

Pipeline Road Post-Fire Response Plan

Big Thicket National Preserve



PARK: Big Thicket National Preserve

DATE: May 12, 2011

PREPARED BY: National Park Service Pipeline Road BAER Team

SUBMITTED BY: _____ Date: _____
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EXECUTIVE SUMMARY

Introduction

This document is the post-fire response plan for the Pipeline Road Fire at Big Thicket National Preserve. It consists of assessments and treatment specifications to stabilize and rehabilitate the fire. It has been prepared in accordance with Department of the Interior and National Park Service policy, including DM 620 Part 3: Burned Area Emergency Stabilization and Rehabilitation and the Interagency Burned Area Emergency Response Guidebook.

There are three funding sources for post-fire activities; suppression damage repair, emergency stabilization and burned area rehabilitation. Suppression damage repair is performed to rehabilitate suppression damages from activities such as dozer lines, hand lines, and the creation of new fire access routes. The primary objectives of emergency stabilization are to assess and prescribe cost effective post-fire stabilization measures necessary to protect human life, property, and critical cultural and natural resources in accordance with approved land management plans and policies, and all relevant federal, state, and local laws, and regulations. The park also recognizes the need to perform non-emergency burned area rehabilitation treatments to prevent the encroachment of invasive species and to repair minor infrastructure.

This plan provides recommendations from all funding sources for all lands burned within the jurisdiction of the Big Thicket National Preserve affected by the Pipeline Road Fire. It was prepared by a Burned Area Emergency Response (BAER) team comprised of Big Thicket National Preserve staff and personnel from the Intermountain Regional Office, the Midwest Regional Office, and National Interagency Fire Center.

Big Thicket National Preserve

The Preserve consists of nine land units and six water corridors encompassing more than 97,000 acres. Big Thicket was the first Preserve in the National Park System established October 11, 1974, and protects an area of rich biological diversity. The mission of the preserve is to preserve, conserve and protect the natural, scenic, and recreational values of a significant portion of the Big Thicket with a particular emphasis on maintaining the ecological integrity of the Preserve.

The Pipeline Road Fire

The Pipeline Road Fire was human caused and began April 16, 2011. The fire burned nearly 7,100 acres of which approximately 652 acres are on Big Thicket National Preserve.

The fire burned an estimated 300 acres of the Turkey Creek Unit on April 17, 2011. The fire acreage in the Preserve increased on April 19, due to a burnout operation to contain a spot fire on the west side of Turkey Creek as well as some growth within natural barriers.) The fire was declared contained on April 27, 2011. It has yet to be declared controlled and out.

Post-Fire Issues and Concerns

The Pipeline Road Fire Burned Area Emergency Response (BAER) Team assessed the incident to determine post-fire impacts to life, property, and critical and natural resources. The team conducted field visits to review resource conditions after the fire, completed literature reviews, and consulted resource specialists. The main objectives of the field visits were as follows:

- Identify and inventory values at risk
- Identify the physical and biological mechanisms that are creating risks
- Assess impacts and threats to cultural resources
- Develop soil burn severity maps to identify potential areas of concern
- Review channel morphology and riparian conditions
- Determine needs for emergency stabilization
- Assess post-fire invasive species concerns and identify treatments

Values at risk are properties, capital improvements, and cultural and natural resources located within or downstream of the fire that may be subject to damages from suppression actions, erosion, hazard trees, and invasive species. The following issues were identified during the in-brief and field assessments for the Pipeline Road Fire:

- Creation of new illegal access points
- Soil and resource damage from dozer line construction
- Recreational trail impairment from suppression activities such as dozer line construction
- Fire damaged and destroyed boardwalks that cross wetland areas
- Invasive species proliferation, primarily Chinese Tallow (*Triadica sebifera*)
- Stream bank stabilization
- Culvert plugging
- Long term monitoring needs to determine fire effects
- Fire created hazard trees along trails and roadsides
- Feral hog damage on recovering areas
- Post-fire threats to cultural resources
- Fences downed by incineration
- Interpretive opportunities for public understanding of the fire

During field assessments, stream bank stabilization and culvert plugging was determined to not be a post-fire issue. Hazard trees have been dealt with by suppression crews and severity resources and will not be part of this plan. Feral hogs are a larger management issue that crosses jurisdictional boundaries and population controls will not be effective without a comprehensive management plan. So population control measures will not be a part of the short term nature of this post-fire plan. Fire damaged fences are adjacent to industrial and hunting club lands that have restricted access. Therefore, it has been administratively determined that the fences will not be reconstructed because they will serve no evident purpose for excluding people or livestock. Existing known cultural resources are outside the fire's footprint. The remainder of the issues and concerns are addressed in this report.

SUMMARY OF TREATMENTS AND ACTIVITIES

Below is a summary of the treatments activities proposed for funding. Individual treatment specifications are found in the **SPECIFICATIONS** section of this plan.

PART E - SUMMARY OF ACTIVITIES AND COSTS

LINE ITEM NUMBER	SPEC NUMBER	TITLE	UNIT	UNIT COST	NUM OF UNITS	WORK AGENT	COSTS
1	1	Invasives	Acres	\$ 173	180	P	\$ 31,097
2	2	Minor Facilities Infrastructure	Each	\$ 8,662	8	F	\$ 69,294
3							
4							
5							
TOTAL COSTS							\$ 100,391

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

Specification Number 1, Invasive Species, is proposed to be funded in the first year with Emergency Stabilization monies, Project Work Element E-13. Subsequent years will be funded by Burned Area Rehab, Project Work Element B-11.

Specification Number 2, Minor Facilities Infrastructure, will be funded by Burned Area Rehab, Project Work Element B-11.

There was considerable dozer line damage on this incident. Funding to repair these damages comes from the suppression account. The damages are noted in this plan and a statement of work to repair the damages are found in the appendix. However, the costs are not requested as part of this plan.

FIRE INFORMATION

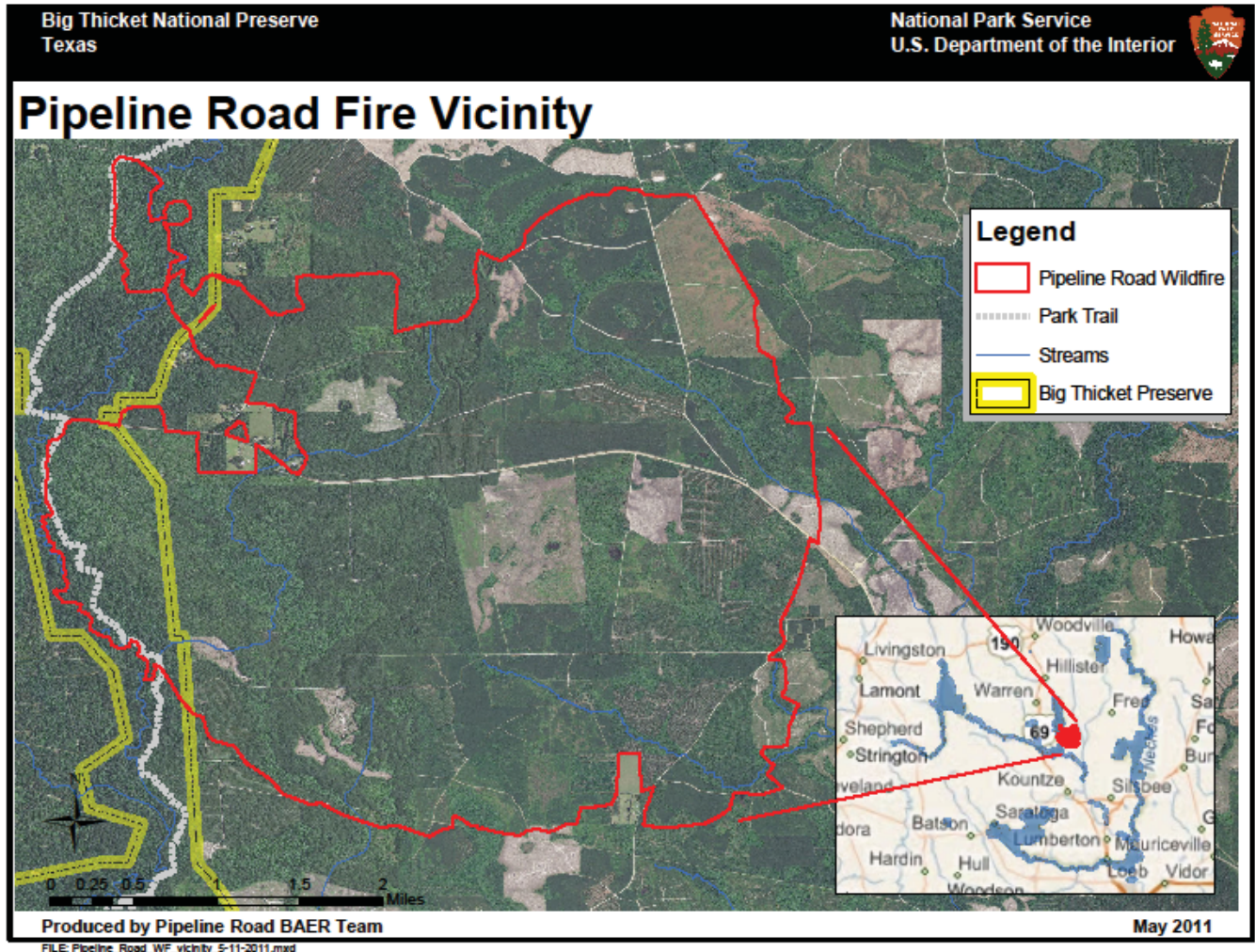
FIRE LOCATION AND BACKGROUND	
FIRE NAME	PIPELINE ROAD
FIRE CODE	1249-F2QX-E11
PARK	BIG THICKET NATIONAL PRESERVE
STATE	TEXAS
REGION	INTERMOUNTAIN
IGNITION DATE	APRIL 16, 2011
CONTAINMENT DATE	APRIL 27, 2011
ACRES	652 ACRES ON BIG THICKET, 7100 TOTAL

ASSESSMENT TEAM

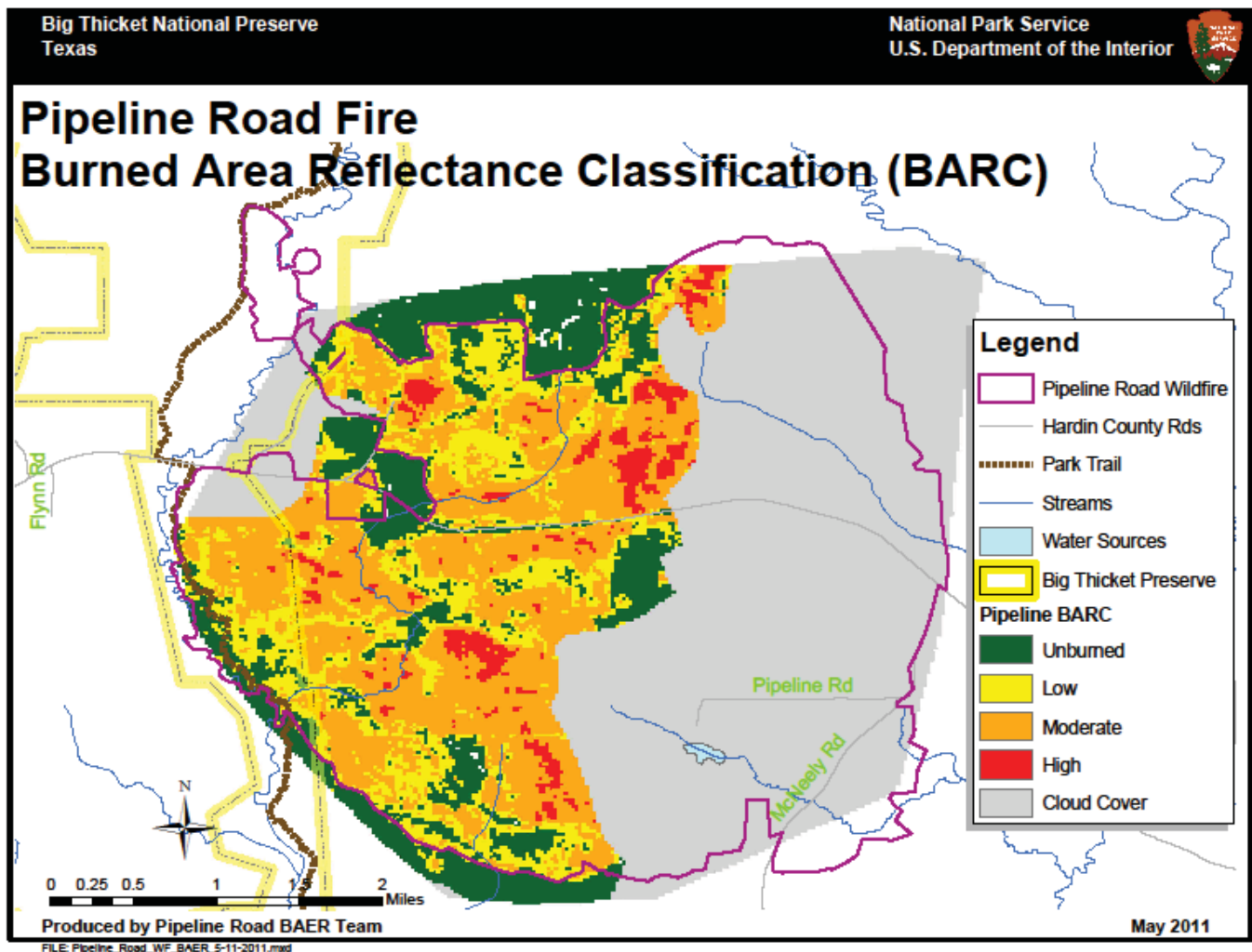
TEAM MEMBERS	
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MAPS

VICINITY MAP



BURNED AREA REFLECTANCE CLASSIFICATION MAP



BURNED AREA ASSESSMENTS



WATERSHED RESOURCE ASSESSMENT

OBJECTIVES

- Assess dozer line damage caused by pipeline road fire to the Turkey Creek riparian area and associated wetlands, drainages, soils, and changes to soil conditions and hydrologic function.
- Identify the most critical dozer impact areas susceptible to erosion, and prescribe treatments, if necessary, to mitigate impacts and risks.
- Identify future monitoring needs.

OBSERVATIONS

Turkey Creek is a perennial, alluvial stream currently flowing below its normal bankfull level. Time was not taken to get a discharge reading, but mussel kills were identified along the beaches of the creek just above the water level. No standing water was observed inland on the floodplains or low lying wetland areas.

Hydrology and soils were assessed in the field at locations impacted by the dozer (see dozer line map). Impacts observed to water features and soils are as follows:

Wetlands:

- Soil berms or “push-up piles” were created by dozers bisecting continuous flat-lying wetland areas.
- Wetland bottomland, including cypress knees, vegetation, and soils were impacted with newly formed depressions, soil mounds, and compaction of soil in the tracks created.



Left: Picture shows a push-up pile created by dozer in cypress wetland bottomland. Right: Picture show a dry, wetland bottomland with burned cypress knees.

Streambanks:

- Dozer push-up piles were created at several locations alongside streambanks. The piles varied in heights from approximately 2-10 feet.
- Push-up piles were composed of sands, clays, and vegetation (mainly grasses, leaves, twigs, litter) associated with moving dirt across the land surface.
- Streambanks were incised and well anchored with root systems of plants, trees, and organic matter.
- Streambanks were largely protected from the burn because of their vertical nature. Burned tree limbs were observed in the stream and on the banks of Turkey Creek because they fell from above, grass and root systems on the bank remained unburned (see picture below).
- Tree canopy cover over streambanks was estimated to be 60 -75% by field professionals.
- Soil on top of the banks was covered with leaf litter, vegetation, and in certain areas, felled trees from burned snags, fire mop up debris, and limbs cut for visitor use protection.



Above: Pictures showing burned left bank of Turkey Creek. Tree canopy, leaf litter, some shrubs and downed trees remain on top layer of soil.



Above: Shows dozer line and push-up pile at left bank on Turkey Creek.

Drainages:

- Dozer lines created push-up piles of soil and vegetation crossing natural drainages.
- Push-up piles were largely composed of sand with some clays and minor traces of vegetation.
- Push-up piles in the drainages were generally no higher than 2- 4 feet.
- Large brush piles associated with dozing also blocked drainages but were uncompacted.
- All drainages were dry with no standing water.

Soils:

- Two broad categories of soils in the burned area are: a highly leached, acidic, fine sandy loam called the Iulus-Bleakwood Complex (IbA) with moderate and high available water capacities, low runoff, very deep root zones and slight water erosion hazards located along the stream corridor (NRCS).
- The second soil type can be found just outside the IbA and is called Votaw Sand (VoA). This soil is strongly acidic, fine sand that is well drained, capable of moderately rapid permeability and negligible runoff.

FINDINGS

The burned area is entirely in extreme drought conditions due to the current La Nina pattern over the eastern Tropical Pacific. This being the case, it is important to keep drainages open so when precipitation events do occur, water will be able to drain naturally to stream channels, low lying wetland areas, and infiltrate into the ground.

The entire burned area resides in a river valley of a coastal floodplain with slopes largely from 0-1%. Even small changes in elevation can change the hydrology, and subsequently, vegetation and ecology of the area. Dozer lines created small disturbances in the elevation and natural flow paths of the land surface and are described in greater detail below.

Wetlands:

- Dozer lines bisecting wetland bottomlands disrupt hydraulic continuity, creating a barrier for water and nutrients to pass across the newly established “road” and establish a new flow path for water to follow.
- Sediment push-up piles and berms trap water and nutrients in un-natural highs and lows across the wetland bottoms.

Streambanks:

- Streambanks along Turkey Creek are incised, composed of sands and clays, and well anchored with well-established root systems.
- The dozer work has greatly disturbed the floodplain of Turkey Creek throughout the burned area.
- Floodplains dissipate energy and are responsible for transporting nutrients into the riparian area. The floodplain function has been altered with piled up soil and berms blocking its ability. Even small changes in the floodplain alter drainage corridors and nutrient pathways.
- Streambank slope failures resulting from erosion are unlikely to occur because slopes remain stabilized by vegetation, however, sediment push-up piles from dozing, if not removed, will eventually add sediment to the stream and cause future instability to the stream banks and channel morphology.



Above: Typical, incised Turkey Creek streambank. Looking upstream at left bank, burned area above, note unburned plants and vegetation in bank.

Drainages:

- Drainages in the riparian zones link the terrestrial and aquatic systems and thus it is imperative to keep them open and functioning properly.
- There are 4.75 miles of dozer line; this amount of disturbance in the floodplain will redirect natural water flow patterns to the stream, drainages, and wetlands, altering the hydrologic function of the area.

Soils:

- Soil is sufficiently covered to prevent significant erosion of the streambank. In addition, streambanks that intersected the fire have slopes that angle slightly inland. Therefore, no significant erosion is expected to cause bank instability or headcutting up into the floodplain.
- Soil conditions remained largely unchanged. The top soil layer in riparian areas had a dusting of ash fairly continuously over the burned area no more than an inch thick.

RECOMMENDATIONS

The following recommendations are ordered by priority.

1. Rehabilitation of suppression constructed “Dozer Lines” is necessary to restore natural landscape surface water flows and prevent soil erosion. Rehabilitation will also serve to restrict unintended/undesired access by 4 wheeled drive and “All Terrain Vehicles” (ATV’s), provide for re-establishment of trail affected by suppression access needs and to re-establish trail widths to pre-disturbance widths (usually 10 feet running surface).
2. Rehabilitate the dozer lines as soon as possible, starting at stream intersects, wetlands and drainage crossings.
3. Monitor by visual inspection streambanks that intercept dozer lines for evidence of knick points headcutting to trails.
4. Return soil side cast berms (also called push-up piles), and recover “fill” materials blending disturbed areas to fit the natural contours. Accomplishment of this specification is best achieved with use of an excavator with a bucket with an opposable thumb and capable of having a 15- 20 ft. reach, combined with the use of a 4 wheeled drive heavy duty backhoe, and skid steer.
5. Dozers are excellent tools to “push” dirt to establish fire control lines. Dozers, however, are also very inefficient in the rehabilitation process to recover side cast material and can cause twice the disturbance if used for rehabilitation in timbered vegetation types.

VEGETATION BURNED AREA ASSESSMENT



OBJECTIVES

- Evaluate and assess fire and suppression impacts to vegetation
- Identify needs to aid in native vegetation recovery
- Evaluate the potential for non-native plant species invasion into native communities within the fire and determine treatment and monitoring needs and methods

ISSUES

- Presence of several invasive species that thrive on disturbance and open canopies previously documented within fire perimeters
- Fire suppression bulldozer line opened up 4.75 miles of mineral soil as well as the tree canopy creating an ideal habitat for invasion by exotic plant species

- Further canopy opening in moderate to high severity burn areas through tree mortality not yet visible

BACKGROUND

Big Thicket National Preserve is located in an ecological ecotone—where many different biological communities join. Three major vegetation regions meet here: coastal wetlands, mixed grass prairies, and the long leaf pine-bluestem range which is divided into various associations. Soils are diverse in origin, saturation and Ph causing the intersection with this ecotone to result in an extraordinary abundance of species within a small geographic area.

The Preserve was set aside by Congress in 1974 to preserve the complex biological diversity. Unfortunately the boundaries are political, not ecological, with many public and utility roads dissecting already discrete and geographically isolated units. Additionally, many units are linear with heavy disturbance in adjacent areas. As a result, there are many vectors for non-native species invasion.

The Turkey Creek Unit is a narrow strip of land following the creek from County Road 1943 to Village Creek. It is extremely diverse with 16 different soil types and several different plant communities. The 15 mile Turkey Creek Trail winds through the unit through various vegetation types including over 20 different alliances.

OBSERVATIONS

The Pipeline road wildfire burned actively and intensely within privately owned pine plantations and spotted up to a half mile ahead of the fire, creating a spot fire across Turkey Creek (North of Gore Store Road) and in proximity to the trail (South of Gore Store Road). The overall fire behavior created a mosaic of fire effects within a variety of habitats. These habitats include fuel loadings ranging from seasonally flooded bottomland hardwood forest to long unburned pine uplands.

During the Pipeline Fire, both large and small bulldozers were used to create an 8-20 foot fuel break that loosely follows the Turkey Creek Trail for approximately 4.75 miles; this resulted in a more open canopy combined with a high level of disturbance. This disturbance occurs in wetlands, midslope, and uplands; each vegetation type already hosts invasive weed species that are exacerbated by both disturbance and more open canopies. The most alarming are Chinese Tallow (*Triadica sebifera*), Japanese Climbing Fern (*Lygodium japonicum*), and Deeprooted Sedge (*Cyperus entrerianus*).

Other invasive species that occur in the area and that threaten to invade are: Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), Chinese wisteria (*Wisteria sinensis*), and Mimosa (*Albizzia julibrissan*).

Pre-fire Conditions

The Turkey Creek Unit vegetation was disturbed before the Preserve was established from logging, pipeline, and road construction. In the 1980's the majority of the pine overstory was

killed from Southern Pine Beetle infestation increasing canopy hardwoods (FMP 2004). Hurricanes Rita (2005) and Ike (2008) also impacted the Turkey Creek Unit causing canopy mortality from wind damage. Sections of the Turkey Creek Unit are managed with prescribed fire; however the Pipeline Rd fire burned areas that had not been treated with prescribed fire by the National Park Service.

Post-fire Conditions

Various post fire intensities were observed within the Pipeline Rd wildfire. Lower intensity fire effects were observed in the wetland vegetation of the bottomland hardwood forests. Although these species do not tolerate fire, most of the hardwood species will resprout following the fire. The moderate intensity fire effects within the midslope and upland pine oak communities include top-kill of midstory hardwoods and brush species in addition to fire scaring, leaf scorch, and isolated torching of the overstory trees. These areas will also resprout and germinate after the fire. The higher fire intensities occur in the upland pine areas and areas of hurricane debris and include consumption of midstory brush and tree species in addition to overstory mortality. Due to current drought conditions and wildfire disturbance in long unburned forests, the effects on the overstory may not be apparent until late summer of 2011. In addition to disturbed areas from dozer lines, these areas of high fire intensity that could create large canopy gaps are also at risk for exotic species invasion.

FINDINGS

Priority Invasive Weed Backgrounds

Chinese Tallow (*Triadica sebifera*) is a deciduous tree that grows to 60 feet (18 m) in height and 3 feet (90 cm) in diameter, with heart-shaped leaves, dangling yellowish spikes in spring yielding small clusters of three-lobed fruit that split to reveal popcorn-like seeds in fall and winter. Chinese tallow will transform native habitats into monospecific (single species) tallow forests in the absence treatment. Chinese tallow alters light availability for other plant species and the fallen tallow leaves contain toxins that create unfavorable soil conditions for other native plant species. It may reproduce in as little as three years and prolifically produces seeds, which are readily transported by water and birds. Flowers mature March through May and fruit ripens August through November. It also propagates via cuttings, stumps, and roots. It is able to invade stream banks, riverbanks, and wet areas like ditches as well as upland sites. Management is via application of a triclopyr herbicide to basal bark in late summer or early fall (such as 20% Garlon 4 in oil) or, for large trees, apply directly to the stump after cutting down the tree (using Rodeo for trees growing in water). Seedlings may be hand pulled.

Japanese Climbing Fern (*Lygodium japonicum*) climbs to 90 feet (30 m) long and often forming mats of shrub- and tree-covering infestations. It produces alternating generations of vegetative and reproductive plants. This perennial vine-like fern, once established, and if left uncontrolled, will shade out entire trees. Also produces a thick ground cover preventing native seed germination. Eradication of Japanese climbing fern is difficult because of the large rhizome root system and the rapid germination from spores. Prescribed burns will eliminate aerial portions, but will not stop resprouting. Herbicides containing glyphosate offer the best choice for

eradication of established infestations. Young plants should be pulled by hand. Extremely large infestations should be cut or mowed, applying herbicide to new growth.

Deeprooted Sedge (*Cyperus entrerianus*) grows in robust, loose clumps to up to 40 inches high; culms are connected by thick rhizomes. It spreads readily from disturbed to natural areas. Once established, it out competes native grasses and sedges, threatening local plant biodiversity. It is an aggressive seed producer; large plants can produce 1 million viable seeds/year and the seeds are readily transported by water, soil movement and equipment. It flowers and fruits from June through November, but it also reproduces vegetatively via fragmentation and budding of the rhizomes. It thrives in disturbed, inundated soils. It is capable of displacing all natives and forming monocultures in ditches, coastal prairies, and low flatwoods. Glyphosate is expected to achieve 98% control when applied at a rate of 2 quarts/acre. Use a 2% solution on individuals. Mowing at 2-4 week intervals suppresses seed production. Machinery must be kept clean to prevent seed spread.

Japanese Honeysuckle (*Lonicera japonica*) is a semievergreen to evergreen woody vine, high climbing and trailing to 80 feet (24 m) long, branching and often forming arbors in forest canopies and/or ground cover under canopies and forming long woody rhizomes that sprout frequently. It is evergreen to semi-evergreen nature gives it an added advantage over native species in many areas. Shrubs and young trees can be killed by girdling when vines twist tightly around stems and trunks, cutting off the flow of water through the plant. Dense growths of honeysuckle covering vegetation can gradually kill plants by blocking sunlight from reaching their leaves. Vigorous root competition also helps Japanese honeysuckle spread and displace neighboring native vegetation. Growth and spread of Japanese honeysuckle is through vegetative (plant growth) and sexual (seed) means. It produces long vegetative runners that develop roots where stem and leaf junctions (nodes) come in contact with moist soil. Underground stems (rhizomes) help to establish and spread the plant locally. Long distance dispersal is by birds and other wildlife that readily consumes the fruits and defecate the seeds at various distances from the parent plant. For small patches, repeated pulling of entire vines and root systems may be effective. Plants can also be grubbed out using a pulaski or similar digging tool, taking care to remove all roots and runners. Burning removes above ground vegetation but does not kill the underground rhizomes, which will continue to sprout. For effective control with herbicides, healthy green leaves must be present at application time and temperatures must be sufficient for plant activity. Several systemic herbicides (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively.

Silk tree or mimosa, (*Albizzia julibrissan*), is a small to medium-sized tree that can grow up to 20-40 feet tall. Because silk tree can grow in a variety of soils, produce large seed crops, and resprout when damaged; it is a strong competitor to native trees and shrubs in open areas or forest edges. Dense stands of mimosa severely reduce the sunlight and nutrients available for other plants. Silk tree reproduces both vegetatively and by seed. Silk tree seeds have impermeable seed coats that allow them to remain dormant for many years. If cut or top-killed, trees resprout quickly and sprouts can grow over three feet in a season. Trees can be cut at ground level with power or manual saws. Cutting is most effective when trees have begun to flower to prevent seed production. Because mimosa spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control

or repeated cutting for resprouts. Silk tree seedlings and small trees can be controlled by applying a 2% solution of glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves. Systemic herbicides such as glyphosate and triclopyr can kill entire plants because the chemicals travel through a plant from the leaves and stems to the actively growing roots, where they prevent further cell growth.

Previous Surveys

In 2009 a report was submitted to the Preserve concerning the pre and post operational vegetational assessment of seismic surveys conducted within the Turkey Creek Unit by Dixie Environmental Services Company. Their findings were that “*Triadica sebifera* was, by far, the most widespread exotic species to be sampled, with far fewer plots containing any trace of *Ligustrum sinense*, *Lonicera japonica*, *Albizia julibrissin*, and *Lygodium japonicum*. *Cyperus entrerianus* and *Pinus elliottii* were not noted in any of the plots examined in 2006 or 2009”.

Although Deep Rooted Sedge was not observed during the 2006 and 2009 surveys, it was listed in the 2005 Annotated Checklist of the Vascular Flora of the Turkey Creek Unit. The voucher specimen’s location should be determined so the Preserve knows the distance of the occurrence to the disturbance from the fire and suppression efforts.

Recommendations

Exotics Treatments

- 1) Replace soil in dozer line; cover with woody debris (non-specification related)
- 2) Treat priority exotics that may be a seed source within a 50 foot buffer of the dozer line to reduce germination potential within the disturbed area. Treat all exotics within dozer line for three continuous years
 - Hire GS-5 Biotech seasonal(s) to manually and chemically treat exotics following treatment guidelines for each species listed above. (5 Pay periods for 3 consecutive years.)
 - Purchase herbicides, sprayers, PPE.
 - Coordinate with Gulf Coast EPMT for application licensing, herbicide storage, Pesticide Use Proposal System (PUPS) approval, and record keeping.
 - Monitor Treatments: Establish and repeat photopoints (coordinate with Fire Effects Monitors) and GPS individual seed source trees and polygons of exotic species invasion
 - Secure GSA truck lease or other form of transportation for seasonal(s).
- 3) Survey and identify high burn severity areas and monitor for the presence and introduction of invasive species. The BITH Fire Effects Monitoring Program will use available burn severity maps and identify high severity areas to map tree canopy mortality once it is visible in the overstory. Resource Management will need to monitor and treat for exotics if invasion occurs.

- 4) Train field technicians in accurate identification on Deep Rooted Sedge to ensure plants do not get overlooked and native sedges are not treated with herbicide (non-specification related).
- 5) Wash equipment used in the rehabilitation of the dozer lines (non-specification related).
- 6) Develop interpretative materials to educate public on fire effects, restoration, and invasive species control (non-specification related).

Native plant Restoration

Revegetation was not deemed necessary due to a plentiful seed source and the resprouting capacity of many species. The structure of woody debris that will be placed on top of the filled and contoured dozer line will facilitate regeneration of vegetation and reduce future disturbance and trampling by visitors.

Consultations

Eric Worsham, Exotic Plant Management Team Leader
David Roemer, BITH Chief of Resource Management

References

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Resprouting tallow from downed trees in dozerline



Tallow seed source adjacent to dozer line

MINOR FACILITIES BURNED AREA ASSESSMENT

OBSERVATIONS

Trail: 2.62 miles of the Turkey Creek trail were impacted by various levels of fire and suppression efforts.

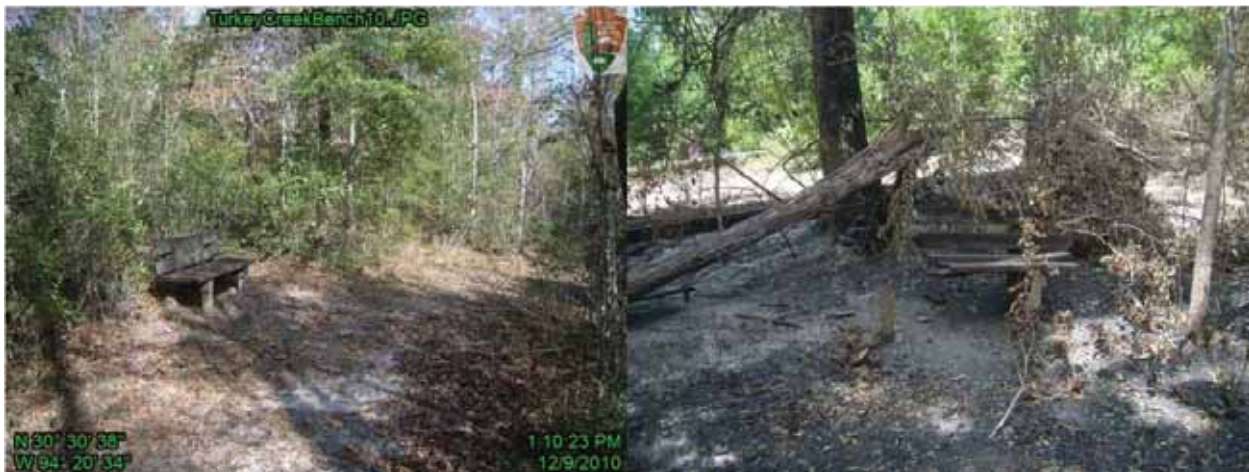
Trail Segment	Distance (miles)	Comment
North of Gore Store Rd	.63	Trail used as control line, light dozer impact
South of Gore Store Rd		
D-8 Dozer Line	.71	Trail bisected by dozer line 9 times
Mid section	1.23	Burn both side of trail
South of Pipeline	.05	Dozer line bisects trail
Total Distance	2.62 miles	



Trail Infrastructure:

Eight boardwalks (light foot bridges), and 5 benches were burned:

Boardwalk # Bench#	Length	Channel Depth	Comment
BW 29	24.5		North of Gore Store Road
BB 1	60.4	1.8	Board walk
BW 34	60	2.5	Board walk
BE 9			bench
BW 35	117	2.0	Board walk
BE	10		bench
BW 36	74.5	2.0	Board walk
BE 11			bench
BW 37	37.5	1.5	Board walk
BE 13			bench
BW 38	66	4.0	Board walk
BW 39	60.4	3.0	Board walk
Total Length	500.4 feet	Avg. 2 feet	



Preserve Boundary:

2.19 miles of Preserve boundary was burned through by the Pipeline road fire; .39 miles North of Gore Store road, 1.8 miles South of Gore Store Road. “US Government Property” signs were melted and yellow paint blazes on trees were blackened. An area of pine forest on the south at the pipeline and boundary may have stand mortality due to fire intensity. This area also has a section of Preserve fencing. A five strand barbwire on metal T-post. A gate or gap blocking access down the pipeline has been missing for some time.



RECOMMENDATIONS

Trail:

The trail should remain closed until all suppression rehabilitation of dozer lines, and infrastructure repairs are in place. Recommend more permanent closure barrier and signage placement at Sandhill Loop South Gore Store road trail head, North Gore Store road Trail head, and Hester Bridge South trail head. Trail impacted by the dozer line will need to be rehabilitated as per the dozer rehab specifications (see Suppression Rehabilitation of Dozer lines) with additional work to clear and clean up the foot path. Reposition soil misplaced by dozers, and move dead and damaged woody vegetation out of the trail area and arrange along the dozer rehabilitation areas to inhibit travel from the trail into the dozer scar. Interpretive signs should be strategically placed to inform visitors of the wildfire occurrence, the safety hazards and ecological impacts.

Trail Infrastructure:

Rebuild boardwalks, and benches to original specification (see Minor Infrastructure Specification). Park personnel estimate a work crew of three working 50 hour weeks can rebuild the boardwalks in 8 weeks.

Boundary Lines:

Repaint tree bands and replace boundary signs. Monitor area with high fire intensity for supplemental boundary marking after the death of individual trees. Replace gap or gate on Pipeline and boundary crossing.

PHOTOS



Photo 1. Unburned boardwalk across a wetland.



Photo 2. Burned boardwalk



Photo 3. Vegetation pushed to the side from dozer line construction.



Photo 4. Soil disturbance from dozer line construction.

TREATMENT SPECIFICATION WORKSHEETS



Pipeline Road Post-Fire Response Plan | 2011

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Invasives	PART E SPECIFICATION #	1
NFPORS TREATMENT CATEGORY*	Invasives	FISCAL YEAR(S) (list each year):	2011, 2012, 2013
NFPORS TREATMENT TYPE *		WUI? Y / N	N
IMPACTED COMMUNITIES AT RISK	none	IMPACTED T&E SPECIES	N/A

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

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

Number and Describe Each Task:
A. General Description: Manual and Chemical treatment for invasive plant species on 60 acres of disturbed dozer line (including 50ft buffer to eliminate seed sources) in the Turkey Creek Unit (with established invasive species); and potentially also on higher burn severity areas--these areas will be evaluated 2-3 months post fire for tree mortality and canopy opening. B. Location/(Suitable Sites): Turkey Creek Unit: 4.75 miles dozer lines with 50 ft buffer and potentially also in moderate to high severity burn areas. C. Design/Construction Specifications: Treat targeted invasive species chemically and/or manually within treatment areas--refer to Vegetation Assessment; establish and maintain photopoints; GPS documentation of occurrence/reoccurrence of invasive species D. Purpose of Treatment Specifications: to eliminate competition with regenerating native cover and prevent monocultures of invasive species known to proliferate post-disturbance. E. Treatment Effectiveness Monitoring Proposed: Photopoints--recorded annually. Visual survey combined with documented occurrence of exotic species pre and post treatment.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST / ITEM
GS-5 Seasonal Biological Technician(s) Exotics (\$16.92 X 400 X 3 years)	\$ 20,304
GS-5 Seasonal Fire Effects Monitoring Biological Technician (\$16.92 X 40 X 1 year)	\$ 680
TOTAL PERSONNEL SERVICE COST	\$ 20,984
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
GSA Truck Lease @ \$500/month X 3 months X 3 years	\$ 4,500
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$ 4,500
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
Glyphosate (labeled for application in water) @\$26.00/gallon (5 gallons/year X 3 years)	\$ 390
Garlon 3A (5 gal @ \$70/gal X 3 years)	\$ 1,050
Garlon 4 Ultra (7.5 gal @ \$95/gal X 3 years)	\$ 2,138
JLB Carrier Oil	\$ 300
Terramark Dye(Spray Indicator) @ \$39.60/gallon (8 gal/year X 3 years)	\$ 950
18" Grange Non-Insulated Pull-On Rubber Boot (\$57.29ea X 3 years)	\$ 172
Chemical gloves (6/year @ \$7.45 X 3 years)	\$ 134
protective eyewear@\$11.5 each (2/year X 3 years)	\$ 69
SP1-E backpack sprayer@\$130 X 2	\$ 260
Measuring and clean-up equipment	\$ 150
	\$ 5,613
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
N/A	
TOTAL TRAVEL COST	\$ -
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
N/A	
TOTAL CONTRACT COST	\$ -

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SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
FY 11	07/18/11	11/18/11	P	Acres	\$ 183	60	\$ 10,957
FY 12	04/01/12	06/15/12	P	Acres	\$ 168	60	\$ 10,070
FY 13	04/01/13	06/15/13	P	Acres	\$ 168	60	\$ 10,070
TOTAL					\$ 173	180	\$ 31,097

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

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P, E, 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

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT

See Vegetation Assessment

TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
BITH	60	\$ 31,097
TOTAL COST		\$ 31,097

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PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Minor Facilities Infrastructure	PART E SPECIFICATION #	2
NFPORS TREATMENT CATEGORY*		FISCAL YEAR(S) (list each year):	
NFPORS TREATMENT TYPE *		WUI? Y / N	
IMPACTED COMMUNITIES AT RISK		IMPACTED T&E SPECIES	

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

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

Number and Describe Each Task:
A. General Description: Replace Minor Preserve Infrastructure (boardwalks, benches, boundary markers) damaged in Pipeline Road wildfire. B. Location/(Suitable Sites): See BAER map: Pipeline_Road_WF_boardwalks_5-11-2011 C. Design/Construction Specifications: See Minor Facilities Assessment figure D. Purpose of Treatment Specifications: To repair damage and open trail currently closed to Preserve visitors. E. Treatment Effectiveness Monitoring Proposed: An inspection one year post fire will be planned to check mortality of boundary trees, for supplemental

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
Regular 3 persons @ \$24/hr X 40 hrs 1person @ 36.32 X 40 hrs X 8 weeks	\$34,664
Overtime 10 hours per week 3 persons @ \$31.96/hr X 10 hrs 1person @ 40.75 X 10 hrs X 8 weeks	\$ 10,928
Truck fuel and misc. @ \$125 / per day X 40 days	\$ 5,000
TOTAL PERSONNEL SERVICE COST	\$ 50,592
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST / ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	\$ -
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST / ITEM
2"x8"x12' treated (7 per 12 foot section) X 42 sections = 294 @ \$8.49	\$ 2,496
4"x4" x 12' (7 per 12 foot section X 42 sections) = 294 boards @\$9.89	\$ 2,908
2"x6"x12' (24 per 12 foot section X 42 sections) = 1008 boards @ \$6.69	\$ 6,744
80 pound sac-crete 12 per 12 ft section x 42 sections = 504 bags @\$3.55	\$ 1,789
1/2" dipped gal. carriage bolt with nuts (7 per 12 foot section) X 42 sections = 294 @ \$3.24	\$ 953
40 boxes of gun nails #15D x 31/2inch	\$ 3,160
2x4x12 treated (2 per 12 section) x 42= 84 @\$4.20	\$ 353
100 Boundary signs	\$ 150
5 gallons yellow boundary paint @29.95 gallon	\$ 150
TOTAL MATERIALS AND SUPPLY COST	\$ 18,702
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL TRAVEL COST	\$ -
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	\$ -

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SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
FY 2011	05/25/11	09/30/11	F	Each	\$ 8,662	8	\$ 69,294
TOTAL					\$ 8,662	8	\$ 69,294

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

SOURCE OF COST ESTIMATE

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

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

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT

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TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS - Big Thicket		\$ 69,294
TOTAL COST		\$ 69,294

Specification Form Created September 23, 2006

APPENDIX A: ENVIRONMENTAL COMPLIANCE



Pipeline Road Post-Fire Response Plan, Big Thicket National Preserve Environmental Compliance Considerations and Documentation

A. Federal Environmental Compliance Responsibilities

All projects proposed in the Pipeline Road Fire Post-Fire Response Plan, which includes recommendations for Burned Area Emergency Response (BAER) and Burned Area Rehabilitation (BAR) mitigation actions, that are prescribed, funded, or implemented on park 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 BAER Team considerations of NEPA compliance requirements for prescribed emergency stabilization, rehabilitation and monitoring actions described in this plan for areas affected by the Pipeline Road Fire, Big Thicket National Preserve, Texas.

This plan identifies specific emergency stabilization, rehabilitation, and monitoring actions and recommendations designed to mitigate damages to resources as a result of the Pipeline Road fire and associated fire suppression activities. The park must complete separate NEPA analyses and compliance for fire response activities not addressed in this plan.

Agency Specific Guidance: This NEPA documentation has been developed in accordance with National Park Service specific guidelines. Emergency stabilization and rehabilitation actions proposed on National Park Service lands, involving the agencies permitting, funding, or implementation, must comply with regulations set forth in the *Department of the Interior Manual Part 516 (DM 12)*.

B. Related Plans and Cumulative Impacts Analysis

The Big Thicket National Preserve Wildland Fire Management Plan, 2004. The fire management plan provides guidance for “Emergency Rehabilitation and Restoration” actions following wildfires in the Preserve. Specific guidance within the Complex includes:

Mitigation and restoration activities will be incorporated into stabilization and restoration actions. This includes maximizing the least resource damaging suppression actions (utilization of natural barriers, and existing roads or trails) and utilization of light ground pressure equipment minimizes rehabilitation after a fire. Locating control lines to avoid falling and bucking trees also reduces required rehabilitation. Severely damaged large trees in developed areas (i.e. trails) may be classified as “hazardous” and will be felled to protect the public. Restoration actions begin promptly following suppression of the fire, with flag lines, signs, and trash removed during the mop-up phase. The Fire Management Officer is responsible for insuring that rehabilitation actions are conducted. Plowed firelines within the preserve require considerable rehabilitation efforts. Typically the berms can be ‘rolled’ back into place, if they are not ‘set’ into place by rainfall, foot traffic, or a return trip by heavy equipment. Handlines generally do not require significant rehabilitation

efforts. Contouring of slopes, erosion control, of seeding is not required in the preserve.

Cumulative Impact Analysis: The emergency stabilization and rehabilitation treatments for the Pipeline Road fire, as proposed in this plan, do not result in an intensity of impact that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above park management plans and associated environmental compliance documents of the NPS, and categorical exclusions presented below.

No direct or indirect unavoidable adverse impacts to the biological or physical environment would result from the implementation of the Pipeline Road Fire Burned Area Post-Fire Response Plan.

Summary of Compliance Documentation Relevant to the Pipeline Road Post-Fire Response Plan

The following table summarizes the existing NEPA or NHPA compliance in place for the BAER/BAR treatments proposed for the Pipeline Road fire. Two treatments may involve ground disturbance and thus would require archeological consultation; one treatment, herbicide application may require completion of an Environmental Assessment before implementation is allowed.

Treatment or Action	NEPA documentation (EIS, EA, or Cat Ex)	Reference to Assessment	Findings of Significance
BAER assessment and planning	DO-12 CE: 3.3.U	N/A	No Significant Impact
Herbicidal treatment of invasive species	Need to verify with Preserve Natural Resource staff and Exotic Pest Management Teams	Vegetation	Categorical Exclusion No Significant Impacts expected
Repair of minor facilities - Boardwalks	DO-12 CE: 3.4 C.3; DO-12 CE: 3.4 G.2	Minor Facilities	No Significant Impact May require archeological consultation
Dozer line repair and restoration	DO-12 CE: 3.4 G.2; Big Thicket National Preserve Fire Management Team, 2004	Watershed	No Significant Impact May require archeological consultation

C. DOI EXCEPTIONS TO CATEGORICAL EXCLUSIONS

The CEQ Regulations at 40 CFR 1508.4 require agencies to consider whether fairly routine actions involve extraordinary circumstances that, per NEPA, trigger an agency to prepare additional assessment and consideration. If it is determined that any of the exceptions listed in the table below apply to a proposed action, that action may not be categorically excluded, and an EA or an EIS must be prepared. The list below is a Department of the Interior list that applies to all DOI agencies (516 DM 2, Appendix 2); agencies often have additional items on their own list of Departmental exceptions, appendix 2). All treatments that are proposed as a Categorical Exclusion for the Big Thicket National Preserve have been compared against the list of Extraordinary Circumstances listed below and were found not to trigger any exceptions.

Yes	No	Extraordinary Circumstance. Would this action...
	X	2.1 Have significant impacts on public health or safety?
	X	2.2 Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas?
	X	2.3 Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA Section 102(2)(E)]?
	X	2.4 Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks?
	X	2.5 Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects?
	X	2.6 Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects?
	X	2.7 Have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by either the bureau or office?
	X	2.8 Have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated Critical Habitat for these species?
	X	2.9 Violate a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment?
	X	2.10 Have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898)?
	X	2.11 Limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007)?
	X	2.12 Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112)?

D. Consultations

National Park Service

- Ray Moore, Superintendent (Acting), Big Thicket National Preserve (BITH)
- David Roemer, Chief of Resources, BITH
- Deanna Boensch, Fire Ecologist, BITH
- Eric Worsham, Exotic Pest Management Team Liaison, BITH
- Jalyn Cummings, Hydrologist, Intermountain Regional Office (IMR)
- Linda Kerr, IMR BAER Coordinator

All BAER and BAR treatments will be presented to the Interdisciplinary Team for discussion of the recommended compliance requirements described above prior to initiation of any of the actions.

US Fish and Wildlife Service and National Historic Preservation Act consultations:

No consultation was required with the US Fish and Wildlife Service for federally listed Threatened and Endangered species because no listed species or designated Critical Habitat is found within or adjacent to the Pipeline Road fire perimeter.

The Texas State Historic Preservation Officer will be contacted. Should any BAER or BAR treatments lead to activities that may impact cultural resources, consultation will be initiated before any actions are implemented.

CONCLUSION

I have reviewed the treatments in the 2010 Pipeline Road Fire Post-Fire Response Plan in accordance with the criteria above. Those actions which require additional environmental review will be analyzed and appropriate NEPA compliance completed before they can be implemented; those actions with approved existing compliance would not involve any significant environmental effect and are approved for initiation. Burned area emergency response team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements

Prepared by: Dave Roemer, Chief of Natural Resources, May 23, 2011

Approved: _____

Superintendent, Big Thicket National Preserve Date

APPENDIX B: SUPPRESSION REPAIR

SCOPE OF WORK

Big Thicket National Preserve: Pipeline Road Wildfire Standards for Rehabilitation of Suppression Dozer Line

General Project Description

The purpose of this document is to describe work needed to rehabilitate 4.75 miles of bull dozer fire breaks inside the Big Thicket National Preserve. The Big Thicket National Preserve experienced the largest wildfire in Hardin County history. The Pipeline Road wildfire started on, April 16, 2011 and charring 7095 acres, 628 acres on the Big Thicket National Preserve Turkey Creek Unit.

The Big Thicket National Preserve will let a contract for a mechanical excavator to rehabilitate the “dozer lines” back to a natural state (defined under “Specifications”, page 2 of this document). The project area boundary lines will be flagged and a map of the project area will be provided by Preserve personnel at the pre-work meeting.

Location, travel, and site condition

Big Thicket National Preserve, Turkey Creek Unit is located in north Hardin, and south Tyler County, Texas. (See attached maps for the precise location and proposed work areas). Turkey Creek Unit is approximately 10.25 miles north of Kountze Texas.

Travel in the project area will be upon state, county and private timber company maintained roads. Work to be done will be accessed from three separate locations that machine cannot track between.

The project area terrain is relatively level, with short (20-30 foot) slope sections. Vegetation consists of hardwood forest with dense midstory brush. Temperatures range from below freezing in the winter to over 100 degrees in the summer. Hazards that may be encountered include, but are not limited to: severe weather, venomous snakes, poisonous plants, and biting insects.

General Work Description

Rehabilitation of suppression constructed “Dozer Lines” is necessary to avoid excessive soil erosion and restore natural landscape surface water flows. Rehabilitation will also serve to restrict unintended/undesired access by 4 wheeled drive and “All Terrain Vehicles” (ATV’s), provide for re-establishment of pre-incident trail where affected by Suppression access needs and to re-establish administratively desired trail widths to pre-disturbance widths (usually 10 ft. open space).

Location (Suitable) Sites: See incident “BAER” map for location of known dozer lines. Additional lines should be rehabilitated as they discovered in the field. All discoveries will be subsequently mapped.

Design/Construction Specifications:

Return soil side cast berms, and recover “fill” materials and replace in “cut” banks along dozer lines blending disturbed areas to fit the natural contours.

Accomplishment of this specification is best achieved with use of an excavator (No greater than 8.5 feet wide) with bucket and opposable thumb, and capable of having a 15 to 25 ft. reach. Dozers are excellent tools to “push” dirt to establish fire control lines. Dozers, however, are also very inefficient in the rehabilitation process to recover side cast material and can cause twice the disturbance if used for rehabilitation in timbered vegetation types. For this reason, dozers should not be used.

Generally...

- Scatter branches, wood, sod or other material to naturalize the fire line and further retard mineral soil movement. Scattered material should be randomly placed along the dozer line.
 - Dozer line seeding is not necessary unless required for specific and uniquely sensitive areas such as highly erodible soils or other critical areas and concerns.
 - Hand crews may be used to augment scattering of wood debris/slash to naturalize the dozer line and further retard soil erosion, striving to achieve a minimum of 65% surface cover.
 - Remove all trash and equipment associated with dozer equipment maintenance.
1. Fill material will be cleaned or removed from established drainages and live watercourses, (best done with an “excavator” not hand crews.
 2. In areas designated for trail access, re-contour trail surface to original slope contours and, remove side cast vegetation to other rehab areas out of the trail area, unless specified otherwise by other resource concerns.
 3. Re-establish original trail widths to no greater than 10 feet or otherwise specified.
 4. Use natural materials to close entry points and roads. Place logs in a random, non-linear fashion.
 5. The essence of the recreation specs states that “berms” are unacceptable for break closure structures.

Purpose of Treatment Specifications: Prevention of surface and gully erosion by stabilizing disturbed lands associated with dozer suppression line impacts. Dozers are not suited to re-contour dozer suppression lines in timbered vegetation types and may

(if used) increase soil/vegetation disturbance by double when used in such conditions. Dozers are also not suited to replace large woody debris back onto the dozer line when re-contouring, excavators and back hoes are more efficient in this effort.

Compliance:

1. No special Cultural sites or wildlife habitat have been identified on the project area.
2. No motorized or mechanical vehicles or equipment will be allowed outside of pre-rehabilitated dozer lines, unless approved Contracting Officers Technical Representative (COTR).
3. Fire weather watches and wet weather may cause the Preserve COTR to restrict access to certain areas within and adjacent to the project area at various times for the protection of certain resources. Any decision to restrict access is at the discretion of the COTR. Contract modifications to address extended periods for Fire Weather Watches or wet weather may be negotiated for adding time to the original contract period at the discretion of the contracting officer.
4. Vehicles must stay on established primary or secondary Preserve roads as identified on the project area map and inside the established project area boundary as approved by the COTR.
5. All Preserve regulations must be adhered to and followed. Preserve regulations will be provided by the Preserve COTR at the pre-work meeting.

Safety: The contractor will be responsible for:

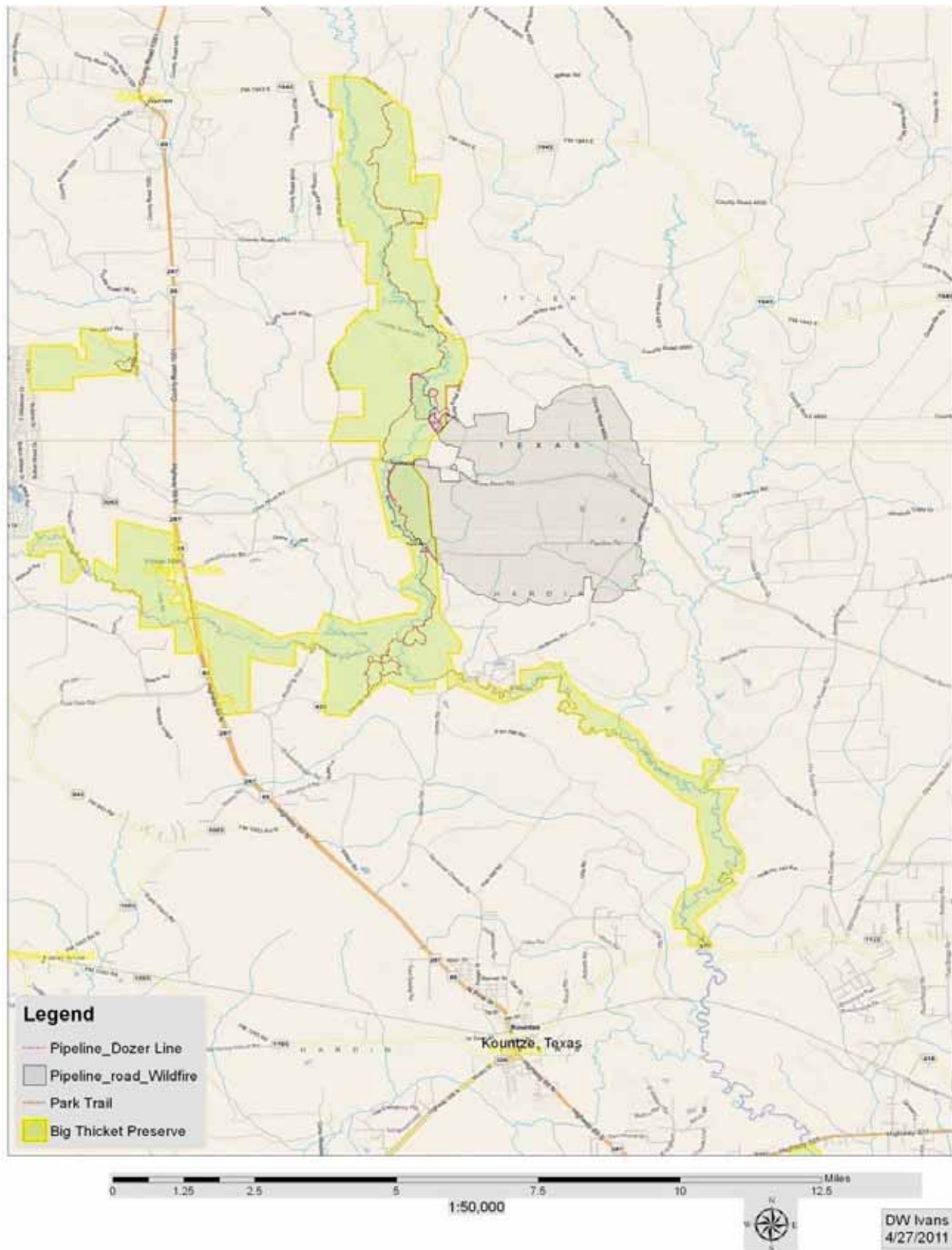
1. Adhering to all OSHA safety regulations.
2. Ensuring that employees have personal protective equipment such as hard hats, gloves, chaps, safety glasses, hearing protection, etc.
3. All chainsaws will be equipped with a manufacturer's or equivalent approved spark arrestor.
4. All contractor personnel being qualified to safely perform their work and present such qualifications at the pre-work meeting. Standards of qualifications will include documentation of training and/or use of needed equipment such as chainsaws and vehicles.
5. Vehicles used in the project must submit to a pre-contract inspection by the Preserve COTR to insure that all required safety devices and equipment are in place and in serviceable condition, clean, and free of weed seeds.

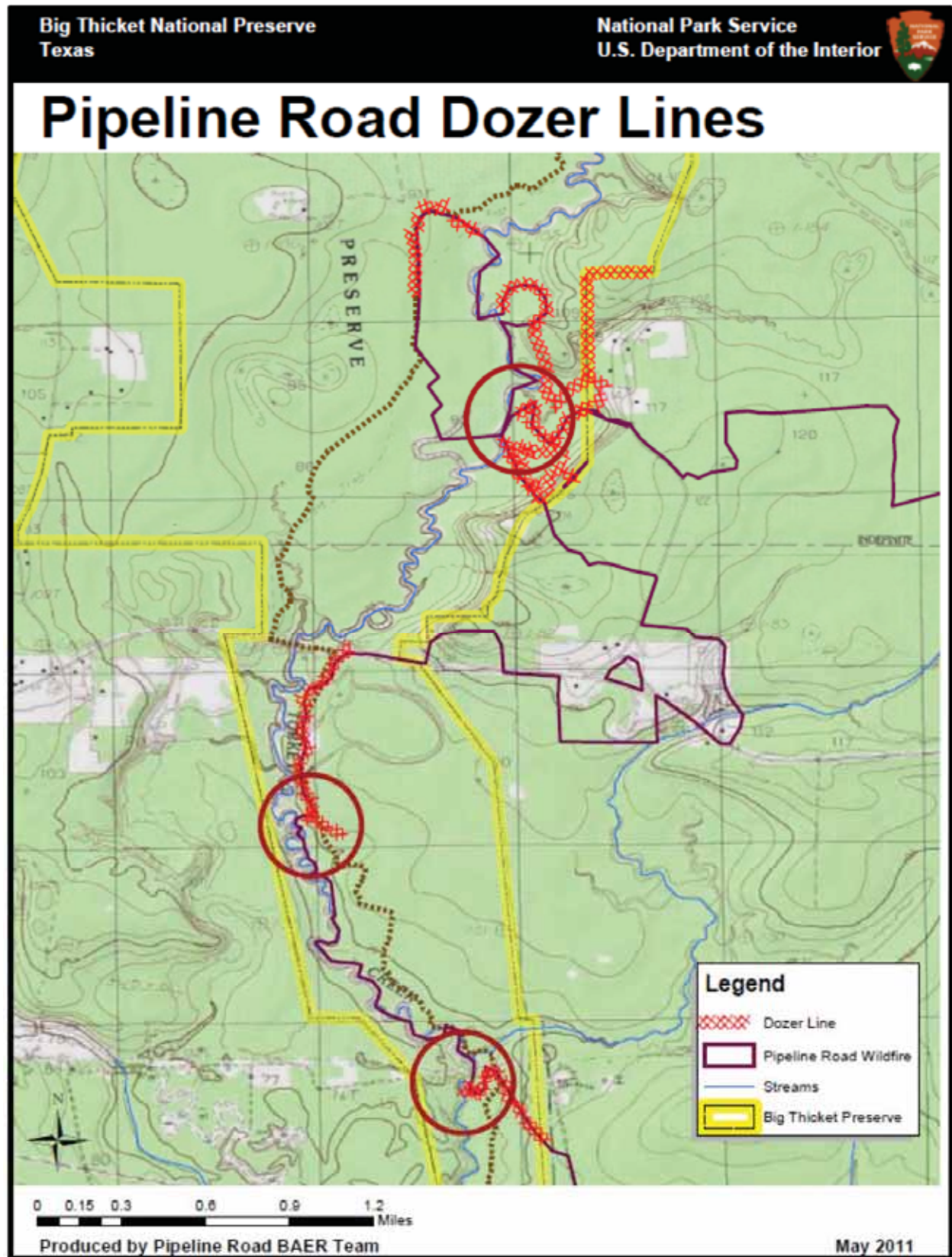
6. All motorized equipment will be maintained in such a manner to insure that no gas, oil, or other contaminants are leaking or spilled onto the ground. The contractor will provide ground protection barriers in fueling areas. Ground contamination will require the contractor to rehabilitate the contaminated area to its original condition at contractor's expense. The Contracting Officers Representative will determine whether the rehabilitation is acceptable
7. Ensuring that an ABC-type fire extinguisher and shovel are present during fueling operations.
8. Working areas will be maintained in a clean and orderly manner.
9. All trash generated by the contractor or its employees will be removed by contractor and/or its employees and disposed of properly. A final walk through of the project area by the contractor and the COTR will be required prior to receiving final payment. No food is to be thrown into or upon the land within the project area or fed to wildlife.
10. All human feces and toilet paper will be buried in cat-holes a minimum of 8" deep.
11. Contractor will provide an accurate list of employees working on the project and vehicle descriptions to the COTR. Contractor will provide documentation stating employee's Proof of Right to Work.
12. Personnel being advised regarding the illegality of collecting artifacts on federal lands to avoid any potential Archeological Resource Protection Act (ARPA) violations.

Cultural Resources:

1. If any unidentified cultural sites are encountered by the work crew, treatment will be halted immediately in the vicinity of the potential site and consultation with the COR is required prior to work resuming.
2. The contractor will immediately notify the COR in the event human remains are discovered.
3. All contractors' personnel will be instructed at the pre-work meeting about the sensitivity and importance of cultural sites and their historic significance.
4. The contractor will be advised regarding the illegality of collecting artifacts on federal lands to avoid any potential Archeological Resource Protection Act (ARPA) violations at the pre-work meeting by the PRESERVE.

Maps: LOCATION





SPECIFICATION TITLE:	Suppression – Dozer lines	JURISDICTIONS:	
PART: LINE ITEM:	Rehabilitate Dozer Line	FISCAL YEAR(S) (list each year):	2011

I. WORK TO BE DONE

Number and Describe Each Task:

General Description: Rehabilitation of suppression constructed “Dozer Lines” is necessary to avoid excessive soil erosion and restore natural landscape surface water flows. Rehabilitation will also serve to restrict unintended/undesired access by 4 wheeled drive and “All Terrain Vehicles” (ATV’s), provide for re-establishment of pre-incident trail where affected by Suppression access needs and to re-establish administratively desired trail widths to pre-disturbance widths (usually 10 ft. open space).

Location (Suitable) Sites: See incident “BAER” map for location of known dozer lines. Additional lines should be rehabilitated as they discovered in the field. All discoveries will be subsequently mapped.

Design/Construction Specifications:

Return soil side cast berms, and recover “fill” materials and replace in “cut” banks along dozer lines blending disturbed areas to fit the natural contours. Accomplishment of this specification is best achieved with use of an excavator with bucket with an opposable thumb, and capable of having a 15 to 20 ft. reach, combined with the use of a 4 wheeled drive heavy duty backhoe. Dozers are excellent tools to “push” dirt to establish fire control lines. Dozers, however, are also very inefficient in the rehabilitation process to recover side cast material and can cause twice the disturbance if used for rehabilitation in timbered vegetation types. For this reason, dozers should only be used to perform final construct of water-bars on the dozer line, followed by an excavator and/or a heavy-duty backhoe to pull berms and redistribute side-cast fills and woody debris.

Generally...

Scatter branches, wood, sod or other material to naturalize the fire line and further retard mineral soil movement, (best done with an “excavator or heavy duty backhoe” not hand crews). Scattered material should be randomly placed along the dozer line.

Dozer line seeding is not necessary unless required for specific and uniquely sensitive areas such as highly erodible soils or other critical areas and concerns.

Hand crews may be used to augment scattering of wood debris/slash to naturalize the dozer line and further retard soil erosion, striving to achieve a minimum of 65% surface cover.

Remove all trash and equipment associated with dozer equipment maintenance.

Fill material will be cleaned or removed from established drainages and live watercourses, (best done with an “excavator or heavy-duty backhoe” not hand crews).

In areas designated for road or access re-closure, re-contour road prisms to original slope contours and/or construct road or dozer line closure structures (berms) to eliminate undesired vehicular access in sensitive areas or previously closed areas, unless specified otherwise by other resource concerns.

Re-establish original trail widths to no greater than 10 feet or otherwise specified.

Use natural materials to close entry points and roads. Place logs in a random, non-linear fashion.

The essence of the recreation specs states that “berms” are unacceptable for road closure structures.

Purpose of Treatment Specifications: Prevention of surface and gully erosion by stabilizing disturbed lands associated with dozer suppression line impacts. Dozers are not suited to re-contour dozer suppression lines in timbered vegetation types and may (if used) increase soil/vegetation disturbance by double when used in such conditions. Dozers are also not suited to replace large woody debris back onto the dozer line when re-contouring, excavators and back hoes are more efficient in this effort.

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II. LABOR, MATERIALS AND OTHER COST:

PERSONAL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST/ITEM
GS-7 Equipment operator \$26.01/hour (OT and Base) X 360 hours	\$9,364
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ /cost/Hour X # of Hours X # Fiscal Years = Cost/Item): Note: Purchase requires written justification that demonstrates cost benefits Over leasing or renting.	COST/ITEM
JD 120 excavator for one month (NPS owns Back hoe, and Skid steer)	\$5,000
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item):	COST/ITEM
Fuel \$400/ day X 12 days	\$4,800
Part and supplies @ \$100/day X 12 days	\$1,200
TOTAL MATERIALS AND SUPPLY COST	\$6,000
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item):	COST/ITEM
	NA
TOTAL TRAVEL COST	\$0
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item):	COST/ITEM
	\$0
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY 2011	Big Thicket	\$4,287.15/mile	4.75 MILES (dozer line rehab)	\$20,364	F	P

FUNDING SOURCES:

F = Fire Suppression Account
EFR = Emergency Fire Rehabilitation
OP = Agency Operating Fund
O = Other
EWP = Emergency Watershed Program

METHODS:

P = Agency Personnel Services
C = Contract (Long-Term)
EFC = Emergency Fire Contract
FC = Crew Labor Assigned to Fire

SOURCE OF COST ESTIMATE

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

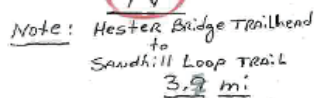
P = Personnel Services **M** = Materials/Supplies **T** = Travel **C** = Contract **F** = Suppression

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

List Relevant Documentation and Cross-Reference Location within BAER Report:
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IV. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
NPS	4.75 Miles	\$20, 364
TOTAL COST	4.75 Miles	\$20, 364



Note:
 X = Bridge
 1^B-11 = Benches 100
 P = Parking Area
 5-7-02

