

MEADOWS FIRE
BURNED AREA EMERGENCY STABILIZATION PLAN

AGENCY/UNIT: U.S. Fish and Wildlife Service
Ash Meadows National Wildlife Refuge

LOCATION: Nye County, Nevada

DATE: July 29, 2005

PREPARED BY: Ash Meadows National Wildlife Refuge and Ecological
Services, Southern Nevada Field Office



Submitted By:

Dick Birger, Project Leader
Desert National Wildlife Refuge Complex

Date

**U.S. DEPARTMENT OF THE INTERIOR
BURNED AREA EMERGENCY STABILIZATION PLAN**

PART I REVIEW AND APPROVAL

I. EMERGENCY STABILIZATION PLAN CONCURRENCE

- Concur**
- Concur with Revision**
- Disapproved**

Explanation for Revision or Disapproval:
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Richard Birger, Project Leader, Desert NWR Complex, FWS

Date

II. EMERGENCY STABILIZATION CONCURRENCE

- Concur**
- Concur with Revision**
- Disapproved**

Explanation for Revision or Disapproval:
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Douglas Waggonor, CNO, Fire Management Coordinator, Region 8

Date

III. EMERGENCY STABILIZATION CONCURRENCE

- Concur**
- Concur with Revision**
- Disapproved**

Explanation for Revision or Disapproval:
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Steve Thompson, Manager, California/Nevada Operation, Region 8

Date

EXECUTIVE SUMMARY

This plan addresses emergency stabilization of fire effects on Ash Meadows National Wildlife Refuge as a result of the 311-acre Meadows Fire in Nye County, Nevada. The plan has been prepared in accordance with the *U.S. Department of the Interior, Departmental Manual, Part 620: Wildland Fire Management, Chapter 3.6:* and the U.S. Fish & Wildlife Service Manual 095 FW 3.9 with implementation guidance Chapter 11 FWS Fire Management Handbook. This document provides emergency stabilization recommendations for U.S. Fish & Wildlife Service lands and Bureau of Land Management Cooperative lands within the Meadows Fire burned area.

The primary objectives of the Meadows Fire Burned Area Emergency Stabilization Plan are:

- To prescribe post-fire mitigation measures necessary to protect human life, property, and critical cultural and natural resources;
- To promptly mitigate the unacceptable effects of the fire impacts on lands within the burned area in accordance with management policy and guidelines and all relevant federal, state/local laws and regulations;

The U.S. Department of the Interior, Ash Meadows Refuge staff, Ecological Services southern field office, and USGS in Reno fisheries department has conducted an analysis of fire effects on the natural resources of Ash Meadows National Wildlife Refuge (AMNWR) using ground reconnaissance methods. The plan primarily addresses impacts to the Federally listed endangered species associated with Ash Meadows NWR. Ash Meadows NWR was established in 1984 primarily to protect 13 threatened and endangered species and at least 25 plants and animals found no where else in the world. The abundance of indigenous life distinguishes Ash Meadows as having a greater concentration of endemic species than any other area of its size in the United States, and the second greatest concentration of endemic species in North America. The Refuge's large number of endemic species is directly related to its unique hydrogeology. Ash Meadows NWR is a major discharge point for a vast underground aquifer with more than 30 major seeps and springs discharging over 17,000 acre feet of water per year and supporting a vast network of spring, wetland, and riparian habitat in the Mojave Desert.

While the Meadows Fire burned only 311 acres of the approximately 24,000-acre Ash Meadows National Wildlife Refuge, the burn affected important spring, rare alkaline meadows, riparian, and wetland habitats including the outflow of one major spring and the designated Critical Habitat of six listed species. The Jackrabbit outflow was one of the more enacted spring outflows in Ash Meadows due to prior land management practices.

Due to prior land management practices before establishment of the Refuge in 1984, a major effort has been underway to control established noxious weeds and restore native spring, riparian, and wetland habitats. Survival of many of the endemic species within Ash Meadows NWR is dependent upon emergency control of noxious weeds and reestablishment of native cover to prevent the spread of noxious weeds into the burned area. For these reasons U.S. Fish and Wildlife Service Refuge staff, biologists of the Service's Endangered Species Recovery Team and members of the Ash Meadows noxious weed and habitat restoration program have recommended emergency treatment of noxious weeds and planting of native plant species to prevent significant loss of native species habitat within the Meadows Fire Burned Area. Monitoring of noxious weed emergence and revegetation efforts are included in the plan to determine if supplemental treatments will be necessary.

This plan documents that damage occurred to the resources of Ash Meadows NWR and provides specific costs for emergency stabilization actions necessary to ensure that critical native habitats adequately recover during the next growing season. These actions are consistent with the approved recovery plan for AMNWR's endangered and endemic species, and with the legislative mandate for the Refuge states that Ash Meadows National Wildlife Refuge is to be managed "*to conserve (A) fish or wildlife which are listed as endangered species or threatened species....or (B) plants...*" 16 U.S.C. 1534.

All specifications are fully consistent with the approved Land Management Plans (1989), Fire Management Plan (2004), and Draft Comprehensive Conservation Plan (2004) for the Ash Meadows National Wildlife Refuge and Desert National Wildlife Refuge Complex, as well as the *Recovery Plan for Endangered and Threatened Species of Ash Meadows, Nevada*.(1990).

FIRE INFORMATION

The Meadows Fire burned approximately 311 acres within the congressional-authorized boundary of the Ash Meadow National Wildlife Refuge between July 29 and August 1, 2005. Two air tankers, two helicopters, two engines and Air Attack were dispatched from Las Vegas. The fire is under investigation but began at approximately 14:30 hours on private land. The fire spread from south to north driven by high winds. At approximately 17:00 hours a large thunder head came over the fire and blew the fire in three directions following heavy fuels. Ten structures on private land were threatened with the advancing fire to the south and west. The north head of the fire quickly consumed most of the Jackrabbit outflow with 50 -100ft. flames. Back fires were successful at stopping the fire from completely burning the entire Jackrabbit outflow and spring pool, however over 97% of the outflow had high intensity burn due to the heavy concentration of salt cedar and cattails in the drainage. Advancing fire in heavy fuels around the Tubbs ranch was eventually stopped by Retardant and water drops. The other head of the fire ran out of heavy fuels and stopped at the wet alkaline meadows. The fire was declared contained on July, 30 and controlled on August 1st. Approximately 150 acres within the fire perimeter are managed by AMNWR and an additional 131 acres are BLM lands that are cooperatively managed by AMNWR and 30 acres on private lands. A total of 10 engines, two hand crews and two water tenders were assigned to the fire.

ISSUES AND OBJECTIVES

The Ash Meadows Refuge Manager, Refuge staff and southern Nevada Ecological Services fisheries biologist initiated preliminary damage assessment. The Jackrabbit outflow and the dace population became the focus of concern. Additional desert fish specialists from USGS assessed the Jackrabbit outflow to determine the scope impact the fire had on the species and what emergency actions should be taken to minimize those effects to the remaining population as well as gather photo documentation of all impacts to refuges resources.

Issues identified by Refuge Staff included:

- Channel Stabilization to the Jackrabbit outflow where significant loss of the endangered Ash Meadows dace (one of two populations) had occurred.
- The potential of non-native game fish entering the Jackrabbit outflow from the Big Springs outflow and private lands. Fire consumed the vegetative barrier and higher flows are expected.
- Loss of Endangered, Threatened, and Endemic Species Habitat
- Need for Immediate Reestablishment of Native Plant Cover
- High Potential for Noxious Weed Spread within the Burned Area
- Need to Monitor Noxious Weeds and Replanting Treatments.
- Protection of Cultural Resources

Each of the above issues directly relate to mitigating impacts of the Meadows Fire to management and recovery of the Federal endangered or threatened species and species endemic to Ash Meadows NWR that are protected under the enabling legislation for the refuge and are therefore fundable under the U.S. Department of the Interior, Burned Area Emergency Stabilization Program.

Implementation of the mitigation treatments for these species and their habitat should be initiated as quickly as possible.

This Emergency Stabilization Plan is the initial funding request for Emergency Stabilization funds. Additional supplemental requests may be made after this document has been reviewed and approved. It is recommended that supplemental requests be made on an as needed basis. The Emergency Stabilization Funds for this plan extend over one year from the date of containment of the fire. At the conclusion of the funding period, a final Accomplishment Report will be due to the approval authority. The Accomplishment Report will document the funding received (initial and supplemental funding), treatments installed, the effectiveness of the installed treatments, and the results of monitoring activities. This Plan was submitted to the approving official, in accordance with Interagency Burned Area Emergency Stabilization and Rehabilitation guidelines within 7 days of fire containment.

**U.S. DEPARTMENT OF THE INTERIOR
BURNED AREA EMERGENCY STABILIZATION PLAN**

PART A FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Meadows	Jurisdiction	Acres
Fire Number	NV-AMR-	U.S. Fish & Wildlife Service	150
Agency Unit	FWS	Bureau of Land Management	131
Region	California/Nevada Operations	Private	30
State	Nevada		
County(s)	Nye		
Ignition Date/Manner	July 29, 2005 Under Investigation		
Zone	Western Great Basin		
Date Contained	July 31, 2005		
Date Controlled	August 1st, 2005	TOTAL	311

PART B NATURE OF PLAN

Type of Plan (check one box below)

Initial Submission	<input checked="" type="checkbox"/>
Update and Revising Initial Submission	<input type="checkbox"/>
Supplying Information For Accomplishment To Date On Work Underway	<input type="checkbox"/>
Different Phase Of Project Plan	<input type="checkbox"/>
Final Report (To Comply With The Closure Of The EFR Account)	<input type="checkbox"/>

**U.S. DEPARTMENT OF THE INTERIOR
BURNED AREA EMERGENCY STABILIZATION PLAN**

PART C EMERGENCY STABILIZATION OBJECTIVES

- Locate and stabilize severely burned conditions that pose a direct threat to human life, property, or critically important cultural and natural resources.

- Recommend post-fire emergency stabilization prescriptions that prevent irreversible loss of natural and cultural resources.

- Conduct immediate post-burn reconnaissance for fire suppression related impacts to threatened and endangered (T&E) species, and cultural sites.

- Develop monitoring specifications design to document relative effectiveness of emergency stabilization treatments or whether additional emergency stabilization treatments are required.

**U.S. DEPARTMENT OF THE INTERIOR
BURNED AREA EMERGENCY STABILIZATION PLAN**

PART D TEAM ORGANIZATIONS, TEAM MEMBERS, RESOURCE ADVISORS

BAER/RESOURCE ADVISORS: (Note: Resource Advisors are individuals who assisted the BAER Team with the preparation of this plan. See Part H of this plan for a full list of agencies and individuals who were consulted or otherwise contributed to the development of this plan.)

NAME	AFFILIATION / SPECIALTY
Dick Birger	Project Leader, Desert NWRC
Sharon McKelvey	Refuge Manager, Ash Meadows NWR
Cristi Baldino	Wildlife Biologist, Ash Meadows NWR
Shawn Goodchild	Fisheries Biologist, ES southern Nevada FO
Lee Nelson	FMO, Desert NWRC
Lee Talbot	Equipment Operator, Ash Meadows NWR
Mark James	IPM Contractor
Amber Shanklin	Biological Technician Contractor (READ)
Lou Ann Speulda	Archeologist, USFWS
Christiana Manville	Biologist, ES southern Nevada FO

**U.S. Department of the Interior
BURNED AREA EMERGENCY STABILIZATION PLAN**

PART D - SUMMARY OF APPROVAL AUTHORITIES

ACTIVITIES REQUIRING LINE OFFICER'S APPROVAL Fire Suppression Damages (charged to Fire Suppression)	COST
SUPPRESSION	

ACTIVITIES REQUIRING REGIONAL OFFICE APPROVAL Emergency Stabilization Requests (Charged to ES)	COST
S-1 Road Clean-up	\$3,135.00
S-2 Culvert Replacement and Channel Clearing	\$17,830.00
S-3 Noxious Weeds Control	\$90,579.00
S-4 Native Plantings	\$61,340.00
S-5 Monitor Noxious Weeds & Native Planting Treatments	\$24,927.00
S-6 Cultural Resource Protection	\$58,646.00
S-7 Implementation Leader	\$48,068.00
S-8 Cultural Resource Assessment	\$15,665.00
S-9 Channel Stabilization Assessment	\$45,170.00
S-10 Channel Stabilization Implementation	\$107,400.00
SUBTOTAL	\$472,760.00

ACTIVITIES REQUIRING NATIONAL OFFICE APPROVAL Emergency Stabilization Requests (Charged to ES)	COST

**U.S. DEPARTMENT OF THE INTERIOR
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PART E SUMMARY OF ACTIVITIES

The SUMMARY OF ACTIVITIES table identifies emergency stabilization costs charged or proposed for funding from fire suppression rehabilitation, emergency stabilization, or rehabilitation funding sources. The total cost of the treatments excluding the costs absorbed by the fire (fire crew, labor and associated overhead) is displayed as either Fire Suppression Rehabilitation (**SR**), Emergency Stabilization (**ES**), Rehabilitation (**R**), or Agency Operations/Other (**OP/O**).

No.	TREATMENT SPECIFICATION	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
					SR	ES	R		
S-1	Road Clean-up	Events	\$261	12	-	ES.	-	FA	\$3,135.00
S-2	Culvert Replacement and Channel Clearing	Miles Each	\$5,497 \$1,821	2 ¼ 3	-	ES	-	C	\$17,830.00
S-3	Noxious Weeds Control	Acres	\$503	180	-	ES	-	C	\$90,579.00
S-4	Native Plantings	Acres	\$767	80		ES		C	\$61,340.00
S-5	Monitor Noxious Weeds & Native Planting Treatments	Survey	\$567	44		ES		C, CA	\$24,927.00
S-6	Cultural Resource Protection	Acres	\$326	180		ES		FA, CA	\$58,646.00
S-7	Implementation Leader	Months	\$8,011	6		ES		FA	\$48,068.00
S-8	Cultural Resource Assessment	Survey Reports	\$42 \$2,702	180 3		ES		FA	\$15,665.00
S-9	Channel Stabilization Assessment	Acres Design Plan	\$220 \$5,560	180 1		ES		C	\$45,170.00
S10	Channel Stabilization Implementation	Acres	\$1,074	100		ES		C	\$107,400.00
	TOTALS								\$472,760.00

PART F - INDIVIDUAL SPECIFICATION

TREATMENT NAME	Road Clean-up	PART E SPECIFICATION #	S-1
NFPORS TREATMENT CATEGORY*	Post-flood Event, Road Clean-up	FISCAL YEAR(S) (list each year):	2006, 2007, 2008
NFPORS TREATMENT TYPE *	Watershed & Property Protection	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Amargosa Valley, Pahurmp Valley, and private lands within the Refuge boundary	IMPACTED T&E SPECIES	Ash Meadows Speckled dace, Ash Meadows Amargosa pupfish

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

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

<p>Number and Describe Each Task:</p> <p>A. General Description: During major storm events, low-water crossings and other sections of roadways can be expected to flood. Flood events may erode road crossings or deposit sediment and debris on the roadway, making the road impassible and unsafe for vehicle travel. This specification provides for the clearing of sediment and debris from roadways following major runoff events.</p> <p>B. Location/(Suitable) Sites: Big Springs Road and South Springs Meadows Road (See: Figure 4)</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Use heavy equipment to clear debris and sediment from roadways after major runoff events. 2. Deposit any removed debris out of the floodplain on high ground to prevent its transport back into channels and onto the roadway <p>D. Purpose of Treatment Specifications: Provide for safe public access on roadways following major runoff events</p> <p>F. Treatment Effectiveness Monitoring Proposed: Inspect roadway after storm events to determine if further treatments are needed.</p>
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II. 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
AHME Equipment Operator WG-08/5 @ 23.27/hour X 8 /hours X 4 events X 3 FY=	\$2,234.00
TOTAL PERSONNEL SERVICE COST	\$2,234.00
➤ 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
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$0
➤ MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Fuel @ \$75/ flood event X 4 X 3 FY	\$900.00
TOTAL MATERIALS AND SUPPLY COST	\$900.00
➤ TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	\$0
➤ CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	\$0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY 2006	10/01/2005	3/01/2006	FA	Events	\$261	4	\$1,045.00
FY 2007	10/01/2006	3/01/2007	FA	Events	\$261	4	\$1,045.00
FY 2008	10/01/2007	3/01/2008	FA	Events	\$261	4	\$1,045.00
FY__							
TOTAL							\$3,135.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=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
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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. Figure 4 Treatment Map

INDIVIDUAL SPECIFICATION

TREATMENT NAME	Culvert Replacement and Channel Clearing	PART E SPECIFICATION #	S-2
NFPORS TREATMENT CATEGORY*	Roads/Erosion/Sedimentation	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Culvert Replacement and Channel Clearing	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Amargosa Valley, Pahrump Valley, and private lands within the Refuge boundary	IMPACTED T&E SPECIES	Ash Meadows speckled dace and Ash Meadows Amargosa pupfish.

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

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

<p>Number and Describe Each Task:</p> <p>A. General Description: Big Springs road provides the only access for private land owners within the Refuge boundary. The structures currently in place for moving water under the road at the Jackrabbit out flow will not support the amount of water that is expected to occur from Jackrabbit basin during flood events this winter, when the water table will be at the surface in the Refuge.</p> <p>Remove floatable debris and vegetation from stream channels. Crews and heavy equipment will be used to remove course debris to maximize channel capacity and eliminate obstructions that could block culverts or divert flows out of channels. Debris includes downed trees, branches, cattails etc. Cut and remove, brush, trees, or cattail material that could fall into channel and block culverts.</p> <p>B. Location/(Suitable) Sites Big Springs Road and South Springs Meadows Road (See: Figure 4 Treatment Map)</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Engineer needed to assess and determine size needed. 2. Replace and increase the size of one culvert on south Spring Meadows road at the Jackrabbit outflow crossing. 3. Replace and increase the size for two existing culverts on Big springs road at the Jackrabbit outflow crossing. 4. Remove floatable debris from stream channels and haul out of the adjacent flood plain to prevent it from being mobilized during flood events. 5. Cut and remove brush/trees/cattails in outflow channel ½ mile above and ¼ below culverts. <p>D. Purpose of Treatment Specifications: To prevent the potential washout of Big Spring road and the Refuges main entrance road.</p> <p>F. Treatment Effectiveness Monitoring Proposed: Inspect Jackrabbit outflow and culverts after storm events to determine if further treatments are needed.</p>

II. 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
AHME Equipment Operator WG-08/5 @ \$23.27/hour X 80 hours 1 FY=	\$1,862.00
TOTAL PERSONNEL SERVICE COST	\$1,862.00
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
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Three 24' x 30' galvanized Culverts @ \$1,200 each	\$3,600.00
Local fill material available \$0 cost	\$0
TOTAL MATERIALS AND SUPPLY COST	\$3,600.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	\$0

➤	CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
	1 NCC Crew (10 person crew) @ \$1,546/day x 8 days x 1 FY =	\$12,368.00
	TOTAL CONTRACT COST	\$12,368.00

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
FY 2006	10/01/2005	01/30/2006	FA	each	\$1,821	3	\$5,462.00
FY 2006	10/01/2005	04/30/2006	SC	miles	\$5,497	2 1/4	\$12,368.00
FY							
FY__							
TOTAL							\$17,830.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, 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.	P
3.	Estimate supported by cost guides from independent sources or other federal agencies	M
4.	Estimates based upon government wage rates and material cost.	
5.	No cost estimate required - cost charged to Fire Suppression Account	

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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

<p>List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Resident road on Figure 4 Treatment Map</p>
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INDIVIDUAL SPECIFICATION

TREATMENT NAME	Invasive Species Control	PART E SPECIFICATION #	S-3
NFPORS TREATMENT CATEGORY*	Invasive Species	FISCAL YEAR(S) (list each year):	2006,2007
NFPORS TREATMENT TYPE *	Chemical Treatment	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	All six species listed in the affects section

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

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

<p>A. General Description: Utilize integrated pest management practices (herbicides, biological mechanical, and cultural control methods), as appropriate to prevent the spread and establishment of noxious weeds and undesirable exotic species known to exist within the fire perimeter of the Meadow Fire and as defined by monitoring.</p> <p>B. Location/(Suitable) Sites: Control all weeds as defined on the Noxious Weed Map as "Existing" locations. There are approximately 180 acres of known weed locations.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Control noxious/non-native weeds within the burn area and as identified by monitoring. Known infestation sites contain primarily Russian Knapweed (<i>Centaurea repens</i>), Hyssop bassia (<i>Bassia hyssopifolia</i>), and Saltcedar (<i>Tamarix spp.</i>) Multiple treatments will be required with a variety of control techniques. Ground and aerial application of chemicals including but not limited to Habitat®, Garlon, Glysophate, Crossbow®, Arsonal® may be required. Timing or year of application may need to be adjusted to ensure treatment of each species is conducted in the proper phenological stage to ensure the protection of recovering native and endemic species. 2. Aerial applications will include the use of GPS guided/mapping capable aircraft to ensure treatment accuracy and proper documentation of weed control efforts. 3. Follow-up control in the fall or subsequent years on treated sites. 4. Locate, map, and document (using photography, topographic maps, and Global Positioning System--GPS—technology), new weed occurrences within burned area. Provide GPS shapefiles to aerial contractors for use in GPS guided applications. Document percent control or kill of noxious weeds. 5. Initiate Agency approved control measures on new weed occurrences where monitoring demonstrates the establishment or expansion of known weed populations. 6. Monitor water quality in aquatic areas adjacent to treatments areas using USGS POCIS passive samplers to detect herbicides. <p>D. Purpose of Treatment Specifications: Control or contain existing noxious weed occurrences to prevent further spread onto uninfested sites within the burn area. Protect the ecological integrity and site productivity of six (6) Threatened or Endangered plant and animal species and their associated habitats on lands administered by the AMNWR. Prevent spread of noxious weeds into critical habitats of T&E species on unburned lands within and adjacent to the refuge.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Spot checking of noxious weed sites to ensure control methods are meeting management objectives. A staff person from the AMNWR will visit sites controlled every week after initial treatment; this is especially important for weed populations that are sprayed to ensure effectiveness of herbicide application. If both spring and summer/fall applications are used then visits will occur during both these times.</p>
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II. 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
USFWS – GS-11 Biologist @ \$24.22/hour + benefits @ 33% = \$32.21 x 8 hours/day x 42 days (2 months) x 1 year =	\$10,823.00
USFWS – GS-05 Term Biological Technician @ \$13.21/hour + benefits @ 33% = \$17.57 x 8 hours/day x 42 days (2 Months)	\$5,904.00
TOTAL PERSONNEL SERVICE COST	\$16,727.00

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	
Vehicle Lease- 4WD Pick-up truck @ \$600/month x 2 months x 1 yrs	\$1,200.00
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$1,200.00
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Field and office supplies @ \$800 x 1 years	\$800.00
TOTAL MATERIAL AND SUPPLY COST	\$800.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	\$0.00
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST/ITEM
Control weeds with herbicides on 80 acres: ground application, rough terrain – 80 acres @ \$311.00	\$24,880.00
Control weeds with contract crew (10 person crew @ \$1,750/day) – 20 days X \$1,750/day	\$35,000.00
Follow up weed treatments, ground applications, ATV @ \$100/ac x 80 ac	\$8,000.00
Water Quality Testing- @ \$3,972 /site x 1 site	\$3,972.00
TOTAL CONTRACT COST	\$71,852.00

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
FY06	10/1/2005	9/30/2006	FA,SC	Acres	\$503	180	\$90,579.00
TOTAL							\$90,579.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, 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.	C,E,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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Figure 4 Treatment Maps
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INDIVIDUAL SPECIFICATION

TREATMENT NAME	Native Planting	PART E SPECIFICATION #	S-4
NFPORS TREATMENT CATEGORY*	Reforestation	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Planting	WUI? Y / N	Yes
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	All Six species listed in the affects section

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

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

<p>A. General Description:</p> <p>Native grasses, shrubs and trees will be hand-planted by contract crews to re-establish native vegetation within moderate to high burn severity areas. Native seed will be collected and propagated at federal and private nurseries to produce seedlings to plant with in the burned area after invasive species treatments are accomplished. The need for replanting and application rates will be based on the monitoring results from subsequent years. The plantings will be conducted in conjunction with noxious weed control and is intended to reduce encroachment by non-native invasive species and protect biological diversity of plant communities and critical T&E habitats.</p> <p>B. Location/(Suitable) Sites:</p> <p>The areas to be replanted are within the Meadows fire perimeter in and along historic spring/stream channels and in historic ranch sites where noxious weeds have encroached. The replanting will occur mostly in areas within the burn that was moderate to high intensity. The area mostly coincides with the existing noxious weed locations around the historic Tubb's ranch.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. The species selected for replanting the burn area will include but not limited to willow, ash, mesquites, saltgrass (alkali sacton), baccaris. Seed will be collected from local species and propagated under contract with federal and private nurseries. 2. Container stock, grass plugs will be planted by contract crews under the guidance of Refuge staff. 3. Application timing and completion date: Application timing will correspond to local conditions and predicted success. For fall application, plantings will be applied after the first fall or winter rains and after the fall weed treatments. <p>D. Purpose of Treatment Specifications:</p> <p>The purpose of the treatment is to help prevent noxious weed encroachment and protect T&E species and their associated habitats. The native grass plantings are important in reducing bare ground, stabilizing plant communities, reducing spread of non-native invasives and protecting critical habitats of endemic plant species.</p> <p>E. Treatment Effectiveness Monitoring Proposed:</p> <p>See Vegetation Monitoring Specification.</p>
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LABOR, EQUIPMENT, 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
USFWS – GS-11 Biologist @ \$24.22/hour + benefits @ 33% = \$32.21 x 8 hours/day x 42 days (2 months) (FY06) =	\$10,823.00
USFWS – GS-05 Term Biological Technician @ \$13.21/hour + benefits @ 33% = \$17.57 x 8 hours/day x 42 days (2 Months) (FY06)	\$5,904.00
TOTAL PERSONNEL SERVICE COST	\$16,727.00
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
Vehicle Lease- 4WD Pick-up truck @ \$600/month x 2 months	\$1,200.00
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$1,200.00

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL MATERIAL AND SUPPLY COST	\$0
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	\$0
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Native Seed Collection and Cleaning @ 1 trip x \$5925/per trip	\$5,925.00
Plant materials- 60 plants/acre x 80 acres x \$.1.84/plant	\$8,688.00
Native Plantings- Contract Crew @ \$6/per 1 gallon container x 4,800 plants	\$28,800.00
TOTAL CONTRACT COST	\$43,413.00

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
FY06	10/01/2005	09/30/2006	FA,SC	Acres	\$767	80	\$61,340
TOTAL							

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, 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.	E
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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Figure 2 Fire Intensity Map
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INDIVIDUAL SPECIFICATION

TREATMENT NAME	Vegetation Monitoring	PART E SPECIFICATION #	S-5
NFPORS TREATMENT CATEGORY*	Monitoring	FISCAL YEAR(S) (list each year):	2005,2006
NFPORS TREATMENT TYPE *	Treatment Effectiveness Monitoring	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	All six species listed in the affects section

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

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

<p>A. General Description:</p> <p>Monitor noxious weed treatment effects and native plantings recovery within the burned area to determine if management objectives are being met and to identify any future planting or noxious weed control needs. Plants to be monitored include saltcedar, Russian knapweed, Bassia and other invasives found and all native planting treatments.</p> <p>Monitoring for new occurrences of undesirable plant species (noxious and exotic), within the burned area. Monitoring will occur in un-infested areas having a high potential for weed invasion. Continue monitoring for success of noxious weed treatments.</p> <p>Monitoring for establishment of planted native grasses and other plant materials the first year following treatment to determine if revegetation efforts are meeting management goals.</p> <p>B. Location/(Suitable) Sites:</p> <p>Monitoring for noxious weeds will occur in areas with potential for weed invasion and in areas that are treated for noxious weeds (see Noxious Weed Map).</p> <p>Monitoring for planting success will occur in treated areas to determine success in competing with noxious weeds and reclaiming bare ground.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Conduct short-term monitoring on known noxious weed occurrences and in areas of potential spread within burned area to determine spread of noxious and invasive plant species. Monitoring protocols will be determined by Ash Meadows National Wildlife refuge staff. 2. Locate, map, and document (using photography, topographic maps, and Global Positioning System--GPS—technology), new weed occurrences within burned area. 3. Continue with Agency approved control measures on new weed occurrences where monitoring demonstrates the establishment or expansion of known weed populations. 4. For native planting areas, monitoring transects shall continue to be read to determine survival rates of planted species including healthy, sick, dead or missing plants. This data may be used to determine if additional Emergency Stabilization and/or Rehabilitation actions will be continued. <p>D. Purpose of Treatment Specifications:</p> <p>Noxious weed and undesirable plant monitoring is required to detect new noxious weed occurrences in the burned area and to monitor known weed densities and determine the effectiveness of treatments.</p> <p>Monitoring of native grass planting success and effectiveness is required to ascertain the degree of competition with undesirable plant species and determine if additional treatments are necessary to control non-native invasive species and protect ecosystem biodiversity.</p> <p>E. Treatment Effectiveness Monitoring:</p> <p>As described in this specification. This treatment will produce a report on treatment effectiveness.</p>
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II. 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
USFWS – GS-11 Biologist @ \$24.22/hour + benefits @ 33% = \$32.21 x 8 hours/day x 42 days (2 months)	\$10,823.00
USFWS – GS-05 Term Biological Technician @ \$13.21/hour + benefits @ 33% = \$17.57 x 8 hours/day x 42 days (2 Months)	\$5,904.00
TOTAL PERSONNEL SERVICE COST	\$16,727.00
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
Vehicle Lease- 4WD Pick-up truck @ \$600/month x 2 months	\$1,200.00
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$1,200.00
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Plotter for GIS mapping	\$7,000.00
TOTAL MATERIAL AND SUPPLY COST	\$7,000.00
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	\$0
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	\$0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY05	09/01/2005	09/30/2005	FA	Survey	\$567	4	\$2,267.00
FY06	10/01/2005	9/30/2006	FA,CA	Survey	\$567	40	\$22,660.00
TOTAL							\$24,927.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=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.	E,M
3.	Estimate supported by cost guides from independent sources or other federal agencies	C
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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Figure 4 Treatment Map

INDIVIDUAL SPECIFICATION

TREATMENT NAME	Cultural Resources Protection	PART E SPECIFICATION #	S-6
NFPORS TREATMENT CATEGORY*	Heritage Resources	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Protect Heritage Sites	WUI? Y / N	
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	

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

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

<p>Number and Describe Each Task:</p> <p>A. General Description: Looting and vandalism is known to occur within the refuge. Reduced ground cover as the result of fire effects exposes cultural resource locations and increases the risk of such activities. Such risks can be minimized through law enforcement patrols of sensitive sites and enforcement of area closures. Law enforcement officer shall have authority to take action on artifact collectors and looters.</p> <p>B. Location/(Suitable) Sites: Historic Properties within the Meadows Fire treatment areas. Such locations are exempt from public disclosure under the Archaeological Resources Protection Act of 1979 (ARPA), and the Freedom of Information Act (FOIA) The FWS maintains its own records on the location of sensitive cultural resources, and will provide, as necessary such information to law enforcement officers, tribal consultants, and the professional archaeologist having oversight for compliance with the implementing regulations under the NHPA.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Coordinate law enforcement patrols with refuge management and FWS archaeologist. 2. Undertake systematic and discretionary patrols, make contact as appropriate, and take action against violators. <p>D. Purpose of Treatment Specifications: Enforce area closures, and to protect exposed, sensitive cultural resources and deter looters. Special attention will be given to resources that are known to be subject to active looting. Patrols should continue until public interest decreases, and re-growth has served to obscure previously exposed artifacts and features (6 months).</p> <p>E. Treatment Effectiveness Monitoring Proposed: Refuge staff will monitor for effectiveness of law enforcement efforts to dissuade looting and vandalism.</p>

II. LABOR, MATERIALS AND OTHER COST:

<p>PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).</p>	COST/ITEM
<p>Law Enforcement Officer GS-09 @ \$25.37(includes 15% over base to cover OT(\$30.05) & premium pay)/ hr x 1040 hours plus X 42% for benefits = \$37,466 =</p>	\$37,466.00
TOTAL PERSONNEL SERVICE COST	\$37,466.00
<p>EQUIPMENT PURCHASE, LEASE OR RENTAL (Item @ Cost/Hour or Cost/Day X # Hours or # Days X # Fiscal Years = Cost/Item): (Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.)</p>	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$0
<p>MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item):</p>	COST/ITEM
TOTAL MATERIALS AND SUPPLY COST	\$0

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item):	COST/ITEM
Fuel/Maint. for Law Enforcement Officer Vehicle @ \$800/month x 6	\$4,800.00
Per Diem & Lodging for LEO @ \$91/day x 6 months	\$16,380.00
TOTAL TRAVEL COST	\$21,180.00
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item):	COST/ITEM
TOTAL CONTRACT COST	\$0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY06	10/01/2005	9/30/2005	FA/CA	ACRES	\$326	180	\$58,646.00
TOTAL							

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=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.	T
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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

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

TREATMENT NAME	Implementation Leader	PART E SPECIFICATION #	S-7
NFPORS TREATMENT CATEGORY*	Administration	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Contract Administration	WUI? Y / N	
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	

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

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

<p>Number and Describe Each Task:</p> <p>A. General Description: Hire Implementation Leader for 6 months to develop additional contract specifications or amendments, monitor contractor performance, process contracts, maintain project documentation, and track expenditures, complete project accomplishments.</p> <p>B. Location/(Suitable) Sites: See other treatments</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Implementation Leader will coordinate all aspects of rehabilitation plan including administering contracts, documentation of treatments installed, providing accomplishment report, submitting supplemental requests for funding, ensuring the completion of all approved treatments, and coordinating treatments with other agencies and private landowners. 2. Implementation Leader will coordinate on-the-ground implementation of treatments including sites orientation of contractors, developing daily/weekly work plans for contractors/crews, and supervising work. 3. At completing of the funding period the implementation leader will prepare a final accomplishment report. <p>D. Purpose of Treatment Specifications: The implementation leader will develop contract specifications, coordinate contractor access to remote closed refuge property, coordinate all aspects of project implementation, inspect subcontractor work, and report accomplishments.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Reports completed</p>

II. 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
USFWS – GS-11 Term @ \$24.22/hour + benefits @ 33% = \$32.21 x 8 hours/day x 126 days (6 months)	\$32,468.00
TOTAL PERSONNEL SERVICE COST	\$32,468.00
➤ 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
One Vehicle and fuel @ \$600/month x 6 months =	\$3,600.00
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$3,600.00
➤ MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST Laptop, software, phone, camera	\$5,000.00
➤ TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	\$0
➤ CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	\$0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY06	10/01/2005	9/30/2006	FA	Month	\$8,011	6	\$48,068.00
TOTAL							\$48,068.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=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,E
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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

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

INDIVIDUAL SPECIFICATION

TREATMENT NAME	Cultural Resource Assessment	PART E SPECIFICATION #	S-8
NFPORS TREATMENT CATEGORY*	Assessment	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Contract Preparation	WUI? Y / N	Y/ Tubbs Ranch area borders private land
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	

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

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

<p>Number and Describe Each Task: This treatment will entail the assessment of known National Register of Historic Places (National Register) eligible or potentially eligible prehistoric and historic archaeological sites for post-fire damage and potential risks from erosion, looting, or vandalism. This treatment may also provide for emergency BAER actions on those easily accessible sites that are deemed to be highly susceptible to looting.</p> <p>B. Location/(Suitable) Sites: Jackrabbit Springs outflow and the Tubbs Ranch site.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Survey approximately 180 acres to assess post-fire risks at known sites an where rehabilitation treatments may include ground disturbance. 2. Relocate and assess the damage to eight previously recorded sites. 3. Investigation of two historic sites. 4. Research and preparation of report for SHPO <p>D. Purpose of Treatment Specifications: The purpose of this treatment is to protect significant archaeological sites from loss of integrity as the result of post-fire effects that include erosion, looting, or vandalism. Pursuant to Section 106 of the National Historic Preservation Act, as amended (NHPA), federal undertakings that may affect Historic Properties require the lead agency to consult with affected tribes as equal partners. Therefore, local tribes must be consulted concerning any effects that may occur on Historic Properties of Native American origin that are located within re-vegetation treatment areas. Additionally, a professional archaeologist, meeting the Secretary's standards shall provide oversight to ensure the lead federal agency (FWS), has met its obligations under the NHPA.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Results of the assessment for resource risks from erosion may require the development of supplemental treatment specifications. Risks from looting and/or vandalism will be routinely monitored by the presence of increased law enforcement (see ESR Reference # S-6) in coordination with USFWS archaeologist(s). SHPO concurrence shall suffice to demonstrate FWS has met its requirement for tribal consultation and compliance with Section 106 of the NHPA</p>
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II. 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
Archaeologist GS-12 @ \$30.92/Hr x 33% for benefits = \$41.12 x 176 hours =	\$7,237.00
Archaeologist GS-11 @ \$24.22/Hr x 33% for benefits = \$32.31 x 96 hours =	\$3,102.00
TOTAL PERSONNEL SERVICE COST	\$10,339.00
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
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Miscellaneous Supplies	
TOTAL MATERIALS AND SUPPLY COST	\$250.00

➤ TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
Lead archeologist @ \$300 x 4 Rounds Trips = \$1,200; Per Diem & Lodging for lead Arch = \$91/day X 24 days= \$2,184	\$3,384.00
Per Diem & Lodging for Arch. @ \$300 x 2 Trips = \$600; Per Diem & Lodging for Arch = \$91/day x 12 days =\$1,092	\$1,692.00
TOTAL TRAVEL COST	\$5,076.00
➤ CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	\$0

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY_06_	9/01/2005	12/01/2006	FA	Acres	\$42	180	\$7,560.00
FY__	12/01/2005	7/31/2006	FA	reports	\$2,702	3	\$8,105.00
FY__							
FY__							
TOTAL							\$15,665.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=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
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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

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

TREATMENT NAME	Jackrabbit Drainage Basin and Lower Big Springs Critical Habitat Assessment	PART E SPECIFICATION #	S-9
NFPORS TREATMENT CATEGORY*	Planning	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Contract Preparation	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK	Private land within Refuge boundary	IMPACTED T&E SPECIES	

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

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

Number and Describe Each Task:

A. General Description: Hydrologic assessment and engineering plan for the Jackrabbit drainage basin and the lower Big Springs outflow.

B. Location/(Suitable) Sites: Jackrabbit springs outflow drainage basin and the lower Big Springs outflow on the Tubbs ranch tract

C. Design/Construction Specifications:

1. Field surveys for Hydrologic assessment
2. Topographic survey for hydrologic stabilization planning
3. Topographic data reduction
4. Preparation of emergency hydrologic stabilization recommendations
5. Preparation of emergency infrastructure stabilization recommendations
6. Preparation of Recommendations for emergency protection of private lands and other high risk resources.
7. Preparation of vegetative recovery and stabilization recommendations.
8. Preparation of emergency stabilization design.

D. Purpose of Treatment Specifications:
 No BAER team was dispatched to the fire and two significant drainage basins had high intensity burns which consumed all the vegetation. Hydrologic engineering surveys focusing on determine structural protection needed to stop flooding to private lands and cultural sites and preventing the establishment of non-native predatory fish in Ash Meadows speckled dace and Ash Meadows Amargosa pupfish designated critical habitat from current and future sheet water flow.

E. Treatment Effectiveness Monitoring Proposed:

II. LABOR, MATERIALS AND OTHER COST:

➤ PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	\$0
➤ EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$0
➤ MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	\$0
➤ TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	\$0

➤ CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Labor @ \$418.00/hr X 86 hrs X 1 year = \$35,990 Travel and Per Diem and printing supplies @ \$9,180	\$45,170.00
TOTAL CONTRACT COST	\$45,170.00

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
FY 2006	10/01/2005	12/31/2005	SC	Acres Plan	\$220	180 acres Surveyed Plan	\$39,610.00
FY 2006	10/01/2005	12/31/2005	SC	design	\$5,560	Stabilization Design	\$5,560.00
FY__							
FY__							
TOTAL							\$45,170.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

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

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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

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

TREATMENT NAME	Stabilized endangered speckled dace critical habitat	PART E SPECIFICATION #	S-10
NFPORS TREATMENT CATEGORY*	Wildlife Habitat	FISCAL YEAR(S) (list each year):	2006
NFPORS TREATMENT TYPE *	Stabilize/Secure/Protect Critical Habitat	WUI? Y / N	Y
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	All six listed species in the affects section

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

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

<p>Number and Describe Each Task:</p> <p>A. General Description: Channel stabilization of the Jackrabbit and Big springs outflows within the burn area.</p> <p>B. Location/(Suitable) Sites: Sites on the Jackrabbit outflow will be identified during the assessment. The lower portion of Big springs on the Tubbs tract.</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> 1. Estimated 3 miles of channel stabilization using tracked excavator 2. Construction Specifications will be forth coming after Specification S-9 channel stabilization assessment has been completed. <p>D. Purpose of Treatment Specifications: Implement channel stabilization recommendations from the hydrology assessment in order to prevent flooding and minimize the fire impacts to the endangered Ash Meadows speckled dace and the Ash Meadows Amargosa pupfish as well as two listed plants, numerous cultural sites, and private lands. It is critical that sheet water flow onto private lands containing non-native predatory fish stop to prevent those fish from establishing populations in Ash Meadows speckled dace and the Ash Meadows Amargosa pupfish designated critical habitat.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Further consultation with Ecological Services will result in a future monitoring plan.</p>

II. LABOR, MATERIALS AND OTHER COST:

➤ PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
TOTAL PERSONNEL SERVICE COST	\$0
➤ EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
Tracked Excavator @ six week rental plus mobilization	\$15,000.00
Operator@ 540 hours	\$22,800.00
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$37,800.00
➤ MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL MATERIALS AND SUPPLY COST	\$0
➤ TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	\$0

➤ CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
Pre-project coordination and planning	\$5,160.00
Construction oversight 540 hrs	\$51,300.00
Effectiveness monitoring	\$4,500.00
Travel and Per diem	\$8,640.00
TOTAL CONTRACT COST	\$69,600.00

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
FY_2006_	10/15/2005	01/15/2006	SC	Acre	\$1,074	100	\$107,400.00
FY__							
FY__							
FY__							
TOTAL							\$107,400.00

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permitee, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

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

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

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

<p>List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See Treatment Map. Refer to Stabilization S-4 Planning; and Attached Supporting documentation on the affects of the fire to the speckled dace population.</p>



**INTERAGENCY
BURNED AREA EMERGENCY STABILIZATION PLAN
MEADOWS FIRE
CULTURAL RESOURCE ASSESSMENT**

I. OBJECTIVES

- Assess damages to known cultural resources as the result of fire behavior
- Assess damages to known cultural resources as the result of fire suppression activities
- Assess potential risks to known cultural resources as the result from the effects of fire (e.g. erosion, flooding, and exposure to looting and/or vandalism.
- Assess potential risks to known cultural resources as the result of emergency stabilization activities.

II. ISSUES

Are cultural resources known to exist within the fire perimeter? If so, have these resources been subject to direct or indirect effects of fire? What are the requirements for emergency stabilization and/or protection? Do proposed emergency stabilization measures for other resources pose a risk to known cultural resources? If so, what measures may be employed to mitigate adverse effects to those resources?

III. OBSERVATIONS

- A cultural clearance report has been requested and no ground disturbing activities will take place prior to the assessment and clearance.
- During the preliminary survey for resource damage several sites were observed and photographed.

**INTERAGENCY
BURNED AREA EMERGENCY STABILIZATION PLAN
MEADOWS FIRE
WILDLIFE RESOURCE ASSESSMENT**

I. OBJECTIVES

- Assess effects of the fire and suppression actions to Federally listed Threatened and Endangered species and their habitats.
- Conduct Section 7 Emergency Consultation with the U. S. Fish and Wildlife Service.
- Prescribe emergency rehabilitation measures and/or monitoring.
- Assess effects of proposed rehabilitation actions to listed species and habitats.

II. ISSUES

- Two Federally listed species and their habitat areas occur within the fire area.
- Short- and long-term impacts to the fish and other aquatic components within the high intensity burn areas.

III. OBSERVATIONS

The purpose of this assessment is to discuss the potential effects of fire, suppression actions and proposed emergency rehabilitation activities to federally listed species. Only a few of the total array of species that may occur in the area are discussed in this report. The list of species to be addressed was developed from documents referenced in this report and input from AMNWR and FWS Biologists.

This assessment is not intended to definitively answer the many specific species effects questions that are inevitably raised during an incident such as the Meadows Fire. The only focus of this assessment is to determine the potential for immediate, emergency actions that may be necessary to prevent further impacts to federally listed species occurring on AMNWR lands.

A. Background

The Meadows fire burned approximately 311 acres within the authorized boundary of Ash Meadow National Wildlife Refuge (AMNWR) between July 29 and August 1, 2005. The fire began at approximately 14:30 hours as the result of an undetermined cause on private land within the authorized boundary of the AMNWR. Two air tankers, two helicopters, two engines, and Air Attack were dispatched from Las Vegas.

The fire spread from south to north driven by high winds. At approximately 17:00 hours, a large thunderhead came over the fire and blew the fire in three directions following heavy fuels. Ten structures on private land were threatened with the south and west fire heads, and the north head of the fire quickly consumed most of the Jackrabbit outflow with 50 – 100 foot flames. A back-fire was successful at stopping the fire from completely burning the entire Jackrabbit outflow and spring pool; however, over 95% of the outflow had high intensity burn due to the heavy concentration of salt cedar and cattails in the drainage. Advancing fire in heavy fuels around the Tubbs Ranch (FWS-owned) was eventually stopped by retardant and water drops. Back-fire suppression actions were initiated between the Big Springs Road and Tubbs Ranch road to stop the west head of the fire from crossing the Spring Meadows (main Refuge) road. The backfire burned spottily, especially near the Tubbs Ranch road, but the advancing fire head ran out of heavy fuels as well and stopped at the wet alkaline meadows. Back-fire operations impacted approximately 42 acres. Two fire lines of approximately 532 feet total were constructed by hand near the Jackrabbit Spring outflow southwest of the Big Springs road. Additional suppression actions included use of approximately 8 miles of existing roads, and the Incident Command Post/staging area that was located on private land. Retardant drops were applied to protect the private property at the south end of the fire area. Water

for air drops was obtained from a pumpkin that was set up next to the service road to an unoccupied Refuge quarters.

The fire was declared contained on July 30 and controlled at 1800 hours on August 1. Approximately 150 acres within the fire perimeter are FWS lands managed by AMNWR; 131 acres are BLM lands that are cooperatively managed by AMNWR, and 30 acres are privately owned.

The AMNWR is located in the Amargosa Desert of southwestern Nevada. The regional climate is arid, with an average annual precipitation of less than 5.0 inches. Nearly two-thirds of the annual precipitation falls between November and March. The average maximum summer temperature exceeds 100 degrees Fahrenheit during July and August. Average minimum temperatures fall below freezing only during the months of December and January. The AMNWR is generally characterized by gently sloping surface deposits covering a broad valley floor. Elevation within the fire area is approximately 2,200 feet above sea level.

The AMNWR has many aquatic and wetland environments as the result of the discharges of a complex, regional groundwater system. Discharge from the aquifer creates over 30 springs and pools on the refuge. The outflow channels of two springs were affected by the Meadows Fire.

Common wildlife of the AMNWR include those species typical of warm-temperate deserts and riparian scrublands of the Mohavian Biogeographic Province. Due to water impoundments on the AMNWR, some open water and interior marshland species are also present. Five federally listed animal species occur on the refuge, most of which are endemic to the AMNWR.

B. Reconnaissance Methodology and Results

Information for this assessment is based on a review of relevant literature, AMNWR wildlife sighting and habitat inventory information, consultation with U. S. Fish and Wildlife Service, and the personal knowledge of AMNWR staff. Information on the effects of the fire came from interviews with fire suppression personnel and fire area reconnaissance on August 2 and 5.

Threatened, Endangered and Sensitive Species

Emergency consultation was initiated on July 29, 2005 by staff from AMNWR. On August 1, 2005, the AMNWR Biologist called the USFWS Ecological Services Office (FWS-ES), Las Vegas, Nevada to request an updated species list for the Ash Meadows NWR, Nye County, Nevada. Shawn Goodchild and Christiana Manville, FWS-ES Biologists, surveyed the burn area with AMNWR Biologist Cristi Baldino to assess impacts to listed and sensitive species, and to finalize the species to address. A Species List for Activities on the Ash Meadows National Wildlife Refuge, Nye County, Nevada, was received from the Nevada Fish and Wildlife Office on August 8, 2005. The following federally listed species occur, or have habitat within the fire area, or were potentially affected by fire suppression actions:

Species	Scientific Name	Listing Status
Ash Meadows Amargosa pupfish & Critical Habitat	<i>Cyprinodon nevadensis mionectes</i>	E
Ash Meadows speckled dace & Critical Habitat	<i>Rhinichthys osculus nevadensis</i>	E

The following species were identified by the FWS as occurring, or potentially occurring, within or near the Ash Meadows National Wildlife Refuge. Through post fire reconnaissance and consultation, it was determined that these species or their Critical Habitat were not affected by the fire (no habitat within or adjacent to the fire area and/or inventories prior to the fire determined absence), or expected to be affected by potential post-fire flooding.

Species	Scientific Name	Listing Status	Reason For Not Addressing Species In This Report
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Bald eagle	<i>Haliaeetus leucocephalus</i>	T	No habitat within fire area.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	No habitat within fire area.
Desert tortoise	<i>Gopherus agassizii</i>	T	No habitat within fire area.
Warm Springs Amargosa pupfish	<i>Cyprinodon nevadensis pectoralis</i>	E	No habitat within fire area.
Devils Hole pupfish	<i>Cyprinodon diabolis</i>	E	No habitat within fire area.
Ash meadows naucorid	<i>Ambrysus amargosus</i>	T	No habitat within fire area.

E = Endangered, T = Threatened

C. Findings

Biological Assessment for Federally Listed Species

Direct effects as described in this report refer to individual mortality, or disturbance that results in flushing, displacement or harassment of the animal. Indirect effects refer to modification of habitat and/or prey species and possible subsequent affects to the species.

1. ASH MEADOWS AMARGOSA PUFFISH: This species occupies numerous springs and associated outflow streams within the AMNWR. It is endemic to this area.

DIRECT EFFECTS: Because this species was present in the waterways within the fire area, it is thought that the fire may have negatively impacted individual pupfish. Where pupfish occurred in shallow water, the flames may have caused the water to evaporate, thus causing mortality of animals dependent on that water. The flames may have heated the water to a high enough temperature that would cause severe stress to the pupfish and subsequent mortality. If pupfish were isolated into small water pockets due to water evaporation and vegetation shifts, they may have had too little water to provide enough oxygen and perished due to depletion of oxygen in the water. Because there were strong winds associated with the fire, ash from burned vegetation may have blown into the occupied water causing a sudden, fatal change in water pH. Approximately 33 acres of designated Critical Habitat were affected by the Meadows Fire.

INDIRECT EFFECTS: Loss of vegetation adjacent to the streams may influence water temperature and also means a loss of hiding cover and subsequent potential for increased predation. Ash deposits in the stream and continued introduction of ash from the denuded stream banks via wind and water erosion may continue to affect pH levels until vegetation regrowth stabilizes the banks. Invasion by salt cedar could impact habitat by decreasing water level and blocking the stream channel to create cattail marshes.

POST FIRE OBSERVATIONS: No fish were observed during the post fire reconnaissance in any of the waterways past the first 600 feet of the Jackrabbit Spring outflow (150 feet within the burn area). Many dead crayfish were visible. The normally crystal clear water had taken on a yellow tint.

Determination of Effects:

Fire Effects: The Ash Meadows Amargosa pupfish and its habitat were negatively affected by the fire. Approximately 33 acres of Critical Habitat were impacted by the fire.

Suppression Action Effects: A small back-fire initiated along the outflow of Jackrabbit Spring burned Critical Habitat that would have been burned by the fire anyway (the fire had almost reached this point by the time the back-fire was ignited), and it prevented the fire from burning over the spring, thereby saving Critical Habitat. Therefore, the determination of suppression effects is **may affect, but is not likely to adversely affect the Ash Meadows pupfish or adversely modify its Critical Habitat.**

Proposed Emergency Stabilization Action Effects: The proposed emergency stabilization actions can be divided into two categories: actions that can be implemented immediately and actions that require further consultation.

The hydrological and cultural assessments, noxious weed monitoring and treatments, and native vegetation planting and monitoring should have no effect or a beneficial effect to the Ash Meadows Amargosa pupfish. All herbicide applications will follow guidelines to protect aquatic habitats. Access to treatment sites will be via existing roads. Therefore, the determination of these stabilization actions is **may affect, but is not likely to adversely affect the Ash Meadows pupfish or adversely modify its Critical Habitat.**

Channel clearing and culvert replacement may result in harassment and possible loss of individual pupfish. Substrate will be disturbed, including the algae that provide pupfish with a source of food and a place to spawn. In addition, the hydrological assessment may recommend other stabilization measures that will impact the pupfish or their habitat. While these actions could potentially result in the loss of individual listed fish, the project would have an overall beneficial effect on the native fish population by improving habitat. The determination of these actions to Ash Meadows Amargosa pupfish is **may affect, and is likely to adversely affect.** Therefore, formal Section 7 consultation will be initiated and these actions (channel clearing, culvert replacement) will not be taken until a Biological Opinion is rendered.

2. ASH MEADOWS SPECKLED DACE: Collection records show that the speckled dace once shared many of the same springs and outflows that the Ash Meadows pupfish inhabits, but it is now only found in two springs (Bradford and Jackrabbit) and their outflows. (Approximately 210 speckled dace were introduced into the combined outflow of the Point of Rocks springs in 2004; however, this population is believed to be extant.) This species is endemic to Ash Meadows.

DIRECT EFFECTS: Because this species was present in the waterways within the fire area, it is thought that the fire may have negatively impacted individual dace. Where dace occurred in shallow water, the flames may have caused the water to evaporate, thus causing mortality of animals dependent on that water. The flames may have heated the water to a high enough temperature that would cause severe stress to the fish and subsequent mortality. Because there were strong winds associated with the fire, ash from burned vegetation may have blown into the occupied water causing a sudden, fatal change in water pH. Approximately 33 acres of designated Critical Habitat were affected by the Meadows Fire.

INDIRECT EFFECTS: Loss of vegetation adjacent to the stream may influence water temperature and also means a loss of hiding cover and subsequent potential for increased predation. Ash deposits in the stream and continued introduction of ash from the denuded stream banks via wind and water erosion may continue to affect pH levels until vegetation regrowth stabilizes the banks. Invasion by salt cedar could impact habitat by decreasing water level and blocking the stream channel to create cattail marshes which are not conducive to dace reproductive success. Speckled dace require fast-flowing streams.

POST FIRE OBSERVATIONS: No fish were observed during the post fire reconnaissance in any of the waterways past the first 600 feet of the Jackrabbit Spring outflow (150 feet within the burn area),

including locations where speckled dace were guaranteed to be found prior to the fire. Many dead crayfish were visible. The normally crystal clear water had taken on a yellow tint.

Determination of Effects:

Fire Effects: The Ash Meadows speckled dace and its habitat were negatively and severely affected by the fire. It is likely that a sizable majority of the dace population was lost due to this fire. Approximately 33 acres of Critical Habitat were impacted by the fire.

Suppression Action Effects: A small backfire initiated along the outflow of Jackrabbit Spring burned Critical Habitat that would have been burned by the fire anyway (the fire had almost reached this point by the time the back-fire was ignited), and it prevented the fire from burning over the spring, thereby saving Critical Habitat. Therefore the determination of suppression effects is **may affect, but is not likely to adversely affect the Ash Meadows speckled dace or adversely modify its Critical Habitat.**

Proposed Emergency Stabilization Action Effects: The proposed emergency stabilization actions can be divided into two categories: actions that can be implemented immediately and actions that require further consultation.

The hydrological and cultural assessments, noxious weed monitoring and treatments, and native vegetation planting and monitoring should have no effect or a beneficial effect on the Ash Meadows speckled dace. All herbicide applications will follow guidelines to protect aquatic habitats. Access to treatment sites will be via existing roads. Therefore, the determination of these stabilization actions is **may affect, but is not likely to adversely affect the Ash Meadows speckled dace or adversely modify its Critical Habitat.**

Channel clearing and culvert replacement may result in harassment and possible loss of individual speckled dace. In addition, the hydrological assessment may recommend other stabilization measures that will impact the dace or their habitat. While these actions could potentially result in the loss of individual listed fish, the project would have an overall beneficial effect on the native fish population by improving habitat. The determination of these actions to Ash Meadows speckled dace is **may affect, and is likely to adversely affect.** Therefore, formal Section 7 consultation will be initiated and these actions (channel clearing, culvert replacement) will not be taken until a Biological Opinion is rendered.

3. Other Species of Importance

ASH MEADOWS VOLE: The Ash Meadows vole was last seen in the AMNWR in the 1930's and is presumed to be extinct. This species is endemic to the AMNWR. There have been several undocumented sightings within the refuge and it is listed as a Species of Concern by FWS. No surveys have been conducted. The Meadows Fire burned through suitable Ash Meadows vole habitat. The voles build nests in vegetation above the ground and are closely associated with water. Because voles do not burrow, if they were present during the fire, they may have fled into a water course. However, due to the intensity of the fire along waterways, this might not have been enough to save them. There was evidence that other animals that lived in, or fled to, the stream channels still succumbed to the fire (e.g., wood rats, bullfrogs, crayfish). Existing nests were probably removed by the fire, and foraging opportunities temporarily reduced.

MIGRATORY BIRDS: Migratory birds may have been impacted by the loss of riparian and wetland vegetation. Most species would have already fledged young by now; however, the loss of mesquite and ash trees may limit nesting opportunities for the next several years until these trees are replaced and become tall enough to support nests. Post-fire invasion of salt cedar and other non-native species is also a concern, and if left untreated will out-compete and replace native riparian vegetation.

GILA MONSTER: The Gila monster (*Heloderma suspectum*) is listed as sensitive under the Nevada Natural Heritage Program and as a protected species under Nevada State Law. The banded Gila

monster resides primarily in the Mojave desert scrub and salt desert scrub ecosystems, and may occur within AMNWR. However, the majority of the habitat within the burn is not suitable for this species, and there are no records of it occurring within or adjacent to the fire perimeter.

IV. RECOMMENDATIONS

A. Fire Suppression Rehabilitation

None

B. Emergency Stabilization

The status of the Ash Meadows speckled dace is of utmost concern. Historically, the speckled dace occupied most of the major spring systems occupied by the Ash Meadows pupfish. Currently, they are found only in two spring systems: Bradford and Jackrabbit. The population in Bradford Springs numbers less than 1,000 individuals, and because it is heavily impacted by crayfish, cattails, and weeds, it should not be considered secure. The possible loss of the majority of speckled dace in the only other recently occupied habitat is a major blow to the species' recovery. Every effort should be made to prevent further deterioration of the habitat and to return it to optimal conditions as soon as possible.

- Conduct a snorkeling survey to determine how many Ash Meadows speckled dace survived the fire's impacts.
- Conduct intensive non-native fish trapping in Jackrabbit Springs and the upper outflow to limit expansion of sailfin mollies, gambusia, and crayfish, and to assist in reproductive success and recovery of the speckled dace.
- Clear obstructions to stream flow (leaving some in-stream wood to provide drift feeding structure for the speckled dace); stabilize channel to prevent flooding and cattail development.
- Seed native grasses to stabilize stream banks.
- Plant ash and mesquite, and seed with ash, mesquite and shrubs.
- Remove/control non-native plants, in particular, salt cedar.

Recommendations proposed in the BAER Vegetation Assessment, if implemented in a timely manner, should mitigate negative fire effects to some extent for all species found within the fire area.

V. CONSULTATIONS

NAME, AGENCY, TITLE	TELEPHONE
Cristi Baldino, AMNWR Wildlife Biologist	775-372-5435
Sharon McKelvey, AMNWR Refuge Manager	775-372-5435
Shawn Goodchild, FWS-ES Biologist	702-515-5230
Amy LaVoie, FWS-ES Biologist	702-515-5230
Christiana Manville, FWS-ES Biologist	702-515-5230
Gary Scoppettone, USGS Biologist	775-861-6396

VI. REFERENCES

- Furtek, B. and C. Tomlinson. 2005. Breeding status and surveys for the southwestern willow flycatcher and yellow-billed cuckoo at sites in southern Nevada. Nevada Department of Wildlife
- U.S. Department of the Interior. 2000. Environmental assessment: proposed land and mineral withdrawal at the Ash Meadows National Wildlife Refuge, Nye County, Nevada. NV-056-00-16. Bureau of Land Management, Las Vegas and Fish and Wildlife Service, Portland.
- U.S. Department of the Interior. 2004. Longstreet Fire Burned Area Emergency Stabilization Plan.
- U.S. Fish and Wildlife Service. 1990. Recovery plan for the endangered and threatened species of Ash Meadows, Nevada. U.S. Fish and Wildlife Service, Portland.
- U.S. Fish and Wildlife Service. 2000. Ash Meadows National Wildlife Refuge August 2000 Wildfire Emergency Rehabilitation Plan.

VII. ATTACHMENTS

- U. S. Fish and Wildlife Service Species List for Activities on the Ash Meadows National Wildlife Refuge, Nye County, Nevada dated August 8, 2005.
- T&E Species and Critical Habitat Maps
- Emergency consultation documentation on file at the Ash Meadows National Wildlife Refuge Office.

**INTERAGENCY
BURNED AREA EMERGENCY STABILIZATION PLAN
MEADOWS FIRE
VEGETATION RESOURCE ASSESSMENT**

I. OBJECTIVES

- Assess effects of the fire and suppression actions to Federally listed Threatened and Endangered (T&E) species and their habitats.
- Evaluate and assess fire and suppression impacts to vegetation resources and identify values at risk.
- Conduct Section 7 Emergency Consultation with the U.S. Fish and Wildlife Service.
- Determine emergency stabilization needs to aid in vegetation recovery.
- Evaluate potentials for invasive plant species to encroach into native plant communities and potential impacts to T&E species.
- Provide management recommendations to assist in vegetation recovery and species habitat protection and rehabilitation.

II. ISSUES

- Four Federally listed species and/or their designated Critical Habitat, and three sensitive species occur within the fire area.
- Four Federally listed species and/or their designated Critical Habitat, and three sensitive species were affected by fire suppression actions.
- Short- and long-term impacts to plant communities and vegetation resources on the Ash Meadows NWR lands within the Meadows Fire.
- Protection and enhancement of other resource values including site biodiversity, meadow riparian plant communities, endemic and T&E plant species.
- Management strategies which provide for the recovery and revegetation of heavily impacted areas.
- Identification, early detection, and early treatment of non-native invasive species spread within the burned area.

III. OBSERVATIONS

This report identifies and addresses known and potential impacts to vegetation resources within the Meadows Fire on the Ash Meadows National Wildlife Refuge (AMNWR). Vegetation resources, for this assessment, will be defined as plant communities, individual plant species, T&E plant species, and critical habitats for T&E/Sensitive plants.

Findings and recommendations contained within this assessment are based upon information obtained from AMNWR staff, literature reviews, and field reconnaissance of the fire area. Reconnaissance of impacted areas was conducted utilizing ground survey methods along with satellite imagery and data contained within the AMNWR Geographical Information System (GIS).

This assessment will attempt to capture the issues and concerns of the AMNWR staff, USFWS Ecological Services staff, and local residents for the future management of the lands in and near the fire area. It will detail the known damage to the vegetation resource and will discuss revegetation needs and non-native invasive species encroachment; and outline management considerations for recovery of the vegetation resources. Additionally, effects to listed T&E species from the fire, fire suppression efforts, and proposed rehabilitation measures will be discussed.

A. Background

The Meadows fire burned approximately 311 acres within the authorized boundary of Ash Meadow National Wildlife Refuge (AMNWR) between July 29 and August 1, 2005. The fire began at approximately 14:30 hours as the result of an undetermined cause on private land within the authorized boundary of the AMNWR. Two air tankers, two helicopters, two engines, and Air Attack were dispatched from Las Vegas.

The fire spread from south to north driven by high winds. At approximately 17:00 hours, a large thunderhead came over the fire and blew the fire in three directions following heavy fuels. Ten structures on private land were threatened with the south and west fire heads, and the north head of the fire quickly consumed most of the Jackrabbit outflow with 50 – 100 foot flames. A back-fire was successful at stopping the fire from completely burning the entire Jackrabbit outflow and spring pool; however, over 95% of the outflow had high intensity burn due to the heavy concentration of salt cedar and cattails in the drainage. Advancing fire in heavy fuels around the Tubbs Ranch (FWS-owned) was eventually stopped by retardant and water drops. Back-fire suppression actions were initiated between the Big Springs Road and Tubbs Ranch road to stop the west head of the fire from crossing the Spring Meadows (main Refuge) road. The backfire burned spottily, especially near the Tubbs Ranch road, but the advancing fire head ran out of heavy fuels as well and stopped at the wet alkaline meadows. Back-fire operations impacted approximately 42 acres. Two fire lines of approximately 532 feet total were constructed by hand near the Jackrabbit Spring outflow southwest of the Big Springs road. Additional suppression actions included use of approximately 8 miles of existing roads, and the Incident Command Post/staging area that was located on private land. Retardant drops were applied to protect the private property at the south end of the fire area. Water for air drops was obtained from a pumpkin that was set up next to the service road to an unoccupied Refuge quarters.

The fire was declared contained on July 30 and controlled at 1800 hours on August 1. Approximately 150 acres within the fire perimeter are FWS lands managed by AMNWR; 131 acres are BLM lands that are cooperatively managed by AMNWR, and 30 acres are privately owned.

Concerns for vegetation resources include native vegetation loss, impacts to Federally-listed and sensitive plants, short and long-term impacts to meadow and mesquite/ash/willow habitats, and the potential for spread of non-native invasive species. Resource management direction was obtained from the *Ash Meadows Refuge Management Plan* (1987), *Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada* (1990), and information contained within the *Draft Ash Meadows Comprehensive Conservation Plan* (2004).

A. Reconnaissance Methodology and Results

Information for this assessment is based on a review of relevant literature, T&E species surveys, consultation with the U. S. Fish and Wildlife Service, and personal knowledge of AMNWR staff. Information on the effects of the fire came from fire area reconnaissance on August 2 and 5.

In order to better address resource issues and concerns, each major issue will be discussed separately. Management recommendations follow these issues to better define treatment actions and prescriptions.

1. Vegetation

Ash meadows is a unique wetlands system associated with springs, seeps, outflow channels and areas with high groundwater tables, including woodlands comprised of mesquite and ash trees and a variety of herbaceous communities. A recent checklist of vascular plants at AMNWR includes 332 taxa, of which 227 (83 percent) are native to the Ash Meadows ecosystem. Eight of the plant species are endemic and their distribution is restricted to the Ash Meadows area. Many of these species have been impacted by historic development of the area. In the early 1960's and 70's, springs and streams were extensively altered and diverted for agricultural development. Thousands of acres were leveled adjacent to the springs for alfalfa and other intensively farmed

crops. In the late 1970's the property was purchased by a large land developer and initial work began for planned housing tracts and golf courses. In an effort to protect rare endemic species, the Nature Conservancy purchased 12,654 acres in 1984 which was then sold to the USFWS that same year.

Ash Meadows is essentially a watered island amidst the expansive Mohave Desert. Because of this feature, there still exists endemic species whose existence has been threatened by land disturbance, moisture regime modification, and non-native invasive species expansion.

Primary plant communities within the fire area include upland areas dominated by saltbush (*Atriplex* sp., primarily *confertifolia* and *lentiformis* ssp. *torreyi*); alkali flats and seasonally wet meadows with alkali sacaton (*Sporobolus airoides*), salt grass (*Distichlis spicata*), blue-eyed grass (*Sisyrinchium* sp.), Ash Meadows gumplant (*Grindelia fraxino-pratensis*), spring-loving centaury (*Centaureum namophilum*), Tecopa birds-beak (*Cordylanthus tecopensis*), western niterwort (*Nitrophila occidentalis*), mojave thistle (*Cirsium mohavense*), and Ash Meadows lady tresses (*Spiranthes infernalis*); wet meadows of *Juncus* sp. and sedges (*Scirpus* sp.); cattail (*Typha domingensis*) marshes; and riparian areas with Ash trees (*Fraxinus velutina*), mesquite (*Prosopis glandulosa* var. *torreyana* and *Prosopis pubescens*), and narrow-leaved willow (*Salix exigua*). Spring discharge maintains soil moisture in the lowlands while uplands only receive water from rainfall that averages less than 2.75 inches annually.

Although vegetation mortality was not mapped, vegetation within the high intensity burn areas incurred high mortality. That is, riparian areas containing ash, mesquite, and saltcedar burned severely enough to remove all foliar cover, effect the cambium and roots and kill the trees. It was apparent that the stream channels that support tree and shrub species served as conduits for fire spread. Burns in the wet meadows were incomplete and the vegetation suffered varying degrees of mortality. Vegetation resources, including Federally listed species were also impacted by suppression activities through back-firing operations. The back-firing operation along the main Spring Meadows road was not highly successful, as the fire burned spottily, but that was actually fortunate since several listed and sensitive species are found in large numbers throughout the area of the attempted back-fire. Approximately 42 acres adjacent to the main Refuge road were impacted by back-fires.

Resprouting of mesquite and saltcedar is expected however the competition factor of saltcedar with native species is of major concern. The loss of above ground foliar cover will create some loss of wildlife habitat for 1 to 7 years, depending on the plant association present.

In order to promote vegetation recovery and maintain ecological integrity of plant communities in the burn area, planting of native species and the control of aggressive non-native invasive species will be required. Specifications have been developed to initiate emergency stabilization actions within the fire to fulfill Agency mandates and federal law for the protection of listed species and their habitats, and the protection of critical natural and cultural resources.

Native plantings will be accomplished using native species propagated from locally derived seed sources that are adapted to the sites selected for treatment. Specifications were developed in consultation with staff from the AMNWR. These recommendations are consistent with existing management guidelines of the FWS, recovery plans for T&E species and National BAER Policy (DM 620 Chapter 3). Supplemental funding requests may be filed should existing specifications inadequately address stabilization needs.

2. Non-native invasive species

Non-native invasive species found within the burn area include saltcedar (*Tamarix ramosissima*), 5-hook bassia (*Bassia hyssopifolia*), and Russian knapweed (*Acroptilon repens*). Saltcedar is found primarily along waterways and has the ability to totally choke out all vegetation in riparian areas. Saltcedar is a primary threat to the recovery of ash and mesquite and threatens critical habitat for many wildlife and plant species. Russian knapweed is expanding at an alarming rate. The AMNWR has successfully combated Russian knapweed in some areas; however, the lack of funding and personnel now threatens the gains they have made on several

large populations.

Management guidelines contained within the *Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada* state that “All non-native animals and plant species must be eradicated from essential habitat.” Additionally, the plan states that “Historic vegetation must be reestablished in all areas not requiring maintenance of structures for management purposes.”

The most prevalent non-native invasive species in the burn area that is expanding at an alarming rate is bassia. Bassia is originally from Europe, is common in cultivated fields and probably was introduced to the Refuge through hay. Bassia was present at least since 1996, but has expanded on the Refuge over the past eight years and is spreading rapidly. Phenologically, it takes advantage of disturbed areas, grows to 5 feet in height with 10 foot diameters, and inhibits growth of other plants within its zone of influence. Bassia has a 5-hooked fruit and spines on its stems that make seed dispersal easy and walking through a stand difficult after maturation. The Meadows fire reduced some accumulations of Bassia; however, it also may have contributed to fire intensity and spread due to accumulation of old plants in and around trees and shrubs. Like tumble weed, it breaks off at maturity and is transported across the landscape disseminating seed. Bassia is an opportunistic non-native invasive species and there is a high probability that it will infest the sites disturbed by the fire. Bassia can occur anywhere, but the largest occurrence within the burn area is on an old ranch site. Areas of bare mineral soil that are adjacent to existing weed occurrences will probably be occupied by non-native invasive species seeds. Bassia can only be treated during its early growth stage and native plantings will be required to reclaim bare soil areas to prevent re-infestation and plant growth.

Emergency Stabilization funds requested in this document will be utilized to complete control efforts on existing weed populations to prevent further spread onto uninfested sites.

3. Threatened, Endangered and Sensitive Species

Emergency consultation was initiated on July 29, 2005 by staff from AMNWR. On August 1, 2005, the AMNWR Biologist called the USFWS Ecological Services Office (FWS-ES), Las Vegas, Nevada to request an updated species list for the Ash Meadows NWR, Nye County, Nevada. Shawn Goodchild and Christiana Manville, FWS-ES Biologists, surveyed the burn area with AMNWR Biologist Cristi Baldino to assess impacts to listed and sensitive species, and to finalize the species to address. A Species List for Activities on the Ash Meadows National Wildlife Refuge, Nye County, Nevada, was received from the Nevada Fish and Wildlife Office on August 8, 2005. The following federally listed species occur, or have habitat within the fire area, or were potentially affected by fire suppression actions:

Species	Scientific Name	Listing Status	Populations Within Fire Area	Critical Habitat Within Fire
Ash Meadows milkvetch	<i>Astragalus phoenix</i>	T	N	Y
Spring-loving centauray	<i>Centaurium namophilum</i>	T	Y	Y
Ash Meadows gumplant	<i>Grindelia fraxino-pratensis</i>	T	Y	Y
Ash Meadows ivesia	<i>Ivesia eremica</i>	T	N	Y

Species	Scientific Name	Listing Status	Populations Within Fire Area	Critical Habitat Within Fire
Ash Meadows lady tresses	<i>Spiranthes infernalis</i>	S	Y	NA
Tecopa birds-beak	<i>Cordylanthus tecopensis</i>	S	Y	NA
Blue-eyed grass	<i>Sisyrinchium</i> sp.	S	Y	NA

E = Endangered, T = Threatened, S = Sensitive

The following species were identified by the FWS as occurring within the Ash Meadows National Wildlife Refuge, but through post-fire reconnaissance and consultation, it was determined that these species or their Critical Habitat were not affected by the fire (no habitat or known populations within the fire or adjacent areas impacted by suppression efforts as determined by inventories prior to the fire).

Species	Scientific Name	Status	Populations Within Fire Area	Critical Habitat Within Fire
Ash Meadows sunray	<i>Enceliopsis nudicaulis</i> var. <i>corrugata</i>	T	Y	Y
Ash Meadow Blazing Star	<i>Mentzelia leucophylla</i>	T	N	Y
Amargosa niterwort	<i>Nitrophila mohavensis</i>	E	N	N

E = Endangered, T = Threatened, S = Sensitive

B. Findings

Biological Assessment for Federally Listed Species

Direct effects as described in this report refer to individual plant mortality, or disturbance resulting from fire effects, fire suppression impacts or emergency stabilization actions. Indirect effects refer to modification of habitat and possible subsequent affects to the species. (See Figures 5-10.)

1. ASH MEADOWS MILKVETCH: A perennial plant endemic to Ash Meadows that grows on dry, alkaline soil where old plants naturally mound into clumps as much as 5.9 inches high with a diameter of 19.5 inches (USFWS 1990). Critical habitat includes 1,200 acres scattered throughout the Ash Meadows area. Recent surveys have located about 1,800 plants in seven populations with a combined area of around 847 acres. All populations have 200 individuals or less distributed over less than 70 acres. No individual milkvetch plants have been located within the fire area.

DIRECT EFFECTS: No direct effects are known to have occurred to this species. Known plant locations are outside the fire perimeter; however, critical habitat for the species was directly affected through the removal of vegetative cover.

INDIRECT EFFECTS: Indirect effects to the critical habitat of this species as a result of the fire include temporary loss of vegetative cover, and increased risk of loss of biological diversity due to non-native invasive species encroachment. Approximately 17 acres of designated Critical Habitat for the Ash Meadows milkvetch were affected by the Meadows Fire.

POST FIRE OBSERVATIONS: No Ash Meadows milkvetch were observed during post fire reconnaissance.

Determinations of Effects:

Fire Effects: None.

Suppression Action Effects: Back-firing operations were initiated within the Critical Habitat for this species resulting in a loss of 50% of all vegetative species. During post fire field reconnaissance, no individual plants were observed. Native species will revegetate the site. However, non-native species may encroach into bare ground areas where the fire affected critical habitat. Therefore the determination of suppression effects to Ash Meadows milkvetch is **may affect, and is likely to adversely affect/modify critical habitat.**

Proposed Emergency Stabilization Action Effects: A very small percentage of the Critical Habitat of the Ash Meadows milkvetch is located within the burn area and none of it is within any of the proposed treatment areas. Therefore, the determination of proposed emergency stabilization actions to Ash Meadows milkvetch is **no effect.**

2. SPRING-LOVING CENTAURY: An annual that is found on moist to wet clay soils along the banks of streams or in seepage areas, and in moist and dry *Sporobolus* meadows. Centaury grows along the edges with rushes and has rebounded in numbers since the removal of livestock off of the Refuge. Critical Habitat was designated at the time of listing on 1,840 acres.

DIRECT EFFECTS: Direct effects are known to have occurred to this species. Approximately 196 acres of Refuge lands with known populations of spring-loving centaury were impacted by fire. Centaury plants were abundant within the area impacted by back-firing operations. Direct effects include the loss of individual plants and loss of vegetative cover within the plant community.

INDIRECT EFFECTS: Indirect effects to the critical habitat of this species as a result of the fire include temporary loss of vegetative cover, and increased risk of loss of biological diversity due to non-native invasive species encroachment. Approximately 49 acres of Critical Habitat lie within the fire perimeter.

POST FIRE OBSERVATIONS: Centaury plants and their associated habitat have been directly impacted by wildland fire and back-firing operations. Centaury recovery through natural regeneration has been noted within the 2004 Longstreet Fire and in a small roadside fire that occurred Fall 2004, approximately one-quarter mile south of the Meadows Fire. Recovery is to be expected given the phenology and root structure of this species.

Determinations of Effects:

Fire Effects: During post fire field reconnaissance, individual plants were observed in adjacent non-burned areas within the fire perimeter and within burned plant communities. Natural regeneration of this species is expected along with the regeneration of associated native plants. However, non-native species may encroach into bare ground areas where the fire affected critical habitat.

Suppression Action Effects: Back-fire suppression actions were initiated between the Big Springs Road and Tubbs Ranch road to stop the fire from crossing the Spring Meadows road. All 42 acres impacted by back-firing operations occurred within an area of known populations of centaury. The backfire burned spottily, especially near the Tubbs Ranch Road, but did impact individual plants and their associated habitat. Back-fires tend to burn with less intensity than running headfires, therefore impacts to the species would be expected to be less than impacts from the wildland fire. It was determined that the back-fire actions affected individuals, although the result is not likely to cause a loss of population viability of the species. The determination of suppression effects to spring-loving centaury is **may affect, and is likely to adversely affect.**

Proposed Emergency Stabilization Action Effects: The proposed emergency stabilization actions can be divided into two categories: actions that can be implemented immediately and actions that require further consultation.

Proposed weed treatment areas lie outside the areas known to be occupied by the spring-loving centaury. If individual plants are later found within these treatment areas, the precautions outlined in the Biological Assessment for the AMNWR Pesticide Use Proposals will be implemented. Removal of saltcedar will improve habitat and may actually open up areas to centaury expansion. Photo plots may be established within the populations impacted by back-firing operations to monitor species recovery and threats from non-native invasives, but these will have negligible impact on the centaury and its habitat. Therefore, the determination of these stabilization actions (weed treatment, monitoring and native plantings) is **may affect, but is not likely to adversely affect the spring-loving centaury or adversely modify its Critical Habitat.**

Channel clearing and culvert replacement may result in the loss of individual plants. In addition, the hydrological assessment may recommend other stabilization measures that will impact plants growing along fire-impacted stream channels. While these actions could potentially result in the loss of some plants, the project would have an overall beneficial effect on the centaury by preventing habitat from becoming unsuitable due to flooding and cattail growth. The determination of these actions to the spring-loving centaury is **may affect, and is likely to adversely affect.** Therefore, formal Section 7 consultation will be initiated and these actions (channel clearing, culvert replacement) will not be taken until a Biological Opinion is rendered.

3. ASH MEADOWS GUMPLANT: This species is frequently found with the spring-loving centaury on moist soils influenced by seeps and springs. Critical habitat was designated on 1,968 acres at the time of listing. Several large populations and numerous smaller ones exist, with an estimated combined total of 81,000 plants.

DIRECT EFFECTS: Direct effects are known to have occurred to this species. Approximately 101 acres of Refuge lands with known populations of Ash Meadows gumplant were impacted by fire. Gumplant was abundant within the area impacted by back-firing operations. Direct effects include the loss of individual plants and loss of vegetative cover within the plant community.

INDIRECT EFFECTS: Indirect effects to the critical habitat of this species as a result of the fire include temporary loss of vegetative cover, and increased risk of loss of biological diversity due to non-native invasive species encroachment. Approximately 74 acres of Critical Habitat lie within the fire perimeter.

POST FIRE OBSERVATIONS: Gumplant and its associated habitat have been directly impacted by wildland fire and back-firing operations. Burned plants were clearly visible, but many burned patches were surrounded by living gumplants and recovery through natural regeneration is expected.

Determinations of Effects:

Fire Effects: During post fire field reconnaissance, individual plants were observed in adjacent non-burned areas within the fire perimeter and within burned plant communities. Natural regeneration of this species is expected along with the regeneration of associated native plants. However, non-native species may encroach into bare ground areas where the fire affected critical habitat.

Suppression Action Effects: Back-fire suppression actions were initiated between the Big Springs Road and Tubbs Ranch road to stop the fire from crossing the Spring Meadows road. The backfire burned spottily, especially near the Tubbs Ranch Road, but did impact numerous individual plants and their associated habitat. Back-fires tend to burn with less intensity than running headfires, therefore impacts to the species would be expected to be less than impacts from the wildland fire. It was determined that the back-fire actions affected individuals, although the result is not likely to cause a loss of population viability of the species. All 532 feet of handline were located in critical habitat; however, only about 30 feet of line actually affected plants. Approximately 36 acres of Critical Habitat were impacted by suppression actions. The determination of suppression effects to Ash Meadows gumplant is **may affect, and is likely to adversely affect.**

Proposed Emergency Stabilization Action Effects: The proposed emergency stabilization actions can be divided into two categories: actions that can be implemented immediately and actions that require further consultation.

Proposed weed treatment areas lie outside the areas known to be occupied by the Ash Meadows gumplant. If individual plants are later found within these treatment areas, the precautions outlined in the Biological Assessment for the AMNWR Pesticide Use Proposals will be implemented. Photo plots may be established within the populations impacted by back-firing operations to monitor species recovery and threats from non-native invasives, but these will have negligible impact on the gumplant and its habitat. Therefore, the determination of these stabilization actions (weed treatment, monitoring and native plantings) is **may affect, but is not likely to adversely affect the Ash Meadows gumplant or adversely modify its Critical Habitat.**

Channel clearing and culvert replacement may result in the loss of individual plants. In addition, the hydrological assessment may recommend other stabilization measures that will impact plants growing along fire-impacted stream channels. While these actions could potentially result in the loss of some plants, the project would have an overall beneficial effect on the gumplant by preventing habitat from becoming unsuitable due to flooding and cattail growth. The determination of these actions to the Ash Meadows gumplant is **may affect, and is likely to adversely affect.** Therefore, formal Section 7 consultation will be initiated and these actions (channel clearing, culvert replacement) will not be taken until a Biological Opinion is rendered.

4. ASH MEADOWS IVESIA: This Ash Meadows endemic species occurs on highly alkaline, somewhat barren soils that remain moist adjacent to spring outflows. Ivesia occurs in meadows on flats and in drainages. Nine populations are known, with only two having more than 600 individuals. Although there are an estimated 572 acres of occupied habitat, seven of the populations each occupy less than 30 acres and one population occupies 386 acres. Field reconnaissance did not find any ivesia plants within the burn; however, the Critical Habitat for this species was within the fire perimeter where 25-75% of all vegetation was impacted by the fire.

DIRECT EFFECTS: Direct effects are known to have occurred to Ivesia Critical Habitat, but no direct impacts to individual plants were witnessed. Known plant locations are outside the fire perimeter; however, critical habitat for the species was directly affected through the removal of vegetative cover.

INDIRECT EFFECTS: Indirect effects to the critical habitat of this species as a result of the fire include temporary loss of vegetative cover, and increased risk of loss of biological diversity due to non-native invasive species encroachment. Approximately 55 acres of designated Critical Habitat for the Ash Meadows ivesia were affected by the Meadows Fire.

POST FIRE OBSERVATIONS: No Ash Meadows ivesia were observed during post fire reconnaissance within the fire perimeter; however, a few plants were located just outside the burn near Jackrabbit Spring.

Determinations of Effects:

Fire Effects: Direct effects include the potential loss of individual plants, although none were witnessed within the fire perimeter, and loss of vegetative cover within the plant community.

Suppression Action Effects: Back-firing operations were initiated within approximately 33 acres of the Critical Habitat for this species resulting in a loss of 25-50% of all vegetative species. Critical Habitat was also impacted by 85 feet of handline. During post fire field reconnaissance, no individual plants were observed. Native species will revegetate the site. However, non-native species may encroach into bare ground areas where the fire affected critical habitat. Therefore the determination of suppression effects to Ash Meadows ivesia is **may affect, and is likely to adversely affect/modify critical habitat.**

Proposed Emergency Stabilization Action Effects: A small percentage of the Critical Habitat of the Ash Meadows ivesia is located within the burn area and none of it is within any of the proposed treatment areas. Therefore, the determination of proposed emergency stabilization actions to Ash Meadows ivesia is **no effect**.

5. Sensitive Plant Species:

BLUE-EYED GRASS (*Sisyrinchium* spp.) is a perennial herb in the Iris family that usually occurs in wetlands, but is occasionally found in non-wetlands. Two species are found in Ash Meadows and some plants are exhibiting a combination of traits from both species. One of the species, the Death Valley blue-eyed grass (*Sisyrinchium funereum*), occurs mostly in Death Valley, California. The only known Nevada populations of this species occur in Ash Meadows. Current data are very limited. The Nevada Natural Heritage Program ranks both species as fourth highest in the state in priority for data development and recommends a full status review.

DIRECT EFFECTS: Blue-eyed grass is present within the Meadows fire perimeter, but these species have never been mapped. Since populations of blue-eyed grass are often found in association with spring-loving centaury and gumplant, effects to the blue-eyed grass would be similar to those of the two listed species.

INDIRECT EFFECTS: The most serious threat is loss of habitat to non-native species invading burned areas.

POST FIRE OBSERVATIONS: Blue-eyed grass was observed within burned areas and unburned areas within the fire perimeter.

ASH MEADOWS LADY TRESSES (*Spiranthes infernalis*) is a tuberous perennial herbaceous orchid that is endemic to Ash Meadows. It is a wetland-dependent plant that occurs in permanently to seasonally wet alkaline meadows and often near spring outflows. This orchid is found with Baltic rush, spikerush, salt grass, spring-loving centaury, gumplant, mesquite, ash, and saltcedar. The U.S. Fish and Wildlife Service considers the Ash Meadows lady tresses a Species of Concern.

DIRECT EFFECTS: Due to its close association with spring-loving centaury and gumplant, impacts to this species would be similar to those of the two listed species.

INDIRECT EFFECTS: The most serious threat is loss of habitat to non-native species invading burned areas.

POST FIRE OBSERVATIONS: No plants were observed within the burn areas as they are hard to locate when not in flower. However, populations are known to exist within the area impacted by the back-firing operations.

TECOPA BIRDS-BEAK (*Cordylanthus tecopensis*) is endemic to Ash Meadows NWR. It is often found in association with Ash Meadows gumplant and spring-loving centaury.

DIRECT EFFECTS: This plant was found in the burn along the Jackrabbit Spring outflow and in the same meadow as the gumplant and spring-loving centaury that was burned in a back-fire operation. Due to its close association with spring-loving centaury and gumplant, impacts to this species would be similar to those of the two listed species.

INDIRECT EFFECTS: The most serious threat is loss of habitat to non-native species invading burned areas.

POST FIRE OBSERVATIONS: Tecopa birds-beak was observed within burned areas and unburned areas within the fire perimeter.

IV. RECOMMENDATIONS

A. Fire Suppression Rehabilitation

None.

B. Emergency Stabilization

Vegetation resources were impacted to varying degrees throughout the fire area. The single biggest threat to the recovery of native plant communities and T&E species and their associated habitats is the effective control of non-native species. Planting of natives to stem the spread of bassia, Russian knapweed, and saltcedar into bare ground areas is also necessary. Natural regeneration will recover many of the native grasses and forbs within the majority of the fire area. However, the influence of past land disturbance coupled with the disturbance of this wildland fire will pose threats to the loss of biodiversity in many of the plant communities.

1. There is a high potential for non-native invasive species invasion onto uninfested sites within the burn area. Surveys should be conducted for the next 2 years to locate any new weed occurrences.
2. Implement Integrated Pest Management practices to control existing weed populations within the fire area to prevent further spread of weeds.
3. Native plantings of grass, forbs, and trees are required to maintain biological integrity and biodiversity of plant communities within the fire area and stem the expected expansion of non-native, invasive species.
4. Monitor known populations and new populations of non-native invasive species; monitor treatment effectiveness and implement adaptive management principles to effectively treat invasives within the Meadows Fire. Supplemental funding requests may be required based on monitoring results.
5. Continue consultations with USFWS Ecological Services on channel clearing and culvert replacement.
6. Thoroughly document treatments and results for annual accomplishment reporting. Pursue supplemental emergency stabilization funding and rehabilitation funding as necessary.

V. CONSULTATIONS

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VI. REFERENCES

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**INTERAGENCY
BURNED AREA EMERGENCY STABILIZATION PLAN
MEADOWS FIRE
Nye County, Nevada
Environmental Compliance Considerations and Documentation**

FEDERAL, STATE, AND PRIVATE LANDS ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

All projects proposed in the Meadows Fire Burned Area Emergency Stabilization Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the *National Environmental Policy Act* (NEPA) in accordance with the guidelines provided by the *Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508)*. This Appendix documents the AMNWR management consideration of NEPA compliance requirements for prescribed emergency stabilization and monitoring actions described in this plan for areas affected by the Meadows Fire in Nye County, Nevada.

This plan identifies specific emergency stabilization and monitoring actions designed to mitigate damages to resources that are the result of the Meadows Fire.

This plan has been developed by the staff of Ash Meadows National Wildlife Refuge following the guidance of the Longstreet Fire Burned Area Emergency Stabilization Plan. The Longstreet Plan was developed by an Interagency Burned Area Emergency Response (BAER) Team, comprised of representatives from the: Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), U.S. Fish and Wildlife Service (USFWS), and U.S. Forest Service (USFS). The Team consulted with numerous other agencies, organizations, and individuals with subject matter expertise applicable to the proposed treatments (see consultation section below). New treatments proposed in this plan have been developed after consultation with FWS and USGS biologists, and experts in the hydro-geomorphology of Ash Meadows NWR.

Agency Specific Guidance: This NEPA documentation has been developed in accordance with the following agency specific guidelines.

U.S. Fish and Wildlife Service: Emergency stabilization, rehabilitation and monitoring actions proposed for the Meadows Fire will comply with U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 (DM 6, Appendix 1).

RELATED PLANS AND CUMULATIVE IMPACTS ANALYSIS

Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada (1990).

Ash Meadows National Wildlife Refuge: "to conserve (A) fish or wildlife which are listed as endangered species or threatened species....or (B) plants..." 16 U.S.C. 1534 (Endangered Species Act of 1973).

Proposed Land and Mineral Withdrawal at the Ash Meadows National Wildlife Refuge and Environmental Assessment (2000).

Annual Noxious Weed Control Plan 2004, including NEPA Compliance Documentation and Biological Opinions.

2005 Pesticide Use Proposals, including IPM practices and Biological Assessment

Ash Meadows Fire Management Plan, 1986

Cumulative Impact Analysis: Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action, when added to other past, present, and reasonably foreseeable future actions, both Federal and nonfederal. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The

emergency stabilization treatments for the Meadows Fire burned area, as proposed in this plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the management and recovery plans and associated environmental compliance documents of the U.S. Fish and Wildlife Service, and categorical exclusions listed below.

No direct or indirect unavoidable adverse impacts to the biological or physical environment are expected to result from the implementation of this Meadows Burned Area Emergency Stabilization Plan. The implementation of emergency noxious weed control and native planting treatments proposed in the plan would not result in any adverse effect on the natural and cultural resources of the burned area. Conversely, implementation of the plan would be expected to result in a cumulatively beneficial effect by reducing the potential for noxious weed invasion and ensuring the recovery of native habitats within the burned area. If the hydrological assessment determines that major channel stabilization work is needed, environmental compliance will be addressed at that time.

APPLICABLE LAWS AND EXECUTIVE ORDERS

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

1. **National Historic Preservation Act (NHPA).** FWS Cultural Resource Specialists will be consulted to ensure that emergency stabilization treatments will not adversely affect cultural resources within the Meadows Fire burned area. This plan provides funds for a cultural resources assessment and to complete any additional NHPA consultation and documentation requirements.
2. **Executive Order 11988, Floodplain Management.** All proposed treatments are in compliance with this order.
3. **Executive Order 11990, Protection of Wetlands.** All proposed treatments are in compliance with this order.
4. **Executive Order 12372, Intergovernmental Review.** Coordination and consultation is ongoing with affected Tribes, Federal, and local agencies. A copy of the plan will be disseminated to all affected agencies and funding is provided by the plan to facilitate completion of tribal consultations.
5. **Executive Order 12892, Federal actions to address Environmental Justice in Minority and Low-Income Populations.** All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States. The actions proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.
6. **Endangered Species Act.** The AMNWR staff is in the process of consulting with the U.S. Fish and Wildlife Service regarding actions proposed in this plan and potential affects on Federally listed species. No actions will be taken on those measures that may adversely affect listed species until a Biological Opinion is rendered. Consultations will continue during plan implementation as site specific treatments are developed.
7. **Clean Water Act.** All proposed treatments are in compliance with this Act. Emergency stabilization and rehabilitation measures proposed are necessary to maintain clean water within the burn and adjacent areas. Long-term impacts are considered beneficial to water quality.

8. **Clean Air Act.** Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection Agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). Treatments prescribed in the Meadows Fire burned area will have short-term minor impacts to air quality that would not differ significantly from routine land use practices for the area. Long-term treatments proposed in the plan would be expected to have a beneficial impact to air quality through stabilization of ash and soils within the Meadows Fire burned area.
9. **Wilderness Act.** The Meadows Fire did not impact designated or proposed wilderness.

APPLICABLE AND RELEVANT CATEGORICAL EXCLUSIONS

Accept for as yet undetermined channel stabilization work, all treatment actions proposed in this plan are Categorical Exclusions from further environmental analysis as provided for in the Department of the Interior Manual Part 516. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the AMNWR staff and documented in Section E below.

Applicable Department of the Interior Categorical Exclusions

Part 516 DM 2, App. 1.1	Personnel actions and investigations and personnel services contracts.
Part 516 DM 2, App. 1.4	Law enforcement and legal transactions, including such things as arrests, investigations, patents, claims, legal opinions, and judicial activities including their initiation, processing, settlement, appeal, or compliance.
Part 516 DM 2, App. 1.6	Non-destructive data collection, inventory (including field, aerial and satellite surveying and mapping), study, research and monitoring activities.
Part 516 DM 2, App. 1.7	Routine and continuing government business, including such things as supervision, administration, operations, maintenance and replacement activities having limited context and intensity; e.g. limited size and magnitude or short-term effects.
Part 516 DM 2, App. 1.11	Activities which are educational, informational, advisory or consultative to other agencies, public and private entities, visitors, individuals or the general public.
Part 516 DM 6 App. 4.4 M (2)	Establishment of non-disturbance environmental quality monitoring programs and field monitoring stations including testing services.

Applicable U.S. Fish and Wildlife Service Categorical Exclusions

(1) Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality or habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem.

(3) The construction of new, or the addition of, small structures or improvements, including structures and improvements for the restoration of wetland, riparian, instream, or native habitats, which result in no or only minor changes in the use of the affected local area. The following are examples of activities that may be included.

- i. The installation of fences.
- ii. The construction of small water control structures.
- iii. The planting of seeds or seedlings and other minor revegetation actions.
- iv. The construction of small berms or dikes.
- v. The development of limited access for routine maintenance and management purposes.

(5) Fire management activities including prevention and restoration measures, when conducted in accordance with departmental and Service procedures.

CONSULTATIONS

Nevada State Historic Preservation Office

U.S. Fish and Wildlife Service

Dan Walsworth, Refuge Supervisor, California/Nevada Refuges
Dick Birger, Project Leader, Desert National Wildlife Refuge Complex
Linda Miller, Deputy Project Leader, Desert National Wildlife Refuge Complex
Lee Nelson, Fire Management Officer, Desert National Wildlife Refuge Complex
Sharon McKelvey, Refuge Manager, Ash Meadow National Wildlife Refuge
Cristi Baldino, Wildlife Biologist, Ash Meadows National Wildlife Refuge
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Shawn Goodchild, Wildlife Biologist, Ecological Services, Las Vegas, Nevada
Christiana Manville, Wildlife Biologist, Ecological Services, Las Vegas, Nevada

NEPA CATEGORICAL EXCLUSION DOCUMENTATION AND DECISION

Meadows Fire Burned Area Emergency Stabilization Plan

NEPA CHECKLIST: Based on 516 DM 2, Appendix 2, if any of the following exception applies, the BAER plan cannot be Categorical Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)

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

NATIONAL HISTORIC PRESERVATION ACT

Ground Disturbance:

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> | None |
| <input checked="" type="checkbox"/> | Ground disturbance will occur and an archeologist survey, required under section 110 of the NHPA will be prepared. A report will be prepared as specified by the BAER plan. |

A NHPA Clearance Form:

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Is required because the project may affect sites that are eligible for or listed on the National Register. The clearance form is attached as the Cultural Assessment of the Meadows Fire BAER Plan. The Nevada SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I). |
| <input type="checkbox"/> | Is not required because the BAER plan has no potential to affect cultural resources (_____ initials of cultural resource specialist). |

OTHER REQUIREMENTS

(Yes) (No)

- | | | |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the BAER plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted. |

CONCURRENCE AND SIGNATURES

I have reviewed the proposals in the Meadows Fire Burned Area Emergency Stabilization Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effects. Therefore, the plan is categorically excluded from further environmental (NEPA) review and documentation. AMNWR staff have initiated necessary coordination and consultation to ensure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State, and local environmental review requirements. The plan provides funding to continue and complete necessary consultations as site specific treatments are developed.

Project Leader, Desert National Wildlife Refuge Complex

Date

- I concur and it is my decision to approve the plan.
- I do not concur because:







JACKRABBIT OUTFLOW



FIRE FOLLOWING BIG SPRINGS OUTFLOW



JACKRABBIT SPRING HEAD



SUCCESSFUL BACK FIRE TO STOP HIGH INTENSITY BURN FROM CONSUMING JACKRABBIT SPRING HEAD. ASH RIPARIAN CRITICAL HABITAT FOR DACE. DACE PRESENT



HIGH INTENSITY BURN IN DACE HABITAT. NO DACE



JACKRABBIT OUTFLOW



OVERVIEW JACKRABBIT OUTFLOW AND BIG SPRINGS OUTFLOW



FIRE RETARDANT STOPPED FIRE AT TUBBS RANCH



HISTORICAL STONE CABIN MAY BE TIED TO THE FREEMONT EXPEDITION



CRITICAL PLANT HABITAT



TUBBS RANCH SITE



THREATENED PLANT (CENTAURY) MIXED WITH RARE WHITE FLOWERS



FIRE AFFECTS REPORT ON SPECKLED DACE

Fire can have profound effects on fish populations, which has been established in peer reviewed literature. These effects range from being caused by suppression activities to the environmental effects of fire itself. Although natural, low-intensity fires can have overall beneficial effects to populations of fish that are distributed over a wide range, such as with many salmonids in the Pacific Northwest, fires typically have severe negative impacts to fish with limited distributions or narrow habitat requirements (Dunham et al, 2003; Rieman et al, 2003), such as the Ash Meadows speckled dace or Ash Meadows Amargosa pupfish. For example, fire has been a cause of extirpation of several isolated populations of fish and macroinvertebrates, including fish in the Southwestern United States (Rinne, 1996; Brown et al, 2001; Gresswell, 1999). Fire severity has also been linked to viability of populations, and severe or frequent fires negatively affect viability (Brown et al, 2001). Immediate and long-term effects of the Meadows Fire significantly impacted the Ash Meadows speckled dace, which is significantly increasing the risk of extinction. The population within the Jackrabbit Springs outflow was the last remaining of twelve original populations of this fish, and the riparian site that was burned was nearly all designated critical habitat. The dace has been reintroduced to two other sites, the Bradford Springs and Point of Rocks sites. The Bradford Spring site has a reproducing population; however is poor habitat due to hydrology, emergent vegetation, and abundant crayfish. The Point of Rocks site was stocked during 2004, and may not be extant. The uncertainty of these two sites increases the biological value of the Point of Rocks population.

Perturbation associated with hydrological processes is a primary factor in influencing post-fire persistence by fishes, benthic macroinvertebrates, and diatoms in fluvial systems (Gresswell, 1999). Based on several field visits by fisheries biologists from the Fish and Wildlife Service, Ecological Services (FWS), and US. Geological Survey - Biological Resources Division (USGS-BRD), it was apparent that emergency actions were needed to stabilize the habitat for the fish. On August 5 and 11, 2005, the outflow of Jackrabbit Spring from its origin to its confluence with Big Spring outflow, was assessed by the USGS-BRD and the FWS. The intent of the survey was to determine effect of the Meadows Fire, that burned along the outflow on August 1, 2005. Since Jackrabbit Spring was the stronghold for the endangered Ash Meadows speckled dace, and there was concern as to the impact of the fire on this species.

Fire has immediate impacts to fish, and may cause mortality due to increased temperature, decreased oxygen, and rapid fluctuation of chemical parameters. In addition, long-term effects of fire can have drastic effects on fish and invertebrate populations. These effects include change in chemical parameters of the water, temperature change, contaminant mobilization, facilitation of invasion by non-native or pest species, and structural change. Fire can have wide-reaching and long term impacts to the food chain, and cause reduced energy flow from autochthonous sources to invertebrates and fish (Perry et al, 2003). Rinne (1996) described long-term impacts to invertebrates and fish due to fire in Arizona, demonstrating 75% declines in stocked fish one year after a fire when compared to non-burned reaches. The same fires eliminated nearly 100% of the benthic invertebrates, and post-fire species richness was 20-30% pre-fire numbers one year after the fire.

Inputs of ash, especially during runoff events, can cause rapid and radical changes in aquatic ionic concentration, pH, nutrients, and turbidity (Albin, 1979; Pinel-Alloul et al, 2002; Tonn et al, 2003; Spencer et al, 2003). Changes in ionic concentrations and pH of the aquatic environment have physiological implications to fish, especially relative to oxygen uptake in the gills and osmoregulation. Ash inputs typically cause a higher pH, which along with impairing gill function, also desorbs additional chemicals that may be toxic, such as H₂S (Caldwell, 1999). Ash also contains contaminants that were present in the burned site, or create pyrogenic toxicants. For example, fires and subsequent ash contribute to mercury cycling and input into streams and lakes, as well as increase cyanide leachate and concentrates (Barber et al, 2003; Garcia and Carignan, 2005). One study demonstrated that stormwater runoff containing cyanide produced by a burned site caused concentrations that were equivalent to cyanide's LC50 for rainbow trout (Barber et al, 2003). Increased nutrients in an aquatic system, especially in relatively nutrient poor systems that result from spring outflows, tend to support eutrophication, excessive algal growth, and development of organic-rich sediments which facilitates the creation of H₂S. Spencer et al (2003) reported a 5- to 60-fold increase in phosphorus and nitrogen levels due to deposition from smoke and ash. Turbidity from ash runoff, as well as erosion from removal of plants, also increases stress in fish due to physical obstruction of gill filaments due to sediments, which increases vulnerability to mortality from other causes. Temperature changes are also a long-term effect of fire. Albin (1979) described a 1.5 degree Celsius temperature increase of a stream in Wyoming 36 years after a burn. General increases in temperature can be very significant in warm water fishes, as even small changes may push them to their physiological limits, especially during stress such as caused by altered water chemistry or breeding. Structural change can result from the burning off of overhanging vegetation, inputs of additional large woody materials, sedimentation, and erosion. Loss of overstory vegetation may have significant impacts, including increasing predation, decreasing general habitat suitability, and reducing allochthonous inputs. Significant erosion may occur during wind and rain events once surface vegetation is removed due to fire. Eroded sediments increase the turbidity of the system, as well as alter habitat. Habitat alteration could include filling in with silt of gravel substrate used for spawning or invertebrate production, filling in and dechannelizing the stream, decreasing drift-feeding sites for fish, or increasing substrate suitable for unwanted vegetation. Flocculated organic material could accumulate in streams during and after a fire, as described by Robinson et al (2005). This contributes to sediment deposition and develops substrates for weedy species (such as cattails) and the creation of H₂S.

Observations by biologists from the banks suggested that the Ash Meadows speckled dace and Ash Meadows Amargosa pupfish had been extirpated from over 90% of its former range in the Jackrabbit Spring outflow due to the fire. There was a refuge site near the springhead where the fire had not reached, which contained the remaining population of fish. It is critical that the remaining fish be given every opportunity to reproduce and repopulate the stream. The fire not only virtually eliminated the dace population, but appears that it had changed the dynamics of the habitat. This suggests that speckled dace recolonization will be impeded or will not occur. Riparian emergent vegetation (bulrush, cattails, and *Phragmites*), has already begun to invade and choke the stream channel. Because of past trampling of the banks by wild horses and livestock, as well as other historic uses the stream, the channel is shallow along most of the Jackrabbit outflow. As a result of the fire and associated siltation, water will likely overflow the channel forming marsh habitat. The thick layer of ash occurring along the banks will expedite marsh formation. Although, speckled dace are generalist, they have been all but eliminated from shallow marsh habitat in

Ash Meadows, presumably because of non-native crayfish. Critical for the persistence of speckled dace is the maintenance of channel integrity. Emergency rechannelization and rehabilitation of the riparian corridor is key to preventing further effects caused by the fire, protecting the remaining dace population, and allowing for future natural recruitment of the fish.

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