

# HOPE FIRE

## BURNED AREA REHABILITATION PLAN

U.S. FISH AND WILDLIFE SERVICE  
KOFA NATIONAL WILDLIFE REFUGE  
September 2006

FIRE DATES: February 18-22, 2006

AGENCY/UNIT: U.S. Fish and Wildlife Service  
Kofa National Wildlife Refuge  
356 W. First St. Yuma, AZ 85364  
Phone: 928-783-7861

LOCATION/SIZE: La Paz County, Arizona  
600 acres  
Lat. And Long: 33° 30' x 113° 47'

PREPARED BY: U.S. Department of Interior  
U.S. Fish and Wildlife Service  
Kofa National Wildlife Refuge and  
Regional Office BAER Team

Submitted By:

Date:

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Paul Cornes, Refuge Manager

**REHABILITATION PLAN REVIEW AND APPROVAL**

**I. Refuge manager approval that the Rehabilitation Plan meets approved land management plan management objectives.**

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Refuge Manager, J. Paul Cornes Date

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

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Dave Lentz, Regional Fire Management Coordinator, Region 2 Date

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

- Approved** Explanation for Revision or Disapproval:
- Approved with Revision**
- Disapproved**

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Dr. Benjamin N. Tuggle, Regional Director, Region 2 Date

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### Introduction

This plan has been prepared in accordance with USFWS policy and the Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment (1997). This plan provides burned area rehabilitation recommendations for all lands burned within the Hope Fire perimeter which lie within the Kofa National Wildlife Refuge (NWR) administered by the U.S. Fish and Wildlife Service (USFWS).

The primary goals of the Hope Burned Area Rehabilitation Plan are to:

- ✱ Detect, control, and monitor non-native invasive species in burned areas and prevent the expansion of known populations into newly disturbed sites.

The primary objectives of the Hope Fire Burned Area Rehabilitation Plan can be found below in Part C. This plan will be managed and implemented by Paul Cornes (Refuge Manager), Lindsay Smythe (Refuge Biologist) and Susanna Henry (Assistant Refuge Manager).

The entire Kofa NWR lies within the Sonoran Desert. The Hope Fire took place on a portion of an intermountain flat known as the Ranegras Plain. This was an anomalous season for precipitation, historically one of the wettest falls and winters on record, hence the widespread buildup of herbaceous fuels. The Hope Fire burned across the Ranegras Plain, primarily on upland terraces but also through a few ephemeral desert washes dominated by foothill and blue paloverde trees (*Cercidium microphyllum* and *C. floridum*), ironwood trees (*Olneya tesota*) and mesquite trees (*Prosopis juliflora*). Some of the dominant shrubs in the ephemeral washes include jojoba (*Simmondsia chinensis*), catclaw (*Acacia greggii*), burro brush (*Hymenoclea salsola*), and canyon ragweed (*Ambrosia ambrosioides*). The fire also was carried by dry annual plants left from the wet winter of 2004/2005, in particular, dried indian wheat (*Plantago insularis*) and Mediterranean grass (*Schismus barbatus*) along with other species. Cured herbaceous vegetation carried the fire over the terraces between the ephemeral washes and also along the washes where it provided ladder fuels to the denser woody vegetation.

Ephemeral washes provide important wildlife habitat to migratory neotropical birds, desert tortoise,

mule deer, and bighorn sheep. The Hope Fire burned with low and moderate severity; cooler air temperatures and relative humidity recovery at night kept the fire from burning with high severity. The fires also burned cactus, including saguaros (*Cereus giganteus*), buckhorn cholla (*Cylindropuntia acanthocarpa*), and fishhook cactus (*Mammillaria microcarpa*).

## **Fire Background**

The Hope Fire began along the Red Rock Pass Road approximately 5:00 p.m. Saturday afternoon, February 18<sup>th</sup>. Westerly winds carried the fire to the east where the fire eventually reached the Charco Four Windmill and earthen stock tank. The fire then encountered an area of relatively heavy vegetation including many mature mesquite trees, but very few were damaged since darkness, cool temperatures, and rising humidity combined to cause the fire to stop spreading and become inactive. The fire was initially reported by members of the public about 6:30 p.m. Those reporting the fire included Bill Fox, the owner of the nearby Tomahawk Truck Stop and Restaurant.

The initial attack on the fire came from Parker Volunteer Fire Department and then two Type 6 engines and crew from the Bureau of Land Management – Yuma Field Office and the Colorado River Indian Tribes, which arrived at the fire at about 8:00 p.m. A Type III Incident Commander, Todd Moss, was assigned to the fire. Mr. Moss was on severity detail from the USDA-Forest Service, Gallatin National Forest, Montana.

On the morning of Sunday, February 19, Mr. Moss ordered and received two Type-2 Inmate Hand Crews, from Douglas and Globe, Arizona. The engine and hand crews worked together on Sunday and Monday, February 19<sup>th</sup> and 20<sup>th</sup>; the fire was declared contained on Monday afternoon, and out on Wednesday, February 22<sup>nd</sup>. The fire's perimeter never expanded beyond the 600 acres that were burned initially on February 18<sup>th</sup>.

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

The current burned areas pose no threat to human safety or cultural resources in the area. The Hope Fire is visible from the western end of the Charco Four earthen stock tank and from along the Red Rock Pass Road. The Hope Fire is likely to be seen by the visiting public but is not in an area of high public use or scenic interest.

The Ranegras Plain is habitat for a variety of desert wildlife, and in particular, is used by desert mule deer (*Odocoileus hemionus eremicus*) year-round. The annual deer hunt on Kofa NWR is about the only time that some of the intermountain flats receive significant public visitation by visitors on foot. There is some public visitation in the vicinity of the Hope Fire during the winter months, especially people traveling the Red Rock Pass road.

The trees and some of the shrubs in the ephemeral washes provide shade and cover for many of the wildlife species that use the Kofa National Wildlife Refuge and provide the nesting substrate for breeding birds, including black-throated sparrows (*Amphispiza bilineata*), phainopeplas (*Phainopepla nitens*), mockingbirds (*Mimus polyglottos*), red-tailed hawks (*Buteo jamaicensis*), white-winged (*Zenaida asiatica*) and mourning doves (*Z. macroura*), ash-throated flycatchers (*Myiarchus cinerascens*), and curve-billed thrashers (*Toxostoma curvirostre*).

No federally-listed threatened or endangered species are known to use or occupy the burned areas.

## **Management Requirements**

Wildfires are a rare ecological process in the Sonoran Desert. Paloverde, ironwood, and catclaw acacia trees, creosote bushes, cactus, and many other succulents and desert shrubs are very susceptible to mortality from fire. These leguminous trees are slow growing and can be hundreds of years old, thus recovery from fire may take a century or more.

Since the Hope Fire took place the area has received about 2.16 inches of rain, mostly in August 2006. While this is encouraging for vegetation recovery, hard rains can cause significant erosion in burned areas. At this time, we expect that native, unburned vegetation surrounding and upstream of both fire areas can be expected to provide an adequate seed source for recolonization.

**Exotic Plants.** Sonoran Desert burned areas may become more prone to invasion by exotic plants. In many areas throughout the Sonoran desert, non-native fire-adapted grasses and forbs are replacing native species with repeated fire exacerbating the vegetation change. An immediate concern for the King Valley fire area would be the potential of the area to become dominated by Sahara mustard (*Brassica tournefortii*), an exotic plant that has become increasingly abundant in southern Arizona and southeastern California since the early 1990s. Sahara mustard became very common after the abundant winter rains of 2004/2005, especially in disturbed sites and along roadways. It is present in the Ranegras Plain and along the Pipeline Road, which receives significant use from the public and from utility companies checking nearby gas and power lines, which increases the chance that invasive plant seeds may be spread along that vector. These areas are potential vector corridors for the spread of Sahara mustard or other invasive species. Because the Sahara mustard begins its growth with a large (sometimes as much as 3 feet in diameter) basal rosette, concern has been expressed by ecologists in its apparent ability to shade out native annual plants. Additionally, Mediterranean grasses already are found in the burned area and may spread and become more abundant. The primary invasive exotic species of concern are as follows: Sahara Mustard (*Brassica tournefortii*), Red Brome (*Bromus rubens*), Mediterranean Grass (*Schismus arabicus* and *S. barbatus*), London Rocket (*Sisymbrium irio*), and Bermuda Grass (*Cynodon dactylon*). Exotic species detected through monitoring will be treated with the appropriate herbicide or mechanical removal and reassessed within one week to determine if the treatment was effective or if the area needs to be re-treated.

### **Rehabilitation**

If invasive exotic species are detected, they will be treated through integrated management with herbicide, mechanical removal, and/or reseeding or planting natives.

### **Plan Guidance**

The Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment (1997), the Comprehensive Conservation Plan for the refuge, does not address fire. It states (page 24):

“Fire has not played a significant role in the planning area. On the refuge, several fires have been caused by human activity. Fires have historically burned out virtually without suppression efforts. It is unlikely that any fires will continue beyond the first 24 hours (initial burning period) due to sparse fuels throughout the planning area.”

Due to the rarity of fire historically, the plan was written without considering the potential for fire after an extremely wet fall/winter or the fire effects. A fire management plan is currently in draft, following the fires that occurred in 2005 and 2006. Guidance for rehabilitation of wildfire areas is provided by the Interagency Burned Area Stabilization and Rehabilitation Handbook (2006).

## PART A - FIRE LOCATIONS AND BACKGROUND INFORMATION

<b>Fire Name</b>	<b>Hope</b>
<b>Fire Number</b>	<b>CC1S</b>
<b>Agency Unit</b>	<b>Kofa National Wildlife Refuge</b>
<b>Region</b>	<b>Southwest</b>
<b>State</b>	<b>Arizona</b>
<b>County(s)</b>	<b>Yuma</b>
<b>Ignition Date/Cause</b>	<b>February 18, 2006 / Human-Caused</b>
<b>Zone</b>	<b>LCR Interagency</b>
<b>Date Controlled</b>	<b>February 20, 2006 @ 1600</b>
<b>Total Acres</b>	<b>600</b>
<b>Date Contained</b>	<b>February 22, 2006 @ 1600</b>

## PART B - NATURE OF PLAN

### I. Type of Plan (check one box below)

**Emergency Stabilization**

**Rehabilitation**

**Both Emergency Stabilization and Rehabilitation**

### II. Type of Action (check one box below)

**Initial Submission**

**Updating or Revising the Initial Submission**

**Supplying Information of Accomplishment to Date on Work**

**Different Phase of Project**

**Final Accomplishment Report (To Comply with the Closure of the 9262 Account)**

## PART C - REHABILITATION PLAN OBJECTIVES

-  Detect, control, and monitor non-native invasive species in burned areas and prevent the expansion of known populations into newly disturbed sites.

**PART D – BURNED AREA REHABILITATION TEAM MEMBERS**

<b>Position</b>	<b>Team Member (Agency)</b>
<b>Team Leader*</b>	<b>Paul Cornes, Refuge Manager (USFWS)</b>
<b>NEPA Compliance and Planning</b>	<b>Susanna Henry, Assistant Refuge Manager (USFWS)</b>
<b>Fire Ecologist/Planner</b>	<b>Mark Kaib (USFWS)</b>
<b>Wildlife Biologist</b>	<b>Lindsay Smythe (USFWS)</b>
<b>Invasive Species</b>	<b>Leonard LeCaptain (USFWS, Invasive Species Task Force Leader)</b>

**PART E - SUMMARY OF ACTIVITIES AND COSTS**

The summary of activities, treatments, and estimated costs below are proposed for funding from Burned Area Rehabilitation, agency operation, and other funding sources, per year, for FY 2007 and 2008.

The primary treatments and estimated costs for this rehabilitation plan include:

REHABILITATION ACTIVITIES COST SUMMARY TABLE – Hope Fire

<b>Spec #</b>	<b>Title</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>No. Units</b>	<b>No. Times</b>	<b>Work Agent</b>	<b>Cost</b>
3	Herbicide Treatment of Non-Natives	site	\$1,747	3 (FY07) 3 (FY08)	1	C/FA	\$5,242 (FY07) \$5,242 (FY08)
	<b>TOTAL COST FY07</b>						<b>\$5,242</b>
	<b>TOTAL COST FY08</b>						<b>\$5,242</b>

## PART F - INDIVIDUAL TREATMENT SPECIFICATIONS

<b>SPECIFICATION TITLE:</b>	Invasive species control	<b>AGENCY:</b> Kofa NWR	<b>Contractor/Agency</b> USGS
<b>PART E: Treatment Specification # 2</b>		<b>FISCAL YEAR(S)</b> (list each year):	<b>FY07, FY08</b>

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

<p><b>Number and Describe Each Task:</b></p> <p><b>A. General Description:</b> Detect, control, and monitor non-native invasive species in burned areas and prevent the expansion of known populations into newly disturbed sites.</p> <p><b>B. Location/Suitable Sites:</b> The following sites with known locations of non-native species will be surveyed: Charco 4 Road Pipeline Road Red Rock Pass Road</p> <p><b>C. Design/Construction Specifications:</b> 1. Delineate treatment areas for 3 roads that are colonization vectors surrounding the burned area 2. Survey vector corridors and sites for early detection and control of invasive species including <i>Brassica tournefortii</i>, <i>Schismus arabicus</i> and <i>S. barbatus</i>, <i>Bromus rubens</i>, <i>Sysimbrium irio</i>, and <i>Cynodon dactylon</i>.</p> <p>Surveying includes:</p> <ul style="list-style-type: none"> <li>• Inspecting road and trail corridors via vehicle or on foot</li> <li>• Inspecting around facilities</li> <li>• Recording location and routes of surveys; GPS and data files provided to refuge GIS staff</li> <li>• Collecting data regarding species found, abundance, and photo-documentation</li> </ul> <p>When feasible, non-native species shall be controlled. Control includes:</p> <ul style="list-style-type: none"> <li>• Removal of species using approved herbicide or mechanical methods</li> <li>• Plants in seed must be bagged and removed off site</li> </ul> <p><b>D. Purpose of Treatment Specifications:</b> To assess location and extent of invasive plants and determine necessary treatment of invasive plants. Control spread of non-native invasive species into susceptible burned areas that will change the native plant composition. Protect the ecological integrity and site productivity of native plant species and their associated habitats. Prevent spread of noxious weeds into critical habitats on unburned lands within and adjacent to the refuge.</p> <p><b>Treatment Effectiveness Monitoring Proposed:</b> Spot checking of invasive non-native plant sites to ensure control methods are meeting management objectives. Survey crews will visit treated sites within one week of treatment; this is especially important for weed populations that are sprayed to ensure effectiveness of herbicide application. Surveyed and treated sites should achieve an 80% or greater kill of <i>Brassica</i> or other invasive plant species. Results are incorporated by refuge staff into long-term integrated pest management programs. Initiate follow-up treatments if additional non-native species or large populations are discovered.</p>
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### II. LABOR, MATERIALS AND OTHER COSTS:

<b>PERSONNEL SERVICES:</b>	<b>COST/ITEM</b>
Project Manager: (1) GS-11 PFT @ \$2752/PP x 1 PP =	\$2,752
Field Technicians: (2) GS-5 Seasonal @ \$1240/PP x 1 PP =	\$1,240
<b>TOTAL PERSONNEL SERVICE COST</b>	<b>\$3,992</b>
<b>EQUIPMENT PURCHASE, LEASE AND/OR RENT</b>	<b>COST/ITEM</b>
<b>TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST</b>	
<b>MATERIALS AND SUPPLIES</b>	<b>COST/ITEM</b>
Herbicide @ \$250/gallon x 5	\$1,250

TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST	COST/ITEM
TOTAL TRAVEL COST	
CONTRACT COST	COST/ITEM
TOTAL CONTRACT COST	\$5,242

**SPECIFICATION COST SUMMARY**

FISCAL YEAR	UNIT	UNIT COST	# OF UNIT	COST	FUNDING SOURCE	METHOD
FY07	site	\$1,747	3	\$5,242	R	C/A
FY08	site	\$1,747	3	\$5,242	R	C/A

**FUNDING SOURCE**

- F - Suppression Operations
- R - Burned Area Rehabilitation
- EWP - Emergency Watershed Protection
- OP/O - Agency Operations/Other

**METHODS**

- P - Agency Personnel Services
- C - Contract (long-term)
- EFC - Emergency Fire Contract (short-term)
- FC - Incident Management Crew Assignment

**SOURCE OF COST ESTIMATE**

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

**PART G - POST-REHABILITATION**

The following are post-rehabilitation; implementation, operation, maintenance, monitoring, and evaluation actions potentially beyond three years are to ensure the effectiveness of initial investments. Cost for monitoring and revegetation beyond three years will be incurred by the DOD Yuma Proving Ground and Kofa NWR.

**Restoration**

1. Continue assessment and treatment of invasive plant vectors. Treat new or reoccurring infestations with herbicide or mechanical removal as required.

## **APPENDIX I - ENVIRONMENTAL COMPLIANCE**

### **Federal, State, and Private Lands Environmental Compliance Responsibilities**

All projects proposed in the Hope Burned Area Rehabilitation 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); Fish and Wildlife Service Fire Management Handbook (Release 7/17/00) and 095 FW3,3.9B,C. This Appendix documents the Team considerations of NEPA compliance requirements for prescribed rehabilitation and monitoring actions described in this plan for all jurisdictions affected by the Hope burned area rehabilitation.

### **Related Plans and Cumulative Impact Analysis**

The Bureau of Land Management – Yuma Field Office is in the process of completing a Resource Management Plan to guide management of the public lands that surround Kofa NWR. Wildfire will be addressed in this plan. Nothing in this Fire Rehabilitation Plan conflicts with what is proposed in the draft Resource Management Plan.

The Yuma Proving Ground is in the process of completing an Integrated Resource Management Plan to guide management of the Yuma Proving Ground that surrounds Kofa NWR. Wildfire will be addressed in this plan. Nothing in this Fire Rehabilitation Plan conflicts with what is proposed in the draft Integrated Resource Management Plan.

### **Cumulative Impact Analysis**

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

### **Applicable and Relevant Categorical Exclusions**

The individual actions proposed in this plan for rehabilitation of the King Valley and Hope Fires are Categorically Excluded from further environmental analysis as provided for in the DM 516, DM 6, Appendix 1, 1.4 (3), (4), (5), (6), (9), and (11).

### **Statement of Compliance for the King Valley and Hope Burned Area Rehabilitation Plan.**

This section documents consideration given to the requirements of specific environmental laws in the development of the King Valley and Hope Burned Area Rehabilitation 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 Plan:

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

## **CONSULTATIONS**

- ✱ Yuma Proving Ground – Randy English and Tim Green – Wildlife Biologists, and Valerie Morrill – Environment and Safety
- ✱ Michael Bland – Assistant Fire Management Officer – U.S. Fish and Wildlife Service, Needles, California.

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

(Yes) (No)

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

**National Historic Preservation Act:**

Ground disturbance will occur on previously disturbed sites and therefore an archaeological survey is not required under 106 of NHPA.

**A NHPA Clearance Form:**

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

**Other Requirements:**

(Yes) (No)

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

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

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**Refuge Manager, Kofa National Wildlife Refuge**

**Date**