erosion takes place, stabilize with slash and brush.



Figure 723: 41CU790 Feature 2 facing east.



Figure 734: 41CU790 Feature 4 facing east.

41CU786

Site is primarily subsurface; three features are eroding; however, the site slopes in the opposite direction and the site will likely self-stabilize with grass regrowth. Site is in good and stable condition; no stabilization work needed.



Figure 745: 41CU786 overview facing south.

41CU785

Site consists of a prehistoric lithic scatter and thermal features. Site was found as described, and in good and stable condition. The area was very lightly burned; grasses and short slope protect the site stable. No stabilization work needed.



Figure 756: 41CU785 overview facing east.

41CU143

Site is a prehistoric lithic scatter with several ring middens and thermal features. 2011 visit found that sites 41CU143-146 are one continuous site. Per TARL policy, the sites were combined into site 41CU143 and the remaining site numbers were nullified. This should be reflected in the site files and GIS data so future archeologists are not confused. Otherwise, the site is in good and stable condition. The site only experienced spot fires, and will not likely suffer from erosion.



Figure 767: 41CU143 overview facing southeast.

41CU80

Site consists of a prehistoric lithic scatter and with several associated ring middens and thermal features. The site was originally recorded in 1970. The site was observed to be stable and in good condition. Fire burned with overall low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 78: 41CU80 overview facing east.

41CU233

Site is a multicomponent prehistoric feature with associated artifact scatter. Also on site are historic features with associated artifact scatter. The site was originally recorded in 1976. The site was observed to be stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 79: 41CU233 overview facing northeast.

41CU232

Site consists of a prehistoric lithic scatter, a historic feature, and historic artifact scatter located within Tejas campground. The site was originally recorded in 1976. The site was observed to be stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 80: 41CU232 overview facing west.

41CU255

Site consists of a prehistoric lithic scatter, originally recorded in 1976. The area was relocated with GIS but may be mis-plotted. The area indicated by GIS was stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 81: 41CU255 overview facing northwest.

41CU254

Site consists of a prehistoric lithic scatter and associated features, originally recorded in 1976. The site was stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 82: 41CU254 overview facing northwest.

41CU231

Site consists of a prehistoric lithic scatter and with associated ring middens and thermal features, originally recorded in 1976. The site was stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 83: 41CU231 overview facing northwest.

41CU230

Site consists of a prehistoric lithic scatter, originally recorded in 1976. The site was stable and in good condition. Fire did not burn across the site. No stabilization work suggested.



Figure 84: 41CU230 overview facing north.

GUMO-2009-47

Site consists of a prehistoric lithic scatter, originally recorded in 2009. The site was stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 85: GUMO-2009-47 overview facing south.

41CU228

Site consists of a prehistoric lithic scatter, originally recorded in 1976. It was stable and in good condition. Fire burned with low intensity fire across the site and will likely not cause erosion. No stabilization work suggested.



Figure 86: 41CU228 overview facing northwest.

GUMO-2009-41

It is unknown the type of feature occur at the site, originally recorded in 2009. We were unable to locate any information besides GIS data for this site. The area was relocated using GIS and was stable and in good condition. Fire burned with low intensity across the site area and will likely not cause erosion. No stabilization work suggested.



Figure 87: GUMO-2009-41 overview facing northwest.

41CU239

Site consists consist of a prehistoric lithic scatter, originally recorded in 1976. The site was stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 88: 41CU239 overview facing west.

41CU186

Site consists of a prehistoric lithic scatter and with several ring middens and thermal features. The site was originally recorded in 1974. The site area was used for multiple operational tasks during fire suppression, but no lasting evidence was noted. The site was stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 89: 41CU186 overview facing northeast.

41CU161

Site is a multicomponent historic cabin with associated features and artifacts. Also on site are prehistoric features with associated artifact scatter. The site is known as the Bowl Cabin, originally recorded in 1973. The cabin was prepped and wrapped with fireproof material prior to burnout. The site was stable and in good condition. Fire burned with low intensity across the site and will likely not result in erosion.

A 36"+ DBH live Douglas-fir tree took fire in a lightning scar up the entire length of the tree. The tree is alive and healthy. The tree does *not* appear to have a distinctive lean towards the cabin. The tree is 35 feet bearing 164 degrees from the front door of the cabin. During the next monitoring session the tree should be assessed for potential failure.



Figure 90: 41CU161 overview facing northeast.



Figure 91: 41CU161 overview facing east.

41CU111

Site consists of a prehistoric lithic scatter and with several associated ring middens and thermal features. The site was originally recorded in 1970. The site was observed to be stable and in good condition. Fire burned with low intensity across the site and will likely not cause erosion. No stabilization work suggested.



Figure 92: 41CU111 overview facing west.

41CU173

Site consists of a lithic scatter, originally recorded in 1973. The site has not been updated or monitored since then. Due to lack of time, site was observed while passing through to other sites. The site was observed to be stable and in good condition. The abundance of broken bedrock in the area leaves little chance for erosion. No work stabilization suggested.

GUMO-2009-40

Site consists of a lithic scatter, originally noted in 2009; the site has not been formally recorded. Due to lack of time, site was observed while passing through to other sites. The site was observed to be stable and in good condition. The abundance of broken bedrock in the area leaves little chance for erosion. No stabilization work suggested.

41CU142

Site is primarily a sub-surface lithic scatter with thermal features. The site was visited in 2010 after the Cutoff Fire. Due to lack of time, site was observed while passing through to other sites.

The site was observed to be in the same condition as described after the Cutoff Fire in 2010, and is in stable and good condition. No stabilization work suggested.

41CU141

Site is primarily a sub-surface lithic scatter with thermal features. The site was visited in 2010 after the Cutoff Fire. Due to lack of time, site was observed while passing through to other sites. The site was observed to be in the same condition as described after the Cutoff Fire in 2010, and is in stable and good condition. No stabilization work suggested.

41CU148

Site is a sparse lithic scatter. Due to lack of time, site was observed while passing through to other sites. The site was observed to be as described after the 2010 Cutoff Fire and in stable and good condition. The abundance of broken bedrock in the area leaves little chance for erosion. No stabilization work suggested.

41CU180

Site consists of a lithic scatter, originally recorded in 1973. The site has not been updated or monitored since that time. Due to lack of time, site was observed while passing through to other sites. The site was observed to be stable and in good condition. The abundance of broken bedrock in the area leaves little chance for erosion. No stabilization work suggested.

Unaffected sites

The following sites are located within the burn perimeter but were not affected by fire; therefore we did not assess them. No impacts related to the fire are expected to the sites due to their location on broken bedrock above the flood plain.

- 41CU94 (Though we recommend the site be relocated)
- 41CU562
- 41CU181
- 41CU571
- 41CU563
- 41CU564
- 41CU568 (IF IT IS LOCATED ON east side of canyon)
- 41CU570 (IF IT IS LOCATED ON east side of canyon)
- 41CU569
- 41CU566
- 41CU784

-----**End of Cultural Resource Assessment Report**-----

2016 COYOTE FIRE –RESOURCE DAMAGE ASSESSMENT REPORT

Facilities D.W. Ivans

I. OBJECTIVES

- Locate and document facilities damaged or destroyed by the Coyote wildfire
- Assess replacement options and cost

II. ISSUES

The Coyote wildfire impacted 30 miles of wilderness trails, six campgrounds totaling 36 tent pads, two cabins, five signs, and 12 water bars.

III. OBSERVATIONS

A. Background Information

The Coyote fire burned in a mosaic pattern with mostly low and moderate severity burn intensity. We observed no areas of high severity burn with impacts to soils. Although the fire had a mostly beneficial effect on the wilderness ecosystem, there was damage to some Park backcountry facilities.

B. Reconnaissance Method

Site visits and assessments were made of all the backcountry campgrounds within the fire perimeter. Seventy percent of the trails within the fire were assessed and cleared of obstructing logs and debris. Hazard trees threatening campsite pads and trails (those that scored 5 or higher based on the hazard tree rating form) were mitigated by pulling or cutting. Most backcountry trails were cleared to allow Park stock to be able to access them. Seventy-seven georeferenced photos were taken of the assessed facilities. A summary spreadsheet is shown below, and an ArcMap geodatabase with points and pictures is available with the supporting documentation (Table 1, Figure 1).

Table 1. Summary of facilities assessed by the Coyote BAER Team. This is the attribute table for the photopoint geodatabase available in ArcMap. See Figure 1 for a map of photopoint locations.

Type	Name	Description	UTM E / N	Date
Cabin	Bowl Cabin	No damage, prepped and wrapped by suppression	13N 516204 / 3532591	2016-06-05
Cabin	Pinetop Cabin	No damage, prepped and wrapped by suppression	13N 514765 / 3531544	2016-06-03
Campsite	Blue Ridge 1	No damage	13N 512117 / 3534709	2016-05-28
Campsite	Blue Ridge 2	burned low intensity, 8 feet cribbing burned	13N 512091 / 3534726	2016-05-28
Campsite	Blue Ridge 3	4 feet cribbing burned	13N 512136 / 3534733	2016-05-28
Campsite	Blue Ridge 4	No damage	13N 512154 / 3534736	2016-05-28
Campsite	Blue Ridge 5	No damage	13N 512168 / 3534704	2016-05-28
Campsite	Bush 1	No damage	13N 511637 / 3532299	2016-06-04
Campsite	Bush 2	No damage, Hz20 - mitigated	13N 511656 / 3532299	2016-06-04
Campsite	Bush 3	No damage	13N 511691 / 3532324	2016-06-04

Type	Name	Description	UTM E / N	Date
Campsite	Bush 4	No damage, Hz17- mitigated	13N 511621 / 3532313	2016-06-04
Campsite	Bush 5	No damage, Hz18&19 - mitigated	13N 511643 / 3532313	2016-06-04
Campsite	Mescalero NW 6	No damage, Hz8 - pulled down	13N 514370 / 3535238	2016-05-28
Campsite	Marcus 4	8 feet cribbing burned	13N 511640 / 3538368	2016-05-27
Campsite	Marcus 5	No damage, Hz3 - do not cut	13N 511647 / 3538398	2016-05-27
Campsite	Mescalero E 1	No damage	13N 514358 / 3535192	2016-05-28
Campsite	Mescalero far N 5	No damage	13N 514400 / 3535244	2016-05-28
Campsite	Mescalero far S 3	No damage	13N 514338 / 3535092	2016-05-28
Campsite	Mescalero N 4	No damage	13N 514404 / 3535232	2016-05-28
Campsite	Mescalero S 2	No damage	13N 514332 / 3535168	2016-05-28
Campsite	Mescalero W 7	No damage, Hz9 - trimmed	13N 514359 / 3535224	2016-05-28
Campsite	Pine top 6	No damage	13N 514554 / 3531452	2016-06-04
Campsite	Pine top 7	No damage	13N 514513 / 3531468	2016-06-04
Campsite	Pinetop 1	No damage	13N 514588 / 3531434	2016-06-04
Campsite	Pinetop 2	No damage	13N 514613 / 3531429	2016-06-04
Campsite	Pinetop 3	No damage	13N 514614 / 3531463	2016-06-04
Campsite	Pinetop 4	No damage	13N 514594 / 3531476	2016-06-04
Campsite	Pinetop 5	No damage	13N 514563 / 3531459	2016-06-04
Campsite	Pinetop 8	No damage	13N 514559 / 3531427	2016-06-04
Campsite	Tejas 1	No damage	13N 514102 / 3533486	2016-06-02
Campsite	Tejas 2	No damage	13N 514104 / 3533460	2016-06-02
Campsite	Tejas 3	No damage	13N 514104 / 3533460	2016-06-02
Campsite	Tejas 4	No damage	13N 514127 / 3533431	2016-06-02
Campsite	Tejas 5	No damage	13N 514127 / 3533431	2016-06-02
Campsite	Tejas 6	No damage	13N 514150 / 3533416	2016-06-02
Sign	Tm1	burned, Carsonite trail marker	13N 511952 / 3538732	2016-05-27
Sign	Tm2	burned, sign "no horses"	13N 511928 / 3538725	2016-05-27
Sign	Tm3	burned, Carsonite trail marker	13N 510534 / 3537146	2016-05-27
Sign	Tm4	old trail sign, needs back haul	13N 511400 / 3534672	2016-05-28
Sign	Tm5	faded unreadable sign "No horses"	13N 513306 / 3534247	2016-05-28
Water bar	Trail bar 1	burned landscape timber water bar	13N 512672 / 3539112	2016-05-27
Water bar	Trail bar 2	burned natural log water bars	13N 514394 / 3533018	2016-06-02
Water bar	Trail bar 3	burned landscape timber water bar	13N 514039 / 3534100	2016-06-03
Water bar	Trail bar 4	burned landscape timber water bar	13N 515287 / 3531048	2016-06-05
Water bar	Trail bar 5	burned landscape timber water bar	13N 516141 / 3532180	2016-06-05

C. Findings

Campsite Tent Pads

Marcus Campground Site #4:

Elevation: 6303 feet

UTM: 13R 511640E/3538368N

Eight feet of tent pad cribbing burned. Recommend replacement with native rock.



Campsite Tent Pads

Blue Ridge Campground Site #2:

Exact location not recorded.

Eight feet of tent pad cribbing burned. Recommend replacement with native rock.



Campsite Tent Pads

Blue Ridge Campground Site #3

Elevation: 8211 feet

UTM: 13R 512136E/3534734N

Four feet of tent pad cribbing burned.
Recommend replacement with native rock.



Trail Signs

Bush Mountain Trail junction with Marcus Trail

Elevation: 6238 feet

UTM: 13R 511952E/3538733N

Carsonite trail arrow burned. Recommend replacement with a more fire-proof sign.



Trail Signs

Bush Mountain Trail junction with Marcus Trail

Elevation: 6260 feet

UTM: 13R 511958E/3538726N

Wood trail sign “No Horses” burned.
Recommend replacement in kind.



Trail Signs

Bush Mountain Trail junction with
Blue Ridge Trail

Elevation: 8120 feet

UTM: 13R 511400E/3534673N

Sign has been replaced. This sign and
post was on a pile of replaced water
bars that burned. Recommend back
haul out of wilderness.



Trail Signs

Bush Mountain Trail near Cox Cabin (ruin)

Elevation: 6607 feet

UTM: 13R 510535E/3537146N

Carsonite trail arrow. Recommend replacement with a more fireproof sign.



Trail Signs

Blue Ridge Trail at Marcus Trail junction:

Elevation: 7664 feet

UTM: 13R 513306E/3534247N

This sign was not damaged by fire but is unreadable and needs to be replaced with a fresh “No Horses” sign.



Water Bars

Bush Mountain Trail, west aspect of Manzanita Ridge.

Elevation: 6799 feet

UTM: 13R 512673E/3539113N

This photo represents about six water bars that burned along this reach of trail. Recommend replacement with native stone.



Water Bars

Tejas Trail near Juniper trail junction.

Elevation: 7384 feet

UTM: 13R 514394E/3533018N

Three natural log water bars impacted by fire. Recommend replacing in kind with native logs.



Water Bars

Tejas Trail, 0.37 miles south of Blue Ridge trail junction.

Elevation: 7384 feet

UTM: 13R 514040E/3534100N

Landscape timber water bar impacted by fire. Recommend replacing with native rock.



Water Bars

Bowl Trail 0.15 miles west of Bowl trail west fork.

Elevation: 7920 feet

UTM: 13R 515288E/35331048N

Landscape timber water bar impacted by fire. Recommend replacing with native rock.



Water Bars

Bowl Trail at the Bowl Trail east fork.

Elevation: 7767 feet

UTM: 13R 516141E/3532181N

Landscape timber water bar impacted by fire. Recommend replacing with native rock.



IV. RECOMMENDATIONS AND SPECIFICATIONS

Management (Specification F-1)

We recommend the following repairs to backcountry facilities:

- Repair cribbing for three campsite tent pads
- Replace five trail signs
- Replace 12 water bars

Repairs should use the least logistical effort and impact to wilderness character possible. The water bars and tent pad cribbing should be replaced with native stone that is abundant at all locations. An archeologist has been added to the specification to insure that collecting native stone will not adversely impact cultural sites.

Monitoring (Specification F-2)

Hazard trees warranting immediate action were mitigated during the BAER assessment. We included a specification to inspect campsites in 2017 in order to assess any delayed tree mortality that might produce additional hazard trees.

Management (non-specification related)

We recommend annual or periodic inspections of backcountry facilities to identify and mitigate any further deterioration.

REFERENCES

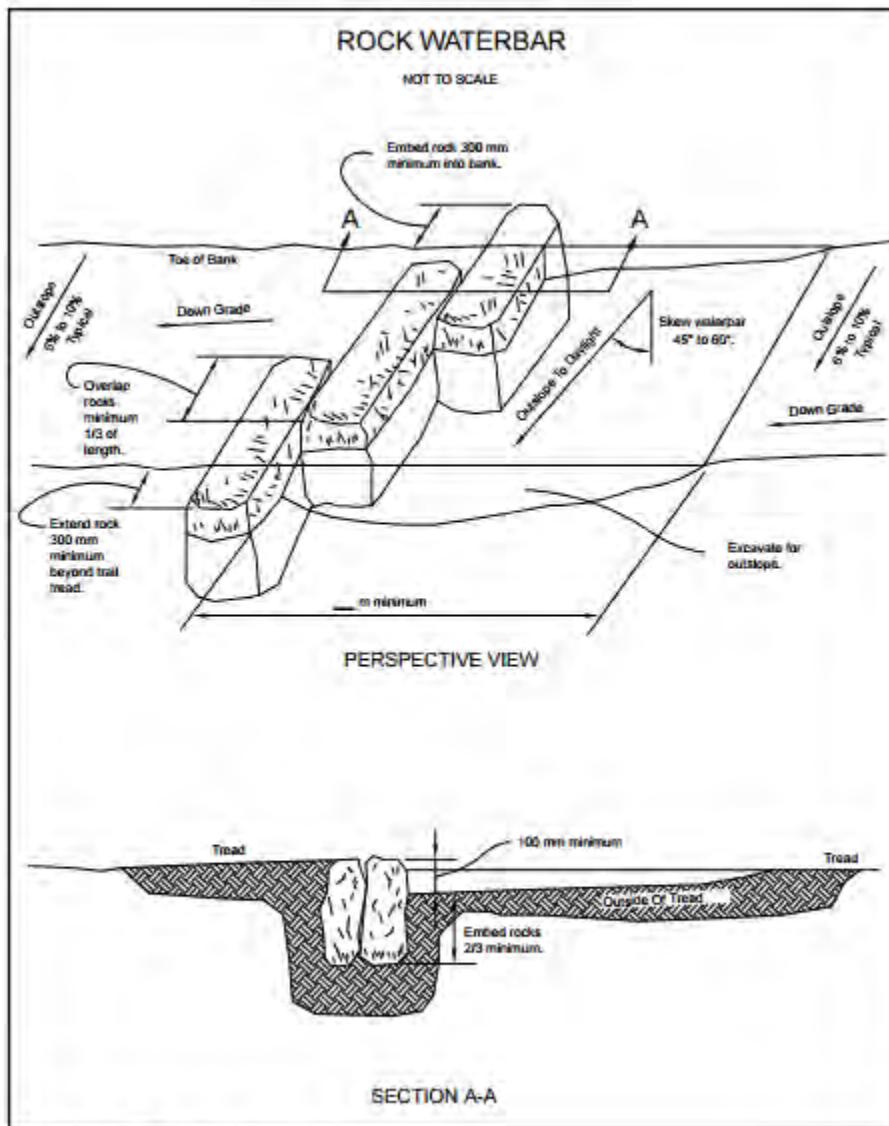


Figure 98—Trail rock waterbar.

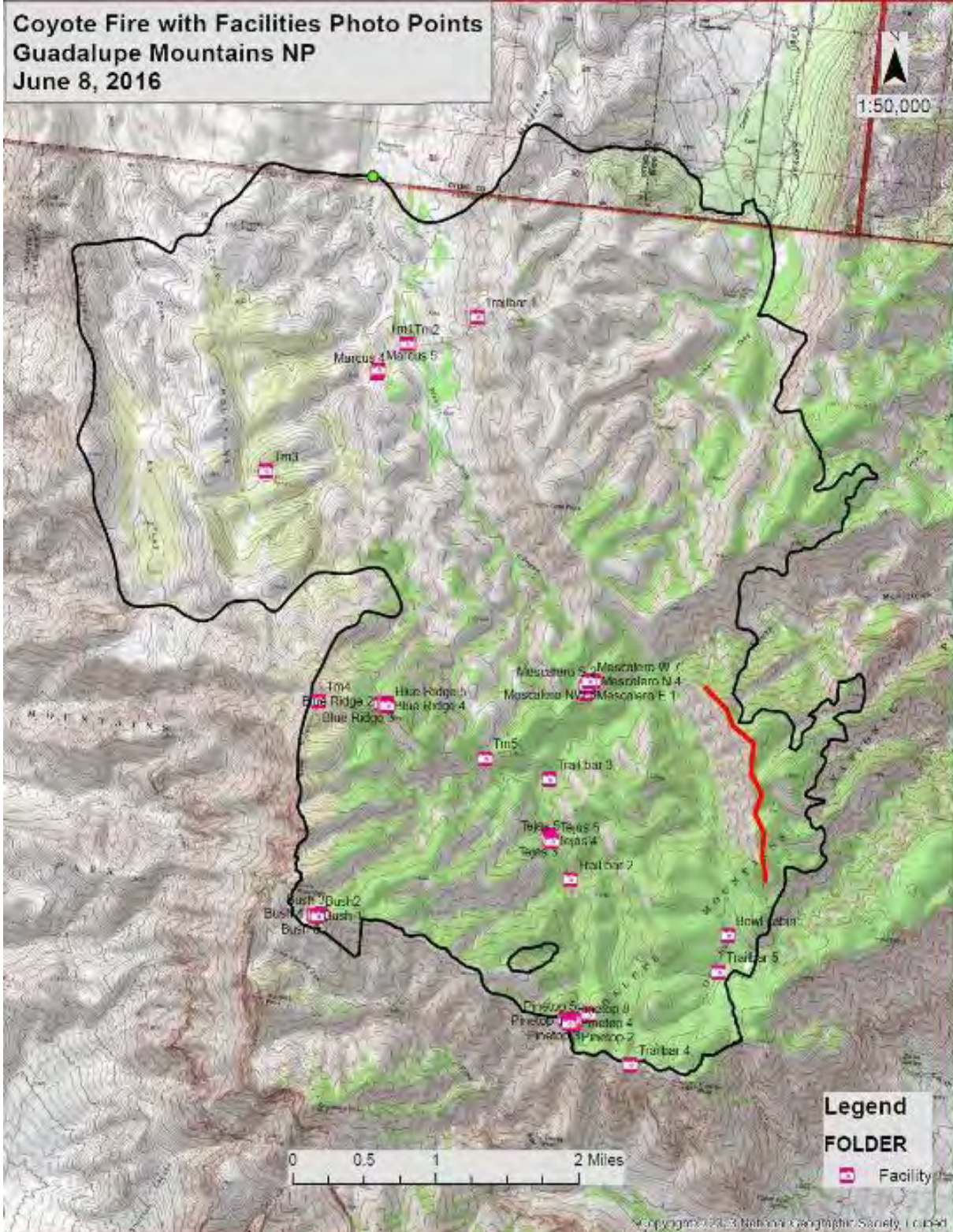


Figure 1. Map of the Coyote Fire (black line) with locations of facilities assessed by the BAER team (camera images).

-----End of Facilities Assessment Report-----

2016 COYOTE FIRE –RESOURCE DAMAGE ASSESSMENT REPORT

Hazard Trees D.W. Ivans

I. OBJECTIVES

Many of the Guadalupe Mountain NP backcountry trails and remote campsites were impacted by the Coyote wildfire (May 2016). BAER Team Forester D.W. Ivans assessed these sites for hazard trees that pose immediate threats to visitor and staff safety.

II. ISSUES

- a) The fire impacted a wilderness area where natural hazards are accepted. Trails do not need to be “hazard free”, but there is an expectation that designated campsite pads be safe from overhead hazards. Whether or not to mitigate hazard trees on wilderness trails was raised with Park management staff on May 25, 2016. It was agreed that the BAER Team Forester would conduct an initial assessment out of Dog Canyon to see the extent of hazard trees in the northern half of the fire. The initial hazard tree size-up completed, another Management staff meeting on May 31, 2016 was held. Out of that meeting Superintendent and Resource Chief agreed that trees with a hazard rating of 5 or higher would be mitigated in order to allow emergency access by the packer and stock. Also agreed was that BAER Team Forester could mitigate hazard trees as he encountered them during the remaining assessments, using fire suppression team support as needed.
- b) The Coyote fire was still active during this assessment. A Type II incident management team was transitioning to take over the fire from a Type IV organization. The presence of a BAER team on an uncontained back country wildfire was an unusual occurrence. Coordination with the Type II Planning Section Chief allowed the BAER team to do assessments in the “cold” northern half of the fire. On May 31, 2016 the fire transitioned from Type II to Type IV, (Saguaro module), and on June 2, 2016 a second trip was organized to continue cultural and hazard tree assessments on the south half of the fire, working out of Pine Top cabin. The Type IV team assisted by providing a safety officer, medic, sawyer and firefighters to support the assessments and to mitigate the hazard trees as they were encountered.

III. OBSERVATIONS

A. Background Information

Resource Specialist: D.W. Ivans, BAFO, Type I Faller, and Arborist (32 years)
Home Unit: Big Thicket National Preserve, 860 CR 1040, Woodville, TX 75979
Office Phone: (409) 951-6852, cell (409) 283-0122

B. Reconnaissance Method

BAFO examined all back country campsites to evaluate post-burn impacts on by measuring, rating and photographing potential tree hazards. He used a hazard tree rating form adapted from the USFS Southwest Region Hazard Tree rating form (attached). Each potential hazard tree was rated based on the target value (1 for trail, 2 for campsite pad), multiplied by the cumulative

defects (1-5), for a total potential score of 12. Any tree scoring five points or more was recommended for mitigation. Any dead or diseased tree that would potentially fall on a campsite where people could be sleeping would rate high enough to be recommended for mitigation.

C. Findings (specification related)

The majority of Coyote wildfire was of a low to moderate mosaic of fire behavior, leaving relatively few immediate overhead tree hazards. Below is a summary table of trails and campsites evaluated with corresponding results (Table 1). Individual site assessments with photographs follow the table.

Assessment Summary Table		
Area	Forest Type	Hazards and Recommendations
Dog Canyon Frontcountry	Mixed	Hazard trees mitigated in suppression
Bush Mtn Trail Lower	Mixed	One hazard tree near Dog Canyon trailhead. Open to stock
Marcus Campsites	Pinyon Juniper	Only 2 sites touched by low intensity fire
Marcus Trail	Pinyon Juniper	Two hazard trees at south end. The remainder of the trail was not assessed
Blue Ridge Trail	Douglas Fir	No hazard trees
Blue Ridge Campsites	Douglas Fir	Campsite #2 has two large Douglas fir snags that should be cut. The remainder of the sites had little fire impact
Mescalero Campsites	Pinyon Juniper	Campsites NW and W have hazard trees that need mitigation
Tejas Trail Lower	Mixed	Open to stock
Tejas Trail Upper		
Mescalero Campsites	Pinyon Juniper	One hazard tree over access trail, one snag at campsite NW, and a widow maker on campsite West
Tejas Campsites	Mixed conifer	Campsites#1 and 2: large live, southwestern white pines with fire-scarred bases; monitor annually.
Bush Mtn Trail Upper	Mixed conifer	Did not assess between Bush Mountain Campground and Blue Ridge trail junction
Bush Mountain Campsites	Mixed conifer	Hazard trees 17-20 mitigated
Pine Top Campsites	Mixed conifer	No fire damage or hazard trees
Pine Top Cabin	Mixed conifer	No fire damage or hazard trees
Bowl Trail	Mixed conifer	Hazard trees 21 and 22 threaten trail
Juniper Trail	Mixed conifer	Did not assess
Bowl Cabin	Mixed conifer	Hazard tree 22 is a 30" live, fire-scarred Douglas fir – reassess annually.

Dog Canyon Frontcountry

HZ1- Bush Mountain Trail near Dog Canyon trailhead*

Forest Type: Pinyon-juniper

Elevation: 6360 feet

UTM: 13R 515349E / 3539455N

Burn Intensity: Moderate

Hazard Rating: 5

Fire-impacted 26 inch dead juniper dropping limbs onto trail. Recommend felling due to the number a visitors that walk under this tree so close to Dog Canyon developed area. This is the first section where people will start uphill looking down at the trail and may not notice the hazard overhead.

*HZ1 was cut by the engine crew with a chainsaw on June 2, 2016. No hazard remains to be mitigated.



Marcus Backcountry Campground

HZ2 - Marcus Campsite #5

Forest Type: Pinyon-juniper

Elevation: 6300 feet

UTM: 13R 511647E / 3538399N

Burn Intensity: Unburned-Low

Hazard Rating: 3

There is an 8 inch, dead pinyon near campsite #5 that could fall and block the site access trail. This tree is not recommended for treatment. The lower limbs will prevent this tree from falling, and will break down naturally with time. This tree was included to illustrate the rating system.



Blue Ridge Backcountry Campground

H3, H4 & H5 - Marcus Campsite #2*

Forest Type: Douglas-fir

Elevation: 8166 feet

UTM: 13R 511647E / 3538399N

Burn Intensity: Low

Hazard Rating: 4, 12 & 12

H3 is a 15 inch dead alligator juniper that will not fall as much as roll on its lower branches. No treatment recommended.

H4 is a 24 inch dead Douglas fir reduced by fire to 15 inches at the base. It leans 10 degrees toward campsite #2. The tree is 66 feet tall and the campsite is 42 feet upslope. Recommend felling H4.

H5 is a 20 inch dead Douglas-fir 66 feet tall and 66 feet from campsite #2, with a 10-degree lean toward the campsite. Recommend felling H5.

A couple of other snags fell adjacent to the site during the fire event.

*Both H4&H5 where cut by chainsaw on 6/3/2016



Marcus Trail

H_z6 – Marcus Trail at Blue Ridge trail junction*

Forest Type: Mixed conifer

Elevation: 7663 feet

UTM: 13R 513281mE, 3534267mN

Burn Intensity: Low

Hazard Rating: 5

H_z6 is an 18 inch dead Douglas fir impacted by the fire and leaning 20 degrees over the Marcus trail. This tree will fall over the trail and block stock access. There are several more snags in the vicinity that rated lower than 5 on the hazard analysis. Recommend felling and clearing H_z6.

*H_z6 cut by chainsaw 6/3/2016.



Mescalero Backcountry Campground

H_z7 –NW Campsite*

Forest Type: Pinyon-juniper

Elevation: 7485 feet

UTM: 13R 514371E / 3535239N

Burn Intensity: Unburned-low mosaic

Hazard Rating: 12

H_z7 is an 11 inch base dead juniper that has loose roots, adjacent to, and leaning toward tent pad. Recommend pulling down H_z7.

*H_z7 mitigated 6/3/2016, pulled with rope and rigging to look like a natural blow down.



Mescalero Backcountry Campground, continued

Hz8 – West Campsite*

Forest Type: Pinyon-juniper

Elevation: 7485 feet

UTM: 13R 514359E / 3535224N

Burn Intensity: Unburned-low mosaic

Hazard Rating: 12

Hz8 is an 18 inch alligator juniper with a fire impacted widow maker limb and other dead branches directly over the tent pad of the westernmost campsite. Recommend trimming Hz8.

*Hz8 climbed and trimmed on 6/3/16 using rope and hand saw.



Tejas Backcountry Campground

Hz14 & Hz15 – Campsite #1

Forest Type: Mixed Conifer

Elevation: 7324 feet

UTM: 13R 514113E / 3533477N

Burn Intensity: Unburned

Hazard Rating: Monitor

Campsites 1-6 had no fire damage. Off campsite #1 east, near the metal water tank, there are two large trees with burned cat faces at their bases: Hz14 is a 26 inch southwestern white pine and Hz15 is a 28 inch southwestern white pine. These trees are alive and stable at this time. Recommend checking them annually for mortality.



Bush Mountain Backcountry Campground

Hz17 – Campsite #4*

Forest Type: Mixed Conifer

Elevation: 8338 feet

UTM: 13R 511622E / 3532314N

Burn Intensity: Moderate

Hazard Rating: 12

Hz17 is a dead and burned-out 30 inch Douglas fir located adjacent to campsite #4. Recommend felling Hz17.

*Mitigated on 6/4/16 by pulling it over by means of a rope looped around the top of the tree.



Bush Mountain Backcountry Campground, continued

Hz18 & Hz19 – Campsite #5*

Forest Type: Mixed Conifer

Elevation: 8311 feet

UTM: 13R 511644E / 3532313N

Burn Intensity: Moderate

Hazard Rating: 12

Hz18 is a 14 inch dead Douglas-fir adjacent to and leaning toward the tent pads. Hz19 is a 12 inch dead Douglas-fir adjacent to and leaning toward the tent pads. Recommend felling both trees.

*Both trees felled 6/4/16 using axe and handsaw.



Bush Mountain Backcountry Campground, continued

Hz 20 – Campsite #2*

Forest Type: Mixed Conifer

Elevation: 8352 feet

UTM: 13R 511656E / 3532300N

Burn Intensity: Moderate

Hazard Rating: 12

Hz20 is a 14 inch dead Douglas fir adjacent to and leaning toward tent pad. Recommend felling this tree.

*Felled 6/4/16 with axe and hand saw.



IV. RECOMMENDATIONS

A. Management (non-specification)

A high priority of the Park is to open trails and backcountry sites as quickly as possible following the Coyote Fire. The BAER Team forester mitigated a total of 15 highly rated hazard trees adjacent to campsites and trails and also cut and cleared logs that blocked stock access on the main trails. Mitigation in this wilderness setting used a combination of pulling (with ropes), trimming, and cutting (hand and chain saws). The GUMO fire management plan allows for chainsaw use in the wilderness during wildfire operations, but MIST (Minimum Impact Suppression Tactics) and simple logistics called for lighter hand tools to be used in the remote sites.

B. Monitoring (Specification F-2)

Mortality of fire stressed trees will continue years into the future. Lower elevation pinyon and juniper trees are rot resistant and dead or burned trees can stand for many years without failure. Annual monitoring and mitigation of campsites for overhead hazards should be accomplished to ensure visitor safety. Particular attention should focus on higher elevation Douglas-fir sites that experienced higher severity fire behavior (crown fire). Douglas fir is taller and breaks down faster than pinyon or juniper. A one year post-fire monitoring specification (Specification F-2) has been added to the facilities specifications.

HAZARD TREE EVALUATION FORM

Location: _____

Page: ___ of ___

Date: _____ Inspected by _____

(Each column represents one tree)

Unit number (e.g. campsite #)						
Tree number						
Tree species						
DBH						
Tree azimuth (degrees),						
Tree distance (feet), & refer. point (codes on back)						
Targets	2	People, Permanent Structures, Vehicles				
	1	Major Trails and Roads				
Defects	3	Wounds/cankers > 50% of circumference				
		Unnatural lean				
		Root disease				
		Exposed roots with decay, >50% of roots				
		Crack severe or associated with fork				
		Dead tree				
		Sound shell < 33% radius**				
	Top/Branch > 6" in diameter					
	2	Wounds/cankers 33-50% of circum.				
		Exposed roots with decay, <50% of roots				
		Cavities in branch, bole, base				
		Codominant stems with included bark				
		Dead Top/Branch 3-6" in diameter				
		Sound shell 33-60% radius**				
	1	Fruiting of decay fungus or punk knots				
		Wounds/cankers 10-33% of circum.				
		Lightning scar, small crack				
		Large broom, dead top/branch <3" diam.				
		Codominant stems with no included bark				
	0	Exposed or severed roots, no decay				
		Natural lean				
		No visible defect; minor wounds, pitch/flux				
		Hazard Rating (Target x combined Defects)				
**		Drilling (if done) – inches of sound wood				
Notes:						

¹ Adapted from: USDA Forest Service Southwest Region Hazard Tree Rating Form

How to Use the HAZARD TREE EVALUATION Form

Defective trees are potential hazards to people and property in recreation areas. Indicators of defects are used to identify trees that may fail (Johnson 1981). Systematic, annual, documented inspections of trees in recreation sites and corrective action are recommended to reduce hazards to the public.

This form is more than a hazard rating worksheet. It is a record of the overall structural condition of a tree that can be used to determine progression of defects over time and to document the frequency of certain defects. All defects observed should be checked even though only the highest values are used in the hazard rating.

Forms cannot take all situations into account. Trained and experienced evaluation crews may need to exercise judgment in some cases.

Maps of evaluation sites are helpful in planning and performing hazard tree surveys. The maps created during the survey should be included with the HAZARD TREE EVALUATION forms to indicate which specific recreation sites were surveyed.

1. Tree locations are accurately described on the HAZARD TREE EVALUATION form using GPS reference points or select reference points with azimuths and distances to all defective trees on the form. Choose reference points that are permanent structures and unlikely to be moved. Good reference points to use are: permanent picnic tables, fire pits or grills, campsite number sign, other signs, water spigots, and garbage containers.
2. Potential hazard of a tree is determined by Target and Defect:

	Definition	Values
Target	Target rating is a combination of the likelihood that a potential target will be hit (assuming the tree fails) and the value of the target.	Potential targets are assigned values of 1 or 2.
Defect	A defect rating is an estimation of the likelihood that a tree will fail based on available indicators.	Defects are assigned values of 0 – 3.

3. More than one type of potential target or defect may be identified and checked for any tree.
4. Calculate hazard rating by adding target value plus the values of the worst defects.
 - Target x Combined Defects = Hazard Rating
 - Highest Rating = 12
 - Consider mitigating any tree rating 5 or higher

References

D.W. Johnson. 1981. Tree hazards, Recognition and Reduction in Recreation Sites. Technical Report R2-1. USDA Forest Service, Forest Pest Management Denver, CO.

-----**End of Hazard Tree Assessment Report**-----

2016 COYOTE FIRE –RESOURCE DAMAGE ASSESSMENT REPORT

Mexican Spotted Owl Habitat Richard Gatewood

OBJECTIVES

- Analyze potential impact to Mexican spotted owl habitat, specifically within the 11 designated Protected Activity Centers, resulting from the Coyote Fire

ISSUES

- Mexican spotted owl (*Strix occidentalis lucida*) is listed as Threatened under the Federal Endangered Species Act. An emergency consultation with US Fish and Wildlife Service was initiated on May 16, 2016, soon after the Coyote Fire started.

METHODS

Time and available staff did not allow for a field inventory of owl Protected Activity Centers affected by the fire. This analysis was conducted in ArcGIS using the draft vegetation map for the park (Muldavin *et al.* in prep.) and the Burned Area Reflectance Classification map generated from satellite imagery in June, 2016. Information from Coyote Fire management files supplemented the analysis.

SUMMARY OF FINDINGS

Suppression Actions

- Protecting Mexican spotted owl (MSO) Protected Activity Centers (PACs) from suppression actions was identified as an objective in WFDSS
- 334 feet of holding line was constructed within the South McKittrick Serpentine PAC
- No bucket or retardant drops within the PACs
- Bucket work occurred south of the South McKittrick Serpentine and Narrows PACs near the base of the west slope below the the holding line
- Retardant and water drops occurred in response to the fire spotting into upper Pine Springs Canyon near the Upper Pine Springs Canyon PAC

Burn Severity

- 537 acres (17%) of 3,139 MSO PAC acres burned
- 370 acres (57%) of the Dog Canyon PAC burned
- 98 acres (15%) of the South McKittrick Serpentine PAC burned
- 66 acres (11%) of the South McKittrick Narrows PAC burned
- 6 acres (.002%) of Upper Devils Den and Frijole Canyon PACs burned
- 262 burned acres within PACs were classified as low severity
- 275 burned acres within PACs were classified as moderate severity, mostly in shrub-dominated communities.
- No high severity burn acres were classified within any PAC

This assessment addresses the direct effects of the fire on MSO habitat as well as how suppression efforts may have affected MSO’s protected activity centers (PACs) and core areas in the park.

CURRENT STATUS

There are 11 previously identified MSO PACs in the park (Table 1); however, the current status of occupaton of the PACs by owls is unknown. Owls are likely still occupying and nesting in the park; the Whiskeytown Wildland Module reported hearing MSO calls in the recently burned Dog Canyon Spring PAC while they were doing mop-up for the Coyote Fire.

The last formal occupancy surveys of all 11 PACs took place in 2010; this survey located a total of three pairs and three males; nesting status was not determined. The most recent partial survey in 2015 (Chapman report on file) occurred in the Hunter and the South McKittrick Bend PACs, which were not burned in the Coyote Fire. Owls were found in both PACs in 2015; the Hunter PAC had a pair, nesting status unknown; the Bend PAC had at least one owl.

Table 1. Mexican spotted owl Protected Activity Centers (PACs) within Guadalupe Mountains National Park. All were identified by intensive surveys occurring in the decade after this owl was listed as Threatened under the federal Endangered Species Act.

Protected Activity Center Name	Acres	Direct Effects Coyote Fire or Suppression?
Dog Canyon Spring	652	Yes
Frijole Canyon	612	Yes
Hunter	603	No
Lower Devil's Den	609	No
Lower Pine Spring	602	No
Mid McKittrick	603	No
South McKittrick Bend	605	No
South McKittrick Narrows	605	Yes
South McKittrick Serpentine	667	Yes
Upper Devil's Den	603	Yes
Upper Pine Spring	606	No

SUPPRESSION ACTIONS

During initial and followup consultations with Park management, the US Fish and Wildlife Service emphasized particular requirements for managing fire in spotted owl PACs. They requested that no aerial operations occur over owl PACs, including retardant and water drops; these tools could be used to moderate or slow the progress of the fire before it reached a PAC, but once fire was in a PAC it was to be allowed to burn. Line could be cut using hand tools in PACs but no trees felled.

During the early stages of the Coyote Fire, full suppression was the primary course of action as private, Bureau of Land Management and New Mexico state lands were threatened. It was during this stage of the fire that the Dog Canyon Spring PAC burned. The area where full suppression occurred was relatively small (about 400 acres) as most of the fire was on the Park. Within the Park, more options were available to manage the fire. Because of the rough terrain, limited access, and the willingness of the Lincoln National Forest to accept the fire, no direct action was taken to suppress the fire. Instead, point protection strategies and tactics were implemented to protect resources and structures within the park.

In an effort to minimize high severity, stand replacing fire in the park's mixed conifer forests, aerial ignition was implemented along the Bush Mountain – Hunter Peak ridge line. This tactic was intended to establish a backing surface fire that would burn with low to moderate intensity down the slopes into the drainage bottoms. This proved to be largely successful as a sustained crown fire never developed. Burnout operations were conducted to protect values at risk from the aerial ignition fire, including the Bush Mountain Repeater, Pine Top Cabin, the Bowl Cabin and The Bowl RAWS. Burnouts also occurred along the north side of the Bush Mountain and Bowl trails to hold fire out of Pine Canyon. All of these actions took place well outside of MSO PACs.

A tactical decision was made to prevent the fire from moving into South McKittrick Canyon where a number of PACs are located. The reason for this partly to protect the PACs, because the extreme ruggedness of terrain in the canyons would limit suppression options to aviation outside the PACs only. Furthermore, if the fire advanced into South McKittrick Canyon, it had potential to descend off the Frijole Ridge escarpment into the grasslands below where private property would be at risk.

Suppression crews constructed 1.3 miles of holding line along a north-south oriented ridge that separates the Bowl from the head of South McKittrick Canyon (Figure 1). The north end of this line encroached 334 ft into the South McKittrick Serpentine PAC. A burnout from this line downslope to the west was planned, but red flag conditions set in and caused a delay. Later that day, high winds pushed the fire up the slope below the holding line, crossed the line, and started spot fires in the head of South McKittrick Narrows PAC (Figure 2). Eventually, the entire holding line was compromised and abandoned. On the other side of the fire, the same red flag conditions caused spotting across Bush Mountain Trail into the head of Pine Canyon below the Bush Mountain Repeater.

Movement of fire within the PACs in the days following the slopovers was limited due to sheltering by steep terrain. Additionally, the Energy Release Component reduced substantially from conditions immediately following the slopover so that fire behavior was significantly more moderate than originally anticipated.

During construction of the ridgetop holding line, helicopter bucket work occurred in the drainage bottom to the west in an attempt to prevent the fire from running up the slope toward the line. Bucket work also occurred on the spot fire in the head of Pine Spring Canyon. If aviation impinged onto an owl PAC it would most likely be here as eight retardant drops were made as well as dozens of bucket drops less than 0.15 miles from the Pine Spring Canyon PAC (Figure 1). Aviation impingement on the margins of the South McKittrick Canyon PACs may have also occurred during longline operations as gear and equipment were moved into and out of slingload sites on the holding line (Figure 1).

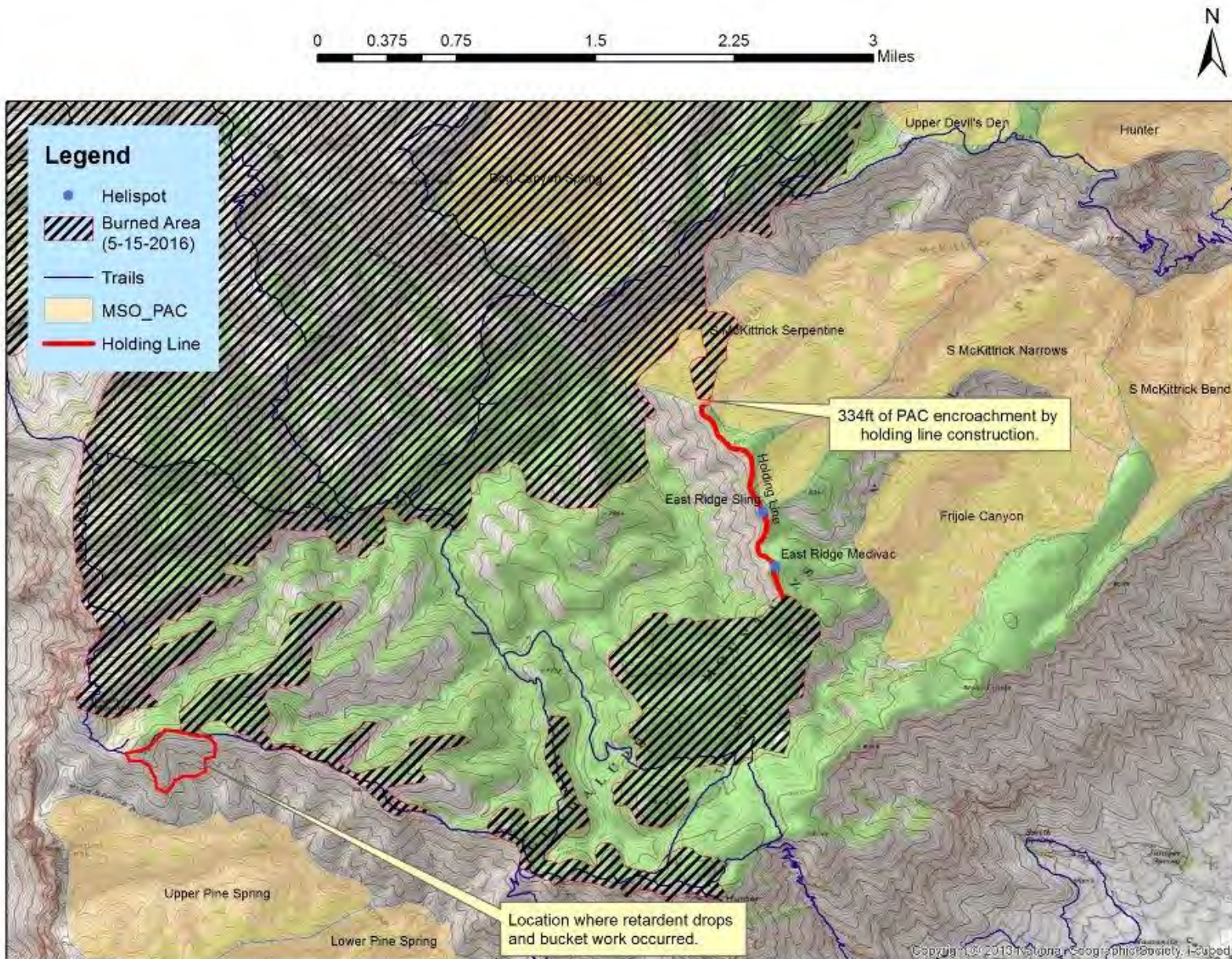


Figure 77. Map showing the locations of holding lines and helispots with respect to the burned area (as of May 15) and the Mexican spotted owl PACs.

BURN SEVERITY

Recent Fire History

The Coyote Fire burned parts of five of the 11 Mexican spotted owl PACs in Guadalupe Mountains National Park. In four of the affected PACs, less than 15% of the PAC area burned. Fifty-six percent (56%) of the Dog Canyon Spring PAC burned. The Dog Canyon Spring PAC also partially burned in the 1994 Marcus fire, and the 2010 Cutoff Fire burned up to the northern PAC boundary. The burned area overlap between the 1994 Marcus Fire and the Coyote Fire within the PAC was roughly 30-40%.

The South McKittrick Serpentine, Narrows and Bend PACs were most recently burned during the 1990 Frijole fire. Burn severity for the Frijole fire ranged from low to moderate, determined from unvalidated reflectance data. The Frijole fire did not preclude subsequent occupation by Mexican spotted owls; surveys conducted in the 2000s consistently reported owls using these PACs.

Dog Canyon Spring PAC

As the Dog Canyon Spring PAC experienced the greatest impact from the fire, this assessment will address it in some detail. This PAC burned during either the second or third day of the fire when burning conditions were most extreme. All vegetation types except one within the PAC burned at least partly. These burned areas were classified as either low or moderate severity; none was mapped at high severity. At least 25% of each type burned and most had at least 60% of their area burn. Vegetation types of 10 acres or less had the highest variability in burned area ranging from 29% to 100%, and they tended to be mapped as low severity, the exception being those having a significant shrub oak component, which mostly burned with moderate severity.

Although no high severity fire was mapped in the PAC, field observers noted that some sites in the Madrean Pinyon Juniper Woodland classified as moderate severity experienced stand-replacement fire (Figure 3 upper image). The amount of area burned was generally proportional to the area of the vegetation type within the PAC. Thus Wavyleaf Oak Shrubland, with 200 acres in the PAC, had 118 acres burn, two thirds of which was classified as moderate severity (Figure 5). The Madrean Pinyon Pine-Alligator Juniper/Wavyleaf Oak-Montane Mahogany Woodland, the second largest type in extent, likewise had two thirds of its 141 acres burn; however severity was almost equally distributed between low (45 acres, Figure 4) and moderate (43 acres, Figure 3 lower image). The Madrean Upper Montane Conifer-Oak Dry Forest had 56 of its 178 acres burn (31%); two-thirds was mapped as low severity (Figure 8). Madrean Upper Montane Conifer-Oak-Maple Moist Mesic Forest had 22 of its 84 acres burn (Figure 11) with only three three acres classified as moderate. The Madrean Ponderosa Pine-Wavyleaf Oak Forest likewise had two thirds of its 61 acres burn with just over 50% mapped as low severity burn (Figure 10).

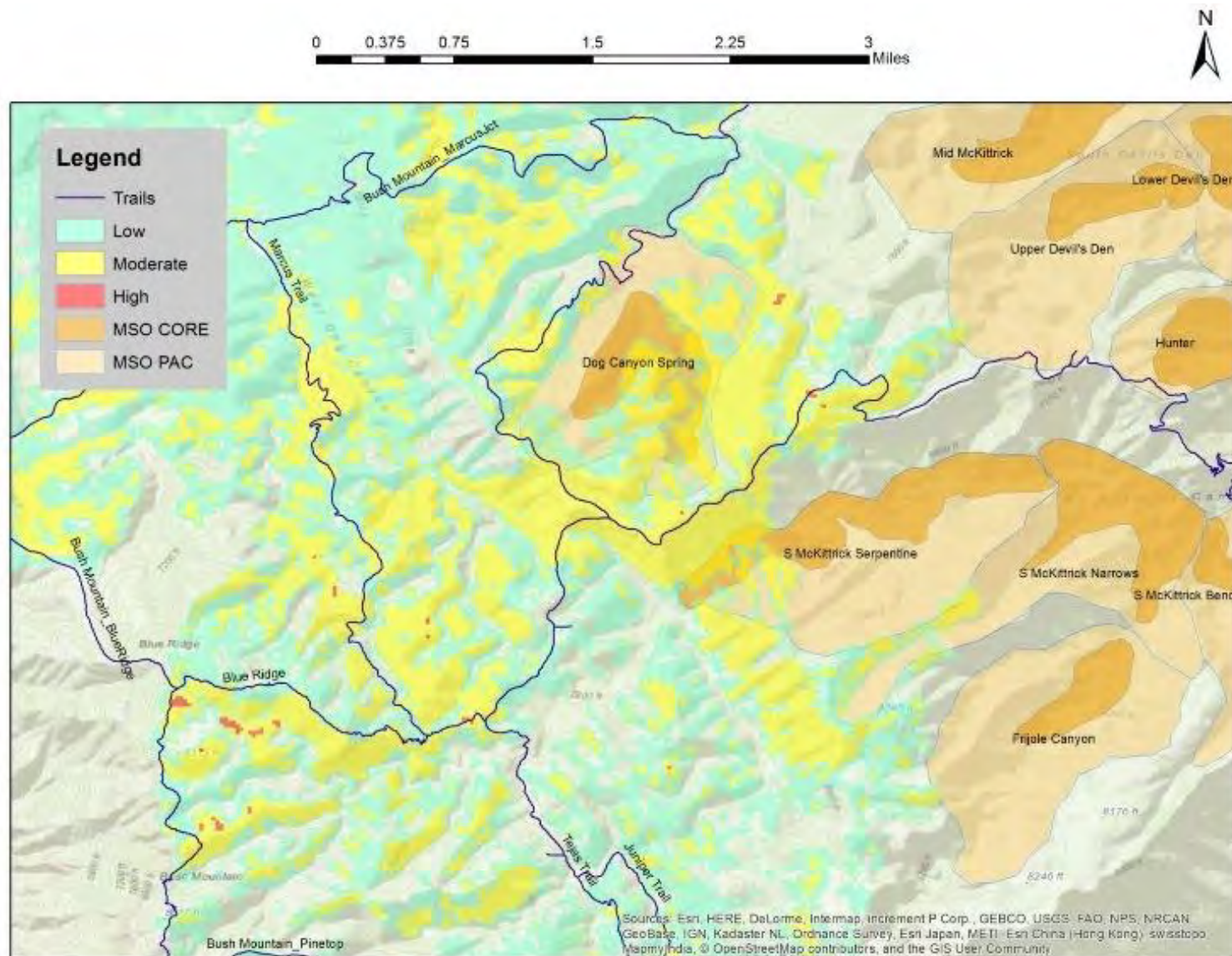


Figure 78. Burned Area Reflectance Classification (BARC) map for the Coyote Fire, laid over Mexican spotted owl Protected Activity Centers and cores. The BARC map is an initial estimate of burn severity.

Table 1. Vegetation types within the Dog Canyon Spring PAC burned during the Coyote Fire, with percent severity (low and moderate) as classified by the Burned Area Reflectance Classification Map (BARC) obtained on June 2, 2016.

Vegetation Type (Muldavin <i>in prep.</i>)	PAC			Severity (%)	
	Area occupied by veg type (ac)	Area Burned (ac)	Burned (%)	Low	Moderate
Wavyleaf Oak Shrubland	199.5	118.6	59	32	68
Madrean Pinyon Pine-Alligator Juniper/Wavyleaf Oak-Montane Mahogany Woodland	140.9	88.0	62	51	49
Madrean Upper Montane Conifer-Oak Dry Forest	91.0	55.6	61	68	32
Madrean Upper Montane Conifer-Oak-Maple Moist Mesic Forest	84.1	21.6	26	86	14
Madrean Ponderosa Pine/Wavyleaf Oak Forest	61.4	39.6	64	52	48
Mountain Mahogany Shrubland	27.4	18.9	69	13	87
Madrean Lower Montane Ponderosa Pine-Bigtooth Maple-Chinkapin Oak Canyon Woodland	12.1	4.0	33	78	22
Madrean Ponderosa Pine Woodland Savanna	8.4	5.4	65	42	58
Madrean Bigtooth Maple-Oak Woodland	7.2	3.3	45	94	6
Madrean Upper Montane Conifer-Oak Woodland Savanna	7.1	7.1	99	37	63
Madrean Gray Oak-Alligator Juniper Foothill Woodland Savanna	6.8	2.0	29	100	0
Madrean Ponderosa Pine-Gambel Oak Forest	4.5	4.5	100	17	83
Mixed Riparian Woodland and Shrubland	1.6	1.0	64	96	0
Madrean Gray Oak-Alligator Juniper Canyon Woodland	0.2	0.2	100	100	0
Madrean Pinyon Pine-Alligator Juniper Woodland	0.01	0.01	100	0	100

Madrean Pinyon Juniper Woodland

PAC Area: 141 acres | Low Severity: 45 acres | Moderate Severity: 43 acres | Unburned 53 acres



Figure 79. Contrast of burn severity classification in the Madrean Pinyon Juniper Woodland: moderate severity fire with stand replacement (upper photo) and with surface fire (lower photo). 43 acres of this vegetation type (30%) was mapped moderate severity, which represents 7% of the Madrean Pinyon Juniper Woodland in the PAC. The upper image is photopoint 26 looking ESE; the lower is photopoint 90 looking NE.



Figure 80. Madrean Pinyon Juniper Woodland with low severity fire. 45 acres of this vegetation type (32%) were mapped as low severity, which represents 7% of the entire PAC. Photopoint 85 looking SSE.

Wavyleaf Oak Shrubland

PAC Area: 199 acres | Low Severity: 38 acres | Moderate Severity: 80 acres | Unburned 81 acres



Figure 81. Wavyleaf oak community on the NW side of Dog Canyon Spring PAC, classified as moderate severity burn. Moderate fire affected 80 acres (40%) of the vegetation type within the PAC and 12% of the. Photopoint 8 looking NW.



Figure 82. Wavyleaf oak community mapped as low severity burn. In this PAC, 38.4 acres (19.2% of the vegetation type and 5.9% of the PAC) mapped as low severity fire. Photopoint 10 looking ENE.

Madrean Upper Montane Conifer-Oak Dry Forest

PAC Area: 178 acres | Low Severity: 38 acres | Moderate Severity: 18 acres | Unburned 122 acres



Figure 83. Moderate severity burn within this vegetation type. Within this PAC, 18 acres were classified as moderate severity (19% of this vegetation type within the PAC, 3% of the PAC as a whole). Photopoint 15 looking NE.



Figure 84. Low severity burn within this vegetation type. 38 acres were classified in this PAC as low severity (42% of this vegetation type within the PAC, 3% of the PAC as a whole). Photopoint 44 looking E.

Madrean Ponderosa Pine/Wavyleaf Oak Forest

PAC Area: 61 acres | Low Severity: 21 acres | Moderate Severity: 19 acres | Unburned 21 acres



Figure 85. Moderate severity burn within this vegetation type. 19 acres were classified in this PAC as low severity (31% of this vegetation community within the PAC and 7% of the PAC area). Photopoint 121 looking south.



Figure 86. Madrean Ponderosa Pine / Wavyleaf Oak mapped as low severity. 21 acres of this vegetation type in the PAC classified as low severity (33.7 % of this vegetation community within the PAC, 7% of the PAC area). Photopoint 59 looking SSE.

Madrean Upper Montane Conifer-Oak-Maple Moist Mesic Forest

PAC Area: 84 acres | Low Severity: 19 acres | Moderate Severity: 3 acres | Unburned 62 acres



Figure 87. Photopoint 66 looking SSW, low severity burn. 19 acres of this vegetation type was classified as low severity (22% of vegetation type within the PAC and 2.8% of the PAC area). No photos available for moderate severity for this vegetation type.

Mountain Mahogany Shrubland

PAC Area: 27 acres | Low Severity: 3 acres | Moderate Severity: 16 acres | Unburned 8 acres



Figure 88. Photopoint 134 looking N, moderate severity burn. 16 acres of Mountain Mahogany shrubland was classified as moderate severity, which is 60% of this vegetation type within the PAC and 2.5% of the PAC area.



Figure 89. Three acres of this vegetation type were classified as low severity which is 9% of this vegetation type within the PAC and 0.4% of the entire PAC area. Photopoint 97 looking NNW.

South McKittrick Serpentine PAC

The South McKittrick Serpentine PAC burned later in the fire than the Dog Canyon or Upper Devils Den PACs. Burning conditions and fire behavior had moderated from the more elevated conditions of the early stages of the fire; ERCs had declined following several days of moist cool air and some light precipitation.

Ninety-eight acres (15%) of the South McKittrick Serpentine PAC burned. As with the Dog Canyon Spring PAC, more area was classified as moderate severity burn (55 acres) than low severity (43 acres). Seven vegetation types were included in the burned parts of the PAC, eight fewer than the Dog Canyon PAC. No additional vegetation types burned (Table 2). Wavyleaf Oak Shrubland (41 acres) and Madrean Upper Montane Conifer-Oak Dry Forest (34 acres) were most affected by fire in this PAC. The Wavy Leak Oak Shrubland tended to burn at moderate severity with 76% of its burned area classified as such. The Madrean Upper Montane Conifer-Oak Dry Forest tended to burn at low severity with 60% of its burned area classified accordingly. The five remaining vegetation types had 13 acres or less burn. Four types tended to burn at low severity. The vegetation type dominated by mountain mahogany tended to burn at moderate severity, similar to wavyleaf oak shrubland types.

Table 2. Vegetation types within the South McKittrick Serpentine PAC that burned during the Coyote Fire, with percent severity (low and moderate) as classified by the Burned Area Reflectance Classification Map (BARC) obtained on June 2, 2016.

Vegetation Type (Muldavin <i>in prep.</i>)	Area within PAC (acres)	Area Burned (acres)	Percent Burned (%)	Severity (%)	
				Low	Moderate
Wavyleaf Oak Shrubland	388.7	41.0	11	23	77
Madrean Upper Montane Conifer-Oak Dry Forest	241.3	34.2	14	60	40
Mountain Mahogany Shrubland	174.7	4.9	3	43	57
Madrean Upper Montane Conifer-Oak-Maple Moist Mesic Forest	110.9	13.0	12	54	46
Madrean Ponderosa Pine-Wavyleaf Oak Forest	60.4	1.0	2	86	14
Madrean Pinyon Pine-Alligator Juniper / Wavyleaf Oak-Montane Mahogany Woodland	10.5	2.3	21	79	21
Madrean Ponderosa Pine-Gambel Oak Forest	4.6	1.1	25	100	0

South McKittrick Narrows PAC

South McKittrick Narrows (Narrows) PAC burned at approximately the same time as the South McKittrick Serpentine. The Narrows had 10% of its 605 acres burn, involving nine vegetation types. No new vegetation types were encountered by the fire. Seven of the types tended to burn with low severity whereas the two shrub-dominated types tended to burn with moderate severity (Table 3). Almost 60% of the PAC's 60 burned acres were classified as low severity.

Table 3. Vegetation types within the South McKittrick Narrows PAC burned during the Coyote Fire and the percent burned in the low and moderate severity categories as classified by the Burned Area Reflectance Classification Map (BARC) obtained on June 2, 2016.

Vegetation Type (Muldavin <i>in prep.</i>)	Area within PAC (acres)	Area Burned (acres)	Percent Burned (%)	Severity (%)	
				Low	Moderate
Wavyleaf Oak Shrubland	388.7	9.5	2	45	55
Mountain Mahogany Shrubland	174.7	19.8	11	34	66
Madrean Upper Montane Conifer-Oak Dry Forest	80	6.1	8	95	5
Madrean Ponderosa Pine-Wavyleaf Oak Forest	60.4	21.9	36	68	32
Madrean Bigtooth Maple-Oak Woodland	36.4	0.9	2	92	8
Madrean Upper Montane Conifer-Oak-Maple Moist Mesic Forest	21.3	1.3	6	87	13
Madrean Upper Montane Conifer-Oak Woodland Savanna	16.9	3.5	21	88	12
Gambel Oak-New Mexico Locust Shrubland	15.2	1.6	11	53	47
Madrean Pinyon Pine-Alligator Juniper/Wavyleaf Oak-Montane Mahogany Woodland	7.1	1.1	15	100	0

Upper Devil's Den and the Frijole Canyon PAC

Only a very small portion of these PACs (6.2 acres) burned in the Coyote Fire. Upper Devils Den burned early in the fire progression; Frijole Canyon burned towards the end under more moderate conditions. Six vegetation types were burned; three in each PAC, with none not already reported in the other PACs. All vegetation types tended to be classified burning with low severity except Wavyleaf Oak Shrubland in Upper Devil's Den; two thirds moderate of the burn of this type was classified as moderate. In contrast this shrubland type in Frijole Canyon burned primarily (73%) with low severity, reflecting the moderate burning conditions that prevailed during the later stages of the fire.

Table 4. Vegetation types within the Frijole Canyon and Upper Devils Den PACs burned during the Coyote Fire and the percent severity (low and moderate) as classified by the Burned Area Reflectance Classification Map (BARC) obtained on June 2, 2016.

					Severity (%)	
PAC	Vegetation Type (Muldivin <i>in prep.</i>)	Area (acres)	Area Burned (acres)	Burned (%)	Low	Moderate
Frijole Canyon	Wavyleaf Oak Shrubland	139.2	1.4	1	73	27
	Mountain Mahogany Shrubland	133.9	0.2	0.2	71	29
	Gambel Oak-New Mexico Locust Shrubland	16.2	0.1	0.5	100	0
Upper Devil's Den	Wavyleaf Oak Shrubland	108.3	2.7	3	34	66
	Madrean Upper Montane Conifer-Oak-Maple Moist Mesic Forest	57.7	0.0	0.02	100	0
	Madrean Ponderosa Pine/Wavyleaf Oak Forest	19.5	1.8	9	85	15

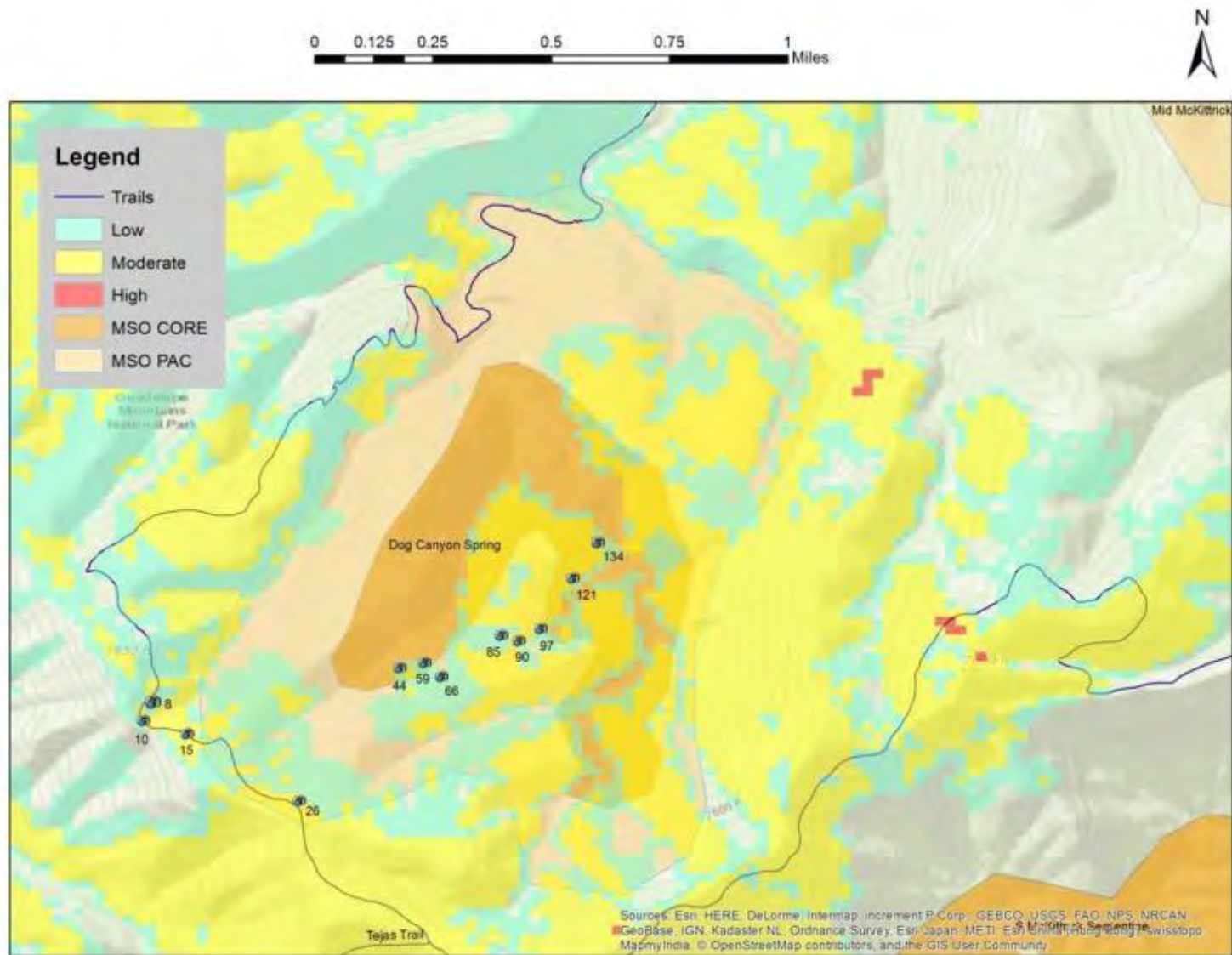


Figure 14. Location of photopoints within the Dog Canyon Spring PAC. Georeferenced photos were taken to assess burn severity within the PAC. One hundred forty photos were taken prior to receiving the Burned Area Reflectance Classification data.

CONCLUSIONS

We expect that the limited use of aviation during the fire and limited suppression activity within the PACs will result in minimal, transient effects on the owls and their habitat. This was identified explicitly as Resource Management Objective for management of the fire in WFDSS and was believed to be largely achieved.

The Coyote Fire resulted in a nearly even mix of low and moderate severity fire effects. The BARC map showed a limited number of small areas of high severity fire which will need further assessment, although none of these areas are within a PAC. Only the Dog Canyon Spring PAC was impacted significantly by fire. Four other PACs were impacted to a much lesser degree. The vegetation types that burned with higher intensity (moderate to high burn severity) did so during the early stages of the fire when burning conditions were elevated. As the fire progressed, these conditions moderated resulting in more low severity fire. Where moderate severity tended to occur in the fire's later stages was in vegetation types that were dominated by shrubs or had a significant shrub component.

Overall the Coyote Fire had a net positive long-term effect on MSO habitat, particularly in reducing fuel load to mitigate the severity of future fires and enhancing foraging habitat. Of concern is that in the next several years fuel loading may increase, particularly in 10 and 100 hour time-lag fuels; resulting in greater potential for high severity fire in subsequent wildfires.

RECOMMENDATIONS

- A. Monitoring (non-specification): Monitor for the presence of Mexican spotted owl within the Dog Canyon Spring, and South McKittrick Serpentine and Narrows PACs in 2016, 2017 and 2018. Note post-fire mortality in key habitat elements (e.g., mature trees).

-----End of Spotted Owl Habitat Assessment Report-----

2016 COYOTE FIRE –RESOURCE DAMAGE ASSESSMENT REPORT

Vegetation, Rare Plants, and Noxious Weeds Janet Coles

I. OBJECTIVES

- Assess the direct and indirect effects of the Coyote Fire on plant communities
- Assess the potential impacts to sensitive plant species
- Assess the potential for noxious weeds to establish and spread within the burn

II. OBSERVATIONS

A. Background

Fire is an important force shaping and maintaining the distribution, structure, and composition of vegetation at Guadalupe Mountains National Park. Nearly every community type in the park depends on fire to maintain its health and existence. A diversity of plant communities results when fires create a mosaic of burn intensities and as burned vegetation recovers at different rates (NPS 2009).

Before the area was settled in the early 20th century, the median fire return interval in the park's high country was roughly 5-11 years for small fires and 13-22 years for widespread fires (Taylor and Sakulich 2006). Historically, the most common type of fire was ignited by lightning in spring or midsummer, was driven by high winds, and burned a limited area (hundreds to a few thousand acres) with a mosaic pattern of unburned, low severity, moderate severity, and high severity burn patches (Sakulich and Taylor 2007).

Lands now included in GUMO were privately owned until 1972 when the park was established. The areas affected by the Coyote Fire were used as rangeland, supporting herds of cattle, horses, sheep, and Angora goats. Livestock grazing reduced fine fuels and the frequency of understory fires starting around 1885 in most of the southwestern US (Swetnam and Baisan 1996), but in the Guadalupe Mountains this did not occur until around 1922 (Fabry 1988, Taylor and Sakulich 2006). Furthermore, the rugged, remote, and waterless nature of the terrain meant that little effort went into suppressing any fires that did start (Fabry 1988). The natural fire regime was therefore less altered by land use than was the case in many other parts of the interior West. When the park was established and livestock were removed, grasses and shrubs began once again to fill in the forest understory and create a more continuous fuel bed. By the 1990s, extensive, low-to moderate-intensity fires were once again the norm within the park (GUMO fire history data).

Higher-than-normal precipitation in 2013 and 2014 allowed the vigorous growth of native bunch grasses. Most native grass species at GUMO are warm-season, meaning that they are dry and dormant during the spring fire season, not greening up until August, after the first rains of the summer monsoon. Combined with below-normal precipitation during the late winter and spring of 2016 (Western Regional Climate Center data), conditions were in place for an early season burn in 2016.

Vegetation Communities

The text in this section is adapted from Guadalupe Mountains National Park Resource Stewardship Strategy (2009).

Plant Communities and Vegetation Types

Thanks to its geographical location and elevational range, Guadalupe Mountains National Park is an area of extraordinarily high biodiversity, where southern Plains, Rocky Mountain, and Chihuahuan Desert elements overlap. More than 1,000 species of plants have been recorded in the park, including 37 plant species of special concern. Of these, 16 are endemic to the Guadalupe Mountains. The McKittrick pennyroyal and Guadalupe Mountain violet are examples of plants found only in the Guadalupe Mountains.

Common vegetation types in Guadalupe Mountains National Park respond to elevation and exposure and include desert scrub, grassland, chaparral, woodland, and coniferous forest communities. Unique vegetation types occur in crevices on limestone cliffs, in forested canyon bottoms, and along streams at lower elevations (Northington and Burgess 1979).

Generalized vegetation types within the park and their affinity for fire were characterized by Brown (1994):

Rocky Mountain Conifer Forest - The high country of the park, from 7,000 feet to 8,749 feet in elevation, contains a discontinuous Rocky Mountain coniferous forest dominated by Douglas-fir, Southwestern white pine, and ponderosa pine. Mature specimens of these tree species can survive low-intensity fires. Frequent burns tend to create a forest with an open understory and patchy reproduction, while fire suppression encourages the development of a shrub- and sapling-dominated structure of ladder fuels, which can increase the severity of fire.

Great Basin Conifer Woodland - Also known as pinyon-juniper woodlands, these communities occur in the northern canyons of the park and on dry or west-facing slopes between 5,000 feet and 7,000 feet elevation. Overstory constituents include pinyon pine, one-seed juniper, alligator juniper, Rocky Mountain juniper, and grey oak. The understory may be dominated by grasses or by shrubs, depending on soils and aspect. With grazing and fire suppression, much of the semi-desert grassland habitat in the park had converted to this type.

Madrean Evergreen Woodland - Oaks dominate this woodland type that is found scattered throughout the park, mostly on shady canyon slopes. Texas madrone trees are found in this community, as are New Mexico agave, alligator juniper, and sumacs. This type recovers slowly from fire; many of the dominant species re-sprout, but not as rapidly as chaparral.

Interior Chaparral - The drier, south-facing slopes of the park's many deep canyons are covered with dense vegetation made up of species such as mountain mahogany, buckbrush, sotols, sandpaper bush, and other shrubs that make up the interior chaparral community. Most of these species are fire-adapted, resprouting and growing vigorously after even a hot fire.

Semi-desert Grassland - The Chihuahuan Desert once encompassed extensive grasslands, but only small remnants remain today. Stands of black grama, blue grama, muhlys, and needlegrass occupy valley bottoms in the northern half of the park, especially Dog Canyon, West Dog Canyon, and PX Flat. With the cessation of livestock grazing and the restoration of fire to the park, these grasslands are recovering and expanding.

Chihuahuan Desertscrub - Chihuahuan Desertscrub or shrub occupies the lowlands of the park

below the western escarpment; this community type was not affected by the Coyote Fire. It is typified by stands of widely spaced, small-leaved shrubs scattered across bajadas, flats, and dunes. Dominant shrubs include creosote bush, catclaw acacia, allthorn, ratany, apache plume, and littleleaf sumac. Common succulent species that can withstand desert conditions include lechuguilla, New Mexico agave, Torrey yucca, ocotillo, and several species of prickly pear, cholla, hedgehog, and pincushion cactus.

Interior Deciduous Riparian Forest - Deciduous trees grow primarily at springs and in streambeds at low elevations but become the dominant growth form on stream terraces and in the canyon heads above about 4,921 feet (1,500 m). Deciduous trees dominate north-facing slopes at this elevation and are joined by conifers on drier sites. Little walnut and velvet ash occur at the mouths of canyons, but as the stream elevation increases, western hophornbeam, bigtooth maple, and chinkapin oak come into the mix, especially on stream terraces, around springs, and in canyon heads. This community type is the most sensitive to fire; both directly, as trees are generally killed by flames, and indirectly, as post-fire flooding can erase the alluvial terraces and streambanks that support it.

A new, detailed vegetation classification and map for Guadalupe Mountains National Park is under development. We used the draft map and classification for the vegetation analysis included in this report; however, the map has not been assessed for accuracy and the final vegetation associations for the park have not been defined. Therefore, the results of the analysis should be considered speculative.

Sensitive Plant Species

Guadalupe Mountains National Park contains at least 32 species endemic to the immediate area. The following list contains sensitive plant taxa that are known to occur within the area burned by the Coyote Fire (Table 1). None currently has status under a federal or state endangered species law, although most are considered to be Species of Concern by Texas and/or New Mexico.

Table 1. Sensitive plant species known to occur within the Coyote Fire burn boundary.

Scientific Name	Common Name	Texas State Status	New Mexico State Status
<i>Escobaria sneedii</i> var. <i>guadalupensis</i>	Guadalupe pincushion cactus	Species of Greatest Conservation Need	Species of Concern
<i>Hedeoma apiculatum</i>	McKittrick pennyroyal	Species of Greatest Conservation Need	Species of Concern
<i>Lesquerella valida</i>	Strong bladderpod	Species of Conservation Need	-
<i>Microthelys rubrocallosa</i>	Green medusa orchid	-	Species of Concern
<i>Nama xylopodium</i>	Yellowseed nama	-	Species of Concern
<i>Perityle quinqueflora</i>	Five-flowered rock daisy	-	Species of Concern
<i>Pinaropappus parvus</i>	Dwarf rock lettuce	Species of Conservation Need	-
<i>Polygala rimulicola</i>	Rock crevice milkwort	Species of Conservation Need	Species of Concern
<i>Sophora gypsophila</i>	Guadalupe mescal bean	Species of Greatest Conservation Need	-
<i>Viola guadalupensis</i>	Guadalupe violet	Species of Greatest Conservation Need	-

Noxious Weeds

Of the more than 1000 vascular plant taxa known to occur at Guadalupe Mountains National Park, 46 are considered to be exotic. Of these, fourteen are considered noxious weeds; they possess the ability to invade undisturbed plant communities and persist, thereby displacing native plants. These noxious weed species were the focus of field surveys and file searches by the BAER team. Seven noxious weed species were confirmed as occurring inside the Coyote burn boundary or within 30 meters of the burn (Table 2).

Table 2. Noxious weed species confirmed as occurring within or adjacent to the Coyote Fire.

Scientific Name	Common Name	Present in Coyote Fire	Adjacent to Coyote Fire
<i>Centaurea melitensis</i>	Malta starthistle		x
<i>Salsola tragus</i>	Tumbleweed	x	x
<i>Eragrostis lehmanniana</i>	Lehmann's lovegrass		x
<i>Marrubium vulgare</i>	Common horehound	x	x
<i>Verbascum thapsus</i>	Woolly mullein	x	x
<i>Bromus tectorum</i>	Cheatgrass		x
<i>Sorghum halepense</i>	Johnsongrass		x

B. Reconnaissance Methods

Vegetation communities. The park's draft vegetation map (Muldavin et al. *in prep.*) was used for vegetation community assessments in GIS. Impacts were estimated by superimposing a burn severity map derived from the early June BARC map over the draft vegetation map. Field notes from all members of the BAER team were used to annotate the BARC map and correct burn severity indicators.

Sensitive plants. We used park files and GIS to determine the location, population size, and date of last observation of sensitive plant species occurring within the burn area. No field reconnaissance occurred.

Exotic Plants. Field surveys were conducted within the burned area May 26-28. The purpose of the surveys was to visit known locations of noxious weed infestations and confirm their current extent.

III. FINDINGS

Vegetation Communities.

All indications suggest that the Coyote Fire was within the range of historic variation for fire behavior, and that the effects on vegetation should generally be positive. High winds and intermittently high fuel moisture created a patchy pattern of mostly low- and moderate-severity burn patches, interspersed with unburned areas and a few small areas of high-severity burning. Within forested areas, fire behavior was often creeping and smoldering, which reduced litter and understory vegetation while leaving larger trees scorched but alive.

Table 3 shows the various plant communities impacted by the Coyote Fire, as determined in GIS using the draft park vegetation map (Muldavin et al. *in prep.*) and the Burned Area Reflectance Classification image from early June. The communities experiencing most of the moderate to high burn severity were those with a significant component of shrub oak species in the canopy or midstory. Shrub oaks (e.g., *Quercus gambelii*, *Q. grisea*, *Q. undulata*) form a dense canopy, generate an abundant litter layer, and burn readily.

Table 3. Plant communities affected by the Coyote Fire. Map units are vegetation types composed of

multiple plant associations and are taken from the draft Guadalupe Mountains NP vegetation map (Muldavin et al. *in prep.*).

Vegetation Map Unit Group Map Unit	Burn Severity (acres)			
	Low	Mod	High	Unburned
Southwest Foothill-Mesa Grassland				
Arizona Fescue-New Mexico Muhly Montane Grassland	15	2	0	12
Chihuahuan Semi-Desert Grassland				
Black Grama-Mixed Grasses Piedmont Semi-Desert Grassland	<1	0	0	4
Black Grama-Soaptree Yucca Piedmont Semi-Desert Grassland	1	0	0	0
Chihuahuan Creosotebush-Mixed Desert Scrub				
Catclaw Mimosa Desert Scrub	2	4	0	<1
Chihuahuan Semi-Desert Grassland				
Curlyleaf Muhly Foothill Semi-Desert Grassland	964	11	0	83
Southwest Foothill-Mesa Grassland				
Finestem Needlegrass-Blue Grama Valley Grassland	186	76	0	14
Southern Rocky Mountain Gambel Oak Mesic Montane Shrubland				
Gambel Oak-New Mexico Locust Shrubland	51	21	<1	60
Southwest Foothill-Mesa Grassland				
Grama-Curlyleaf Muhly Piedmont Grassland	28	1	0	3
Chihuahuan Semi-Desert Grassland				
Grama-Mixed Grasses Foothill Semi-Desert Grassland	94	7	0	18
Green Sotol-Sacahuista Foothill Semi-Desert Grassland	588	85	0	10
Madrean Upper Montane Broadleaf Forest & Woodland				
Madrean Bigtooth Maple-Oak Woodland	11	7	0	6
Madrean Encinal				
Madrean Gray Oak-Alligator Juniper Canyon Woodland	41	16	0	8
Madrean Gray Oak-Alligator Juniper Foothill Woodland Savanna	41	11	0	13
Madrean Lower Montane Pine-Oak Forest & Woodland				
Madrean Lower Montane Ponderosa Pine-Bigtooth Maple-Chinkapin Oak Canyon Woodland	16	11	0	18
Madrean Pinyon-Juniper Woodland				
Madrean Pinyon Pine-Alligator Juniper Woodland	348	64	0	91
Madrean Pinyon Pine-Alligator Juniper/Finestem Needlegrass -Blue Grama Woodland Savanna	456	66	0	66
Madrean Pinyon Pine-Alligator Juniper/Wavyleaf Oak-Montane Mahogany Woodland	<1	901	420	352
Madrean Lower Montane Pine-Oak Forest & Woodland				
Madrean Ponderosa Pine Woodland Savanna	<1	169	58	124
Madrean Ponderosa Pine/Wavyleaf Oak Forest	<1	359	257	126
Madrean Ponderosa Pine-Gambel Oak Forest	<1	55	42	29
Madrean Upper Montane Conifer-Oak Forest & Woodland				
Madrean Upper Montane Conifer-Oak Dry Forest	7	640	183	811
Madrean Upper Montane Conifer-Oak Woodland Savanna	4	266	59	254

Vegetation Map Unit Group Map Unit	Burn Severity (acres)			
	Low	Mod	High	Unburned
Madrean Upper Montane Conifer-Oak-Maple Mesic Forest	<1	221	66	461
Warm Semi-Desert Shrub & Herb Wash-Arroyo				
Mexican Buckeye-Oak Desert Canyon Shrubland	24	16	0	4
Sonoran-Chihuahuan Lowland Riparian Forest Group				
Mixed Riparian Woodland and Shrubland	13	1	0	20
Madrean Oak-Mountain Mahogany-Mixed Foothill Shrubland				
Mountain Mahogany Shrubland	784	430	0	171
Southwest Foothill-Mesa Grassland				
Needlegrass Foothill Grassland	142	6	0	3
Madrean Oak-Mountain Mahogany-Mixed Foothill Shrubland				
Pinchot Juniper-Oak Shrubland	<1	1	0	0
Pungent Oak/Bull Muhly Foothill Shrubland and Grassland	13	17	0	8
Southwest Ruderal Disturbance Vegetation				
Ruderal Herbaceous Vegetation	6	8	0	<1
North American Warm Semi-Desert Cliff, Scree & Rock Vegetation				
Sparse Vegetation-Rockland/Scarp/Cliff	9	<1	0	2
Madrean Oak-Mountain Mahogany-Mixed Foothill Shrubland				
Wavyleaf Oak Shrubland	3	1074	1353	457

Many of the common shrub and grass species found within the Coyote Fire boundary are fire-adapted; that is, they resprout or re-seed vigorously following fire (USFS Fire Effects Information System Species Reports). Table 4 shows the typical response of some common Guadalupe Mountains species to moderate burns.

Table 4. Response of some common plant species to fire. The “Resprout?” column indicates whether or not the species responds to low- to moderate-severity fire by resprouting (usually vigorously) from the root crown or roots, even if the aboveground parts of the plant are killed. The “Reseed?” column indicates whether a species’ seeds require exposed mineral soil and/or sunlight to germinate.

Scientific Name	Common Name	Stratum	Resprout?	Reseed?
<i>Acer grandidentatum</i>	Bigtooth maple	Tree	Yes	Yes
<i>Pinus ponderosa</i>	Ponderosa pine	Tree	No	Yes
<i>Pinus strobiformis</i>	Southwestern white pine	Tree	No	Yes
<i>Pseudotsuga menziesii</i>	Douglas-fir	Tree	No	Yes
<i>Juniperus pinchotii</i>	Redberry juniper	Small tree	Yes	No
<i>Pinus edulis</i>	Pinyon pine	Small tree	No	Yes
<i>Quercus gambelii</i>	Gambel oak	Small tree	Yes	No
<i>Acacia greggii</i>	Catclaw acacia	Shrub	Yes	No
<i>Agave lechuguilla</i>	Lechuguilla	Shrub	No	Yes
<i>Dasyliirion leiophyllum</i>	Green sotol	Shrub	No	Yes
<i>Mahonia trifoliata</i>	Algerita	Shrub	Yes	No

Scientific Name	Common Name	Stratum	Resprout?	Reseed?
<i>Cercocarpus montanus</i>	Mountain mahogany	Shrub	Yes	No
<i>Quercus grisea</i>	Gray oak	Shrub	Yes	No
<i>Bouteloua gracilis</i>	Blue grama	Graminoid	Yes	No
<i>Bouteloua eriopoda</i>	Black grama	Graminoid	Yes	No
<i>Nassella tenuissima</i>	Slender needlegrass	Graminoid	Yes	Yes

Riparian plant communities, which include many species that are not well adapted to fire, escaped the Coyote Fire largely unscathed. The high winds that drove the fire caused flames to leap from ridgetop to ridgetop, bypassing canyon bottoms entirely. When fire did enter the canyon bottoms, it was generally smoldering and creeping behavior, which left most of the overstory intact.

A relict stand of quaking aspen (*Populus tremuloides*) occurs within the fire boundary; this is one of the most southerly stands of aspen in the United States and is heavily ingrown by conifers, mostly young Douglas-fir. There was some concern that high-severity fire within the aspen stand would be more likely to kill it than stimulate it to resprout, as has been reported in relict California stands (Margolis and Farris 2014). However, a field visit to the stand by BAER team members revealed that the stand was unburned.

Sensitive Plant Species. There is little recent information regarding the distribution, health, and trend of sensitive plant species within Guadalupe Mountains National Park (Table 5). The compressed time frame of BAER field work did not allow for known sites to be visited; most are far off-trail and in difficult-to-reach habitats such as cliffs or remote canyon bottoms. We made the assumption that plant species that have survived in the park to the present are generally fire-adapted or at least somewhat tolerant of periodic fire, although individual plants or colonies may be killed by fire.

Table 5. Sensitive plant species known to occur within the Coyote Fire burn boundary. Most of the observations are more than five years old and there have been no systematic surveys for any of the species in the past decade; therefore, these data are best interpreted as an estimate of fire effect. Burn severity data were taken from the June BARC map.

Scientific Name	Common Name	# Populations Within Burn	Total # Plants Potentially Affected	Last Observation	Burn Severity
<i>Escobaria sneedii</i> var. <i>guadalupeensis</i>	Guadalupe pincushion cactus	2	2	4/26/1999	Moderate
<i>Hedeoma apiculatum</i>	McKittrick pennyroyal	2	40	7/15/2009	Low
<i>Lesquerella valida</i>	Strong bladderpod	1	1	?	Moderate
<i>Microthelys rubrocallosa</i>	Green medusa orchid	2	21	7/29/2009	Low
<i>Nama xylopodium</i>	Yellowseed nama	2	23	8/7/2009	Moderate
<i>Perityle quinqueflora</i>	Five-flowered rock daisy	1	1	7/23/2009	Unburned
<i>Pinaropappus parvus</i>	Dwarf rock lettuce	3	9	7/23/2009	Low
<i>Polygala rimulicola</i>	Rock crevice milkwort	1	1	?	Unburned
<i>Sophora gypsophila</i>	Guadalupe mescal bean	1	5	3/9/2007	Low
<i>Viola guadalupensis</i>	Guadalupe violet	4	20	7/31/2007	Unburned

Noxious Weeds. The Cox Tank area burned very hot so that remnants of weeds were not visible. However, we expect known weeds to rebound quickly from unburned root systems as well as an

extensive seed bank. The other known weed locations burned with low to moderate severity and weed remnants were readily recognizable (Figures 1 and 2). We modified the gross infested area boundaries with the new field data to produce the attached map (Figure 3).



Figure 1. Burned horehound remnants in a tributary to West Dog Canyon (stone dam impoundment).



Figure 2. Woolly mullein in a low-severity burned tributary of Dog Canyon.

Gross infested area represents a line drawn around “near neighbor” individual weed populations (Table 6, Figure 3). Weed cover within the gross infested area is generally 1% or less.

Table 6. Gross area infested by weeds found within or adjacent to the Coyote Fire.

Within fire perimeter	430.0 acres
Immediately adjacent to the fire perimeter	22.5 acres
Total	452.5 acres

The primary noxious weeds we found (those with the potential for altering ecological structure, composition, and function) within the burn are woolly mullein (*Verbascum thapsus*), horehound (*Marrubium vulgare*), and Russian thistle (*Salsola tragus*). Four other exotic plants with as much or greater ability to cause ecological harm occur within the Dog Canyon ranger station developed area and have a very high likelihood of spreading into adjacent burned habitats: Malta starthistle (*Centaurea melitensis*), cheatgrass (*Bromus tectorum*), Johnsongrass (*Sorghum halepense*) and Lehmann’s lovegrass (*Eragrostis lehmanniana*). Populations of these last four are relatively small and with prompt action can be controlled or eradicated.

IV. RECOMMENDATIONS

Rehabilitation Recommendations – Specifications

- A. Exotic plant treatments (Specification V1). We recommend non-emergency, sustained manual and chemical treatments to reduce the extent and vigor of known woolly mullein, horehound, and Russian thistle populations within the Coyote burn, and to allow native herbaceous species to rebound. Because there is an established seed bank for all these weeds, eradication is probably not possible. However, the Malta starthistle, Lehmann’s lovegrass, Johnsongrass, and cheatgrass known to occur around the Dog Canyon Ranger Station are small, isolated populations that could be eradicated with three years of sustained, concentrated effort.
- B. Reseeding highly degraded areas (Specification V2). Four locations in West Dog Canyon (Figure 4) are stuck in a cycle of Russian thistle – bare ground – Russian thistle infestation. Erosion is affecting these areas severely, and a lack of a native seed bank means that without intervention this pattern will continue until all soil erodes away. Three areas are former stock ponds and one is a former corral; all are also cultural sites that will benefit greatly from stabilization. Total area proposed for reseeded is approximately five acres. Gather native grass seed (Mexican feathergrass, black grama, blue grama, and alkali sacaton) in Dog Canyon and West Dog Canyon during the summer; scatter in 10m x 10m patches covered with anchored jute netting to hold the seed in place. Time the planting after the monsoon so to take advantage of gentle winter rains (October-November).

Management Recommendations – Non-Specification

1. Thin conifers from the interior of the aspen stand (Figure 5). Low- to moderate-intensity fire is likely to stimulate this declining, relict stand to re-sprout. High-intensity fire, as would be likely with a dense infill of conifers, would probably kill the remaining aspen root stock. Removing the recent conifer growth will help protect this stand until fire can naturally regenerate it.
2. Resurvey the high country for rare plants, especially Guadalupe violet. The Texas Parks and Wildlife Department has proposed a rare plant survey of the high country for 2017.



Exotic Plant Gross Infested Area - Coyote Fire

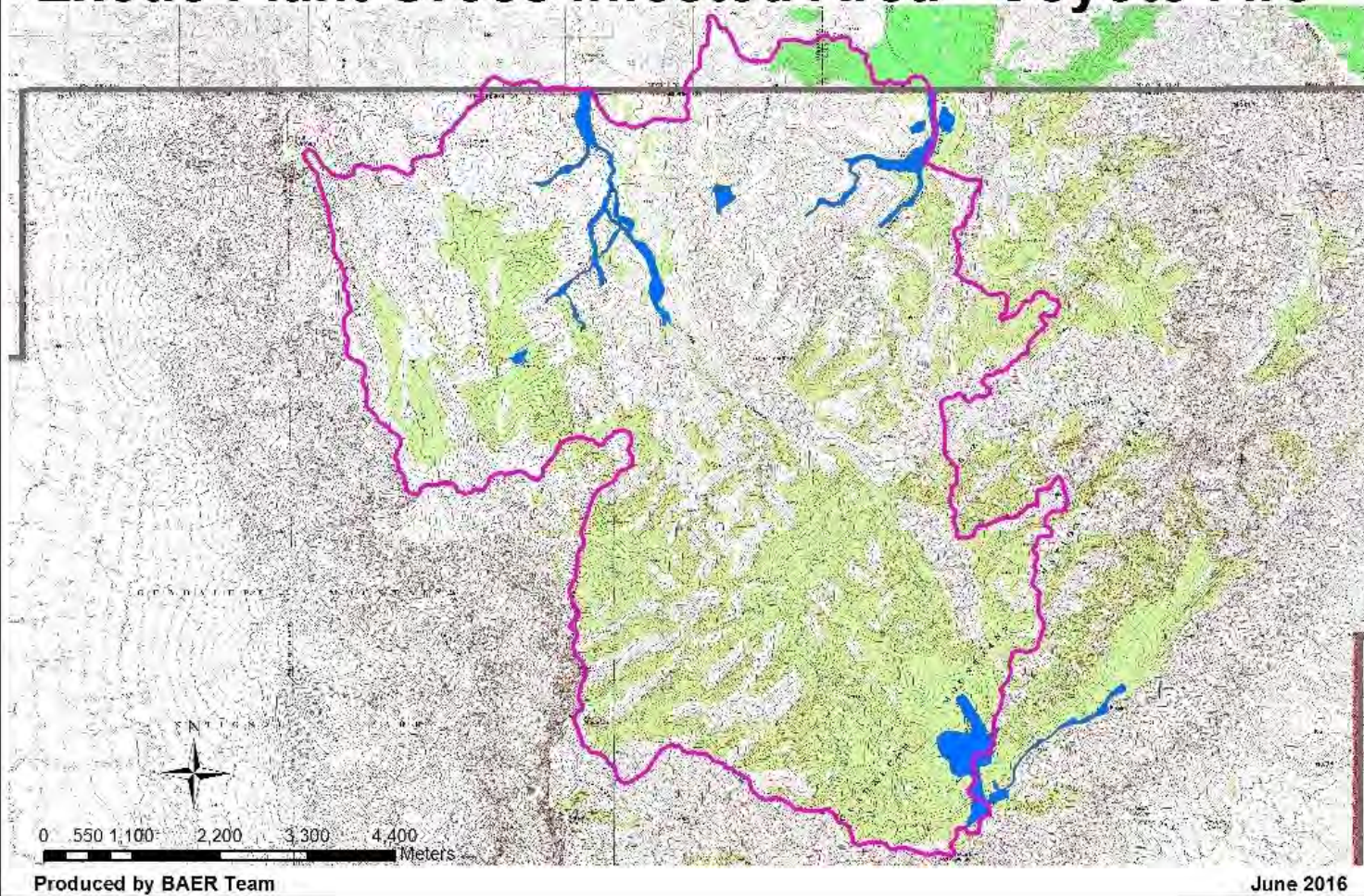


Figure 3. Map of the Coyote Fire (magenta outline) showing (in blue) the 2016 extent of known weed infestations at Cox Tank, West Dog Canyon, Manzanita Ridge, Dog Canyon, and the Bowl.



Reseeding Areas - Coyote Fire

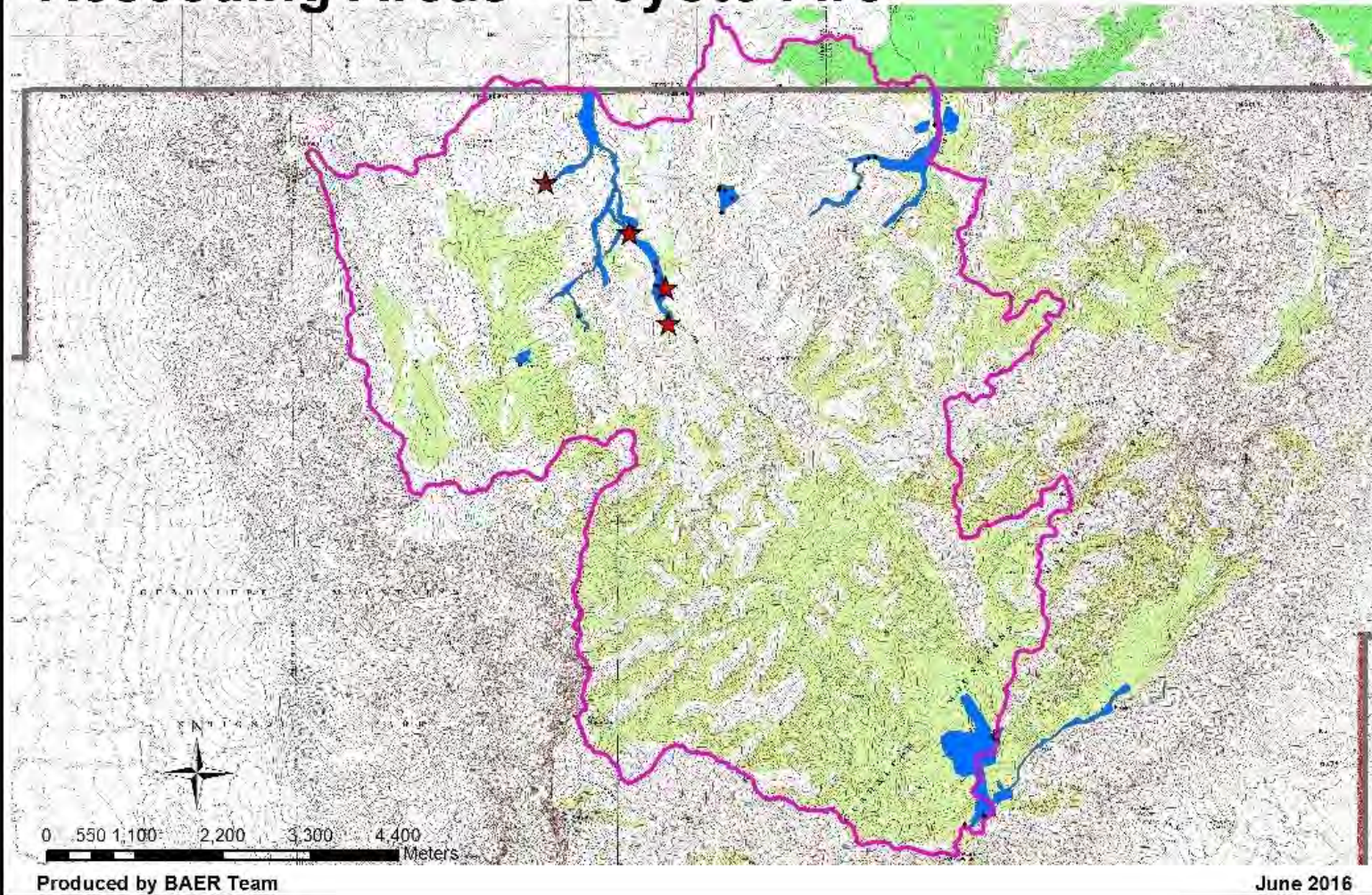


Figure 4. Map of the Coyote Fire showing the four areas (red stars) proposed for reseeded and stabilization in West Dog Canyon.

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- Taylor, A.H. and J. Sakulich. 2006. *Fire Regimes and Forest Reference Conditions for Prescribed Fire Management of Relict Mixed Conifer Forests in Guadalupe Mountains National Park, Texas*. Final Report to the Joint Fire Science Program. Park file report 54 pages.



Figure 5. Relict aspen grove in Guadalupe Mountains National Park.

-----End of Vegetation Assessment Report-----

National Historic Preservation Act

Ground disturbance:

- 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).
- Is not required because the Burned Area Rehabilitation Plan has no potential to affect cultural resources.

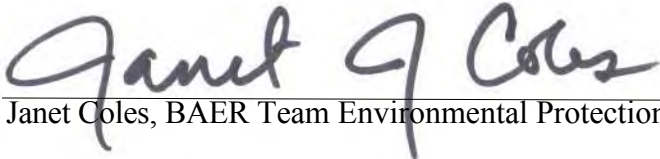
Other Requirements

Yes No

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

Spec #	Title	Cat Ex	NHPA?	ESA?
C-1	Cultural Site Assessment	E5	Yes	No
C-2	Cultural Site Monitoring and Stabilization	E5	Yes	No
C-3	Cultural Site Data Recovery	E1	Yes	No
F-1	Trail, Campsite, and Sign Repairs	G1	Yes	No
F-2	Hazard Tree Mitigation	G1	No	No
V-1	Exotic Species Control	E2	No	No
V-2	Seed Russian thistle areas	E2	No	No
O-1	BAER Team	N/A	No	No
O-2	Implementation Leader	N/A	No	No

I have reviewed the proposals in the Coyote Fire Burned Area Rehabilitation 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.



Janet Coles, BAER Team Environmental Protection Specialist

July 21, 2016

Date

D.W. Ivans, BAER Project Leader

Date

APPENDIX III - MAPS

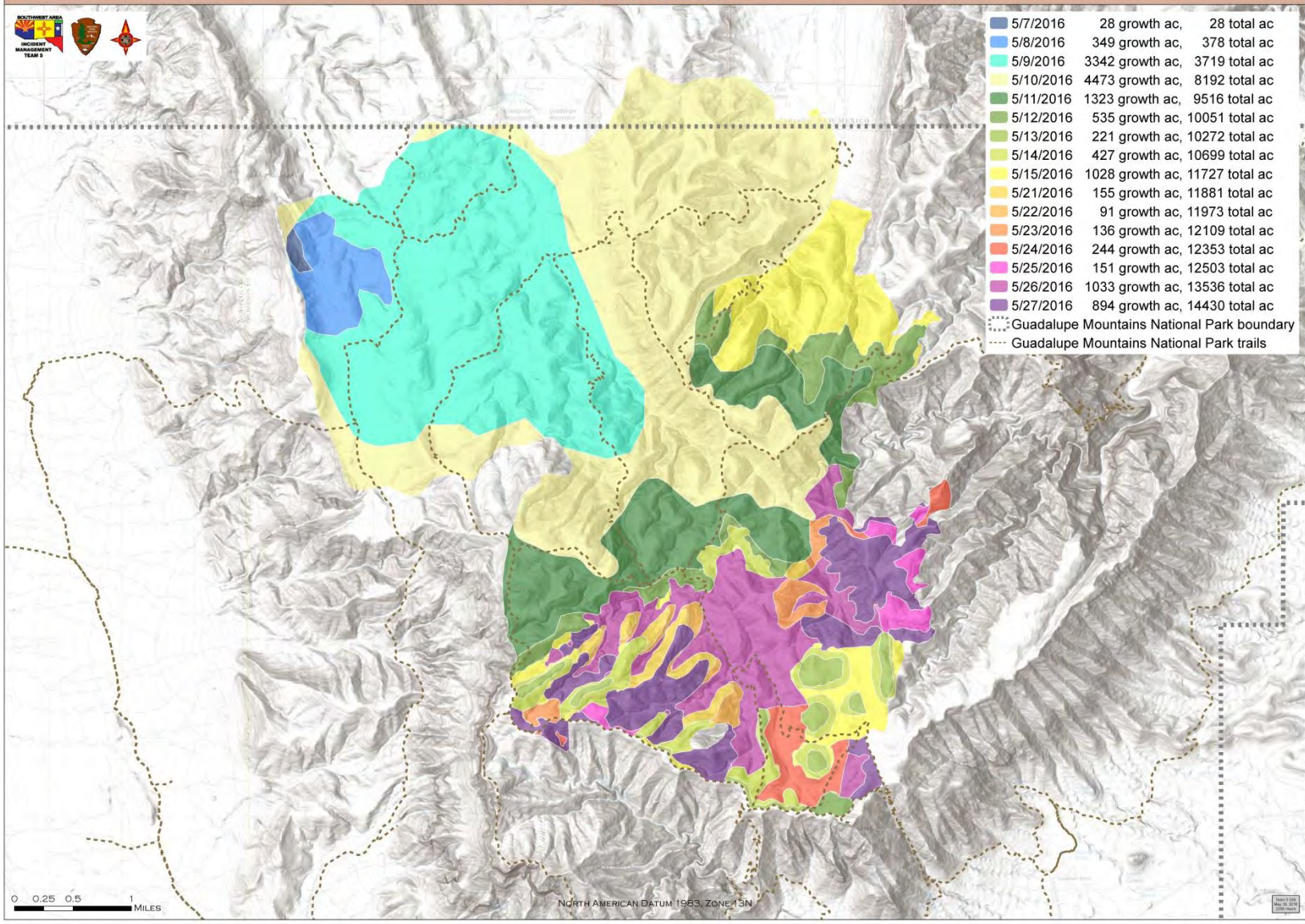
- Fire Perimeter and progression map
- Burn Severity (Burned Area Reflectance Classification)
- Vegetation Communities

Other relevant maps are included in each of the resource assessment reports.

**COYOTE INCIDENT
TX-GUP-000208
PROGRESSION**



5/7/2016	28 growth ac,	28 total ac
5/8/2016	349 growth ac,	378 total ac
5/9/2016	3342 growth ac,	3719 total ac
5/10/2016	4473 growth ac,	8192 total ac
5/11/2016	1323 growth ac,	9516 total ac
5/12/2016	535 growth ac,	10051 total ac
5/13/2016	221 growth ac,	10272 total ac
5/14/2016	427 growth ac,	10699 total ac
5/15/2016	1028 growth ac,	11727 total ac
5/21/2016	155 growth ac,	11881 total ac
5/22/2016	91 growth ac,	11973 total ac
5/23/2016	136 growth ac,	12109 total ac
5/24/2016	244 growth ac,	12353 total ac
5/25/2016	151 growth ac,	12503 total ac
5/26/2016	1033 growth ac,	13536 total ac
5/27/2016	894 growth ac,	14430 total ac
Guadalupe Mountains National Park boundary Guadalupe Mountains National Park trails		



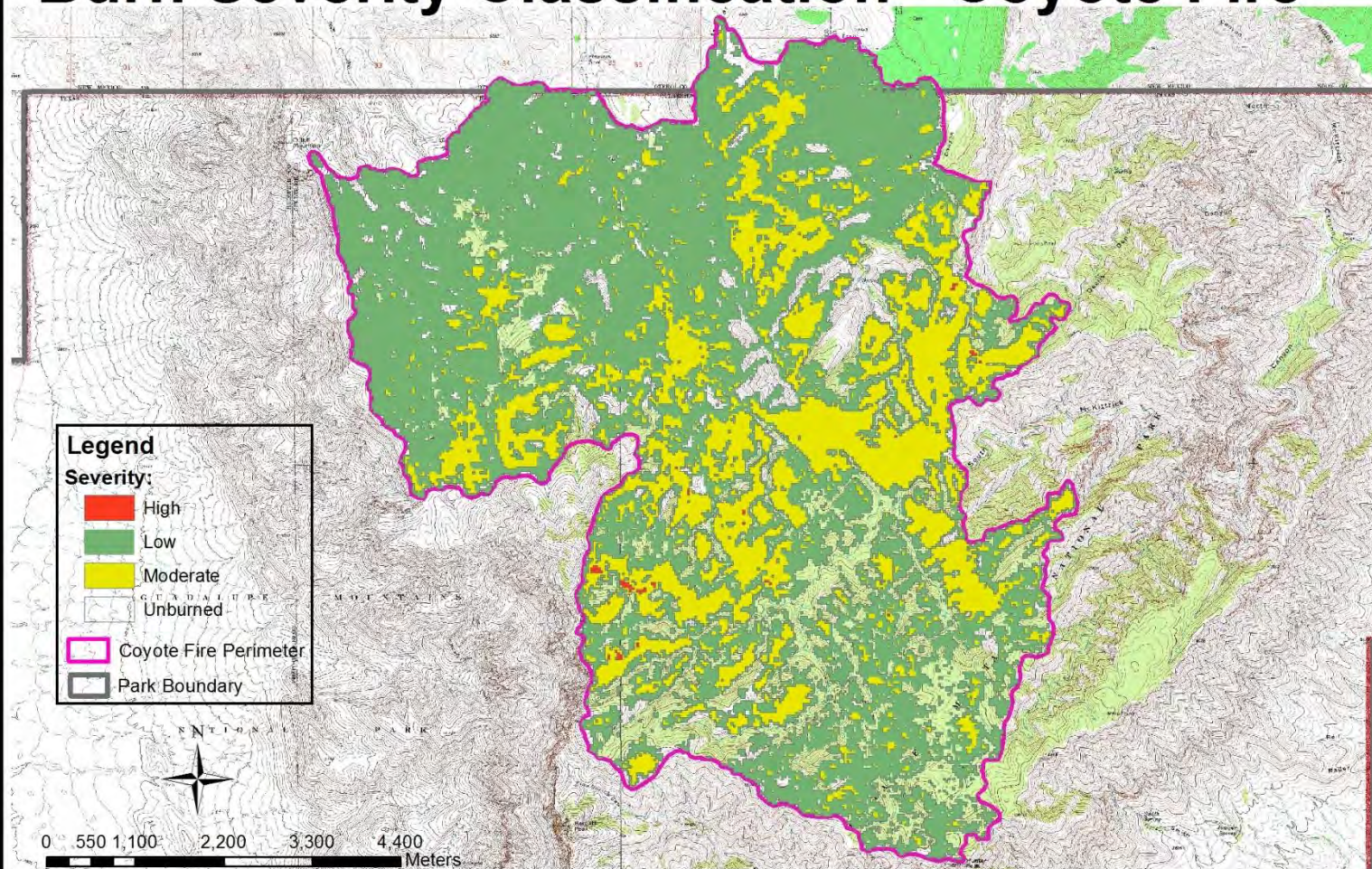
0 0.25 0.5 1 MILES

NORTH AMERICAN DATUM 1983, ZONE 13N



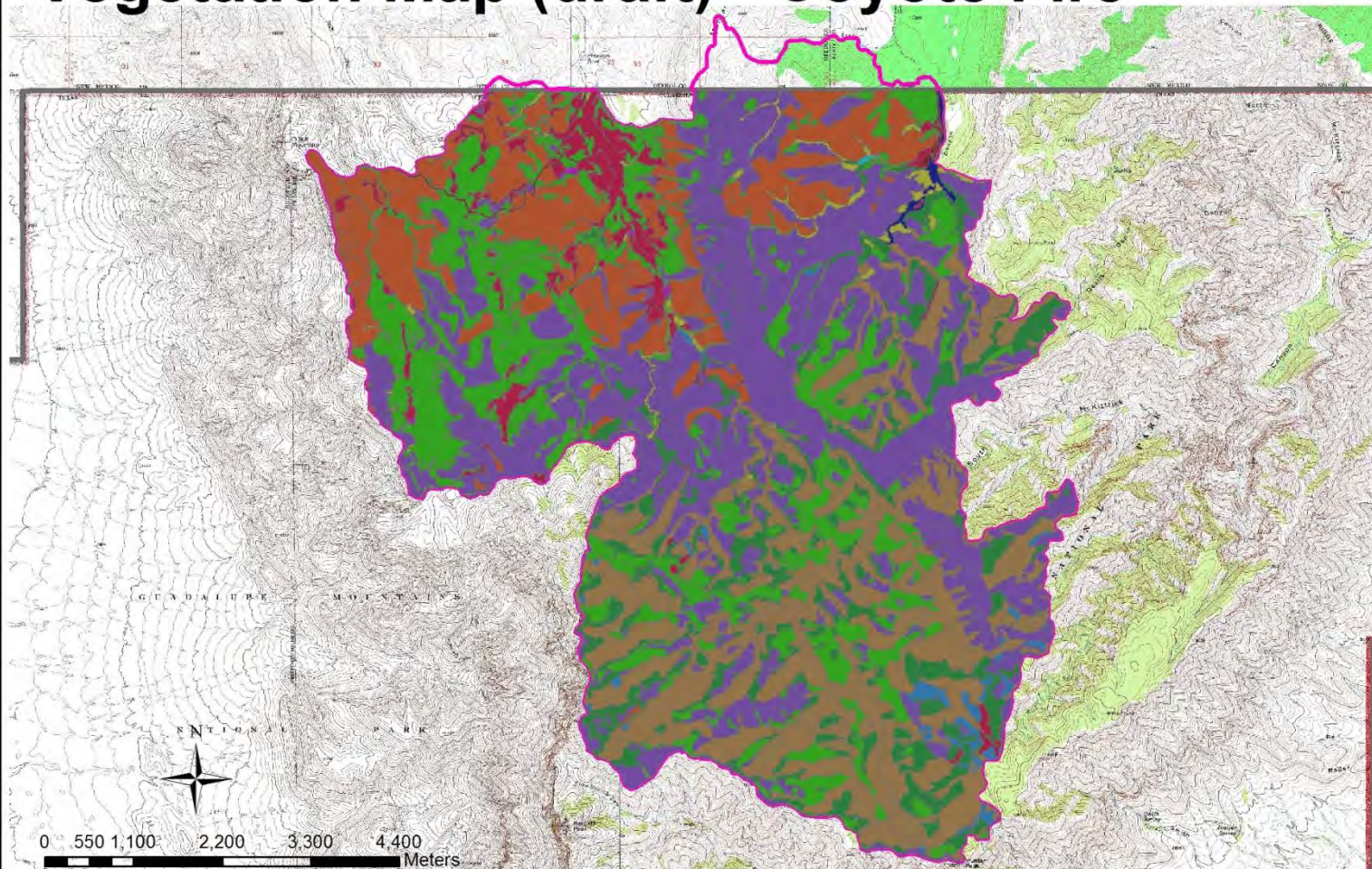


Burn Severity Classification - Coyote Fire







Vegetation Map (draft) - Coyote Fire



Produced by BAER Team, based on draft park vegetation map (Muldavin et al. in prep.)

June 2016

Legend

-  Park boundary
-  Coyote Fire boundary

Vegetation Type

-  Chihuahuan Creosotebush-Mixed Desert Scrub
-  Chihuahuan Semi-Desert Grassland
-  Madrean Encinal
-  Madrean Lower Montane Pine-Oak Forest & Woodland
-  Madrean Oak-Mountain Mahogany-Mixed Foothill Shrubland
-  Madrean Pinyon-Juniper Woodland
-  Madrean Upper Montane Broadleaf Forest & Woodland
-  Madrean Upper Montane Conifer-Oak Forest & Woodland
-  North American Warm Semi-Desert Cliff, Scree & Rock Vegetation
-  Sonoran-Chihuahuan Lowland Riparian Forest Group
-  Southern Rocky Mountain Gambel Oak-Mixed [Mesic] Montane Shrubland
-  Southwest Foothill-Mesa Grassland
-  Southwest Ruderal Disturbance Vegetation
-  Urban or Built-up Land
-  Warm Semi-Desert Shrub & Herb Wash-Arroyo

Legend for vegetation map on previous page.

APPENDIX IV – PHOTO DOCUMENTATION

Photo documentation is included in each of the resource assessment reports (Appendix I)

APPENDIX V – SUPPORTING DOCUMENTS

- A. A facilities assessment geodatabase, including georeferenced images of facilities affected by the Coyote Fire, is available from park Facilities Management staff.
- B. Minimum Requirements Decision Guide for emergency stabilization and rehabilitation work to be conducted in the Guadalupe Mountains Wilderness. In order to keep this plan at a reasonable page count, the MRDG form is available as a separate document.
- C. Emergency consultation correspondence (selected) with US Fish and Wildlife Service.
- D. Emergency consultation correspondence with the Texas State Historical Preservation Officer.

C. Emergency consultation correspondence with US Fish and Wildlife Service, May 16-25

8/8/2016

DEPARTMENT OF THE INTERIOR Mail - Fwd: Emergency Consultation for Coyote Fire at Guadalupe National Park



Medrano, Mike <mike_medrano@nps.gov>

Fwd: Emergency Consultation for Coyote Fire at Guadalupe National Park

Hearst, Jonena <jonena_hearst@nps.gov>

Mon, May 16, 2016 at 8:37 AM

To: Mike Medrano <mike_medrano@nps.gov>

Cc: richard gatewood <richard_gatewood@nps.gov>, Eric Brunnemann <eric_brunnemann@nps.gov>

See message from USFWS below.

----- Forwarded message -----

From: Christman, Michelle <michelle_christman@fws.gov>

Date: Mon, May 16, 2016 at 8:29 AM

Subject: Emergency Consultation for Coyote Fire at Guadalupe National Park

To: Jonena Hearst <jonena_hearst@nps.gov>

Hello Jonena-

Please find attached the emergency consultaiotn number for MSO and the coyote fire.

02ENNM00-2016-FE-0539 Coyote Fire Emergency consultation with Guadalupe National Park

With this process, we offer recommendations on minimizing impacts to threatened and endangered species; they are not mandatory, and should not preclude the protection of lives and property.

Your current practices of avoiding retardant drops in MSO PACs and territories should protect the MSO if present. I will also follow up with our MSO biologist out of Flagstaff to see if she has any additional recommendations.

Please give me a call if you have questions of concerns.

Thanks,
Michelle

~~~~~  
Michelle R. Christman  
U.S. Fish & Wildlife Service  
New Mexico Ecological Services Field Office  
2105 Osuna Rd. NE  
Albuquerque, NM 87113  
(T) 505.761.4715  
(F) 505.346.2542



<https://mail.google.com/mail/u/0/?ui=2&k=7c5bc06587&view=pt&q=MSO&qs=true&search=query&msg=154ba003301eb73b&siml=154ba003301eb73b>

1/2



Medrano, Mike &lt;mike\_medrano@nps.gov&gt;

## Fwd: Emergency Consultation for Coyote Fire at Guadalupe National Park

Hearst, Jonena <jonena\_hearst@nps.gov> Mon, May 16, 2016 at 10:30 AM  
 To: richard.gatewood <richard\_gatewood@nps.gov>  
 Cc: Eric Brunnemann <eric\_brunnemann@nps.gov>, Mike Medrano <mike\_medrano@nps.gov>

FYI

----- Forwarded message -----

From: Hedwall, Shaula <shaula\_hedwall@fws.gov>  
 Date: Mon, May 16, 2016 at 10:26 AM  
 Subject: Re: Emergency Consultation for Coyote Fire at Guadalupe National Park  
 To: "Christman, Michelle" <michelle\_christman@fws.gov>  
 Cc: Jonena Hearst <jonena\_hearst@nps.gov>

Michelle,

Thanks for the heads-up. Couple of other thoughts:

1. Avoid building fire line (hand or dozer) in owl habitat, particularly core areas and PACs. Low-severity fire effects are much preferred to cutting line in owl habitat.
2. If the fire is burning with low severity fire effects, I would encourage them to let it burn through owl habitat unless they are concerned that a) the fire behavior will be different in the owl habitat and b) that they don't know the nesting status of the owls (you said core areas - how many?)
3. I assume they are using WFDS. What is the box? How many owl sites are located within the box and when is the next decision point?

If you care to share the WFDS map or other items, I may have a few more suggestions.

Thanks!

Shaula

On Mon, May 16, 2016 at 7:32 AM, Christman, Michelle <michelle\_christman@fws.gov> wrote:  
 Shaula,

I initiated an emergency consultation with the Guadalupe National Park, as they have a fire burning, and are managing both as suppression and wildland fire. the fire is currently a low severity, and not typically where they have nesting MSO. Their current measures are that the fire crews have maps of MSO core habitat, and are to avoid fire retardant drops in those areas if possible.

Do you have any additional recommendations for them?

thanks!  
 Michelle

[Quoted text hidden]

—  
 Shaula Hedwall





Medrano, Mike &lt;mike\_medrano@nps.gov&gt;

## 02ENNM00-2016-FE-0539 Coyote Fire Emergency consultation with Guadalupe National Park

3 messages

Medrano, Mike <mike\_medrano@nps.gov>  
To: michelle\_christman@fws.gov

Mon, May 23, 2016 at 12:58 PM

Ms. Christman,

Attached is a map for new fire activity related to MSO. We would like to have a discussion with you regarding opinions for protecting the owls.


I am at my desk or I can call you.

Thanks,

Mike

\*\*\*\*\*

Michael F. Medranó, Ph.D.  
Chief, Division of Resource Management  
Guadalupe Mountains National Park  
400 Pine Canyon Drive  
Salt Flat, TX 79847  
Office: (915) 828-3251 x 2400  
Cell: (432) 853-0359  
Fax: (915) 828-3269  
Email: mike\_medrano@nps.gov

 MSO\_GUMO.pdf  
517K

Christman, Michelle <michelle\_christman@fws.gov>  
To: "Medrano, Mike" <mike\_medrano@nps.gov>  
Cc: Shaula Hedwall <shaula\_hedwall@fws.gov>, Ronald Maes <ronald\_maes@fws.gov>

Mon, May 23, 2016 at 2:26 PM

Hi Mike,

Thanks for your email. I've cc'd Shaula Hedwall, our MSO species lead who is also helping the NMESFO while we're short-staffed. Our office currently does not have an MSO biologist, and I've asked if Shaula could join a call that you've requested to discuss protecting owls while managing the Coyote fire.

I can set up a conference line we can use; however, I am only here this afternoon until about 4:00, then I will be out of the office through next Tues.

I'm also cc'ing Ron Maes in my office, who may be picking up some MSO and emergency fire workload, and may try to join the call.

If you need to have the call after today based on Shaula's availability, please go ahead without me, and perhaps just follow up with an email highlighting discussion points and recommendations.

Best regards,  
Michelle

[Quoted text hidden]

-


~~~~~

Michelle R. Christman
 U.S. Fish & Wildlife Service
 New Mexico Ecological Services Field Office
 2105 Osuna Rd. NE
 Albuquerque, NM 87113
 (T) 505.761.4715
 (F) 505.346.2542



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 MSO_GUMO.pdf
 517K

Medrano, Mike <mike_medrano@nps.gov> Mon, May 23, 2016 at 2:28 PM
 To: "Christman, Michelle" <michelle_christman@fws.gov>

Sooner would be better than later. We have a fire update at 3:00, otherwise I am available.

Richard Gatewood, the fire ecologist had also sent Shaula a message, but I believe he has reached his hours limits and has left.

If you can set something up for this afternoon, that would be great.

Michael F. Medrano, Ph.D.
 Chief, Division of Resource Management
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 Office: (915) 828-3251 x 2400
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 Fax: (915) 828-3269
 Email: mike_medrano@nps.gov

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Medrano, Mike <mike_medrano@nps.gov>

Coyote fire update

4 messages

Mike Medrano <mike_medrano@nps.gov>

Tue, May 31, 2016 at 11:47 AM

To: shaula_hedwall@fws.gov, michelle_christman@fws.gov, ronald_maes@fws.gov

Good morning Michelle, Shaula and Ronald,

The fire has been slowly dying down over the last few days. We have been seeing less and less heat on the infrared scans. The isolated pockets of heat that we did see were on the interior of the burn area. From what I have heard and the few photos I have seen, it looks like a good mosaic, low intensity burn. There are a few spots that burned hot and there was some scorching and tree torching, but overall I think it is going to end up being a very healthy fire. No additional actions were taken last week after the Type II team arrived. We were having problems with wind and aviation support, so most of the resources were pulled off the fire line for human safety. Even with that action the fire did not grow much. I'm hoping to get up in the air this week and take a look.

We have had some high humidity the last couple of days and light rain with more rain forecasted for tomorrow and Thursday. There is no timetable for calling this out or contained because we are heading into the peak of hot and dry conditions in mid-to-late June. I think there is low probability that anything would spark up again, but you never know.

I'm stuck in meetings all day today away from an internet connection, but as soon as I can, I will generate a map to send you with the fire perimeter in relation to the PACs.

Since this is my first time dealing with emergency consultation, I would like to know the procedure going forth from this point.

Please let me know if there is anything else I can provide for you in the short term and what we need to do long term.

Thanks,

Mike

 Michael F. Medrano, Ph.D.
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 Fax: (915) 828-3269
 Email: mike_medrano@nps.gov

Medrano, Mike <mike_medrano@nps.gov>

Fri, Jun 3, 2016 at 2:25 PM

To: shaula_hedwall@fws.gov, michelle_christman@fws.gov, ronald_maes@fws.gov

8/8/2016

DEPARTMENT OF THE INTERIOR Mail - Coyote fire update

U.S. Fish & Wildlife Service
New Mexico Ecological Services Field Office
2105 Osuna Rd. NE
Albuquerque, NM 87113
(T) 505.761.4715
(F) 505.346.2542



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Medrano, Mike <mike_medrano@nps.gov> Fri, Jun 3, 2016 at 3:01 PM
To: "Christman, Michelle" <michelle_christman@fws.gov>
Cc: Shaula Hedwall <shaula_hedwall@fws.gov>, Ronald Maes <ronald_maes@fws.gov>

Physiographically and ecologically we most certainly are an extension of NM, but from an administrative standpoint, we are in Texas. As far as I am aware, there are only two locations in Texas with MSO – Guadalupe Mountains and the Fort Davis Mountains. All of the correspondence I have seen thus far has listed the NM office as the contact for consultation. If there is someone else I need to speak with, please send me the information I will reach out.

Thanks

AA

Michael F. Medrano, Ph.D.
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Fax: (915) 828-3269
Email: mike_medrano@nps.gov

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Medrano, Mike <mike_medrano@nps.gov>

Conference call in at 4:25 (3:25 AZ) Re: 02ENNM00-2016-FE-0539 Coyote Fire Emergency consultation with Guadalupe National Park

Medrano, Mike <mike_medrano@nps.gov> Wed, May 25, 2016 at 9:00 AM
To: "Christman, Michelle" <michelle_christman@fws.gov>
Cc: Shaula Hedwall <shaula_hedwall@fws.gov>, Ronald Maes <ronald_maes@fws.gov>

Shaula,

My apologies for not getting back to you yesterday, with the Type II team arriving, there was a bit of chaos and I ended up having to run into Carlsbad to the ICP for briefings.

Here are the MAPs that the first Type II team put together. Concern has turned from the area around Bush Mountain to the area around South McKittrick on the northern perimeter. The area around Bush was pinched in and there are a couple of Hot Shot crews in there mopping up and making sure it doesn't jump again. They stopped the slopover at about 100 acres, so it did not get as close to the PAC as the map I sent you indicated. I wasn't sure how far down that canyon the fire had reached. There is a decent, but not great overview map for the MAPs on the last page. Forecast is for more dry, hot weather for at least the next 5 days. Extended forecast shows a possible change next Thursday.

The Type II team was asking lots of questions last night about doing work in the PACs. My standard line was no active suppression in them until we talk with you. They kept bringing up hypothetical situations-- "what if we want to drop water in a PAC" kind of thing. I asked them to put together specific requests after they had a chance to look at the situation and I would run them through FWS. The Type II team is shadowing the Type IV team in here now and they will assume command at shift change this evening (at least that was the plan last night).

This is my first time for MSO issues and I haven't done fire in a long time, so this is literally trial by fire. It's been a good learning experience.

I'll be in touch very soon.

Thanks for all the help.

Mike

~~~~~

Michael F. Medrano, Ph.D.  
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Fax: (915) 828-3269  
Email: mike\_medrano@nps.gov

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Medrano, Mike <mike\_medrano@nps.gov>

**Conference call in at 4:25 (3:25 AZ) Re: 02ENNM00-2016-FE-0539 Coyote Fire Emergency consultation with Guadalupe National Park**

Medrano, Mike <mike\_medrano@nps.gov> Wed, May 25, 2016 at 2:20 PM  
To: "Christman, Michelle" <michelle\_christman@fws.gov>  
Cc: Shaula Hedwall <shaula\_hedwall@fws.gov>, Ronald Maes <ronald\_maes@fws.gov>

Attached is an updated map of the fire perimeter (red), CORE areas (blue) and PACs (yellow) some of the CORE and PACs share a boundary, so they are not entirely clear. The fire did not grow considerably last night from what I was told earlier today. Type II folks are still running around trying to assess the situation and come up with some plans.

With the fire headed to the PACs, the best bet to try and contain it is probably going to be in McKittrick Canyon. The walls of the canyon are really steep, so I don't know how effective back burning from there would be, but that may be a proposal in the next day or two. The Forest Service and BLM to the north have already indicated they do not want the fire coming off of Guadalupe onto their property, so I believe the intent will be to try and stop it before it moves out of the park. We have private property and residences to the east, so that is a concern should the fire come off the escarpment towards Hwy 62/160. The highway was a hold point for the previous Type II team.

I will keep feeding you information as I get it. Please let me know if you have any concerns or if you need something different from me. Also, please let me know if you are being contacted by multiple parties and need us to consolidate with one point of contact.

Thanks,

Mike

~~~~~

Michael F. Medrano, Ph.D.
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Medrano, Mike <mike_medrano@nps.gov>

Conference call in at 4:25 (3:25 AZ) Re: 02ENNM00-2016-FE-0539 Coyote Fire Emergency consultation with Guadalupe National Park

Medrano, Mike <mike_medrano@nps.gov> Wed, May 25, 2016 at 4:14 PM
To: "Christman, Michelle" <michelle_christman@fws.gov>
Cc: Shaula Hedwall <shaula_hedwall@fws.gov>, Ronald Maes <ronald_maes@fws.gov>

Shaula,

This is the request I received just now:

Team 5 Operations Section would like direction on tactics to consider in the Owl PAC/ Mixed Conifer areas.

Option 1: In the event of extreme fire behavior getting established in the Owl PAC/ Mixed Conifer areas. Weather and fire models are predicting condition that would indicate the possibility of high mortality in these areas. PSD mission along ridge tops that would establish a low intensity backing fire that would minimize effects to conifer stands for uphill crown runs.

Option 2: If conditions are favorable to use PSD tactics to actively fire off ridge tops reducing the probability of uphill runs. This would allow lower intensity fire to be established in mixed conifer areas backing fire down to road system in the flats.

I requested if they have specific locations they would like to do the aerial ignition.

Thanks,

Mike

Michael F. Medrano, Ph.D.
Chief, Division of Resource Management
Guadalupe Mountains National Park
400 Pine Canyon Drive
Salt Flat, TX 79847
Office: (915) 828-3251 x 2400
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Medrano, Mike <mike_medrano@nps.gov>

**Conference call in at 4:25 (3:25 AZ) Re: 02ENNM00-2016-FE-0539 Coyote Fire
Emergency consultation with Guadalupe National Park**

Hedwall, Shaula <shaula_hedwall@fws.gov>

Wed, May 25, 2016 at 5:31 PM

To: "Medrano, Mike" <mike_medrano@nps.gov>

Cc: "Christman, Michelle" <michelle_christman@fws.gov>, Ronald Maes <ronald_maes@fws.gov>

Mike -

I just saw this most recent email from you (sorry - was going in reverse order I guess).

I absolutely support the use of PSDs in this case to try and minimize the fire effects in the PACs (I think it is the only option). Please do send the maps when you get them and it would be great if the crew could track where and when they put down the aerial ignitions...we are trying to learn about what works where and we have been working with the PSD crews to track this on other fires, so I would be very interested in having as much detail as possible in getting where they fire and how many they put down so we can get a feel after the fire for how it worked, what we might replicate in other areas, and what we might try to improve on for other sites.

Thanks!!

Shaula

[Quoted text hidden]

Shaula Hedwall

Supervisory Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Southwest Forest Complex
2500 South Pine Knoll Drive, Office 217
Flagstaff, AZ 86001-6381
Main Telephone: 928-556-2118
Fax: 928-556-2121

D. Emergency consultation correspondence with the Texas State Historical Preservation Officer, May 18

6/6/2016

DEPARTMENT OF THE INTERIOR Mail - Biennial meeting Guadalupe NPS/SHPO



Medrano, Mike <mike_medrano@nps.gov>

Biennial meeting Guadalupe NPS/SHPO

Medrano, Mike <mike_medrano@nps.gov>

Mon, May 16, 2016 at 4:22 PM

To: Pat Mercado-Allinger <Pat.Mercado-Allinger@thc.state.tx.us>

Cc: David Camarena <David.Camarena@thc.state.tx.us>, Elizabeth Brummett <Elizabeth.Brummett@thc.state.tx.us>, Mike Robb <Mike.Robb@thc.state.tx.us>, Justin Kockritz <Justin.Kockritz@thc.state.tx.us>, Alycia Hayes <alycia_hayes@nps.gov>, Eric Brunnemann <eric_brunnemann@nps.gov>

Pat and the rest of the THC staff,

Thanks for hosting the meeting last week. It was a whirlwind visit, but one I was happy to make. It was nice to meet everyone and to be able to put a face to the names on email. I believe it was a productive meeting. I am definitely excited about the future and about working with the staff at THC. I'm also looking forward to producing some products that will help streamline operations for us and that other NPS units may find useful.

The wildfire I mentioned when we were there has continued to burn. It has been a low intensity fire that has moved relatively slow. No major hot and fast runs that usually cause damage and result in tree stand replacement. Due to the rugged terrain, the focus has been on personnel safety, and re-establishing a natural fire return interval.

I have attached a couple of photos of the efforts to preserve the Bowl Cabin, one of the historic structures in the Wilderness. It seems it was a successful effort. The cabin was wrapped and back burned to create a defensible space. We are working on getting a team together to conduct assessments of the sites that were burned over in the fire. At this point we do not anticipate any impacts to cultural resources from the fire or suppression activities, but will not know for certain until the assessments are complete. We will continue to communicate with THC regarding any impacts that are discovered and any rehabilitation efforts that are proposed.

If you have any questions, please do not hesitate to contact me.

Mike

Michael F. Medrano, Ph.D.
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Guadalupe Mountains National Park
400 Pine Canyon Drive
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Email: mike_medrano@nps.gov

On Fri, Apr 1, 2016 at 12:38 PM, Pat Mercado-Allinger <Pat.Mercado-Allinger@thc.state.tx.us> wrote:
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2 attachments

https://mail.google.com/mail/u/0/?ui=2&ik=7c5bc05587&view=pt&earch=s.en&ms_g=154bb9f5db004f5&iml=154bb9f5db004f5

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