

Appendix F

Five-Year Work Plan

For the 2007 Fire Management Plan for Death Valley National Park

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1.0 Introduction

The 2007 Fire Management Plan for Death Valley National Park includes hazard fuel treatments using mechanical methods around Park-owned structures in the Death Valley Scotty Historic District (Scotty’s Castle and Lower Vine Ranch), at Strozzi’s Cabin, the Wildrose Canyon Administrative Site, and at the Hunter Mountain Cabin. It also includes mechanical fuel reduction in the Furnace Creek Campground. One prescribed fire treatment is identified for fuel reduction on Hunter Mountain to mitigate woody vegetation encroachment into a mountain meadow and additional prescribed fires treatments may be undertaken in the future.

This Five-Year Work Plan outlines the sequence of activities needed to complete the hazard fuel treatments identified for implementation from 2009 to 2013. Included are site specific surveys for endangered species and cultural resources, as needed.

There is a need for funding for these treatments as the Park has no fire personnel. Fuel treatments should take place primarily in the winter months because the extreme heat as well as the suppression workload for firefighting resources during the summer months makes fuel treatments during the fire season impractical.

Site visits were conducted at all treatment areas except Strozzi’s Cabin in May 2006. Participants included Corky Conover, Pacific West Region Fuels Specialist; Chuck Heard, Fire Management Officer for Mojave National Preserve; Sandee Dingman, Biologist for Lake Mead National Recreation Area; Nancy Wizner, Chief Ranger; Matt Martin, Park Ranger; Marcia Stout, Curator; Kelly Turner, Park Archaeologist; and David Ek, Assistant Chief of Resource Management.

Treatment areas are divided into three categories: Campgrounds, Historic Sites, and other properties. None of these treatment locations are on the list of communities at risk or are officially recognized as Wildland-Urban Interface (WUI) areas. Locations of proposed treatments are shown in Table F1 and Figure F1.

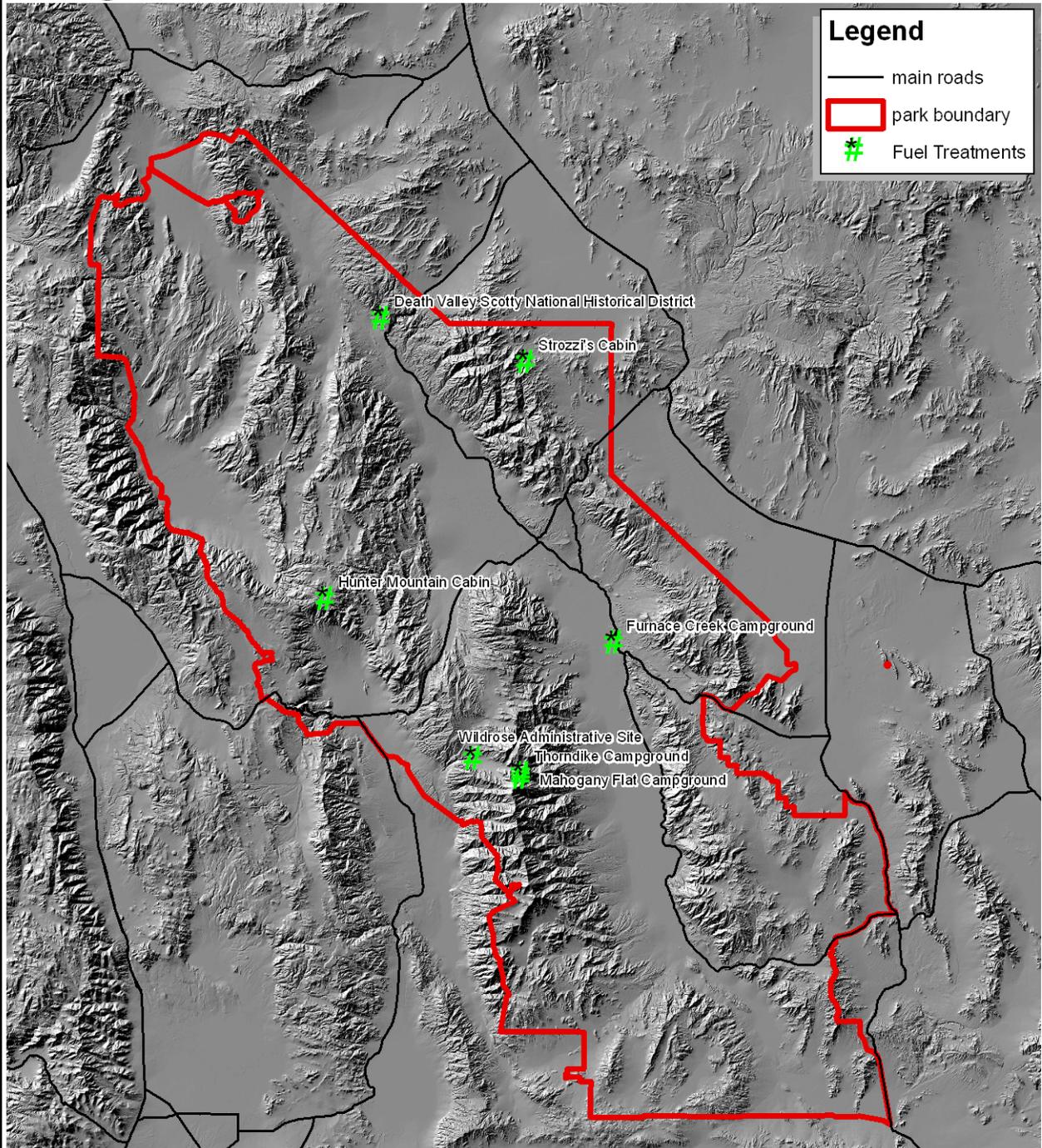
Table F1. Proposed fuel treatment locations in UTM NAD83

| Project | Easting | Northing |
|--|----------------|-----------------|
| Furnace Creek Campground | 511489 | 4035315 |
| Mahogany Flat Campground | 493780 | 4009460 |
| Death Valley Scotty National Historical District | 467056 | 4097382 |
| Thorndike Campground | 493749 | 4010261 |
| Wildrose Canyon Administrative Site | 484554 | 4013178 |
| Hunter Mountain Cabin | 456410 | 4043710 |
| Strozzi’s Cabin | 493477 | 4088248 |



Death Valley National Park
California and Nevada
Fire Management Plan Five-year Work Plan

Figure F1: Fuel Treatments



Legend

- main roads
- ▭ park boundary
- # Fuel Treatments

0 5 10 20 30 40 Miles
Scale = 1:1,000,000

October 2006
Produced by S. Dingman, NPS Biologist

FILE: E:/DEVA/GIS/analyses/AppFigures/fuels plan.mxd

2.0 Campgrounds

Two Campgrounds are identified for treatment. As woody fuels are important sources of shade and an important part of the camping experience, fuel reduction will be limited to removing only what is necessary to mitigate the hazards with a focus on fuels near fire rings and barbeque pits.

2.1 Furnace Creek Campground

The first priority for campground treatments is the hazard fuel treatments in the Furnace Creek Campground. This developed campground is accessed from CA Highway 190 and consists of an entrance kiosk, bulletin board, 136 campsites and 4 flush toilet facilities. There are numerous trees and leaf litter that need to be removed to reduce the chance of fire burning in this campground. However, shade and privacy provided by the trees are important to the visitor experience, so care will need to be taken in conducting this hazard fuel treatment.

The biggest concern is the potential for campfires to ignite surrounding vegetation, carrying fire into the surrounding vegetation and adjacent occupied sites. To mitigate this concern, work will concentrate on removing the low branches overhanging fire pits and dead wood overhanging the campsites. Additionally, fine fuels and leaf litter within 10 feet of the fire pits will be removed. Fuels within 10 feet of the entrance kiosk and informational bulletin boards will also be removed. Fuel management adjacent to the toilets is not needed as they are constructed of non-flammable foundation, wall, and roof materials.

As this is the Park's largest and busiest campground, scheduling of this work is an important consideration for maintaining the visitor experience and reducing operational hardships. Ideally work would be completed during early December, after Forty-Niner Days and before the Winter Holiday when visitation is low and it is feasible to close parts of the campground to complete the work.

It is estimated that this fuel reduction work would take 10 days of work for a ten person crew to do the cutting of the vegetation and preparing of the debris for disposal (cut to fire wood size and pile remaining slash/debris for burning or hauling off site). It would be a suitable work site for a contract crew, convict crew, or a California Conservation Corp or Nevada Conservation Corp work crew. The NPS would need to provide an on-site fuels boss to oversee the work. The estimated cost for this treatment is \$32,000, and administrative costs are expected to be insignificant as work will most likely be accomplished under a categorical exclusion. Follow-up work is expected to take about one-third as long as the initial treatment, at a cost of around \$10,600.

Of particular concern is the fire rings and barbeque pits directly under the trees. In some cases limbing may be adequate to reduce the fire hazard while in other sites, the fire rings or barbeque pits need to be relocated away from the trees. Additionally, the soil around the edges of some fire rings has been eroded away creating an opportunity for burning

embers to roll out of the ring where they could potentially ignite surrounding vegetation. To mitigate this fire hazard, compromised fire rings need to be reset. Relocation of fire rings and barbeque pits and the resetting of fire rings are beyond the scope of the fuels treatment proposed, but during the initial fuel reduction treatment of this campground the fuels crew should identify those campsites that need subsequent attention so that these fire prevention needs can be addressed through other Park programs.

2.2 Mahogany Flat Campground

This primitive campground is accessed via gravel roads and consists of an entrance bulletin board, 10 campsites, and 1 vault toilet. The campground is located along a west-facing ridgeline of Rogers Peak in relatively dense pinyon-juniper woodland with a significant sagebrush component. There is high fuel continuity within the campground and between the campground and the surrounding lands. The campground egress route is limited to the Mahogany Flat Road, originating at Wildrose. It begins as paved road and evolves into a narrow, winding, high clearance gravel road and maintains this condition for about two miles before reaching the campground. Wildland fire is a major safety concern in the campground due to the high fuel load and difficulty in evacuating the area.

The biggest concern is the potential for campfires to ignite surrounding vegetation, carrying fire into the surrounding pinyon-juniper and sagebrush / montane shrub community. To mitigate this concern, work will concentrate on removing the low branches overhanging fire pits and dead wood overhanging the campsites. Additionally, fine fuels and needle cast within 10 feet of the fire pits will be removed. Fuels within 10 feet of the entrance bulletin board will also be removed. Fuel management adjacent to the vault toilet is not needed as it is constructed of non-flammable foundation, wall, and roof materials.

The site contains numerous prehistoric and historic resources. The area was surveyed for cultural resources in 2005 and will need to have an archaeology monitor present during any fuel reduction work. It is expected that treatment would be conducted under a categorical exclusion.

Due to proximity and the small amount of work needed at this campground, this treatment should be undertaken at the same time as the Wildrose Canyon Administrative Site treatment and the estimate is described under that project. The other nearby campgrounds, Wildrose and Thorndike, were evaluated and determined not to need treatment as of May 2006; however, they should be re-inspected in the future whenever hazard fuel removal work is conducted in the Wildrose Canyon area.

3.0 Historic Sites

There are three main mine and/or ranch areas that are proposed for treatment during the next five years, although additional properties will require treatment in the future.

3.1 Death Valley Scotty Historic District

The highest priority for treatment of historic ranches is Death Valley Scotty Historic District located in the northeast area of the Park. This District is on the National Register of Historic Places and includes both Lower Vine Ranch as well as Scottys Castle.

Lower Vine Ranch was the private residence of Death Valley Scotty. The property includes a wooden cabin, several outbuildings, and corrals that are currently not used or open to the public, but may be used for some administrative or interpretive purpose in the future. The site also hosts numerous other pre-historic and historic cultural resources due to a long history of human use of the spring complex and surrounding lands. The surrounding plant community is composed of mixed desert scrub, grading into mesquite, cottonwood, and baccharis in the wet soils near the cabin. Fuels near the structures pose a risk to the structures that is exacerbated by the dense vegetation that partially obstructs the only access road, thus impeding fire response.

Scotty's Castle is a famous Park landmark that was the historic home of the Johnson family and part-time residence of Death Valley Scotty. The Castle area is located several miles east of Lower Vine Ranch and includes many masonry structures and a few wooden structures. Most of the buildings at this location are not in close proximity to vegetation so direct flame impingement of the main structures is unlikely; however, scattered throughout the development there are dense pockets of desert oasis vegetation dominated by palms that could be highly flammable and generate a great deal of heat and smoke that could damage these historic buildings and their contents. There is also the potential fire hazard posed by a powerline that runs directly through a palm thicket. The final cultural landscape report is expected soon and will hopefully provide more direction regarding treatment of the palm thicket. Access to Scottys Castle is good, with access provided by a maintained paved road. The availability of water for wildland fire suppression needs is good, with both a functional hydrant in the Castle area and a draft site in the spring house less than a mile up the road.

There are many archaeological resources, historic resources, and cultural landscape elements in the project areas and a cultural landscape analysis has been completed for the District. Additionally, the wetland vegetation at both Lower Vine Ranch and Scotty's Castle is potentially habitat for the least Bell's vireo, a federally endangered bird species. Because of these concerns it is likely that fuel treatments in the District will need an environmental assessment as well as consultation with U.S. Fish and Wildlife Service, State Historic Preservation Office, and the Tribal Historic Preservation Office, although the environmental screening form will be used to make that determination.

The draft Cultural Landscape Report for the District directs the National Park Service to "Collaborate with resources staff in the development of a fire management plan to address protection of outlying cultural resources within the historic district and vegetation that contributes to the historic setting and character of the cultural landscape at Scotty's Castle and Lower Vine Ranch." Concerns to be addressed include: hazard fuel reduction, structural ignitability, fire risk posed by the powerline, water storage for fire protection,

as well as the compliance issues identified above. While such site specific planning is beyond the scope of the Park-wide Fire Management Plan, a Fire Protection Plan should be undertaken for Death Valley Scotty Historic District that would comprehensively explore these issues, propose ways to mitigate fire danger (including hazard fuel reduction), and identify funding mechanisms to address these needs. Development of Death Valley Scotty Historic District Fire Protection Plan has been identified as a task in this Five-year Work Plan. Development of this plan (including environmental compliance documents) is expected to cost approximately \$30,000 plus \$25,000 for the endangered bird surveys.

Following completion of the fire protection plan, fuel treatments would be undertaken. It is estimated that it would take 8 days of work for a ten person crew to complete the fuel treatments at an initial cost of \$25,600 with follow-up treatments at about \$10,000. However, these are only estimates at this time as the full scope of the project cannot be known until the cultural landscape report is finished and the endangered bird surveys are completed. Any work on these sites will require an archaeological monitor.

3.2 Strozzi's Cabin

This is a historic cabin with outbuildings, including at least four standing structures and several collapsed structures. The site is in the Nevada Triangle with access on high clearance gravel roads. This historic cabin was recently stabilized. Most of the buildings are wholly or partially of wood construction. The surrounding plant community includes sagebrush, rabbitbrush, mesquite and cottonwoods. The site needs to be brushed to remove the fuel accumulation adjacent to the buildings. Prior to treatment, the site needs to be surveyed and recorded for archaeological resources as it has not previously been surveyed. Environmental review is likely to consist of a categorical exclusion.

It is estimated to take a crew of five people seven days to complete the initial hazard fuel removal at an estimated cost of \$11,200. Prior to treatment, this project will also require approximately two weeks of archaeological survey and report writing by a four person crew, for an estimated cost of \$15,500. The total estimated cost for this project is \$26,700.

3.3 Hunter Mountain Cabin

The second priority is the hazard fuel treatments of accumulated fire hazard slash and debris buildup in the Hunter Mountain area. In this area, pinyon and juniper are interspersed with grasslands and, in recent years, trees and brush have invaded the grasslands, increasing the fuel load. The Timbisha Shoshone have historically manipulated fuels in this area, either manually or using prescribed fire. There is a grazing permit in a portion of this area as well as historic structures crowded by heavy fuels. Access is via existing high clearance gravel roads.

The first step in reducing hazards in the Hunter Mountain Cabin area is to mechanically remove heavy fuels from around the structure and along the road used to access the cabin.

This is identified as a single project. Prior to treatment, the site needs to be surveyed and recorded for cultural resources. Environmental review is likely to consist of a categorical exclusion.

It is estimated to take seven days for a crew of ten people to mechanically remove fuels adjacent to the cabin and road at a cost of \$22,400. The archaeological survey and report writing is expected to take 12 days for a four person crew at a cost of \$12,000. The total estimated cost for this project is \$34,400.

Later, prescribed fire will also be used to mitigate the heavy fuel load caused by shrub encroachment and restore the native grasslands and wetlands in this area. It is estimated that the burn would include about 700 acres, primarily in light fuels and shrubs. The burn plan would include consultation with the Timbisha Shoshone and additional information is needed regarding the dynamics of grasslands and woody vegetation invasion in the Hunter Mountain area. There is also concern for a newly described butterfly subspecies, the Hunter Mountain Copper Butterfly (*Lycaena xanthoides obsolescens*) that is rare and apparently endemic to the Hunter Mountain area. Treatments in this area will also require consideration of grazing practices in this allotment and may include a short-term grazing deferral after the prescribed fire. Additionally, the entire burn unit will need to be surveyed for archaeological resources. Environmental compliance needs will be identified using an environmental screening form, but it is expected that an environmental assessment will be necessary.

Completion of the environmental assessment is expected to cost \$22,500. Completion of the pre-burn archaeological survey is expected to cost \$29,000. After those two tasks are complete, preparation of the burn plan is expected to cost \$5000. The total planning cost is estimated at \$56,500. The cost of prepping and implementing the prescribed burn will be determined during the burn planning process.

3.4 Wildrose Canyon Administrative Site

This site includes the remains of several historic Civilian Conservation Corp (CCC) structures, including four wood exterior buildings, one stucco building, two metal sided buildings with exposed wood foundation piers, and several outbuildings. There are several dead or nearly dead trees near the structures with large mistletoe infestations. These structures need to be protected from fire while avoiding ground disturbance during fuel removal and preserving cultural landscape elements. Specific avoidance and mitigation measures will be identified during the environmental review process. The area has some, albeit low, potential for tortoises and their burrows; these must be identified and protected from disturbance and fire. To mitigate these concerns, a resource monitor will need to be on-site during fuel treatment work.

It is estimated that it would take three days for a crew of five people to complete the work at Wildrose Administrative Site as well as the nearby Mahogany Flat and Thorndike Campgrounds at a cost of \$5000 with follow-up treatments expected to cost about \$2000.

4.0 Other Park Facilities

There are several other facilities owned or operated by Death Valley National Park. These sites either do not require initial treatment or have already received an initial treatment. These sites are generally located in very sparse fuels. The maintenance of defensible space is not expected to take a significant amount of work. Work will be accomplished at various times and with various sources of labor, including volunteers, Student Conservation Association, Youth Conservation Corps, Park maintenance staff, and fire personnel from other parks. The following facilities are identified in no particular order:

- Furnace Creek Visitor Center
- Texas Springs Campground
- Grapevine Housing Area
- Cow Creek Housing Area

5.0 Treatment Strategy

As this is the first documented fuel management and prescribed fire program initiated in Death Valley National Park, it is subject to change and revision as a result of adaptive management.

As the Park does not have any fire-funded positions and very few Park employees are qualified as sawyers and none are qualified as burn bosses, these fuel treatments can only be undertaken with project-specific funding and through the use of fire personnel from other parks or interagency fire centers. Ideally, furloughed firefighters from parks in the Sierra Nevada Mountains will be used in the winter months to implement these treatments at Death Valley. Alternatively, a crew boss may be used from the surrounding parks and a contract crew may be used to do the treatments.

5.1 Priority for Treatment

In priority order, concerns are for the reduction of hazard fuels that pose an immediate risk to: 1) structures or developed sites that are occupied with people or high value property, 2) structures that have been determined to have historic significance and that the Park plans to maintain, 3) structures that have been identified for future administrative or residential use, and 4) all other structures. This priority is reflected in the order of projects listed in Table F1.

5.2 Standards

Defensible space standards in Death Valley National Park were established to provide reasonable protection from flame impingement. The residential standard follows the recommendations of the national Firewise program. The corral and outbuilding standards were developed locally to reflect local fuel conditions and fire intensity. The range of

values for outbuildings is intended to provide some management discretion due to the wide range of outbuildings that exist in the Park. Standards are as follows:

- Residential structures: 1.5 times the height of the fuel or 30 feet, whichever is greater.
- Wooden corrals and fences: 1.5 times the height of the fuel or 10 feet, whichever is greater
- Outbuildings or unused structures: 1.5 times the height of the fuel or 10-30 feet, commensurate with the historic value, plans for future use, and flammability of exterior materials.

These standards may be adapted as necessary to address cultural landscape elements.

5.3. Project Planning

Fuel treatments should be grouped together where it makes sense fiscally and geographically, with the planning work conducted simultaneously for multiple treatments to gain efficiency and economy. For each treatment or group of treatments, an environmental screening form should be completed and submitted to the Death Valley Environmental Review Committee.

Environmental review should be initiated at least one year before a planned treatment to allow adequate time for cultural resource surveys and endangered species surveys, if needed. Where cultural resource concerns exist, the proposed treatment areas need to be assessed by a cultural resource specialist with the fuels crew boss to walk the site and identify the fuels that need to be removed. At the same time, cultural landscape features should be identified and recorded for protection. Prior to implementation, the cultural landscape features should be marked with flagging to assure they are not impacted by fuel removal. The site should also be assessed for archaeological concerns related to ground disturbance caused by the pulling of shrubs. Where ground disturbance is a concern, alternative fuel removal methods (ie. flush cut to ground level) should be discussed and agreed upon. Another concern is the potential for impact to endangered species. Where treatments are proposed in riparian areas or desert tortoise habitat, the U.S. Fish and Wildlife Service should be consulted early in the planning process. In most cases, fuel treatments will take place in the winter months when the endangered southwestern willow flycatcher and the least Bell's vireo have migrated out of the region and when the threatened desert tortoise is inactive. However, there could still be impacts to the habitat of these species, and conservation measures may be required. Where riparian vegetation would be affected, environmental review should be initiated two years before the planned treatment to allow seasonal investigations of use by endangered riparian birds as their presence. All environmental compliance documentation will be kept as part of the administrative record for that project.

The Park will also pursue prescribed fire treatments as described in the Fire Management Plan, with the Hunter Mountain Prescribed Fire planned for 2010. All burn plans will be

subject to environmental review and consultation. Additional prescribed fire projects will be identified in the future.

6.0 Work Schedule for 2009-2013

Implementation of projects identified in Table F2 is subject to funding availability and approval of the Fire Management Plan in FY2008. Each activity or treatment will also be documented in the National Fire Plan Operating and Reporting System (NFPORS) and accomplishment reports will be filed as required. Usually by March of each year, funding requests for the following fiscal year will be submitted in NFPORS. Projects that do not compete successfully for funding will be re-evaluated and possibly revised and re-submitted in subsequent years. Table F2 shows a preliminary work list that is subject to change based on funds availability and future needs. For example, it is expected that the Death Valley Scotty Historic District Fire Protection Plan will identify additional treatments at Lower Vine Ranch and Scottys Castle.

Beyond the scope of this five year plan, future work projects, most with structures (some historic) may include:

- Barker Ranch
- Butte Valley
- Warm Springs
- Greater View
- Skidoo Mill

Table F2. Fuel treatment and prescribed fire schedule for 2009-2013.

| Fiscal Year | Activity | Cost |
|-------------|---|------------------|
| 2008 | Complete Fire Management Plan and submit funding projects to NFPORS for FY09 | ----- |
| | 2008 subtotal | \$0 |
| 2009 | NFPORS Activity: Initiate Death Valley Scotty Historic District Fire Protection Plan | \$55,000 |
| | NFPORS Activity and Treatment: Complete environmental review and conduct Furnace Creek Campground hazard fuel treatment (initial) | \$32,000 |
| | NFPORS Activity and Treatment: Complete cultural/archaeological assessment and environmental review for Hunter Cabin mechanical fuel treatment and conduct treatment | \$34,400 |
| | 10% contingency* | \$12,140 |
| | 2009 subtotal | \$133,540 |
| 2010 | NFPORS Activity: Complete environmental compliance, biological and archaeological assessments, and prepare Burn Plan for Hunter Mountain | \$56,500 |
| | NFPORS Treatment: Conduct mechanical hazard fuel removal in Death Valley Scotty Historic District (initial) | \$25,600 |
| | 11% contingency* | \$9030 |
| | 2010 subtotal | \$91,130 |
| 2011 | NFPORS Activity and Treatment: Complete environmental review and conduct mechanical hazard fuel treatments for Wildrose Canyon Administrative Site and Mahogany Flat Campground | \$5,000 |
| | NFPORS Treatment: Prep and conduct prescribed burn at Hunter Mountain | TBD |
| | 12% contingency* | \$600 |
| | 2011 subtotal | \$5600 |
| 2012 | NFPORS Activity: Conduct environmental review and archaeological assessment for hazard fuel reduction at Stozzi Cabin | \$15,500 |
| | NFPORS Treatment: Conduct mechanical hazard fuel removal in Death Valley Scotty Historic District (follow-up) | \$10,000 |
| | NFPORS Treatment: Furnace Creek Campground hazard fuel reduction (follow-up) | \$10,600 |
| | 13% contingency* | \$4690 |
| | 2012 subtotal | \$40,790 |
| 2013 | NFPORS Treatment: Conduct mechanical hazard fuel treatments for Wildrose Canyon Administrative Site and Mahogany Flat Campground (follow-up) | \$2000 |
| | NFPORS Treatment: Hazard fuel reduction at Stozzi Cabin | \$11,200 |
| | 14% contingency* | \$1850 |
| | 2013 subtotal | \$15,050 |
| | Five Year Grand Total | \$286,110 |

* Contingency funds are included in each fiscal year, increasing by one percent per fiscal year, due to the uncertainties of inflation in personnel costs, equipment costs, and fuel in out years. It is anticipated that more exact estimates will be developed closer to the time of implementation and those more accurate cost estimates will be used in requesting funds.