PRESCRIBED FIRE PLAN

Yosemite National Park

FORESTA COMPLEX

COMPLEXITY RATING: Type II (see Element 3 below).

PREPARED BY: _____ **DATE:** 3/18/08
Taro Pusina
Prescribed Fire Specialist

TECHNICAL REVIEW BY: _____ **DATE:** 3/18/08
Michael Beasley
Prescribed Fire Program Manager

FIRE ECOLOGY REVIEW BY: _____ **DATE:** _____
Vacant
Fire Ecologist

REVIEWED BY: _____ **DATE:** 5/1/08
Deron Mills
Deputy Fire Management Officer

REVIEWED BY: _____ **DATE:** 5-16-08
Niki Stephanie Nicholas
Chief, Division of Resources Management and Science

REVIEWED BY: _____ **DATE:** 5/6/08
Kelly Martin
Fire Management Officer

REVIEWED BY: _____ **DATE:** 5/16/08
Steve Shackelton
Chief Ranger

APPROVED BY: _____ **DATE:** 5/30/08
Michael J. Tollefson[1]
Park Superintendent

_____ 8/21/09
Acting Supt

[1] Agency Administrator Signature also required for complexity analysis and go/no-go checklist

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EXECUTIVE SUMMARY

The Foresta Complex is located within and surrounding the community of Foresta in Mariposa County, just northwest of Yosemite Valley within Yosemite National Park. Two primary reasons for this project exist. First, restore and maintain the fire dependant ecosystems in and around Foresta by managing fire on the landscape. Second, reduce hazardous fuel loading and vegetation in the community in order to minimize the potentially catastrophic effects of future wildfires. These objectives can be met through the application of prescribed fire and mechanical fuel treatment in the Foresta Complex. Current land uses are primarily habitation and outdoor recreation.

This plan identifies fifteen burn segments designated 1-15 which range in size from 19 - 1187 acres for a total complex size of 4567 acres (Appendix A-B Map). Segments 1-10 are in and around Foresta's Wildland Urban Interface (WUI) including a 0.25 mile buffer. Segments F11-F15 are larger blocks in the wilderness to the north that will likely be segmented further during burning operations. Geographically, the Complex surrounds Foresta and is bounded by Highway 120 to the north and east and the Stanislaus National Forest to the west. Foresta lies in the southern end of the complex and Crane Flat defines the northern corner.

Objectives outlined in this plan follow Yosemite's Fire Management Plan (FMP) which states:

INTERAGENCY PRESCRIBED FIRE PLAN

Yosemite National Park/Stanislaus National Forest

FORESTA COMPLEX

COMPLEXITY RATING: Type II (see Element 3 below).

PREPARED BY: _____ **DATE:** _____

Taro Pusina
Prescribed Fire Specialist

TECHNICAL REVIEW BY: Corky Conover **DATE:** 4/7/08

Corky Conover
NPS-PWR Fuels Specialist

FIRE ECOLOGY REVIEW BY: _____ **DATE:** _____

Vacant
Fire Ecologist

REVIEWED BY: _____ **DATE:** _____

Deron Mills
Deputy Fire Management Officer

REVIEWED BY: _____ **DATE:** _____

Niki Stephanie Nicholas
Chief, Division of Resources Management and Science

REVIEWED BY: _____ **DATE:** _____

Kelly Martin
Fire Management Officer

REVIEWED BY: _____ **DATE:** _____

Stanislaus Forest Fire Management Officer

REVIEWED BY: _____ **DATE:** _____

Steve Shackelton
Chief Ranger

APPROVED BY: _____ **DATE:** _____

Michael J. Tollefson[1]
Park Superintendent

[1] Agency Administrator Signature also required for complexity analysis and go/no-go checklist

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> Over the last 150 years, fire suppression and changes in land use have dramatically changed fire regimes and consequently altered ecological structure and function in plant communities. Live and dead fuels in conifer forests, especially at lower elevations, are more abundant and continuous than in the past[1]

Partly due to the changes in fire regimes and altered ecological structure, a stand replacing, high intensity, catastrophic wildfire consumed the majority of Foresta and surrounding area during the A Rock fire in 1990. Most homes and structures were destroyed by the fire. The National Park Service has since taken action to treat fuels and vegetation within and adjacent to the community through a combination of fuel reduction projects and one prescribed burn. These and future actions serve to reduce the threat to the community from wildfire originating outside the developed area. Additionally, in 2006 Yosemite contracted with Wildland Fire Associates to develop a Community Wildfire Protection Plan (CWPP) for the community of Foresta. The overall goal of the plan and possible actions are to:

> ...provide for the safety and well being of the public and wildland fire fighters and to provide a wildland fire community protection plan that will be supported and implemented by the stakeholders...The use of a broad range of treatment methods to fully implement the hazard fuel treatment component of the community protection plan. The purpose of the treatments will be to create more open stands of vegetation less susceptible to crown fire and create fuel breaks utilizing a variety of means where appropriate. Other actions may be necessary to improve the overall safety of the population and mitigate non-fuel related situations such as disrupted ecological processes...The (Park's) FMP permits the use of a broad range of methods, including mechanical means to treat fuels within the core WUI (and) indicates that management ignited prescribed fire should be used to manage that area, to the extent possible[2]

The plan also identifies wildland fuels management projects in priority order and recommends treatment methods that are beneficial and acceptable to the community.

Another major focus of the Foresta Complex prescribed fire project is to continue to utilize fire as a tool for ecosystem restoration. Fire was a natural ecosystem process that played an integral role in shaping the landscape in and around Foresta prior to fire exclusion around the turn of the century. Findings from observations by George Sudworth in 1899 and subsequent research by McKelvey in 1996 indicate that forests are becoming further departed from natural fire processes and regimes[3]. Through fuel treatments including mechanical fuel reduction and prescribed fire, a more natural fuels and vegetation composition can be achieved that will support a surface fire, but be less likely to support crown fire. Through prescribed fire and mechanical treatments, shade tolerant mixed conifer species and dead and down woody debris in all size classes will be reduced. Density of regenerating mixed conifer species including ponderosa pine (*Pinus ponderosa)* and shade tolerant species such as white fir (*Abies concolor*) and incense cedar (*Calocedrus decurrens*) have reached astounding levels post A Rock fire. Continued treatments will ensure that a healthy forest structure will be achieved as

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[1] National Park Service, 2004. *Yosemite National Park Fire Management Plan EIS, III-.*
[2] Wildland Fire Associates, 2007. *Community Wildfire Protection Plan for Foresta, California,* p. 1, 50.
[3] McKelvey et al., 1996. Sierra Nevada Ecosystem Project Final Report Vol.2, pp 1033-1040.

outlined in Yosemite's Fire Management Plan.

Various fuels treatments and fires have occurred in Foresta since 1970. Previous burn treatments north and adjacent to Foresta include a 135 acre burn in 1970 and an 850 acre burn in 1975 that included part of Big Meadow. In 1979-80 4775 acres were burned in Parkwide Units 9 and 7. The aforementioned 17,770 acre A Rock wildfire fire occurred in 1990. Many small (< 1 acre) wildfires have been suppressed around Foresta as well. Most mechanical treatments and debris pile burning have occurred post-A Rock in dense thickets of ponderosa pine regeneration and heavy dead and downed fuel resulting from the stand replacing fire. In 2005, two types of masticators were evaluated favorably in their effectiveness to treat small live and dead and downed vegetation and will likely be utilized in the future (see Treatment History table below and Appendix A-C).

Priority treatments in Foresta will begin in the inner core WUI and loosely follow those outlined in the CWPP's Table 9, Prioritized Actions and Implementation Timeline[4]. In 2008 Fire Management is planning to continue a 300' shaded fuel break along both sides of Foresta Road between the Big Oak Flat Road and Foresta (Seg. 9). A prescribed burn is also planned in the McCauley Ranch area of southwest Foresta (Segs. 1 and 6). Treatments in this area will create a buffer to Foresta from potential wildfire spread up the Crane Creek drainage to the south. Future treatments will likely radiate out from the inner core WUI and include the much larger segments 11-15 north of Foresta. Interaction and involvement with Stanislaus NF is ongoing and critical to the successful implementation of this project.

The Foresta area is rich with natural and cultural resources. Surveys for cultural artifacts have occurred in approximately 55% of the complex. Within a 0.25 mile radius of Foresta at least 30 known archeological sites exist and there is a high potential for discovery of previously unknown resources.[5] Known pre-historic sites and artifacts include bedrock mortars, obsidian, chert, and basalt lithic scatter. More recent historical evidence includes barns and cabins, bottle, can and trash scatter, and irrigation pipes, ditches and dams. Natural resources of concern include one spotted owl (*Strix occidentalis*) nest and four known spotted owl pairs which are listed as federally threatened and state endangered species. Park designated rare plants in the Foresta area include known populations of *Antirrhinum leptaleum, Carex sartwelliana,* and possibly *Balsamorhiza hookeri*. The Yosemite Archeology Office and a Park Resource Advisor will evaluate needs for further surveying and identify mitigation measures necessary prior to burning.

The desired season to burn the Foresta Complex is spring or early summer, however if favorable burning conditions exist, some segments could be burned any season. The majority of the complex has a south aspect allowing the area to come into prescription earlier than other project areas. There is also less atmospheric stability and better air quality and smoke dispersal earlier in the year.

This project is identified in the 2005 Yosemite Fire Management Plan/Environmental Impact Statement. The goals and objectives for the project conform to the Park's General Management Plan and Vegetation Management Plan. Prior to burning, a burn permit will be obtained from the Mariposa County Air Pollution Control District (APCD). Collaboration with the Stanislaus National Forest will also be necessary as segments 1, 6,

[4] Wildland Fire Associates, 2007. *Community Wildfire Protection Plan for Foresta, California*, p. 58.
[5] Jun Kinoshita, 2007. *Archeological Concerns for Fuels Projects in Yosemite National Park*, p. 17.

7, 11, 12, 13, 14, and 15 share boundaries with the Forest.

ELEMENT 1: AGENCY ADMINISTRATOR PRE-IGNITION APPROVAL CHECKLIST

Instructions: The Agency Administrator's Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
✓		Is the Prescribed Fire Plan up to date?
✓		Will all compliance requirements be completed?
✓		Is risk management in place and the residual risk acceptable?
✓		Will all elements of the Prescribed Fire Plan be met?
✓		Will all internal and external notifications and media releases be completed?
✓		Will key agency staff be fully briefed and understand prescribed fire implementation?
✓		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
✓		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:
Agency Administrator Comments:		

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

Approved by: _____ Date: 5/30/08
Agency Administrator

Approval expires (date): 6/30/18

Project Name: FORESTA [redacted]PLEX
Unit Name: YOSEMITE NATIONAL PARK

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist., if YES go to item B.		✓
B. If YES have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If YES proceed with checklist below, if NO STOP.		✓

YES	NO	QUESTIONS
✓		Are ALL fire prescription elements met? RH REMAINED LOW UNTIL 2100
✓		Are ALL smoke management specifications met?
✓		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
✓		Are ALL planned operations personnel and equipment on-site, available, and operational?
✓		Has the availability of ALL contingency resources been checked, and are they available?
✓		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
✓		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
✓		Have ALL the required notifications been made?
✓		Are ALL permits and clearances obtained?
✓		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

Burn Boss _____ Date 6/11/08

Holding Boss _____ Date 6/11/08

Firing Boss _____ Date 6/11/08

PASSED ON TO PUSINA @ 2130

Date and time of test fire: _____

Location of test fire: TOP OF UNIT / NEAREST HOMES

Results of test fire (flame length and rate of spread): _____

COPY

Project Name: FORESTA [redacted] .. LEX
Unit Name: YOSEMITE NATIONAL PARK

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist., if YES go to item B.		✓
B. If YES have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If YES proceed with checklist below, if NO STOP.		

6/6 6/5

YES	NO	QUESTIONS
Y ✓		Are ALL fire prescription elements met?
Y ✓		Are ALL smoke management specifications met?
Y ✓		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
Y ✓		Are ALL planned operations personnel and equipment on-site, available, and operational?
Y ✓		Has the availability of ALL contingency resources been checked, and are they available?
Y ✓		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
Y ✓		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
Y ✓		Have ALL the required notifications been made?
Y ✓		Are ALL permits and clearances obtained?
Y ✓		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

Burn Boss [signature] Date 6/5/08

Date and time of test fire: 6/5/08 1045 / 6/6/08 1830

Location of test fire: TOP of SEGMENT 6 / TOP of SEG. 14

Results of test fire (Note flame length and rate of spread):

6/5/08 1-2' FL, 0.5 cms/hr / 6/6/08 2-3' FL 1.5 cms/hr

HOLDING [signature] 6/5/08 [signature] 6/6/08

FIRING [signature] 6/5/08 Kathleen Castro F.T. 6/6/08

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist., if YES go to item B.		
B. If YES have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If YES proceed with checklist below, if NO STOP.		

YES	NO	QUESTIONS
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

_____ _____
Burn Boss Date

_____ _____
Holding Boss Date

_____ _____
Firing Boss Date

Date and time of test fire:_____

Location of test fire:_____

Results of test fire (flame length and rate of spread): _____

COPY

Project Name: FORESTA[redacted]PLEX
Unit Name: YOSEMITE NATIONAL PARK

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist., if YES go to item B.		
B. If YES have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If YES proceed with checklist below, if NO STOP.		

YES	NO	QUESTIONS
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

_____ _____
Burn Boss Date

_____ _____
Holding Boss Date

_____ _____
Firing Boss Date

Date and time of test fire:_____

Location of test fire:_____

Results of test fire (flame length and rate of spread): _____

COPY

Project Name: FORESTA [redacted]PLEX
Unit Name: YOSEMITE NATIONAL PARK

ELEMENT 3 COMPLEXITY ANALYSIS SUMMARY

PRESCRIBED FIRE NAME			
ELEMENT	**RISK**	**POTENTIAL CONSEQUENCE**	**TECHNICAL DIFFICULTY**
1. Potential for escape	Moderate	High	Moderate
2. The number and dependence of activities	Moderate	Moderate	Moderate
3. Off-site Values	Moderate	High	Moderate
4 On-Site Values	Low	Low	Low
5. Fire Behavior	Moderate	Moderate	Moderate
6. Management organization	Moderate	Low	High
7. Public and political interest	Moderate	High	Moderate
8. Fire Treatment objectives	Moderate	Moderate	Moderate
9 Constraints	Moderate	Moderate	Moderate
10 Safety	Moderate	Moderate	Moderate
11. Ignition procedures/ methods	Moderate	Moderate	High
12. Interagency coordination	Low	Low	Moderate
13. Project logistics	High	Moderate	Moderate
14 Smoke management	Moderate	High	Moderate

COMPLEXITY RATING SUMMARY	
	OVERALL RATING
RISK	Moderate
CONSEQUENCES	Moderate to High
TECHNICAL DIFFICULTY	Moderate
SUMMARY COMPLEXITY DETERMINATION	Moderate
RATIONALE: See COMPLEXITY ANALYSIS (Appendix C)	

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ELEMENT 4: DESCRIPTION OF PRESCRIBED FIRE AREA

A. Physical Description

1. **Location:** Townships 2 and 3S, Range 20E, Sections 1-3, 10, 11, 19-22, 27-35 Mount Diablo Meridian. Coordinates of Big Meadow: latitude N 37° 42.554' by longitude W 119° 44.817' in WGS84 map datum.

2. **Size:** This plan combines nine Foresta burn segments designated 1 - 15 into the Foresta Complex. These units range in size from 18 to 1187 ac. and combined equal 928 acres (see Appendix A-B).

3. **Topography:** Primarily sloped with a south-southwest aspect. Slopes range from 0-70% and average about 25%. The complex is bisected from north to south by the Crane Creek drainage and it's tributaries. Significant meadows exist including Big Meadow and the McCauley ranch. Elevation ranges from 3800 - 6300 feet.

4. **Project Boundaries:** (Appendix A-B). The north boundary of the complex starts at Crane Flat Campground (CFCG) and the Davis Cutoff Rd. and follows the Big Oak Flat Rd. (BOF) west to the intersection of Foresta Rd. The east boundary is from the intersection of Foresta Rd. and the BOF Rd. south approximately 1 mile to the bend in the road and turns west. At that point, the predominant ridge south of Foresta then serves as the south boundary and continues west to intersect with Foresta Rd. near McCauley Ranch on the south end of the Complex. The western boundary of the Complex follows the Park/Stanislaus boundary to the Clark Range View trail (that extends from between sites 302 & 304 and 448 & 450 of the CFCG) following that road north back to the Crane Flat Campground and the BOF Rd.[5] The Complex may be further segmented depending on air quality concerns, seasonality, residential impact, developments, barriers, and topography and/or resource availability.

   Segments 1-3, 7 and 8 are adjacent to the community and bound on one side by existing roads, structures, and other improvements that make up the community. Segments 4-6 are within the community and delineated by existing barriers to fire spread. These segments may require specific preparations prior to burning to limit size and reduce fire intensities around improvements. The fuels in this segment are less dense and have been generally manipulated by thinning and pile burning since the A-Rock Fire in 1990[6], and provide ample opportunities for a variety of control lines to be built as needed. Segments 10-15 are generally larger and to the north of the community and extend west following the Big Oak Flat road to the Crane Flat Campground.

   Segment 1, 164 ac. - Foresta road south of segment 6 to park boundary then follows meadow (McCauley Ranch) perimeter around back to Foresta road or a small piece of line could be placed to power line access road on ridge to the ENE.
   Segment 2, 120 ac. - abut the community to the north (segments 4, 5, 6,) and the predominant ridge to the south.
   Segment 3, 320 ac. - abuts the community to the north (segments 4, 5, 6,) and the predominant ridge to the south.

[5] Wildland Fire Associates, 2007. *Community Wildfire Protection Plan for Foresta, California*, p. 49.
[6] Wildland Fire Associates, 2007. *Community Wildfire Protection Plan for Foresta, California*, p. 55-57, Timeline 8.10.

Segment 4, 69 ac. Old Coulterville Rd. to Campground road to Le Conte Wy. to Cemetery Rd.
Segment 5, 51 ac. Old Coulterville Rd. to Le Conte Wy. to Cemetery Rd.
Segment 6, 19 ac. Foresta Rd. to Park boundary (pre McCauley Ranch) to power line access rd. on ridge. This segment has light fuels and ample holding options.
Segment 7, 93 ac. Lies west of segment 5 and is separated by Crane Creek. The Old Coulterville Rd. runs on the north side and the Park boundary is the western edge. This segment is bisected by two roads, Muir Way and 1st St.
Segment 8, 89 ac. Consists of Big Meadow and sits just north of the community. It is bounded by the Old Coulterville Rd. on the south with brush and mixed conifer surrounding the rest of it.
Segment 9, 105 ac. Boundaries of segment 9 extend 300' on either side (east, west) of Foresta Rd. from the Big Oak Flat Rd. towards the community and generally consists of fuel reduction through mechanical treatments.
Segment 10, 58 ac. Consists of a 300' wide fuel reduction buffer along the southern portion of the complex along segments 2 and 3.
Segment 11, 1187 ac. 11 and 14 are bound to the east by the Davis Cutoff Rd. and Old Coulterville Rd. and can be further divided with constructed handline using appropriate topographic features if needed.
Segment 12, 382 ac. Segments 12-15 are bound on the east by the Davis Cutoff and Old Coulterville Rds. and the Park boundary on the west. The Clark View Rd, also provides the northwest boundary of Segment 15.
Segment 13, 325 ac. Bound on the east by the Davis Cutoff and Old Coulterville Rds. and the Park boundary on the west.
Segment 14, 1003 ac. Bound on the east by the Davis Cutoff and Old Coulterville Rds. and the Park boundary on the west.
Segment 15, 585 ac. Bound on the east by the Davis Cutoff and Old Coulterville Rds. and the Park boundary on the west.

It should be noted that although some of the segments have been modified slightly and/or have or could be combined, the treatment segments, in most cases, correspond to existing segments that were identified by the Park and listed in the Park's Fire Management Plan for treatment. Fuels treatment projects (primarily management ignited prescribed burns) that Reduce fuels outside the community boundaries but within the project area can in all likelihood be implemented in any order, so long as the projects are completed, one project builds on another. In addition, personnel should consider MIST tactics in all applications.

B. Vegetation/Fuels Description: (See Appendix A-D)

1. **On-site fuels data:** The fuel types for this complex are a mixture of NFFL fuel models 2, 5, 8, 9, and 10. The majority of the Complex has a southerly aspect and was burned by the high intensity A Rock fire in 1990 which resulted in extensive pockets of mixed chaparral including green and whiteleaf manzanita (*Arctostaphylos patula and viscida)*, deerbrush (*Ceanothus integerrimus*) and whitethorn (*Ceanothus cordulatus*). Through succession, the overstory is being propagated primarily with black oak regeneration (*Quercus kelloggii*), and ponderosa pine and knobcone pine regeneration (*Pinus ponderosa* and *attenuata*). Areas not burned by the A Rock are mostly mixed conifer with ponderosa pine, incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*) in the overstory and an understory of black and canyon live oak (*Quercus chrysolepis*), mixed chaparral including manzanita and whitethorn (*Ceanothus cordulatus*), and

mountain misery (*Chamaebatia foliolosa*). Mid-elevation meadows containing graminoids exist in the areas of Big Meadow and McCauley Ranch.

Vegetation Type	Acres	NFFL Fuel Model	Scott and Burgan[1]	Estimated Fine Fuel Load (t/ac)
Barren	13	n/a	n/a	n/a
Bear Clover	250	2/3	GS2	525
Black Cottonwood	6	8	TL2	8.4
California Black Oak	308	8	TL6	739.2
Canyon Live Oak	351	8	TL 2.1	491.4
Conifer Reproduction	22	1	TL1	22
Dry Meadow	56	1	GR2	61.6
Jeffrey Pine	1	9	TL8	5.8
Lodgepole Pine	1	8	TL4	0.5
Mixed Ponderosa Pine	1067	9	TL8	6189
Mixed White Fir	1052	8	TL7	316
Montane Chaparral	1094	4, 5	SH7	7549
Ponderosa Pine	121	9	TL8	702
Red Fir	98	8	TL4	49
Wet Meadow	103	1	NB8/GR1	41.2
Willow/Riparian	15	8	TL2	21
Total Estimated Tons				**16721.1**

[1]Scott and Burgan, Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model, June 2005. General Technical Report RMRS-GTR-153 *(aka '40 fuel models')*

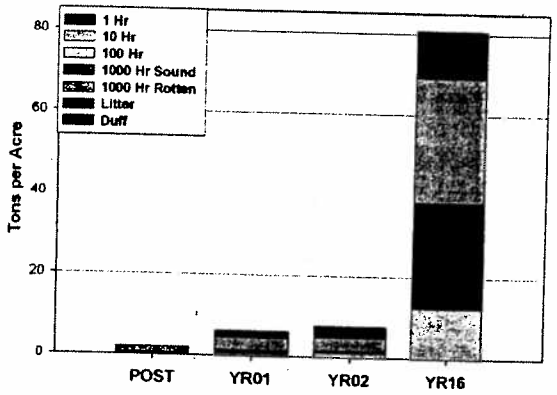
2. **Adjacent fuels data.** The fuels adjacent to the complex are primarily comprised of ponderosa pine and mixed conifer in the overstory with mixed brush species in the understory. This fuel type is best represented by NFFL fuel models 2, 5, 9 and 10.

3. **Fire effects monitoring handbook (FMH) plots.** Five FMH plots were established in or near the Foresta Complex just after the 1990 A Rock wildfire and re-read 16 years later in 2006 (see Appendix A-B). The results indicate high levels of dead, downed coarse woody debris mixed with dense and decadent brush vegetation as indicated by the chart and photos below[7]. Fuel loading in all size classes was over 80 tons/acre and the

[7] Hooke, et al., 2006. National Park Service Yosemite National Park Fire Ecology Annual Report Calendar Year 2006, pp 26-27.

resultant vegetation structure does not readily match those categorized by Scott and Bergan 40 fuel models. The majority of the fuel load consists of 1000 hour plus logs, not surprising in the wake of the high intensity A Rock fire which left many standing snags.

2006 FMH Plots Results:
Fuel Loading by Size Class



Foresta/A Rock Fire Area 1990

Foresta/A Rock Fire Area 2006

photos by Yosemite Fire Effects Crew

C. Description of Unique Features:

Most of the Foresta area falls within the Foresta Archeological District which indicates a significant number of cultural artifacts and a high likelihood for discovery of previously unknown resources. Archeological survey has been conducted on approximately 50% of the Complex area revealing numerous pre and recent historic sites. Known pre-historic sites and artifacts include numerous bedrock mortars and lithic scatter with obsidian, chert, and basalt. More recent historical evidence includes barns and cabins, bottle, can and trash scatter, and irrigation pipes, ditches and dams as well as remaining historic fruit trees. Natural resources of concern include three known spotted owl pairs and rare plants including Balsamorhiza hookeri. The Yosemite Archeology Office or a Park Resource Advisor will evaluate needs for further surveying and identify mitigation measures necessary prior to burning.

Primary protection measures of both pre-historic and historic sites will be to reduce vegetation and fuels around the sites and possible fire exclusion. Unless otherwise specified below, known cultural resources will be assessed by the fire archeologist and any protection measures implemented before the burn. The burn operation will be closely monitored by the

Burn Boss and Fire Archeologist for compliance with protection measures identified in the assessment. Any cultural resources discovered during the project will be reported to the Yosemite Archeology Office and some post burn assessment by the Archeology Office staff is planned. The Yosemite Archeology Office is evaluating the need for further survey and will be working with fire managers to accomplish survey and assessment objectives.

There are no known federal listed threatened or endangered plants or animal species within the Foresta Complex. There are, however, Yosemite natural resources of concern in the vicinity including three known Spotted Owl pairs. An attempt will be made to keep helicopter usage to a minimum, particularly during spring operations when such operations may affect nesting activities. When possible, control lines will be located to favor maximum snag retention as long as firefighter safety is considered first.

Park designated rare plants in the Foresta Burn Complex include *Antirrhinum leptaleum, Balsamorhiza hookeri, and Carex sartwelliana.* The only known populations of *Antirrhinum leptaleum* within Yosemite occur in Big Meadow and Wawona Meadow *A. leptaleum* was a pioneer species following the A Rock fire at Big Meadow (Botti, 2001). It appears that fire will not inhibit the success of the species and may actually improve it. Precautions will be taken to ensure that hand line is not dug through the known population and that landing zones and staging areas are at a reasonable distance. Big Meadow was most recently surveyed for *Balsamorhiza hookeri* in 2003, no populations were observed. It is doubtful that it currently occurs in Big Meadow.

According to the USDA Fire Effects Information System information concerning the response of Hooker balsamroot to fire is limited and conflicting. Goodrich and Huber provided limited evidence suggesting it may have some capacity to recover following fire. However, evidence from a post fire vegetation survey by Stucker and Peek on the 1979 Ship Island Burn in the Middle Fork Salmon River drainage, central Idaho, suggests that Hooker balsamroot post fire response may be slower than is suggested above. It was among the few perennial forbs to show a decrease in canopy coverage on burned sites. Three years after the fire Hooker balsamroot cover was still significantly ($p<0.05$) reduced in burned plots compared with paired unburned plots.

A few patches of *Carex sartwelliana* exist on the eastside of the road directly uphill from Big Meadow in atypical conditions. The populations were observed in 2007; voucher specimens were collected but not mapped. Resource management will need to map these populations before the burn. *C. sartwelliana* typically occurs in partially shaded forest openings and along meadow edges. The Big Oak Flat road patches however appear to be thriving in full sun. We expect that C. sartwelliana should be fire adapted. Operational ground disturbance associated with fire such as hand lines, staging areas, or trampling will be avoided where *C. sartwelliana* occurs. Mechanical thinning will be avoided in the population areas or if possible mitigation actions can occur with RMS oversight.

Preparatory work within the complex will be coordinated with the Vegetation and Ecological Restoration staff and/or the designated Resource Advisor to avoid adverse impacts. Preventative measures will be taken against the introduction of non-native plant species to the project area by prescribed fire or mechanical fuel reduction operations. All vehicles, equipment, and personnel (boots, clothing, IA gear, etc.) assigned to the project will be clean and free of non-native seeds and/or propagules.

Yosemite is a Class I Airshed; smoke will be managed to minimize health impacts and visual

impairment (see Element 19 - Smoke Management and Air Quality).

Yosemite National Park Snag Statement:

AVOID

1. ***Snag retention is the goal at Yosemite National Park.***
2. ***Locate fire control lines to minimize the cutting of snags.***
3. ***Only snags within 300' of the fireline should be considered for removal, unless topography and wind would influence long range spotting, or a snag could compromise an escape route or safety zone.***

MITIGATE

4. ***Snags should be cut only after it has been determined other mitigations (lookouts, fireproofing, burn down) would not be effective.***
5. ***Any snags/trees with blazes, signs, tags or other markings should not be cut until approved by a Resource Advisor.***

ELIMINATE

6. ***Only snags that present a safety hazard to human life will be cut down.***
7. ***Utilize snag guidelines from the* Sierra Nevada Forest Plan Amendment *and the* Tree Species Characteristics *before making final determination on snag and log removal.***
8. ***If it is necessary to cut a snag, the stump should be flush cut as low to the ground as possible and the stump and butt end of log should be scored to facilitate decomposition.***

D. Fire and Treatment History: (see Appendix A-C)

Year(s)/Season(s)	Treatment & Acres	Location/Segment
1968, Summer?	Wildfire with dozerline, 1700 ac.	Southern edge of segs. 1,2, & 3
1970, Spring?	Prescribed burn, 135 ac.	Both sides of Foresta Rd. south of B.O.F. Rd., parts of segs. 9, 10, & 11
1975, Spring	Prescribed burn, 850 ac.	Same as 1970 burn + parts of Big Meadow and segs. 8-14
1979-1980 Spring/Fall	Prescribed burn, 4775 ac.	All of PW 9 and part of PW7
1990	Wildfire, 17770 ac.	Majority of Segs. 1-12
1998, Summer	Prescribed burn, 14 ac.	Segment 6
1999, Fall	Prescribed burn, 33 ac.	Portion of segs. 1 and 6.
2006, Summer	Masticator demonstration, 1 ac.	Portion of seg. 4
1994 – 2008	NPS Mechanical thin, pile, and burn of conifer regen., approx. 150 ac.	Portions of all inner WUI segs. 1-9 including road corridors
1970-2008	Private homeowner clearing, 140 ac.	All inner WUI

ELEMENT 5: GOALS AND OBJECTIVES

Goal #1 - Provide for public and firefighter safety first.

Objective - Ensure public safety by posting warning signs and/or restricting access to the fire area.

Objective - Ensure all fire personnel are provided a safety briefing at the beginning of daily operations.

Objective - Ensure public safety by initiating and maintaining traffic control using personnel and appropriate signing on roads.

Objective - Base all strategy and tactical decisions on proven safe practices.

Objective - Manage smoke to avoid unhealthy and hazardous conditions.

Goal #2 - Reduce fuels in all size classes in the inner WUI zone.

Objective - For first entry burns, reduce fuels in all size classes by 30-70%

Objective – For maintenance burns, reduce and maintain dead and down fuel loadings to 5-30 tons per acre for all size classes combined, post burn.

Goal #3 – Achieve restoration and maintenance target conditions outside the WUI zone through prescribed burning in at least the upper end[8] (or on the low range of densities and fuel loadings) of the range of restoration target conditions as outlined in Yosemite's Fire Management Plan.[9]

Objective - Maintain gap size distribution one year post burn of the unit at:

- 0.1-1ha = 75-95%,
- 1-10ha = 5-25%
- and 10-100ha = <1%

Objective - Maintain size and composition target conditions one year post burn.
(See Table: Target Conditions Below)

TARGET CONDITIONS (size and composition after maintenance condition is acquired):

Maintain the following tree density for given vegetation types:

Size Class	Ponderosa Pine-mixed conifer	White Fir – mixed conifer	Montane Chaparral
< 31.5" dbh	4-91 trees/acre	20-89 trees/acre	4-61 trees/acre
> 31.5" dbh	4-30 trees/acre	4-20 trees/acre	2-20 trees/acre

Maintain the following forest composition for given vegetation types:

Species	Ponderosa Pine-mixed conifer	White Fir – mixed conifer	Montane Chaparral
Pine	60-95%	15-50%	60-80%
White Fir		40-65%	20-40%
Cedar	15-40%	1-10%	
Oak	1-10%		

Goal #4 - Preservation of cultural and natural resources. Significant cultural sites exist within

[8] National Park Service, 2004, *Yosemite National Park Fire Management Plan EIS*, p. I-10
[9] National Park Service, 2004. *Yosemite National Park Fire Management Plan EIS*, p. II-13.

the complex and must be protected.

Objective - Protect all known features that contribute to the historical significance of the cultural landscape from loss or damage.

Objective - Reduction of fuel accumulations around cultural resources, to specifications listed in 'Target Conditions' above which will lessen the likelihood of damage in the event of wildfire.

Objective – Documentation of newly discovered cultural resources post fire.

Goal #5 – Monitor and record fire behavior, weather, smoke, and fire effects plots through all stages of burning.

Objective – Ensure personnel are on site to conduct monitoring.

Goal #6 - Provide opportunities for educating employees and the public about the role of fire in ecosystem management.

Objective – Develop information and outreach strategies that explain the need for prescribed burning in Yosemite National Park to reduce hazardous fuels in the wildland urban interface, perpetuate oak woodlands, preserve cultural landscapes and maintain the natural role of fire in the ecosystem.

ELEMENT 6: FUNDING:

A. Cost:

Total estimated cost: $733,260
Estimated cost per acre: $163

Cost Breakdown:

PROJECTED PERSON HOURS	DESCRIPTION OF ACTIVITIES	PROJECTED COSTS*
Planning	850 hours @ $22/hr	$18,700
Unit Preparation	7,800 hours @ $15/hr	$117,000
Burning	4,300 hours @ $20/hr	$86,000
Holding (including contract crews)	20,000 hours @ $15/hr	$300,000
Aviation – Helicopter Hours	55 hours @ $1000/hr	$55,000
Aviation – Helitack	1,800 hours @ $17/hr	$30,600
Monitoring	3,300 hours @ $15/hr	$49,500
Mop-up / Evaluation	2,500 hours @ $13/hr	$32,500

EQUIPMENT	DESCRIPTION OF ACTIVITIES	PROJECTED COSTS*
Tools	Saw/Parts	$1,200
Aviation Firing Supplies	Replacement Value incendiaries	$5,000
Engine	2000 hours @ $15/ hour	$30,000
Fuel	500 gallons @ $4.00 / gallon	$2,000
Mileage	18,000 miles @ $0.32./mi	$5,760

*Required information submitted in DI-1202: ACTUAL TOTAL COSTS and ACRES TREATED

B. Funding source:

This project will be FIREPRO funded, using National Fire Plan Operational Reporting System (NFPORS) for accomplishment reporting.

ELEMENT 7: PRESCRIPTION

A. Environmental and Fire Behavior Prescription:

Prescriptions are given for three different vegetation types which represent the majority of vegetation in the Foresta Complex: SH7 montane chaparral (segs. 1-11), TL7 mixed white fir and broadleaf oak, and TL8 mixed ponderosa pine (segs 12-15). A prescribed fire prescription contains those key parameters needed to achieve desired results. Prior to ignition, compare prescription elements, both individually and collectively, against local weather forecasts and any other predicted conditions. During implementation of the burn, if objectives are not being met, further ignition shall be evaluated; therefore, prescription parameters must be wide to accommodate established objectives while staying within fireline personnel capabilities. Actual environmental and fire behavior parameters will be measured on site and be captured in the post-burn fire monitoring report. All changes to the prescription parameters must be approved with the same level of authority required for the plan approval. SH7 and 9 prescriptions given below are from the Van Wagtendonk and Botti paper, **"Prescribed Burning Prescriptions, YNP.** SH7 prescription was derived by modifying Van Wagtendonk and Botti's parameters for NFFL FM 5 to more closely match conditions for burning in FM4 or mature montane chaparral vegetation. It should also be noted that approximately 100 acres of meadows exist in the complex and will not be burned until cured (after flower and seed set) and not before 'green-up'.

POTENTIAL ADVERSE FIRE BEHAVIOR AND WEATHER CONDITIONS

Mono winds sometimes develop in Yosemite during the fall and winter. These winds sometimes exceed 60 mph and lower humidities to the single digits. No burning will be conducted if atmospheric conditions indicate Mono winds could develop. If these winds are predicted to occur after ignition has been completed and before the fire is declared out, any threats to the boundaries of the burn unit will be secured by a thorough mop-up operation. No firing will be conducted if Hanford NWS forecasts Red Flag conditions or unusual wind events for the Yosemite NP forecast zone.

FUEL MODEL SH7 (NFFL FM 4)

ENVIRONMENTAL VARIABLES	HEAD FIRE		BACKING FIRE	
	HOT	COOL	HOT	COOL
Temperature (dry bulb°):	70*	30	80	40
Relative Humidity (%):	30	50	20	40
Wind Direction:	Any	Any	Any	Any
Wind Speed (midflame):	5	1	6	0
Dead Fuel Moisture (%) 1 Hour:	8*	10*	4	6
10 Hour:	11*	15*	6	10
100 Hour:	N/A	N/A	N/A	N/A
1000 Hour:	N/A	N/A	N/A	N/A
Herbaceous – live:	N/A	N/A	N/A	N/A
Woody – live:	110*	150*	65	120

PREDICTED FIRE BEHAVIOR^	HOT	COOL	HOT	COOL
Rate of Spread (ch/h):	30.9	N/A	N/A	N/A
Heat per Unit Area (Btu/ft/s):	1996	N/A	N/A	N/A
Fireline Intensity (Btu/ft/s):	1131	N/A	N/A	N/A
Flame Length (ft):	11.4	N/A	N/A	N/A

* Modified values derived from Van Wagtendonk and Botti's Prescribed Burning Prescriptions, YNP for fuel model 5.
^ Predicted Fire Behavior derived from Behave Plus fire prediction modeling runs – see appendix E.

FUEL MODEL TL7 (NFFL FM 8)

ENVIRONMENTAL VARIABLES	HEAD FIRE		BACKING FIRE	
	HOT	COOL	HOT	COOL
Temperature (dry bulb°):	80	30	90	40
Relative Humidity (%):	20	65	20	40
Wind Direction:	Any	Any	Any	Any
Wind Speed (midflame):	5	1	6	0
Dead Fuel Moisture (%) 1 Hour:	4	8	3	8
10 Hour:	6	13	5	10
100 Hour:	7	20	7	12
1000 Hour:	10	20	10	20
Herbaceous – live:	N/A	N/A	N/A	N/A
Woody – live:	N/A	N/A	N/A	N/A

PREDICTED FIRE BEHAVIOR	HOT	COOL	HOT	COOL
Rate of Spread (ch/h):	1.7	0.3	0.3	0.2
Heat per Unit Area	210	170	250	180
Fireline Intensity (Btu/ft/s):	6	1	1.3	.8

Flame Length (ft):	1	0.5	0.5	0.4

FUEL MODEL TL8 (NFFL FM 9)

ENVIRONMENTAL VARIABLES	HEAD FIRE		BACKING FIRE	
	HOT	COOL	HOT	COOL
Temperature (dry bulb°):	75	30	85	40
Relative Humidity (%):	30	65	20	50
Wind Direction:	Any	Any	Any	Any
Wind Speed (midflame):	6	0	6	0
Dead Fuel Moisture (%) 1 Hour:	6	8	4	8
10 Hour:	9	15	6	10
100 Hour:	10	20	8	15
1000 Hour:	10	20	10	20
Herbaceous – live:	N/A	N/A	N/A	N/A
Woody – live:	N/A	N/A	N/A	N/A

PREDICTED FIRE BEHAVIOR	HOT	COOL	HOT	COOL
Rate of Spread (ch/h):	7	2	1.1	0.7
Heat per Unit Area	400	340	450	350
Fireline Intensity (Btu/ft/s):	45	11	8	5
Flame Length (ft):	2.6	1.4	1.2	0.9

ELEMENT 8: SCHEDULING

A. Ignition Time Frames/Season(s):

Proposed Ignition Date: Spring 2008 through summer 2018. Sequencing of segments will follow as close as possible those outlined in the Yosemite National Park Fuels/Fire Management 10 Year Action Plan: 2008-2017.[10]

B. Projected Duration:

Ignition 1-5 days per segment, burn down 7-21 days per segment.

Actual Ignition Date: SEG 6: 6/5/08

Date Declared Out: _____

Date DI-1202 Submitted: _____

C. Constraints:

Burning contingent upon:

- Approval by Mariposa Air Pollution Control Officer (MAPCO); burning will occur only on permissive burn days. A variance request may be made to MAPCO if atmospheric conditions at the burn site are favorable for good smoke dispersal.
- Regional and national preparedness levels allowance of new prescribed fires.

[10] Beasley, National Park Service, Yosemite National Park Fuels/Fire Management 10 Year Action Plan: 2008-2017.

- Compliance with seasonality of sensitive species (as determined by pre-burn resource survey).

ELEMENT 9: PRE-BURN CONSIDERATIONS

A. Considerations:

1. On Site: Burn Unit Preparation.

Minimum control line standard unless otherwise stated: 10' cut (<6"dbh) and 2 ½" scrape to bare mineral soil.

All Segments:

TASK	RESPONSIBLE	✓
DAY +7		
Burn Plan is reviewed, signed and approved	Burn Boss	
Cultural Resource clearance has been received	Burn Boss/ Archeologist	
Smoke Management Plan has been submitted to Mariposa Air Pollution Control District	Burn Boss	
Construct handline(s) to delineate units in coordination with Resource Advisor (to make sure adequate measures are taken to avoid sensitive natural and cultural resources)	Holding Boss	
Line snags and cat-faced trees within 200' of unit perimeter	Holding Boss	
Clear/thin around powerlines and powerpoles within units	Holding Boss	
Prep around all road and trail signs	Holding Boss	
Place hoselay, portable pumps, and port-a-tanks around perimeter as necessary	Holding Boss	
Develop IAP w/ objectives, assignments, medical plan, safety plan, communications plan, prescriptions and weather	Burn Boss	
Notify Mariposa County Fire Department, Madera-Mariposa Calfire, Stanislaus NF, Sierra NF, Yosemite Concessions Service, and the Crane Flat Store.	Fire Info./Ed. Specialist	
Monitor weather and fuel conditions; place fuel sticks	Lead Fire Monitor	
Ensure all pre-burn sensitive plant, wildlife, and weed surveys have been completed	RM&S Staff/ READ	
Test all water sources in vicinity of the Foresta Complex prior to ignition including holding tank at the Foresta fire station, hydrant Crane Flat store and Crane Creek. Inform Valley Utilities of potential hydrant water usage.	Holding Boss	
Identify and establish escape routes and safety zones.	Burn Boss	
Post advisory information signs in Foresta, El Portal, Yosemite Valley Visitor Center, Crane Flat, Big Meadow overlook, and Park entrance stations.	FIO	
DAY +6		
Monitor weather & fuel conditions	Lead Fire Monitor	
Fire monitor plots installed	Lead Fire Monitor	

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DAY +5		
Monitor weather & fuel conditions	Lead Fire Monitor	
Obtain live fuel moisture determination samples	Lead Fire Monitor	
Post proposed burn notice in Yosemite Daily	Burn Boss/PIO	
Request forecasts from the California Air Resources Board (CARB) through the Mariposa Co. APCD using the CB-3 form and approval process	Burn Boss	
DAY +4		
Live fuel moistures reported to Burn Boss	Lead Fire Monitor	
Monitor weather & fuel conditions	Lead Fire Monitor	
Obtain 96-hour outlook from CARB meteorology staff	Burn Boss	
DAY +3		
Monitor weather & fuel conditions	Lead Fire Monitor	
Obtain 72 hour outlook from CARB meteorology staff	Burn Boss	
DAY +2		
Monitor weather & fuel conditions	Lead Fire Monitor	
Requests and notifications for any cooperators made	Burn Boss	
Holding resources availability checked	Burn Boss	
Burn organization personnel secured	Burn Boss	
Coordinate public information and interpretive programs	PIO/Fire Info. Ed.	
Obtain 48-hour forecast from CARB meteorology staff	Burn Boss	
Inform local area businesses in El Portal, Foresta, YCS, and media contacts	FIO	
Post notices and/or closures at pertinent trailheads. Inform wilderness office and Yosemite Valley Visitor Center of any closures.	FIO	
DAY +1		
Determine burn day status; file 24-hour notice with Mariposa Air Pollution Control Officer and/or participate in 1300 smoke conference call.	Burn Boss	
Request a spot weather forecast from Hanford NWS	Lead Fire Monitor	
Notify Pacific Regional Office FMO.	Burn Boss/FMO	
Assess dead and live woody fuel moisture and predicted weather	Lead Fire Monitor	
Agency Administrator GO/NO GO checklist completed and signed	Burn Boss	
IAP updated and copies are made. Ensure that specific fire mitigation guidelines are included in the IAP. FAX to Yosemite ECC and helibase.	Burn Boss	
Establish patrol schedule for after completion of burn	Burn Boss	
Obtain 24-hour decision from CARB meteorology staff	Burn Boss	
BURN DAY		
Check compliance with burn day regulations.	Burn Boss/FMO	
Notify adjacent land mgmt. agencies including Mariposa County Fire, Stanislaus and Sierra NFs, and Madera/Mariposa Calfire of burn 2 hours before ignition.	Yosemite ECC	
Ensure Contingency resources availability within specified time frames.	Burn Boss/	

	Holding Boss	
Measure fuel sticks prior to ignition.	Lead Fire Monitor	
Inform local area businesses in El Portal, YCS, and media contacts.	PIO/FIO	
Post information and fire advisories at visitor center, entrance stations, and pertinent overlooks i.e. Big Meadow Overlook.	PIO/FIO	
Check area for visitors prior to ignition.	Safety Officer	
Prepare location of test burn.	Burn Boss/FIRB	
Complete burn go/no go and smoke management go/ no go checklists.	Burn Boss	
Take on-site weather observations prior to ignition and at least every hour during firing phase; record on weather observation form.	Lead Fire Monitor	
Operational briefing is given to all burn personnel w/opportunity for feedback.	Burn Boss	
Utilize ignition techniques to assure sufficient fire intensities to meet burn objectives and keep fire under control.	Firing Boss	
Hold fire; update Burn Boss on progress/problems	Holding Boss	
Monitor burn operations to protect resources of concern - cultural and natural.	READ/Burn Boss/Archeologist	
Monitor and document smoke emissions and behavior.	Lead Fire Monitor	
When needed, minimum acceptable speed and visibility limits will be monitored by traffic controllers.	Traffic Control Officer	
If there are hazardous or unhealthful smoke conditions in sensitive areas contact Chief Ranger and Public Information Officer.	Air Quality Specialist	
Report discovered resources of concern to READ and cultural and resource management offices.	READ/Burn Boss/Archeologist	
Update dispatch and establish patrol everyday until fire is out.	Burn Boss	
Maintain ICS-214	Burn Boss	
After Action Review/Critique completed and Lessons Learned are documented	All assigned burn personnel	
Post traffic signs: "Prescribed Burn Do Not Report", "Smoke Ahead", and "Be Prepared To Stop" along Foresta Rd. and Hwy. 120 as needed.	Rx Crews/Traffic Controllers	

2. Off Site:

A. The project meets general federal conformity requirements per the Environmental Assessment covering the 2004 Yosemite NP Fire Management Plan EIS.

B. Yosemite ECC will be continually updated on the fire situation every day that personnel are on the fire, until it is declared out.

C. Once the fire is ignited all resource orders will be placed through Yosemite ECC until the prescribed fire is declared out.

D. Fire Management will monitor compliance with Zone Preparedness Plan for Wildland Fire Agencies in California and "Burn Day" regulations.

E. The Information Officer will coordinate public information and interpretive programs with the Yosemite Interpretive Staff and Media Relations Staff. This will include written notices and updates in the "Daily Report."

F. The Information Officer will coordinate local area public notification and media contacts.

This will include YCS, adjacent landowners and businesses in Foresta, Crane Flat, Yosemite Valley, El Portal, and Yosemite West.

G Fire Management or Yosemite ECC will make daily notification to the surrounding land management agencies including MAPCD with fire situation updates.

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

1. Onsite weather data will be collected at least one day prior to and each day while burning and submitted to either Hanford or Southern California Geographic Coordination Center weather forecasters for pertinent Spot Weather Forecasts.

2. Data for smoke dispersal conditions and forecasting will be submitted to the California Air Resources board at least 48 hours prior to ignition.

C. Notifications:

1. Burn Boss will ensure that a pre-season (e.g. Spring, Fall) or project-specific press release has been approved through the Media Relations Office for distribution to local and regional media outlets (TV, radio, newspaper) at least one week prior to the burn.

2. Information Officer or Burn Boss will ensure public lodges and places of business are posted with burn/smoke advisories three days prior to the burn. These postings and key citizen contacts will be conducted at every opportunity when the burn date is firm.

3. Fire Management will notify Pacific Great Basin Regional Fire Management Office one day prior to ignition.

4. Mariposa County Fire Department, Madera-Mariposa CDF Ranger Unit, and Sierra National Forest will be notified at least two hours in advance of ignition so that required notifications can be made. Any requests for cooperator resources will be made 48 hours prior to ignition.

5. Mariposa County APCD will be contacted prior to ignition, along with required written Smoke Management Plan.

ELEMENT 10: BRIEFING

INCIDENT OPERATIONS STRATEGY AND TACTICS:

- ☐ **Burn objectives**
- ☐ **Prescription parameters**
- ☐ **Test fire procedure**
- ☐ **Ignition procedure**
- ☐ **Holding procedure**
- ☐ **Monitoring procedure**
- ☐ **Contingency procedure**
- ☐ **Transition process**
- ☐ **Fire behavior**
- ☐ **Weather forecasts**
- ☐ **Organization and assignments**

INCIDENT SAFETY:

- ☐ **Fire personnel safety procedures**

- ☐ **Lookouts, Communications, Escape Routes, Safety Zones (LCES)**
- ☐ **Environmental hazards**
- ☐ **Public safety procedures**
- ☐ **Fire hazards**
- ☐ **Smoke exposure**
- ☐ **Medical plan**

INCIDENT COMMUNICATIONS:
- ☐ **Radio frequencies**
- ☐ **Radio use protocol**
- ☐ **Available telephones, FAX**
- ☐ **Fire situation updates with dispatch**

INCIDENT LOGISTICS:
- ☐ **Equipment support**
- ☐ **Supplies support**
- ☐ **Food and water**
- ☐ **Sanitation facilities**
- ☐ **Sleeping areas**

INCIDENT FINANCE/ADMINISTRATION:
- ☐ **Personnel time keeping**
- ☐ **Compensation for injuries**
- ☐ **Reporting procedures for damage/loss of equipment and supplies**
- ☐ **Disposable supplies replacement procedures**

SPECIAL CONSIDERATIONS:
- ☐ **Cultural resources**
- ☐ **Threatened and endangered species**
- ☐ **Other**

GO/NO-GO REVIEW:
- ☐ **Discussed with appropriate personnel**

FEEDBACK:
- ☐ **Questions/Concerns**
- ☐ **Comments**

OTHER:
- ☐ _____

ELEMENT 11: ORGANIZATION AND EQUIPMENT

A. Positions:

Individuals assigned may vary depending on availability of personnel, however **all positions will be filled**. The individual filling the role will possess a red-card with qualifications commensurate with the project complexity. An organizational chart and will be updated routinely to reflect personnel changes

In Fire Season:

A. Prescribed Burn Boss (Type II)
B. Firing Boss
C. Holding Specialist (Minimum Task Force Leader Qualified)
D. Information Officer (Type III)
E. Safety Officer (optional)
F. Resource Advisor
G. Holding Resources: This depends on the predicted minimum fine fuel moisture and

forecasted peak mid-flame wind speed (see Appendix M). Generally, one twenty person handcrew with line supervisors qualified at the commensurate level (CRWB). Larger and/or more complex segments will require a helicopter with water drop capabilities and associated personnel, and the Park's Type II Dozer.

H. Ignition Resources: smaller segments, 2 crew members minimum; larger segments, 4-6 crew members minimum.
I. Traffic Control on segments adjacent to roadways including F-9, 11, 14 and others as needed.
J. Patrol: Predetermined resources will staff the fire until there is no chance of escape. Local suppression resources may be available to patrol in the afternoons, depending on availability.
K. Fire Effects Monitors: 2-4.

Out of Fire Season (10-Hr. TLFM $\geq$ 10%, Wind Speed $\leq$ 5 mph):

A. Prescribed Burn Boss (Type II)
B. 1 Engine (Type III)
C. 1 Squad of 6 – 8 Firefighters

B. Equipment:

- Two wildland fire engines (only one during off-season) with crews of at least three each, including an ENGB.
- Portable water tanks, pumps, hoses, nozzles, and necessary fittings to complete hoselay along handlines of unit(s) to be treated.
- Segments adjacent to the community will require a Type II Dozer and Type II Helicopter with capability for aerial ignition, reconnaissance, and suppression duties.

C. Supplies:

- Supplemental supplies will be needed while burning the larger segments and may include food, water, batteries, etc. Potential base camp locations for extended operations include Crane Flat campground and Tent City at Crane Flat, Foresta campground, or Yellow Pine campground in Yosemite Valley.

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ELEMENT 12: COMMUNICATION

	1. Incident Name **Foresta Complex**			2. Date/ Time Prepared	3. Operational Period Date/Time
4. Basic Radio Channel Utilization **Mode: W=Wideband Analog, N=Narrowband Analog, D=Digital, M=Mixed**					
Channel	**Function**	**Frequency**	**Tone**	**Mode**	**Assignment**	**Remarks**
1	Command Local - Fire Direct	RX: 172.7750		D		
		TX: 172.7750				
2	Command Repeat - Crane	RX: 172.7750	2.0	D		Medical emergency traffic direct to [illegible]
		TX: 171.8000	110.9			
3		RX:				
		TX:				
4		RX:				
		TX:				
5		RX:				
		TX:				
6		RX:				
		TX:				
7		RX:				
		TX:				
8		RX:				
		TX:				
9	Air to Ground	RX: 168.5625		D	Aerial ignition operations only	
		TX: 168.5625				
10		RX:				
		TX:				
11		RX:				
		TX:				
12	TAC 1	RX: 168.0500		D	Holders & others	
		TX: 168.0500				
13	TAC 2	RX: 168.2000		D	Ignition	Use only as backup, should TAC 1 [illegible]
		TX: 168.2000				
14		RX:				
		TX:				
		TX:				
		TX:				

5. Prepared by (Communications Unit)

ICS 205 **NFES 1330**

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

A. Telephone Numbers:

Emergency Communications Center/Dispatch Office: 209-379-1998
Prescribed Fire Manager Mike Beasley: 209-375-9574
Prescribed Fire Specialist Taro Pusina: 209-375-9576
Fire Information and Education Specialist Gary Wuchner: 209-372-0480

ELEMENT 13: PUBLIC AND PERSONNEL SAFETY, MEDICAL

A. Safety Hazards:

Potential Hazards:

1. Extreme or problem fire behavior due to unusual fuel or weather conditions.
2. Damage or detriment to natural and cultural resource values.
3. Impact to air quality and downwind smoke sensitive areas.
4. Smoke obscuring roadways.
5. Lack of qualified and/or sufficient personnel.
6. Injury/death of personnel or public.
7. Equipment/property damage.

B. Measures Taken to Reduce the Hazards:

1. All burn personnel will wear standard fire fighting leather boots, Nomex pants and shirt, leather gloves and hard hat, and have safety glasses/goggles available. All burn personnel will carry a fire shelter and a fire tool at all times. Standard wildland fire fighting safety rules will be strictly enforced (see Fireline Handbook).

2. A safety briefing will be given for all fire personnel at the start of each operational period, using the attached Job Hazard Analysis and Briefing Checklist.

3. A traffic control function shall be activated during the entire ignition phase of the project if visibility is adversely impacted along the following roads: Foresta Road and Hwy. 120. These roads will be signed with "Smoke Ahead" and "Prescribed Burn, Do Not Report" signs, as well as blinking barricades, as needed, to ensure safe driving conditions. A pilot car will be available on site in the event that visibility on these roads is reduced to less than 220'

4. Affected trails will be posted with "Area Closed due to Fire" and or "Fire Warning" signs.

5. A Medical Plan will be developed and attached to the IAP.

6. Interested public will be directed to the PIO area or the Burn Boss.

C. Emergency Medical Procedures:

MEDICAL PLAN ICS 206	1. INCIDENT NAME: FORESTA COMPLEX	4. OPERATIONAL PERIOD:	
5. INCIDENT MEDICAL AID STATIONS			
MEDICAL AID STATIONS	LOCATION	PARAMEDICS YES	PARAMEDICS NO

Medical Unit			
Yosemite Medical Clinic	Yosemite Village (209-372-4637) office hrs 8-6/ER 24hr	X	
Oakhurst Urgent Care Center	48677 Victoria Lane, Hwy. 41, Oakhurst (559-683-2992) office hours 9-9	X	

6. TRANSPORTATION

AMBULANCE SERVICE	LOCATION	PHONE	PARAMEDICS YES	PARAMEDICS NO
Wawona Volunteer Ambulance	Wawona, CA	9-1-1		X
Sierra Ambulance 559-966-3621 or 559-456-7800	Oakhurst, CA	9-1-1	X	
Medic 3	Yosemite Valley, CA	9-1-1	X	

AIR AMBULANCES	LOCATION (Yosemite ECC 209-379-1992 or 1998)	PARAMEDICS YES	PARAMEDICS NO
Air Med. (1-800-576-7828)	Modesto, CA (request through Yosemite ECC {9-1-1})	X	
Mediflight (1-800-692-5740)	Modesto, CA (request through Yosemite ECC {9-1-1})	X	
CHP Rescue/Hoist (559-488-4121)	Fresno, CA (request through Yosemite ECC {9-1-1})		X

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME AIR	TRAVEL TIME GRND	PHONE	HELIPAD YES	HELIPAD NO	BURN CENTER YES	BURN CENTER NO
Yosemite Medical Clinic	Yosemite Valley Lat/Long: N37 44.8/W119 34.6	10 min	1:00	209-379-4637 209-372-0221	Ahw. Mdw			X
John C Fremont Hospital	Mariposa, CA Lat/Long: N37 30.105/W119 58.637	15 min	1:30	209-966-3631	X			X
Doctors Medical Center	Modesto, CA Lat/Long: N37 39.99/W120 59.99	30 min	2:30	209-578-1211 ER-576-3883	X			X
Community Regional Med.Ctr. Trauma Center/Burn Center	2823 Fresno St., Fresno, CA Lat/Long:N36 44 39.05 / W119 47 06.98	30 min	2:00	559-459-6000 ER-459-3998	X		X	

8. MEDICAL EMERGENCY PROCEDURES

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

LINE EMERGENCY: **Crew Supervisor to contact Division Supervisor with patient complaint/condition and location.** • Division Supervisor contacts: 1. Operations with need and contact 2. Crew EMT for patient update and needs • Operations: 1. Makes all necessary notifications & transport decisions per ICS 206 and Air Ops input. • Communications contact: 1. Notify Med Unit and Safety Officer 2. Dispatch ground ambulance to nearest drop-point or LZ for transport if requested (9-1-1) 3. Communication consider clearing command channel for emergency traffic • Division Supervisor will run medical emergency on command channel • MEDL: will notify receiving hospital of patient injury and status. **BASE CAMP EMERGENCY** Contact Med Unit with patient complaint/condition and location or call 9-1-1 and request Incident Ambulance if needed.	**INJURY REPORTING PROCEDURES** *(DO NOT USE PATIENT NAME OVER THE AIR)* NATURE OF INJURY/ILLNESS_____ LOCATION OF PATIENT_____ TRANSPORT REQUEST BY: AIR___ GROUND__ POINT OF PICKUP_____ LAT _____ LONG _____ PATIENT WT. _____lbs. SEX: MALE____ FEMALE____ AGE_____ PATIENT UNIT ID_____ IS EMT WITH THE PATIENT: YES ____ NO____ **Patient vitals and other information (equipment needs):**_____ **FOR ALL EMERGENCIES, Secure the area and identify witnesses for later investigation. Keep an accurate log of events.**
9. PREPARED BY: (IC/Medical Unit Leader)	10. REVIEWED BY: (IC/Safety Officer)

ELEMENT 14: TEST FIRE

A. Planned location:

A test burn will be conducted the day of ignition, after the OPERATIONAL BRIEFING AND "Go-No Go" checklist has been completed. The Burn Boss will determine location of the test burn. The test burn will likely be located at the high point and or northeast corner of each respective unit and will allow for visual confirmation of attainment of burn objectives and identification of smoke dispersal direction and conditions. The test burn will take place in fuels that are representative of the fuels in the unit and in a location that can be easily controlled if conditions are deemed unfavorable. Ignition will commence on the unit after a successful test burn.

B. Test Fire Documentation:

See ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST results above.

ELEMENT 15: IGNITION PLAN

A. Firing Methods:

Hand firing will be done in the smaller segments adjacent to the community of Foresta and around the perimeter of larger segments. Aerial ignition will likely be used in the interior of larger segments. All aerial ignition operations will comply with directives and policies found in NPS Director's Order 60 and Reference Manual 60 (DO60/RM60) and the Interagency Aerial Ignition Guide (NFES #1080). The drip torch fuel mixture will be three parts diesel to one part gasoline. The ignition crew will work directly under the Firing Boss.

B. Devices:

Primary ignition devices will be drip torches and fusees for ground igniters and a Primo Mark III plastic sphere dispensing machine if utilizing aerial ignition. Alternate ignition devices may be utilized by ground personnel when in steep, rugged, or otherwise inaccessible terrain and may include: Pistol/flare guns and hotshot flares.

C. Techniques:

Firing techniques such as ring firing may be utilized to protect sensitive features including cultural and natural resources such as archeological sites, sensitive plants and large snags, cat-faced green trees. Pre-treatment such as thinning, scraping and clearing of fuel and vegetation may be conducted as well. Blacklines along the flanks will be ignited ahead of the interior burning. The Burn Boss and/or the Firing Boss will determine the width of the blacklining by examining environmental conditions. Strip head and backing fires will proceed through the interior to create intensities capable of meeting burn objectives. Spot ignition may appropriate for burning jackpots of heavy fuels to keep intensities lower. The Burn Boss or Firing Boss will modify ignition techniques as necessary. Ignition patterns should be modified to manipulate the smoke column to keep it as vertical as possible so that smoke impact on the road is minimized.

D. Sequences:

It is expected to take a number of seasons to fully execute ignition on the Foresta Complex. The preferred sequencing is based upon proximity to core WUI, travel corridors, escape potential and seasonal fuel moisture levels. Holding and ignitions plans for each segment can be executed in any order should conditions dictate. In general, segments 1-9 in the core WUI will be treated first, followed by the larger segments 10 – 15 to the north. When possible, segments higher on the slope will precede those lower on the slope to make future, downslope segments easier to burn.

E. Patterns:

Ignition patterns will depend on environmental conditions. In general, firing for most segments will commence along the northern/north-eastern or upslope portion of each segment and continue downslope into the wind. A strip headfire pattern will be utilized. Patterns will be adjusted according to burn objectives including resources at risk and desired fire intensities. Aerial ignition patterns will likely be spot headfire patterns working off of the upper blackline and downslope into the wind.

F. Ignition Staffing:

Ignition time will vary by unit. The larger segments 11-15 are expected to take two to three days each by a six to eight person firing team, with burn down of residual fuels expected to last up to seven to ten days after ignition. The smaller segments adjacent to Foresta should take one to two days to ignite with a smaller module. The team will take advantage of changing environmental conditions and account for changes in fuel, slope, and aspect to achieve desired prescribed fire goals.

ELEMENT 16: HOLDING PLAN

A. General Procedures for Holding:

Holding will be accomplished with use of requisite number of handcrew and engine personnel on scene. Firing crews will coordinate with holding crews to insure the application of fire is manageable. Areas adjacent to the burn will be gridded for spot fires as necessary during the ignition and holding phases of the burn. A minimum of two engines and one water tender will be stationed on the burn, to patrol and pump any hoselays. Handcrew and engine personnel will manage hoselays positioned around the perimeter of each segment. Scarce water sources in Foresta require prudent water usage during operations. The water tender will be versed in refill stations and staged in strategic locations depending on segment being treated. Portable tanks, portable pumps, and hoselays will be positioned as needed on

the unit perimeters as needed prior to ignition.

Foresta's primary water source is Crane Creek. There is a +/-5000 gallon holding tank at the Foresta fire station which requires manual filling via gas operated pump located inside the engine bay. As of Fall 2007, planning is in the works to add an additional tank near an unnamed spring on the Foresta Campground Rd. on the east end of town. Due to limited water sources, portable tanks and/or additional water tenders will be used extensively during burning operations. Other engine and tender fill stations include hydrants at the Crane Flat Store and Yosemite Valley.

Out of fire season burning, i.e. 'jackpotting', would only require a Prescribed Fire Burn Boss Type II and one Type III Engine.

B. Critical Holding Points and Actions:

The line crews will hold any small slopovers or minor spot fires. Regular patrols will be maintained by a squad of firefighters. Engines will hold along the roads by mobile patrol. Hoselays from engines or portable tanks will hold along the non-road perimeters. Nearby structures will have structural firefighting resources available on-call if needed. Handcrews and/or engines will patrol the burn at least once a day in the hottest part of the day until the Burn Boss determines there is no threat of escape.

C. Minimum Organization or Capabilities Needed:

Holding resources will vary depending on the segment, vegetation type and time of year of ignition. In the segments comprised of more dense and decadent brush (SH-7 40 fuel model) during in season burning, the minimum number of personnel needed include 13 miscellaneous resources, two Type II or better handcrews, three Type III engines, a Type II helicopter with 325 gallon bucket, and a type II dozer on standby (see worksheet below).

For mixed ponderosa and white fir vegetation types (TL7 and 8) within the complex, minimum holding resources needed include 13 misc. personnel, two Type II handcrews, and two Type III engines (see worksheet below).

During out of season burning or jackpotting, the minimum number of resources required will be determined by the Burn Boss and consist of at least one Type 6 engine and one 6-person module.

Adequate Holding Resources Worksheet (In Season)

Project Name: Foresta Complex	Fuel Models Inside Project Area: Montane Chaparral – SH7
Prepared By: Taro Pusina	Fuel Models Outside Project Area: Montane Chaparral – SH7
Date: 02/19/2008	Fuel Model for Control Calculation: See Following Pages, **SH7**

Project Name: FORESTA [redacted]PLEX
Unit Name: YOSEMITE NATIONAL PARK

Characteristics	Output Type	Modeling Predictions Inside Project Area (FM #5)	Modeling Predictions Outside Project Area (FM #5)	Unit of Measure
CRITICAL FIRE INPUTS	1-Hr Fuel Moisture	8	8	%
	Wind Speed (MFWS)	5	5	MPH
	Slope	15	15	%
KEY FIRE BEHAVIOR OUTPUTS	Rate of Spread (ROS)	30.9	30.9	ch/hr
	Fire line Intensity	1131	1131	BTU/ft/sec
	Flame Length	11.4	11.4	Feet
	Probability of Ignition	40	40	%
	Spotting Distance	0.3	0.3	Miles
	Scorch Height	93	93	Feet
FIRE SIZE	Projection Time	6.1	6.1	Hours
	Forward Spread	15.5	15.5	Chains
	Backward Spread	0.8	0.8	Chains
FIRE CONTAINMENT	Method of Attack	2	2	Head(1)/Rear(2)
	Max Escape Target	500	500	Acres
	Max Containment Time	10	10	Hours
	Total Line Building Rate	**110.8**	**110.8**	Ch/hr
1. Choose	Max Line Bldg. Rate Needed inside or outside	70	70	Ch/hr
2. Estimate	# of spots or slopovers at same time	1	1	
3. Multiply	Line 1 X 2 for needed production Rate	70	70	Ch/hr

Ease of Access: POOR-FAIR-GOOD-EXCELLENT (circle)
On-Site Organization

On Site Organization	Total # Planned On Burn	Total # Dedicated to Prescribed Fire	Total # Available for Spot Fire or Slopover Control		Line Building Production Rates		Spot Fire or Slopover Line Building Capacity
Overhead	5	1	4	X	0.4	ch/hr	1.6
Firing Crew	6	5	1	X	0.4	ch/hr	0.4
Holders	40	10	30	X	0.4	ch/hr	12
FEMO	2	0	2	X	0.4	ch/hr	0.8
T3 Engine w/3	3	1	2	X	8.0	ch/hr	16
T2 Heli. w/325 gal.	1	0	1	X	20	ch/hr	20^
T2 Dozer	1	0	1	X	60	ch/hr	60
4. TOTAL CAPACITY							**110.8***
3. TOTAL LINE BUILDING RATE NEEDED (from table above)							**70**
5. DETERMINATION OF ADEQUATE HOLDING RESOURCES (Line 4 minus Line 3)						ch/hr	**40.8**

*Production Rates Based Upon: 2004 NWCG Fireline Handbook Appendix A utilizing rates for fuel model 4
^Helicopter production rate based on 1980 NWCG Fireline Handbook Number 3, Fireline Notebook, table 55.4

- If number on line 5 is positive then adequate holding forces will be available. If number is negative, more holding resources are needed.

Adequate Holding Resources

Project Name: Foresta Complex	Fuel Models Inside Project Area: Mixed Ponderosa Pine – TL8
Prepared By: Taro Pusina	Fuel Models Outside Project Area: TL8 and TL7
Date: 03/15/2006	Fuel Model for Control Calculation: See Following Pages, **TL8**

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

Characteristics	Output Type	Modeling Predictions Inside Project Area (TL8)	Modeling Predictions Outside Project Area (TL8)	Unit of Measure
CRITICAL FIRE INPUTS	1-Hr Fuel Moisture	6	6	%
	Wind Speed (MFWS)	6	6	MPH
	Slope	15	15	%
KEY FIRE BEHAVIOR OUTPUTS	Rate of Spread (ROS)	8	8	ch/hr
	Fire line Intensity	103	103	BTU/ft/sec
	Flame Length	4	4	Feet
	Probability of Ignition	53	53	%
	Spotting Distance	0.2	0.2	Miles
	Scorch Height	12	12	Feet
FIRE SIZE	Projection Time	3	3	Hours
	Forward Spread	4	4	Chains
	Backward Spread	0.2	0.2	Chains
FIRE CONTAINMENT	Method of Attack	2	2	Head(1)/Rear(2)
	Max Escape Target	25	25	Acres
	Max Containment Time	10	10	Hours
	Total Line Building Rate	**20**	**20**	Ch/hr
1. Choose	Max Line Bldg. Rate Needed inside or outside	20	20	Ch/hr
2. Estimate	# of spots or slopovers at same time	1	1	
3. Multiply	Line 1 X 2 for needed production Rate	20	20	Ch/hr

Production Rates Based Upon: 2004 NWCG Fireline Handbook Appendix A
Ease of Access: POOR-FAIR-GOOD-EXCELLENT (circle)
On-Site Organization

On Site Organization	Total # Planned On Burn	Total # Dedicated to Prescribed Fire	Total # Available for Spot Fire or Slopover Control		Line Building Production Rates		Spot Fire or Slopover Line Building Capacity
Overhead	5	1	4	X	2.0	ch/hr	8
Firing Crew	6	5	1	X	2.0	ch/hr	2
Holding	40	10	30	X	2.0	ch/hr	60
FEMO	2	0	2	X	2.0	ch/hr	4
Engine-Crew of 3	2	1	1	X	12.0	ch/hr	12
4. TOTAL CAPACITY							**86**
3. TOTAL LINE BUILDING RATE NEEDED (from table above)							**20**
5. DETERMINATION OF ADEQUATE HOLDING RESOURCES (Line 4 minus Line 3)						ch/hr	**66**

- If number on line 5 is positive then adequate holding forces will be available. If number is negative, more holding resources are needed.

ELEMENT 17: CONTINGENCY PLAN

A. Trigger Points:

Trigger points for segments adjacent to the community are the immediate handlines. Any broach of these could result in potential threats to private property. For the larger segments to the north of Foresta, the primary trigger point is Big Oak Flat Rd. to the north. The trigger point on the west side of the complex is the boundary between Yosemite Park and the Stanislaus National Forest or a handline to be identified just inside the Park boundary. All other segments: The primary trigger points/line will be the handlines around these segments.

B. Actions Needed:

If a trigger point is breached, a suppression action will be taken on the breach. The suppression tactic will be at the discretion of the Incident Commander (IC) will be made utilizing available ground and air

resources. The Burn Boss has the option to use a confine/contain strategy on the breach if there are no immediate threats to life, property, or sensitive resources.

A maximum manageable area (MAP) secondary contingency line is identified in Appendix A-G. The boundaries are the Tioga Rd to the north leading to the Devils Dance Floor ridge. The eastern boundary runs from Tamarack Flat Campground down Cascade Creek towards the Merced River. The southern edge of the MAP is the Merced River to Crane Creek which becomes the western boundary. From Little Nellie Falls heading west up an old two-track road the western edge continues through the Merced Grove, across the Big Oak Flat Rd. to the Crane Flat Lookout ridge. The boundary then continues east towards Crane Flat and the Tioga road. The purpose of this MAP contingency is to give the IC the option not to convert to a wildfire if the handline is breached **and** the escape is not threatening life, property, or sensitive resources (see Appendix A-G).

If an escape occurs in segments 1-10 shrub vegetation (fuel model SH7) in or adjacent to the community of Foresta, the IC reserves the right to utilize the onsite dozer, helicopter and other resources to attack the escape as aggressively as possible.

C. Additional Resources and Maximum Response Time(s):

Additional resources will be utilized if available with preference being placed locally. Park resources, local Forest, and State inmate crews may be requested however availability will be based on time of year, local and national situation and planning level.

If local resources are available, maximum response time is approximately two hours. If other resources are available and utilized, maximum response time could be 8 to 16 hours.

ELEMENT 18: WILDFIRE CONVERSION

A. Wildfire Declared By:

If an escaped fire occurs in or adjacent to Foresta (fire spread cannot be controlled by on-scene resources within one operational period), the prescribed fire will immediately be declared a wildfire by the Burn Boss and a Wildland Fire Situation Analysis (WFSA) will be completed. At the time of conversions, ignition operations within the unit will continue only if deemed to be in the interest of safety and should follow the defined alternatives as outlined in the WFSA.

All escapes will be managed by the Burn Boss with consultation from the Park Duty Officer and the appropriate suppression response will be initiated. If reasonable, the contingency handlines identified in appendix A-G will be utilized.

B. IC Assignment:

The Burn Boss will become the Incident Commander until relieved by an appropriately qualified person or personnel if necessary. Ignition, holding, and monitoring bosses will account for their personnel and be assigned to a division of fire with their crews. The Firing Boss will supervise the prescribed fire area and the Holding Boss will supervise the escape area.

C. Notifications:

Notifications may include but are not limited to:

- Yosemite ECC – Dispatch
- Fire Management Officer
- Chief Ranger
- Park Superintendent
- Chief of Resource Management/On Call Resource Advisor

- MMU Dispatch
- Sierra and Stanislaus National Forest Dispatch
- South Operations
- Regional Fire Management Officer

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression:

Additional resources will be ordered through Yosemite Emergency Communication Center (ECC) by the Incident Commander. The escape will be managed under the Incident Command System. Goals for the escaped fire will be to contain it at the smallest possible size while protecting cultural and natural resources. The number one priority is firefighter and public safety.

If helicopter operations are needed, Crane Flat Helibase will be utilized and managed by a qualified helibase manager. An attempt will be made to minimize helicopter use in Foresta meadow.

In the event of extended attack, possible Incident Command Post locations include the Foresta Fire Station, Tent City at Crane Flat, or the Yosemite Valley Fire Station. Potential fire base camp locations include the Foresta Campground, Crane Flat Campground, Tent City at Crane Flat, and Yellow Pine Campground in Yosemite Valley.

Consultation with Stanislaus National Forest will occur for escapes and contingency holding operations on segments adjacent to the Forest.

ELEMENT 19: SMOKE MANAGEMENT AND AIR QUALITY

A. Compliance:

1. Burning will be conducted on an approved Burn Day as identified by the California Air Resources Board (CARB) in conjunction with the Mariposa County Air Pollution Control Officer or a Variance will have been approved.
2. Updates will be provided to Mariposa County via the Daily Authorization Form in the Smoke Management Plan.
3. Daily updates will be given on the 1300 Smoke Conference Call.
4. 24/48/72 favorability forecasts will have been submitted for to CARB.

B. Permits to be Obtained:

1. A burn permit from the Mariposa County Air Pollution Control Officer will be obtained.
2. Favorable forecasts from submitted CB-3 to CARB will have been obtained.

C. Smoke Sensitive Areas/Receptors and Potential Impact Areas:

Smoke has the potential to significantly impact the communities of Foresta and El Portal during evening inversions and subsequent down canyon drift smoke. Longer-range and evening smoke drift may carry smoke down the Crane Creek drainage towards El Portal Savages Trading Post. Hazardous air quality conditions characterized by visibility less than three miles may exist. Smoke production, column height, and dispersion direction will be closely monitored during ignition either by fire monitors or smoke technicians.

D. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

The preferred weather for the Foresta Complex is a clear, warm, semi-unstable condition that will encourage rapid combustion and smoke dispersal. South/Southwest dispersal winds are preferred to minimize adverse smoke impacts to Foresta and adjacent communities to the South and West.

Ignition will take place when conditions are best to achieve the desired fuel reduction, minimum smoke emissions and best smoke dispersal. Smoke emission and behavior will be monitored and documented hourly by fire monitors on a smoke observation form FMH-3 when on the fire. A particulate monitoring device will be set up in Foresta and/or El Portal to track particulates in the community(ies) . Hourly data from this device will be available to the Burn Boss and interested parties daily. Any significant change in smoke emissions or column behavior will be reported to the Burn Boss.

Any compromised roadway conditions should be relayed to the Burn Boss immediately, day or night, on shift or off shift.

Road Control Guideline For Two Lane, Two Way Road:

DAYTIME		NIGHTTIME	
Posted Speed Limit	Minimum Acceptable Visibility	Posted Speed Limit	Minimum Acceptable Visibility
10 mph	56 feet if less than 56 feet begin one-way traffic control	10 mph	112 feet if less than 112 feet begin one-way traffic control
15 mph	100 feet	15 mph	200 feet
25 mph	216 feet	25 mph	432 feet
35 mph	370 feet	35 mph	740 feet
45 mph	566 feet	45 mph	1132 feet

SMOKE CONTINGENCY

1. If hazardous or unhealthful smoke conditions persist and become difficult to control under prescribed burn status, the fire can be declared a wildfire in order to utilize adequate resources to control (mop up) the fire and reduce smoke emissions.

2. If hazardous or unhealthful smoke conditions are observed (visibility less than three miles) in smoke-sensitive areas, the Fire Management Officer will advise the Chief Ranger and the Public Information Officer. The PIO will coordinate notification about the smoke conditions and provide information about potential heath impacts, after consultation with the Burn Boss and Fire Management Officer. The Superintendent has the option to close the park area impacted or have the local rangers advise visitors to leave areas impacted by unhealthful smoke, the Public Information Officer would advise the media and answer phone calls.

3. "Hazardous conditions" can be defined as chronic smoke that reduces visibility to less than three miles in Smoke Sensitive Areas. Short term reduced visibility in the immediate fire vicinity should not cause hazardous conditions.

4. "Unhealthful conditions (for sensitive groups)" can be defined as chronic smoke that exceeds federal ambient air standards (PM-2.5 exceeding 35 g/m averaged over 24 hours) in a smoke sensitive area. Hourly data from a particulate monitor located in Foresta and/or El Portal will be available to the Burn Boss daily.

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

SMOKE MANAGEMENT GO/NO GO CHECKLIST

	Date 6/5/08 Y/N	Date Y/N	Date Y/N
1. Traffic controllers are available with orange traffic vests, hardhats, stop/slow paddles and portable radios; these will be utilized if visibility is less than 216' during daylight hours.	N/A		
2. Visibility on Hwy. ~~41~~ 120 will be at least 370' or 216' with 25 MPH sign posted during daytime hours.	N/A		
3. 72- and 24 hour notices have been filed with Mariposa APCD.	Y		
4. No burn or non-burn personnel will be exposed to smoke causing less than 200 feet visibility for more than one hour.	Y		
5. Smoke observations will be conducted on site, recorded and reported to Burn Boss when the fire is staffed.	Y		
6. It is a "Burn Day" for the area being fired, or a variance has been granted.	Y		
7. The following signs are installed 500 feet apart along the Foresta Rd./Hwy. 120 approaches to the project site if applicable: "Controlled Burn Do Not Report" "Smoke Ahead/Smoke On Roadway" "Be Prepared to Stop"	Y		
8. Stagnant Air is not predicted to occur within 48 hours.	Y		
9. Flashing barricades will be installed if night time smoke impacts any roadways.	N/A		

Jan R. DATE: 6/5/08
PRESCRIBED BURN BOSS

DATE:
PRESCRIBED BURN BOSS

DATE:
PRESCRIBED BURN BOSS

ELEMENT 20: MONITORING

A. Fuels Information (forecast and observed) Required and Procedures:
Fuel moisture content will be monitored prior to ignition to ensure prescription parameters are being met. 10-hour fuel sticks will be placed in a site representative of the project site no less than seven days, prior to ignition. In addition, 1000-hour dead fuels will be oven dried and moistures calculated. Developing additional information on the fuel/duff moisture profile is encouraged, if possible.

B. Weather Monitoring Required and Procedures:
Fire weather observations will be conducted by onsite fire monitor(s) on appropriate forms and broadcast over the tactical frequency(ies) at least hourly during fire operations. Significant changes i.e. wind shifts, erratic fire behavior, exceedences of prescription parameters etc. will be reported to the Burn Boss.

C. Fire Behavior Monitoring Required and Procedures:
Fire behavior observations will be continually conducted on appropriate forms at least on an hourly basis when the fire is staffed. Significant changes in fire behavior or smoke emissions or column behavior will be reported to the Burn Boss.

D. Monitoring Required To Ensure That Prescribed Fire Plan Objectives Are Met: Five FMH plots were established in or near the Foresta Complex just after the 1990 A Rock wildfire and re-read 16 years later in 2006 (see Appendix A- B). Additional FMH or other kinds of plots in other representative vegetation types may be installed prior to ignition. These plots will be contrasted to default values, and will continue to be read after the proposed and continuing treatments. Visual estimates of fuel loading changes with the aid of a photo series are available to assess fuels/vegetation change within the Complex, if needed. The Lead Monitor will prepare a Monitoring Report for the Burn Boss within 10 days of the burn being declared out. This report will summarize weather, fire behavior, and smoke characteristics, as well as a preliminary assessment of the attainment of the burn plan objectives. Gauging whether certain objectives are being met cannot be assessed for 1 to 2 years post-burn, as stated in the objectives. A post burn survey will take place to assess whether the burn has uncovered any new cultural resources.

E. Smoke Dispersal Monitoring Required and Procedures:
Smoke observations will be continually conducted on appropriate forms at least on an hourly basis when the fire is staffed. Significant changes in smoke emissions or column behavior will be reported to the Burn Boss. A particulate monitoring device will be installed in Foresta and/or El Portal and data analyzed to determine local impacts.

ELEMENT 21: POST-BURN ACTIVITIES

POST-BURN ACTIVITIES TO BE COMPLETED:

TASK	RESPONSIBLE	✓
DAY-1 to DAY –5		

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

Fire patrolled and update to dispatch/FMO	Burn Boss/designee	
Actual burned area mapped with GPS unit	Lead Monitor	
Copies of burn plan, all weather, fire and smoke behavior observation forms sent to Lead Monitor	Burn Boss	
Fire file with dispatch log, resource orders, spot weather forecasts, timesheets, notification log, IAP, Unit Logs, and burn plan completed	Fire Dispatch	
AFTER FIRE IS DECLARED OUT		
A cultural resource survey is conducted to assess if the burn has uncovered any cultural resources	Archeologist	
Known populations of sensitive plant and animal populations will be monitored and evaluated.	Park Botanist/Wildlife Biologist	
Develop fireline/post-fire rehabilitation specifications. Ensure fire lines, lines around snags, debris piles (scatter) and other impacts are rehabbed.	Burn Boss/Resource Advisor	
All signs and information posters are removed	Burn Boss	
Fire report is completed within 10 days of the burn being declared out w/ a hard copy forwarded to Yosemite ECC for entry into WFMI.	Burn Boss	
Preliminary Monitoring Report summarizing weather, fire behavior, smoke behavior and attainment of burn objectives is prepared.	Lead Monitor	
Prescribed Burn Accomplishment report is submitted to FMO	Burn Boss	
Project Accomplishment Report is entered into the National Fire Plan Operations Reporting System (NFPORS) within 14 days of project completion.	RX Fire Manager	
Burn Summary Report is submitted to Mariposa Air Pollution Control District within 30 days after burn is declared out.	Burn Boss	

Reports:

A. Fire Management will maintain a fire file with dispatch log, resource orders, spot weather forecasts, OF-288 and Crew Time Reports, burn unit plan, notification form, Incident Action Plans, Unit Logs, etc.

B. The Burn Boss will maintain ICS-214 Unit Logs in the working burn folder.

C. The Burn Boss will report to the park archeologist the discovery of cultural artifacts.

D. The Burn Boss will prepare an Individual Fire Report, DI-1202, within 10 days after declaring the fire out and will submit it to Fire Management. Attachments to the 1202 will include a fire progression map, smoke management documentation, fire behavior observations, and a complete, accurate final fire map.

E. The Burn Boss will prepare a Prescribed Burn Project Accomplishment Report and submit a copy to the Fire Management Officer at the end of fire season.

F. The Prescribed Fire Manager/Fire Management Officer will prepare a project accomplishment report in the National Fire Plan Operations and Reporting System (NFPORS).

Post-Project Evaluation

Instructions for Completion of Post-Project Evaluation Form

This form is to be completed and submitted for review within 30 days of declaring the project complete.
Block 1 Self-explanatory
Block 2 Copy of the Project Objectives as listed in the Project Plan.
Block 3 Give quantitative results of how well objectives were met, i.e. % of 1 hour and 10 hour fuels removed, % of burn area with fuels reduced, % of area with acceptable/unacceptable scorch, etc.
Block 4 Give a short narrative of problems encountered and suggestions for improving or refining operations and prescriptions i.e. firing pattern,

Project Name: FORESTA [redacted]PLEX
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equipment limitations, drought index, effectiveness of barriers.
Block 5 Self-explanatory - for providing feedback to the Program

(Block 1)
Individual Leading Evaluation:_____

Management:_____ **Project Name:**_____

Acres Treated:_____ **Fire Number:**_____

Total Cost:_____ **Cost/Acre:**_____

(Block 2)
Objectives:

(Block 3)
Results:

(Block 4)
Problems Encountered, Methods to Improve Next Operation:

Review & Signature:

Burn Boss:_____

Comments:

FMO: _____

ELEMENTS REQUIRED IN THE FINAL FIRE FOLDER:

Original signed burn plan

All reviewer comments

All maps

Notification checklist

Permits such as burn, smoke, etc.

Monitoring data

Weather forecasts

Agency Administrator Go/No-Go Review

Operational Go/No-Go Checklist

Daily validation

Unit logs or other unit leader documentation

Burn Boss will send copies of approved plan to: Fire Management (original), Public Information Officer, and Lead Monitor

APPENDICES

A. Maps:

- **A-A. Vicinity**
- **A-B. Project**
- **A-C. Total Times Burned/Fire History**
- **A-D. Vegetation**
- **A-E. Fuel Models**
- **A-F. Aspect**
- **A-G. Contingency Map**
- **A-H. Smoke Dispersal**

B. Technical Review Checklist

C. Complexity Analysis

D. Job Hazard Analysis

E. Fire Behavior Modeling Documentation or Empirical Documentation (unless it is included in the fire behavior narrative in Element 7; Prescription)

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page	S	
2. GO/NO-GO Checklists	S	
3. Complexity Analysis Summary	S	
4. Description of the Prescribed Fire Area	S	
5. Goals and Objectives	U	Under goal 4 on page 14, for objectives 2-3 there is no reduction amount referenced, so does this mean any reduction at all no matter how small in fuel load or vegetative cover would meet these objectives?
6. Funding	S	Spell out the National Fire Plan Operational Reporting System (NFPORS) the first time you use it in a public document.
7. Prescription	S	On page 16 in the first paragraph you list SH8 but all other fuel model reference SH7; I assume this is a typo?
8. Scheduling	S	
9. Pre-burn Considerations	S	There is no mention of the park participating in the 1300 hour smoke management conference call at Day+1 or Day +2?
10. Briefing	S	
11. Organization and Equipment	S	
12. Communication	S	
13. Public and Personnel Safety, Medical	S	
14. Test Fire	S	
15. Ignition Plan	S	
16. Holding Plan	S	
17. Contingency Plan	S	Is the forest aware and ok with the MAP contingency line?
18. Wildfire Conversion	S	
19. Smoke Management and Air Quality	S	
20. Monitoring	S	
21. Post-burn Activities	S	
Appendix A: Maps	S	
Appendix B: Complexity Analysis	U	Element 6, page 47 under technical difficulty it says no change but a change in rating is indicated. Element 12 page 50, with units right on the boundary with CA-STF, I would suggest that the preliminary rating is at least moderate, and then you could talk about your history of cooperation and no concerns raised in discussions with the forest, and the final rating may be low.
Appendix C: JHA	S	
Appendix D: Fire Prediction Modeling Runs	S	Suggest you be consistent with winds in RX & modeling (MFWS vs. 20') pg.54.
General/Other	S	Overall a very good and thorough job! I would suggest that do to the proximity to the community, the values at risk and local political interest that the first couple of interior burns near the WUI are bordering on RXB1 complexity.

S = Satisfactory U = Unsatisfactory

Recommended for Approval: **Not Recommended for Approval:**

Corky Conover — RXB1, Y — 4/7/08

Technical Reviewer — Qualification and currency (Y/N) — Date

☒ **Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.**

Project Name: FORESTA C[illegible]MPLEX
Unit Name: YOSEMITE NATIONAL PARK

TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page	S	
2. GO/NO-GO Checklists	S	
3. Complexity Analysis Summary	S	
4. Description of the Prescribed Fire Area	S	
5. Goals and Objectives	U	Under goal 4 on page 14, for objectives 2-3 there is no reduction amount referenced, so does this mean any reduction at all no matter how small in fuel load or vegetative cover would meet these objectives?
6. Funding	S	Spell out the National Fire Plan Operational Reporting System (NFPORS) the first time you use it in a public document.
7. Prescription	S	On page 16 in the first paragraph you list SH8 but all other fuel model reference SH7; I assume this is a typo?
8. Scheduling	S	
9. Pre-burn Considerations	S	There is no mention of the park participating in the 1300 hour smoke management conference call at Day+1 or Day +2?
10. Briefing	S	
11. Organization and Equipment	S	
12. Communication	S	
13. Public and Personnel Safety, Medical	S	
14. Test Fire	S	
15. Ignition Plan	S	
16. Holding Plan	S	
17. Contingency Plan	S	Is the forest aware and ok with the MAP contingency line?
18. Wildfire Conversion	S	
19. Smoke Management and Air Quality	S	
20. Monitoring	S	
21. Post-burn Activities	S	
Appendix A: Maps	S	
Appendix B: Complexity Analysis	U	Element 6, page 47 under technical difficulty it says no change but a change in rating is indicated. Element 12 page 50, with units right on the boundary with CA-STF, I would suggest that the preliminary rating is at least moderate, and then you could talk about your history of cooperation and no concerns raised in discussions with the forest, and the final rating may be low.
Appendix C: JHA	S	
Appendix D: Fire Prediction Modeling Runs	S	Suggest you be consistent with winds in RX & modeling (MFWS vs. 20') pg.54.
General/Other	S	Overall a very good and thorough job! I would suggest that do to the proximity to the community, the values at risk and local political interest that the first couple of interior burns near the WUI are bordering on RXB1 complexity.

S = Satisfactory U = Unsatisfactory

Recommended for Approval: **Not Recommended for Approval:**

Corky Conover

Corky Conover — RXB1, Y — 4/7/08

Technical Reviewer — Qualification and currency (Y/N) — Date

☒ **Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.**

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

C: COMPLEXITY ANALYSIS

Project Name: Foresta Complex

Complexity elements:

1. Potential for Escape

Risk	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	Holding will require a Strike Team/Task Force Leader or better. Certain larger segments are not easily accessible and/or are on difficult ground or may be adjacent to structures and will require a Division Group Supervisor.
Final Rating: *Low* ***Moderate*** *High*	Utilizing and coordinating adequate holding resources with fully qualified leadership reduces risk to moderate.
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	Multiple residences adjacent, some potential for resource damage. Residents particularly sensitive to NPS Fire Management actions since 1990 A Rock wildfire.
Final Rating: *Low Moderate* ***High***	No Change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Holding supervision is at least at the Task Force Leader level or above. Ensure fully qualified personnel are utilized.
Final Rating: *Low* ***Moderate*** *High*	No change

2. The Number and Dependency of Activities

Risk	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Successful blacklining of highest units on slope essential for successful operation.
Final Rating: *Low* ***Moderate*** *High*	No change
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	Lack of activity coordination could result in escape.

Final Rating: *Low* (*Moderate*) *High*	Conduct a pre-burn walk around and briefing for key burn personnel.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* (*Moderate*) *High*	Coordination activities require a moderate skill level.
Final Rating: *Low* (*Moderate*) *High*	No change

3. Off-Site Values

Risk	**Rationale**
Preliminary Rating: *Low Moderate* (*High*)	Lower segments adjacent community. Multiple structures and roads adjacent.
Final Rating: *Low* (*Moderate*) *High*	Ensure adequate resources are on-scene and patrolling to protect off-site resources, and that they have been briefed on the location of these values.
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate* (*High*)	In the event of an escape, adjacent structures may become threatened
Final Rating: *Low Moderate* (*High*)	No change
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* (*Moderate*) *High*	Protection of off-site resources requires some special management, a moderate skill level and good team coordination, particularly at the critical holding points.
Final Rating: *Low* (*Moderate*) *High*	No change

4. On-Site Values

Risk	**Rationale**
Preliminary Rating: *Low* (*Moderate*) *High*	A moderate number cultural resources and other values both recent and pre-historic have been identified or within the burn complex.

Final Rating: *Low Moderate High*	Prep work and diligent patrols will be necessary to exclude fire from sensitive features. No change.
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate High*	Implementation problems or failures will result in moderate damage to special features and some reduction or loss of on-site resource values.
Final Rating: *Low Moderate High*	Crews will be briefed on values at risk and prep work will exclude fire from sensitive features.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate High*	Pre-burn preparation is required.
Final Rating: *Low Moderate High*	Minimal work and technical difficulty in preparation work.

5. Fire Behavior

Risk	**Rationale**
Preliminary Rating: *Low Moderate High*	Fuels vary in both loading and arrangement.
Final Rating: *Low Moderate High*	No change
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate High*	Fire behavior outside the unit would be about equal to that within the unit.
Final Rating: *Low Moderate High*	Adequate holding resources with good skill level are on-scene and briefed on holding concerns.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate High*	Slopovers outside the line may need indirect line construction due to slope/aspect/density of vegetation and resulting fire behavior.
Final Rating: *Low Moderate High*	No change

6. Management Organization

Project Name: FORESTA C IPLEX
Unit Name: YOSEMITE NATIONAL PARK

Risk	Rationale
Preliminary Rating: *Low Moderate* ***High***	During in season burning, all positions and shifts will be needed to be filled to effectively manage incident.
Final Rating: *Low* ***Moderate*** *High*	With required personnel and positions filled, moderate risk remains.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Problems related to communications may cause violations of safety standards or an increased risk of an escaped fire. Checking communications frequently will be necessary.
Final Rating: ***Low*** *Moderate High*	Adequate briefing with clear organizational structure and ongoing communications with all resources reduces this rating.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	At least one primary team member will need to come from outside of the local unit and may not be familiar with local factors (i.e. night RXB2). The numbers of qualified personnel available on the local unit are limited. Special skills or supervision required for multiple tasks.
Final Rating: *Low* ***Moderate*** *High*	Thorough briefings between day and night shift and on and off park resources will be required and will reduce final rating to Moderate.

7. Public and Political Interest

Risk	Rationale
Preliminary Rating: *Low Moderate* ***High***	The burn is adjacent to Foresta and highly visible to the public.
Final Rating: *Low* ***Moderate*** *High*	Public expects burns to be conducted in and around the community and there is broad support from park management and the Division of RM & S. Yosemite's Fire Information Officer is assigned.

Potential Consequences	Rationale
Preliminary Rating: *Low Moderate* ***High***	Unexpected or adverse events would attract some public, political, or media attention and may delay implementation of other projects. News releases and local news briefings would be required.
Final Rating: *Low Moderate* ***High***	No change
Technical Difficulty	**Rationale**

Preliminary Rating: *Low (Moderate) High*	Requires dedicated time from the unit Fire Information & Education Specialist. Public information stations are warranted. Requires special media releases or field trips.
Final Rating: *Low (Moderate) High*	No change

8. Fire Treatment Objectives

Risk	**Rationale**
Preliminary Rating: *Low (Moderate) High*	Objectives include changes in strata of vegetation for ecosystem restoration or maintenance. Objectives are moderately hard to achieve. Basic monitoring of fire behavior and weather is needed to determine if prescribed fire objectives are being met.
Final Rating: *Low (Moderate) High*	No change.
Potential Consequences	**Rationale**
Preliminary Rating: *Low (Moderate) High*	Few opportunities are present in a given year, and we are already several seasons behind the FMP-specified burn rotation, which could cause resource impacts.
Final Rating: *Low (Moderate) High*	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low (Moderate) High*	Moderately intense fire behavior is needed to meet the resource objectives. Pre-burn monitoring is needed to determine when the unit is in prescription. During-burn monitoring is necessary to determine if the prescribed fire objectives are being met.
Final Rating: *Low (Moderate) High*	No change.

9. Constraints

Risk	**Rationale**
Preliminary Rating: *Low Moderate (High)*	No heavy equipment, limited water sources.
Final Rating: *Low (Moderate) High*	Some trails exist and handlines will be in place for holding, water tender will be on-site, along with at least two Type III engines during in season burning.
Potential Consequences	**Rationale**

Preliminary Rating: *Low Moderate High*	Project can be implemented whenever it is in prescription. Tactics and burn activities are not limited.
Final Rating: *Low Moderate High*	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate High*	Constraints moderately increase the difficulty of completing the project.
Final Rating: *Low Moderate High*	No change.

10. Safety

Risk	**Rationale**
Preliminary Rating: *Low Moderate High*	Snag dangers exist in complex and around perimeter. Primary southerly exposure increases risk of dehydration. Steep slopes and uneven footing are present. Smoke on Hwy. 120 is major concern.
Final Rating: *Low Moderate High*	Above hazards will be addressed in briefings. Snag hazards will be mitigated prior to ignition. "Smoke On Roadway" signs will be posted, traffic controllers will be implemented if necessary.
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate High*	Moderate potential for serious accidents/injuries to firefighters or the public.
Final Rating: *Low Moderate High*	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate High*	Most safety concerns can be easily mitigated but some remain that require extra caution during project operations (e.g. snags, visitors on adjacent roadways). Special emphasis is needed for some elements of LCES. The project briefing will include a safety briefing with special issues or emphasis areas. Limited mitigation to protect public health and safety are needed.
Final Rating: *Low Moderate High*	No change

11. Ignition Procedures/Methods

Risk	**Rationale**

Preliminary Rating: *Low Moderate* ***High***	Firing sequence and timing are critical to successfully meet project objectives. The uppermost segments and those adjacent to houses and structures must be finessed and executed carefully.
Final Rating: *Low* ***Moderate*** *High*	If Burn Boss, Holding and Ignition Bosses are all on the same page, risks reduced to moderate.
Potential Consequences	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	Firing sequence and timing are critical to successfully meet project objectives. The uppermost segments and those adjacent to houses and structures must be finessed and executed carefully.
Final Rating: *Low* ***Moderate*** *High*	Coordinated firing methods will reduce risk of adverse event. In the event of problems, attention will be given primarily to firefighter and public safety and then structures.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	Multiple firing teams and methods including aerial ignition necessary for larger segments. Complex ignition patterns necessary on steep, uneven, multi-aspect slopes and terrain.
Final Rating: *Low Moderate* ***High***	No change.

12. Interagency Coordination

Risk	**Rationale**
Preliminary Rating: *Low Moderate* ***High***	Segments within this project are adjacent to Stanislaus NF and interagency cooperation will be necessary. No concerns or issues associated with interagency partners have been identified. Restrictions related to National and regional preparedness levels are not expected.
Final Rating: *Low* ***Moderate*** *High*	Continued communication and interaction with the Stanislaus NF reduces final rating to Moderate.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low*** *Moderate High*	Project can be completed as planned.
Final Rating: ***Low*** *Moderate High*	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Project may require agreement and task order with the Sierra NF and/or California Department of Forestry for use of their wildland fire resources.

Final Rating: *Low* ***Moderate*** *High*	No change.

13. Project Logistics

Risk	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	The larger segments of the project require significant logistical support and will require a specific logistic function assigned. Supplies needed to conduct the burn are readily available and no special transportation or storage needs have been identified. No special equipment or communications needs have been identified. Project duration is up to five consecutive days.
Final Rating: *Low* ***Moderate*** *High*	No change.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Problems related to logistics could increase the risk of escape and affect the completion of the project or create a safety concern.
Final Rating: *Low* ***Moderate*** *High*	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Obtaining some personnel may require additional contacts and advanced scheduling. Additional support may be needed for out-of-area personnel.
Final Rating: *Low* ***Moderate*** *High*	Northern segments are remote and require logistical pre-planning for proper execution.

14. Smoke Management

Risk	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Smoke concerns are moderate and some concerns require special mitigation. The project will produce smoke visible to the public over several days. Smoke exposures or amounts may cause some health or safety concerns over a short period of time. Members of the public have expressed some concerns about smoke.
Final Rating: *Low* ***Moderate*** *High*	Frequent communications are scheduled with the Mariposa County APCD. 1pm daily AQ conference call required. Flyers and notifications will be posted and made in Foresta.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* ***Moderate*** *High*	Larger segments may impact communities of Foresta and El Portal and will require extra coordination with the Mariposa Air Pollution Control Officer and all interested parties.

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Final Rating: *Low Moderate High*	If burn is conducted within prescription parameters and during favorable wind conditions, localize smoke impacts will be kept to a minimum. Local short duration smoke impacts can be expected.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low Moderate High*	Burn window is limited by dispersal conditions and special coordination is required with the Mariposa County APCD.
Final Rating: *Low Moderate High*	Special coordination procedures are in place with the APCD as defined above.

Project Name: FORESTA C[illegible]PLEX
Unit Name: YOSEMITE NATIONAL PARK

COMPLEXITY RATING SUMMARY

RISK — OVERALL RATING: Moderate

POTENTIAL CONSEQUENCES — OVERALL RATING: Moderate to High

TECHNICAL DIFFICULTY — OVERALL RATING: Moderate

SUMMARY COMPLEXITY RATING: MODERATE

RATIONALE: Overall, this burn is considered moderate in complexity. There are elements that initially rate high due to close proximity to structures and developments and the overall size of the project. In addition, during the A Rock fire of 1999, Foresta community members saw a stand replacing wildfire run through town burning nearly everything in it's path and are extra sensitive towards Park Service fire management actions. Through careful mitigation the majority of these elements can be reduced to moderate. Mitigation measures include: thorough prior notifications in and around Foresta, ensuring adequate personnel are on site and properly briefed, specific ignition techniques being utilized, and reducing unit size into manageable segments. One principle complexity is found in smoke management considerations, especially considering the proximity to the community of Foresta. Special safety concerns also exist regarding snag danger and smoke impacts to Highway 120 and Foresta Road. Potential problem snags will be mitigated prior to ignition. When feasible, segments highest on slope will be treated first. Segments will be burned when atmospheric conditions are favorable for adequate smoke dispersion.

Prepared by: Taro Pusina — Date: 3/18/04
Taro Pusina
Prescribed Fire Specialist

Approved by: _____ Date: 5/30/08
(Agency Administrator)

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

D: JOB HAZARD ANALYSIS

United States Department of Interior NATIONAL PARK SERVICE	**1. WORK PROJECT/ACTIVITY** Foresta Complex	**2. LOCATION** North District	**3. Segments** All
JOB HAZARD ANALYSIS (JHA)	**4. NAME OF ANALYST** Taro Pusina	**5. JOB TITLE** Rx Fire Specialist	**6. DATE PREPARED** 1/14/2008
7. TASKS/PROCEDURES	**8. HAZARDS**	**9. ABATEMENT ACTIONS** ENGINEERING CONTROLS – SUBSTITUTION – ADMINITSTRATIVE CONTROLS – PPE	
a. Driving to, from and around work site.	a. collision resulting in damage, injury or death.	a. Drive defensively, obey traffic laws , lights on, seatbelt on, be alert for pedestrians and distracted drivers.	
b. Working with handtools, pumps, chainsaws and other equipment.	b. injury to personnel or equipment.	b. only qualified personnel will operate equipment; trainees will be supervised; be aware of others working nearby; wear all required PPE.	
c. Firing operations.	c. burns; fire intensity too great.	c. adhere to Firing Boss instructions; burners stay in communication with each other; wear all required PPE.	
d. Exposure to smoke.	d. respiratory distress; CO poisoning; reduced visibility.	d. public will be advised not toe enter smoke-laden environment. Firefighters will minimize exposure by rotating personnel in smoky areas. Traffic control will be instituted when visibility limits are reached. Personnel will monitor each other for CO symptoms.	
e. Fatigue and dehydration.	e. accidents and injury resulting from distraction, apathy and/or complacency	e. maintain adequate hydration, nutrition and rest; shift length limited to 16 hours.	
f. Working and walking in woods.	f. tripping hazards; uneven terrain; snags	f. watch footing; look out for stump holes; flag and avoid all snags	
g. Bees.	g. stings from disturbing a bee nest.	g. if attacked, move quickly away from the hive. If carrying a drip torch, either extinguish or drop.	
h. other(s)?			
10. SUPERVISOR'S SIGNATURE		11. TITLE	12. DATE

Project Name: FORESTA C[illegible]PLEX
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E. FIRE BEHAVIOR MODELING DOCUMENTATION OR EMPIRICAL DOCUMENTATION

Fire Modeling Outputs

Modeling Notes:

Results are from BehavePlus version 3.0.1 (Andrews & Bevins, 2004)

About 1/3 of the Forest Complex area (segments 1-11) burned under high fire intensity conditions during the 1990 A-Rock fire and subsequent re-vegetation can be best represented by fuel models SH7 montane chaparral. The other 2/3 of the Complex (segments 12-15) can be best represented by either fuel model TL8 mixed ponderosa pine or fuel model TL7 fir vegetation. Behave Plus runs were utilized for these two primary vegetation types. These fuel models also describe the majority of fuels adjacent to the complex. Since commonly referenced Van Wagtendonk and Botti prescribed burning prescriptions do not exist for fuel model 4, modified fuel model 5 prescriptions were utilized for Behave fire behavior model inputs[1]. If an escape were to occur during moderate to high prescription indices, fire behavior including flame lengths and rates of spread could exceed the limits of handcrew and engine capabilities. Indirect handline and suppression tactics including burnout may be required.

Modified fuel moistures under the standard YNP backing prescription for fuel model 5 are used to model a head fire containment scenario with standard NFFL fuel models. This is an overly conservative estimate because research has shown that NFFL models over estimate both Flame Lengths and Rate of Spread compared to behavior on Yosemite National Park. Scorch height results show the potential for gap creation in the Foresta Complex, this would be consistent with overall burn objectives.

A standard worksheet has been prepared based upon fuel model 4. Additionally, a more detailed summary has been added to this analysis. This summary incorporates varying line construction rates with differing fuel models in multiple BehavePlus modeling runs.

It is likely that this complex will be prescribed burned in spring or early summer when live and dead fuel moisture content and fire behavior regimes are low to moderate. Also, for larger more complex segments a dedicated IA helicopter with bucket drop capability will be utilized which would reduce containment time and size in this vegetation.

Spotting Distance Calculations based on 20ft windspeed of 6 mph with spotting from torching snag(s)/trees(s) and brush.

[1] Van Wagtendonk, J.W., and Botti, S.J., 1984 Modeling Behavior of Prescribed Fires in Yosemite National Park, **Journal of Forestry**. Vol. 82, No 8, August 1984, also see National Park Service, 2004.

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Unit Name: YOSEMITE NATIONAL PARK

Yosemite National Park Fire Management Plan EIS, pp. A3-12

BehavePlus 3.0.1 (Build 261)

Foresta SH7 - Montane Chaparral
Tue, Mar 11, 2008 at 15:32:33

Modules: SURFACE, SIZE, CONTAIN, SPOT, SCORCH, IGNITE

Input Variables	Input Value(s)	Units
Fuel/Vegetation, Surface/Understory		
Fuel Model	SH7	
Fuel/Vegetation, Overstory		
Canopy Cover	10	%
Canopy Height	15	ft
Crown Ratio	0.5	
Fuel Moisture		
1-h Moisture	9	%
10-h Moisture	12	%
100-h Moisture	17	%
Live Herbaceous Moisture		%
Live Woody Moisture	110	%
Weather		
20-ft Wind Speed (upslope)	4, 5, 6, 7, 8, 9	mi/h
Air Temperature	70	oF
Fuel Shading from the Sun	25	%
Terrain		
Slope Steepness	15	%
Ridge-to-Valley Elevation Difference	0.5	ft
Ridge-to-Valley Horizontal Distance	0.25	mi
Spotting Source Location	MW	
Fire		
Elapsed Time	1	h
Suppression		
Suppression Tactic	rear	

Project Name: FORESTA[redacted]IPLEX
Unit Name: YOSEMITE NATIONAL PARK

Line Construction Offset	0	ch
Resource Line Production Rate	60	ch/h
Resource Arrival Time	0.1	h
Resource Duration	10	h

Notes

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always

for the direction of the spread calculations [SURFACE].

Wind is blowing upslope [SURFACE].

Suppression input is for a single resource [CONTAIN];

multiple values can be entered for any input variable.

20-ft Wind	ROS (max)	Fireline Intensity	Flame Length	Fire Area	Fire Perimeter	Forward Distance	Backing Distance	Time from Report	Contain Status	Contain Area	Fireline Constructed	Surf Fire Spot Dist	Scorch Height	Firel Igni
mi/h	ch/h	Btu/ft/s	ft	ac	ch	ch	ch	h		ac	ch	mi	ft	%
4	12.0	400	7.1	9.0	35	12.0	1.5	1.2	Contained	28.6	66.3	0.1	48	3
5	14.9	499	7.8	12.3	42	14.9	1.5	1.7	Contained	52.7	94.6	0.1	55	3
6	18.0	602	8.5	16.1	48	18.0	1.5	2.4	Contained	99.0	138.3	0.2	62	3
7	21.1	707	9.2	20.3	55	21.1	1.5	3.7	Contained	201.6	214.9	0.2	69	3
8	24.4	816	9.8	24.8	62	24.4	1.5	6.5	Contained	502.3	383.7	0.2	75	3
9	27.7	927	10.4	29.6	69	27.7	1.5	10.1	Withdrawn	-1.0	599.9	0.3	81	3

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

BehavePlus 3.0.1 (Build 261)
Foresta TL8 - Mixed Ponderosa Pine
Tue, Mar 11, 2008 at 18:01:39

Modules: SURFACE, SIZE, CONTAIN, SCORCH, IGNITE

Input Variables	Input Value(s)	Units
Fuel/Vegetation, Surface/Understory		
Fuel Model	TL8	
Fuel Moisture		
1-h Moisture	6	%
10-h Moisture	9	%
100-h Moisture	10	%
Live Herbaceous Moisture		%
Live Woody Moisture		%
Weather		
Midflame Wind Speed (upslope)	6	mi/h
Air Temperature	75	oF
Fuel Shading from the Sun	70	%
Terrain		
Slope Steepness	15	%
Fire		
Elapsed Time	0.5	h
Suppression		
Suppression Tactic	Rear	
Line Construction Offset	0	ch
Resource Line Production Rate	10.0, 20.0, 30.0, 40.0, 50.0	ch/h
Resource Arrival Time	0.1	h
Resource Duration	10	h
Notes		

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always

for the direction of the spread calculations [SURFACE].

Wind is blowing upslope [SURFACE].

Suppression input is for a single resource [CONTAIN];

multiple values can be entered for any input variable.

Production Rate	ROS (max)	Fireline Intensity	Flame Length	Spread Distance	Fire Area	Fire Perimeter	Forward Distance	Backing Distance	Time from Report	Contain Status	Contain Area	Fireline Constructed	Sc
ch/h	ch/h	Btu/ft/s	ft	ch	ac	ch	ch	ch	h		ac	ch	
10.0	7.9	103	3.8	4.0	0.5	9	4.0	0.2	10.1	Withdrawn	-1.0	100.0	
20.0	7.9	103	3.8	4.0	0.5	9	4.0	0.2	3.0	Contained	10.1	57.2	
30.0	7.9	103	3.8	4.0	0.5	9	4.0	0.2	0.9	Contained	2.7	24.6	
40.0	7.9	103	3.8	4.0	0.5	9	4.0	0.2	0.6	Contained	1.8	19.1	
50.0	7.9	103	3.8	4.0	0.5	9	4.0	0.2	0.4	Contained	1.5	16.8	

BehavePlus 3.0.1 (Build 261)

Foresta SH7 Spot

Tue, Mar 11, 2008 at 17:46:56

Modules: SPOT

Input Variables	Input Value(s)	Units
Fuel/Vegetation, Overstory		
Canopy Height	15	ft
Weather		
20-ft Wind Speed (upslope)	5, 7, 9, 11, 13, 15	mi/h
Terrain		
Ridge-to-Valley Elevation Difference	0.5	ft
Ridge-to-Valley Horizontal Distance	0.25	mi
Spotting Source Location	MW	
Fire		
Flame Length	11	ft

Notes

None

20-ft Wind	Surf Fire Spot Dist
mi/h	mi
5	0.2
7	0.2
9	0.3
11	0.3
13	0.3
15	0.4

BehavePlus 3.0.1 (Build 261)

Foresta TL8 - Mixed Ponderosa Pine - Spot

Tue, Mar 11, 2008 at 18:07:30

Modules: SPOT

Input Variables	Input Value(s)	Units
Fuel/Vegetation, Overstory		
Canopy Height	110	ft
Tree Height	120	ft
Spot Tree Species	PINPON	
D.B.H.	40	in
Weather		
20-ft Wind Speed (upslope)	7, 9, 11, 13, 15	mi/h
Terrain		
Ridge-to-Valley Elevation Difference	770	ft
Ridge-to-Valley Horizontal Distance	0.5	mi
Spotting Source Location	MW	
Fire		
Number of Torching Trees	1	

Notes

None

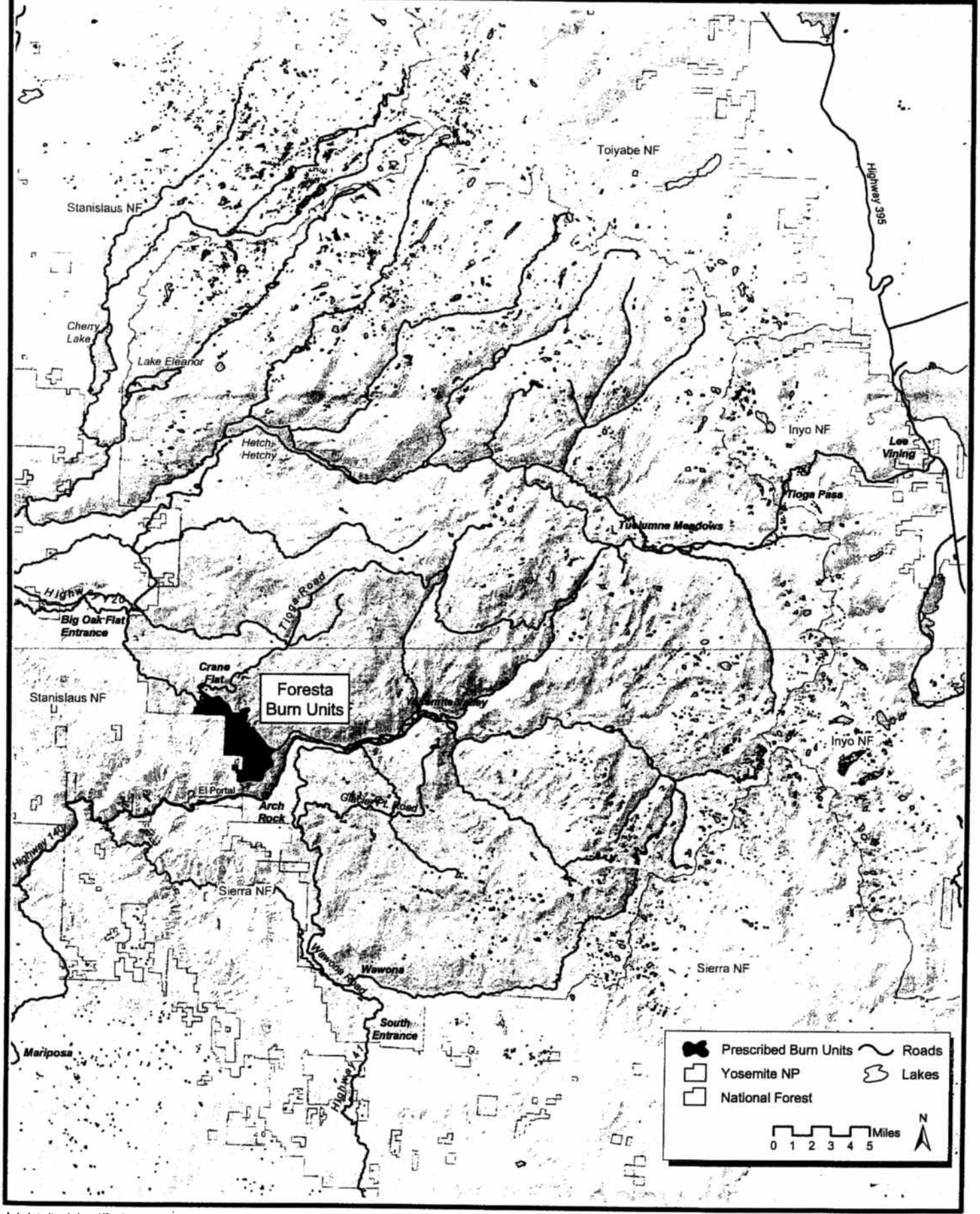
20-ft	Torch Tree

Project Name: FORESTA COMPLEX
Unit Name: YOSEMITE NATIONAL PARK

Wind	Spot Dist
mi/h	mi
7	0.1
9	0.2
11	0.2
13	0.2
15	0.3

Foresta Prescribed Fire Burn U.
Appendix A : Vicinity Map

semite National Park
National Park Service
U.S. Department of the Interior

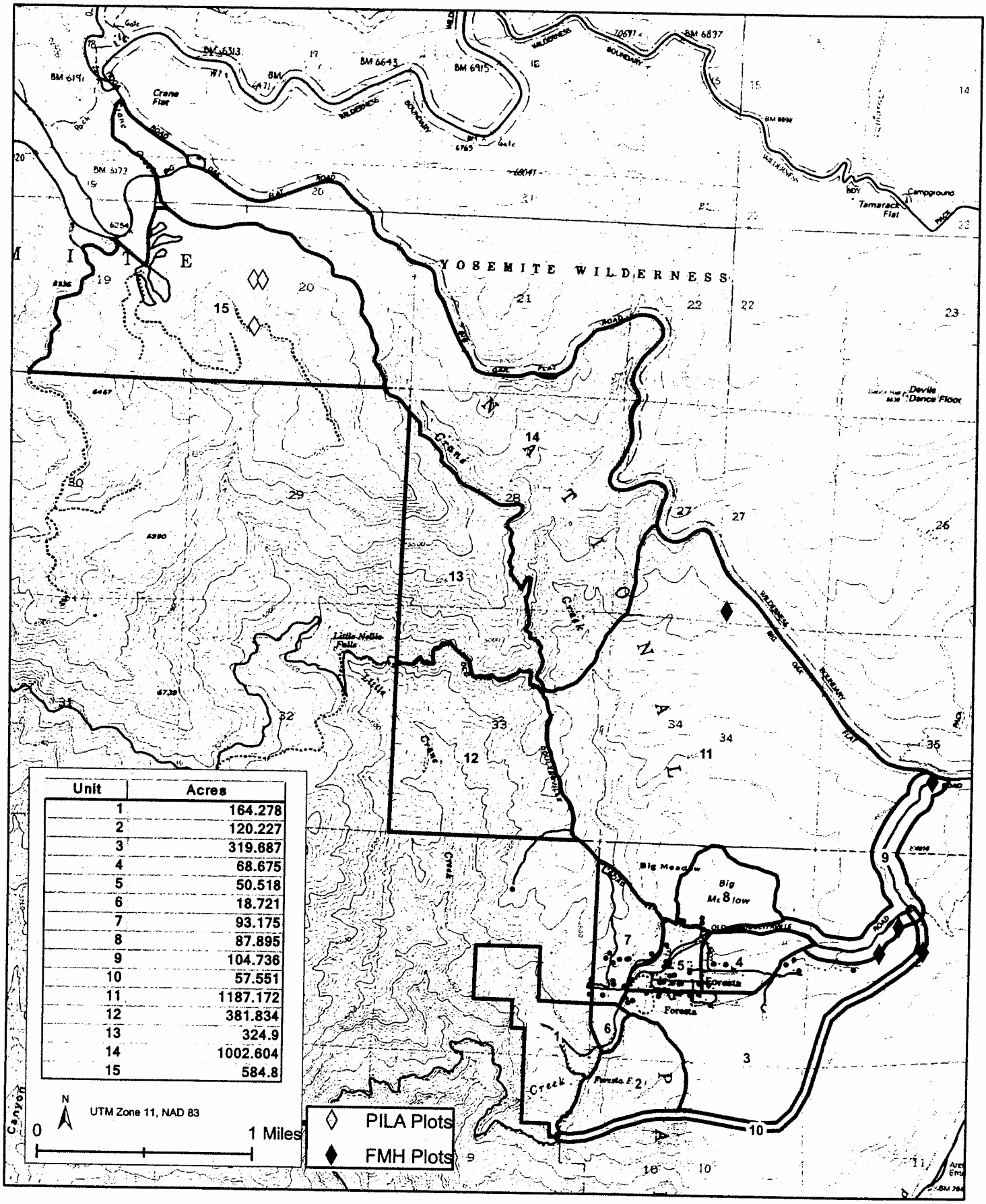


labdata/tools/mxd/fire/rx_burn_plans/foresta_rx/A vicinity.mxd

Yosemite Fire GIS kvw 3/5/2008

Foresta Wildland-Urban Inte[illegible]rescribed Burn Units
Project Map
Appendix B

[illegible]semite National Park
National Park Service
U.S. Department of the Interior



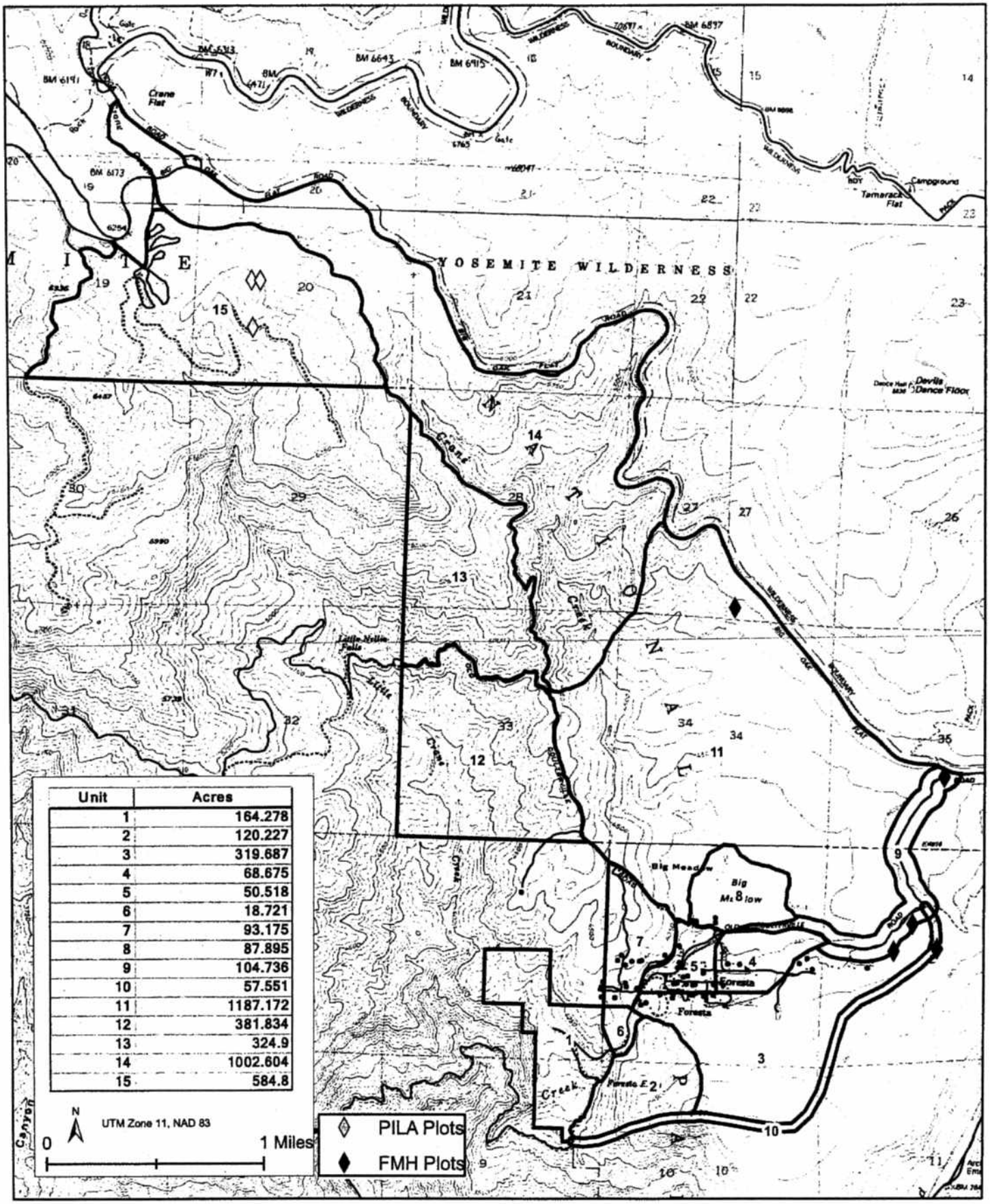
Unit	Acres
1	164.278
2	120.227
3	319.687
4	68.675
5	50.518
6	18.721
7	93.175
8	87.895
9	104.736
10	57.551
11	1187.172
12	381.834
13	324.9
14	1002.604
15	584.8

FILE: B_Project.mxd MAP: w/maps/fire/rx_burn_plans/foresta/B_Project.pdf

Yosemite Fire GIS kvw 13 May 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Project Map
Appendix B

Yosemite National Park
National Park Service
U.S. Department of the Interior



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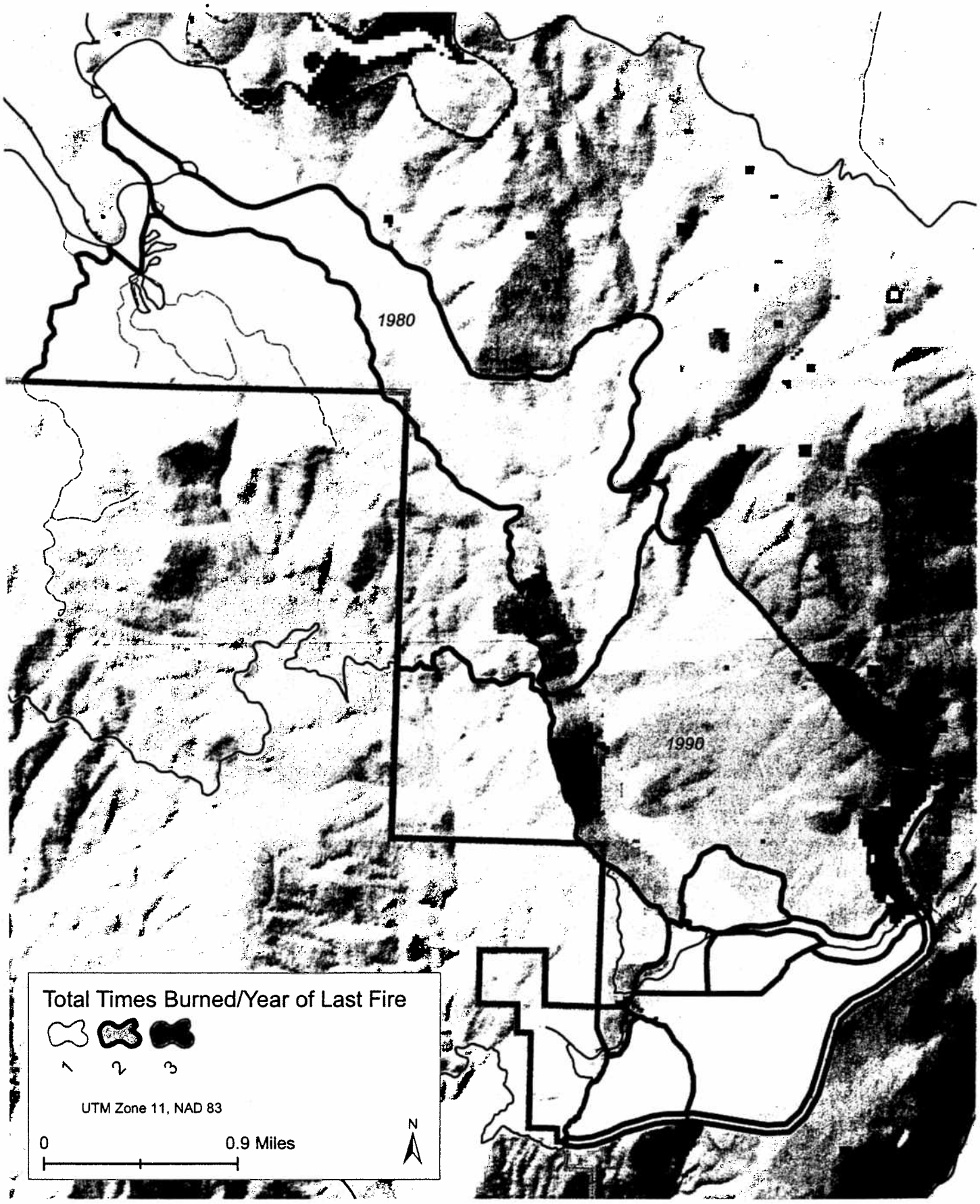
Yosemite Fire GIS kvw 13 May 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Fire History Map
Appendix C

Yosemite National Park
National Park Service
U.S. Department of the Interior



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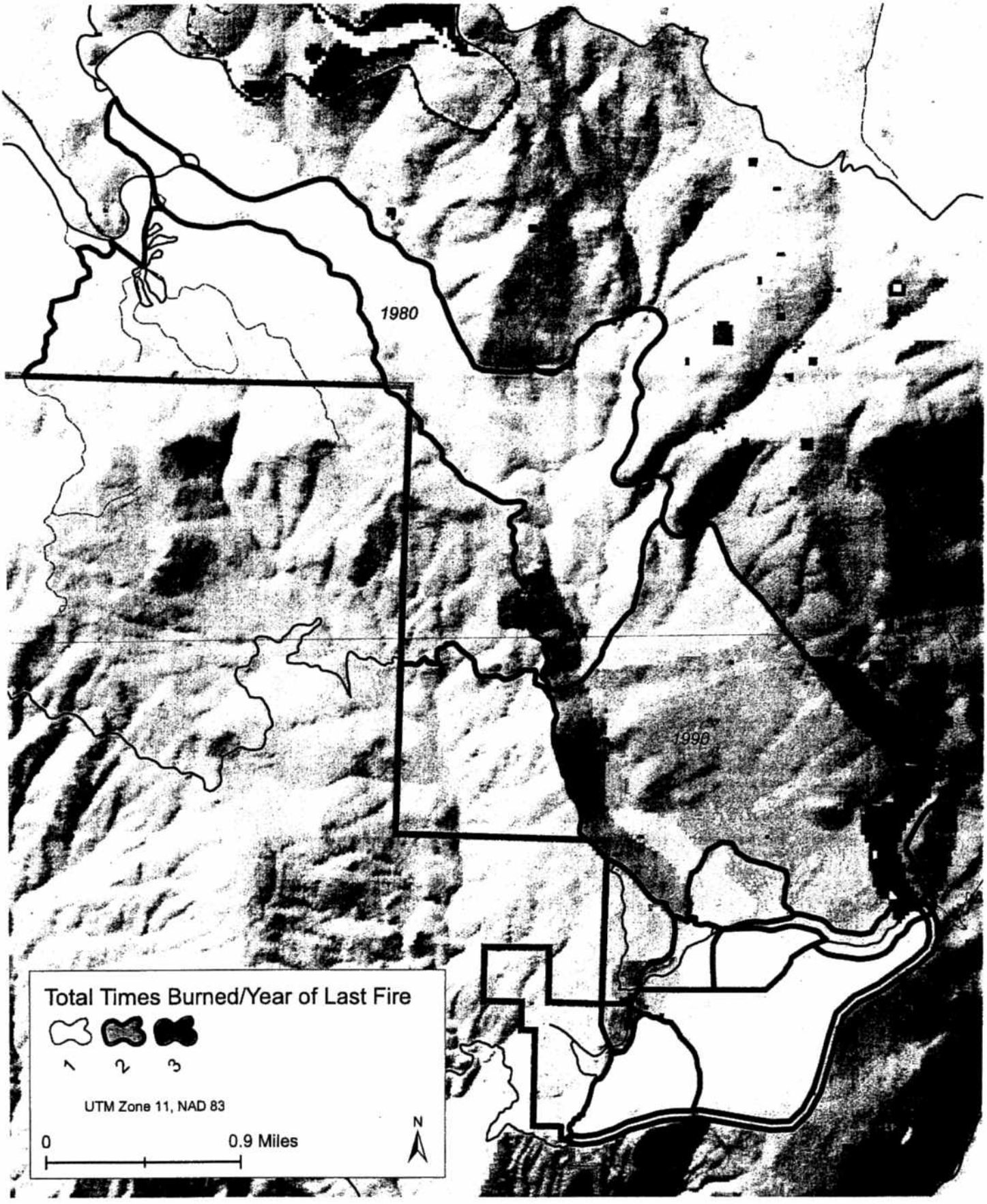
Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Fire History Map
Appendix C

Yosemite National Park
National Park Service
U.S. Department of the Interior



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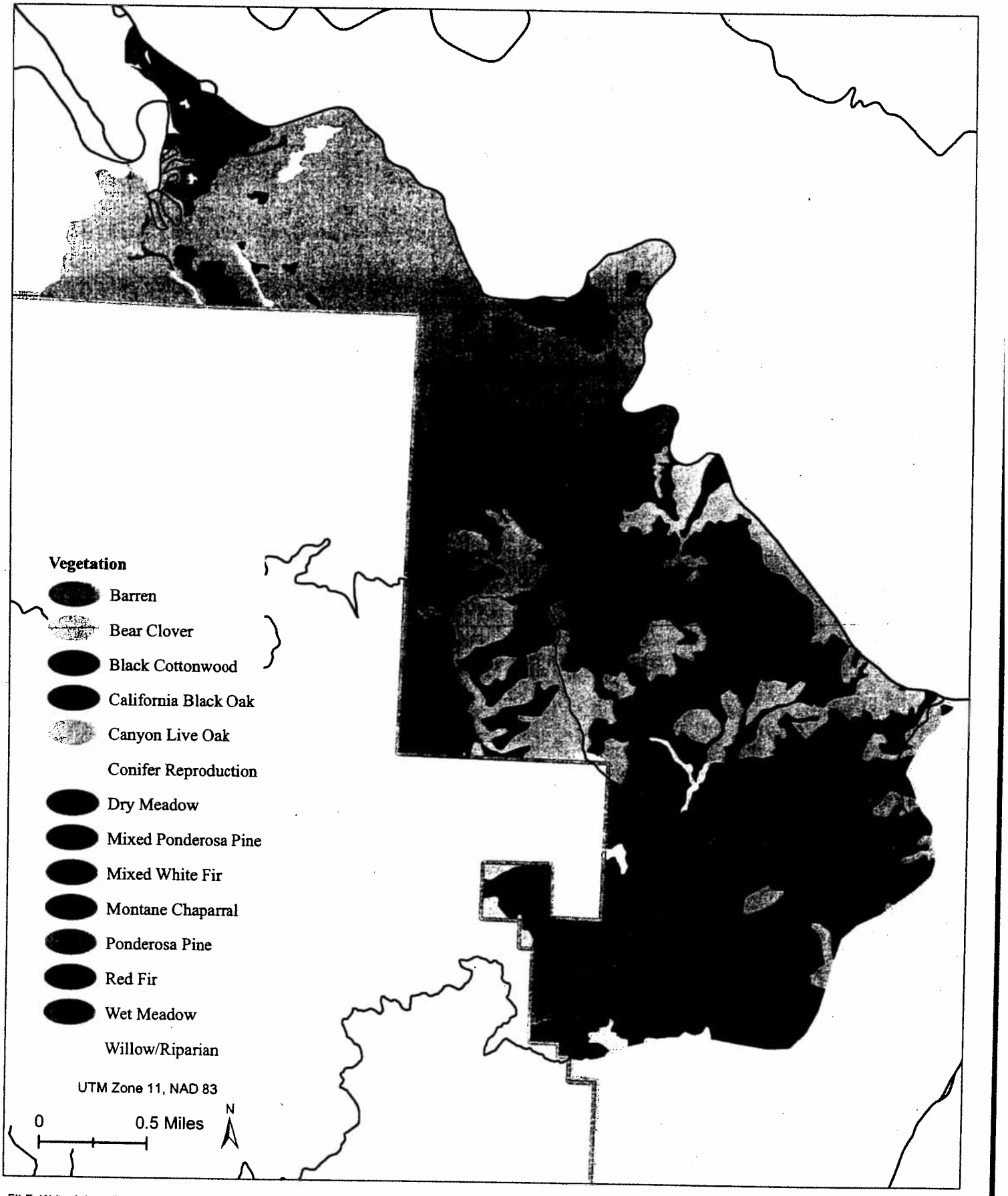
Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interfa[illegible]rescribed Burn Units
Vegetation Map
Appendix D

[illegible]emite National Park
National Park Service
U.S. Department of the Interior



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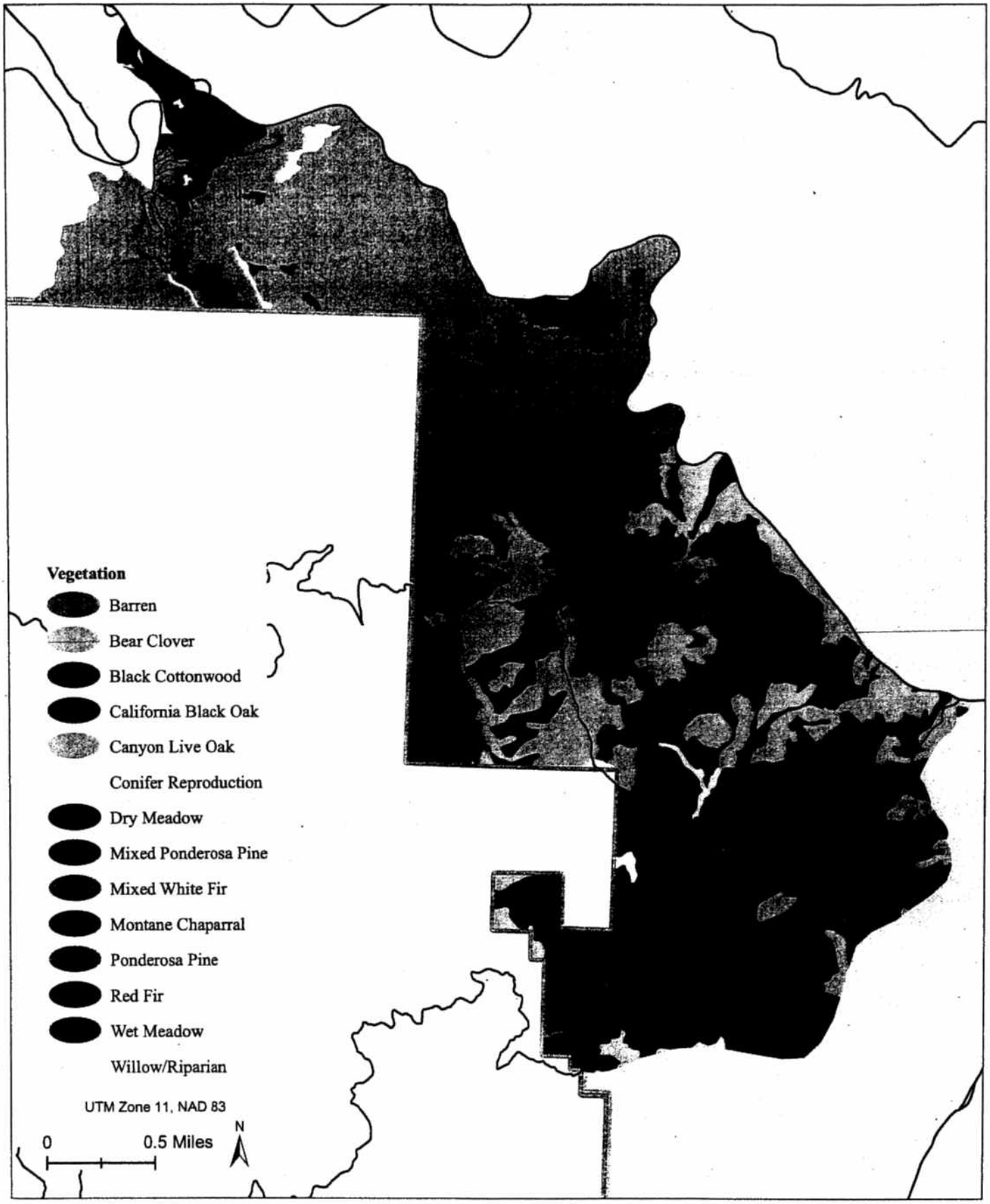
Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interfac escribed Burn Units
Vegetation Map
Appendix D

emite National Park
National Park Service
U.S. Department of the Interior

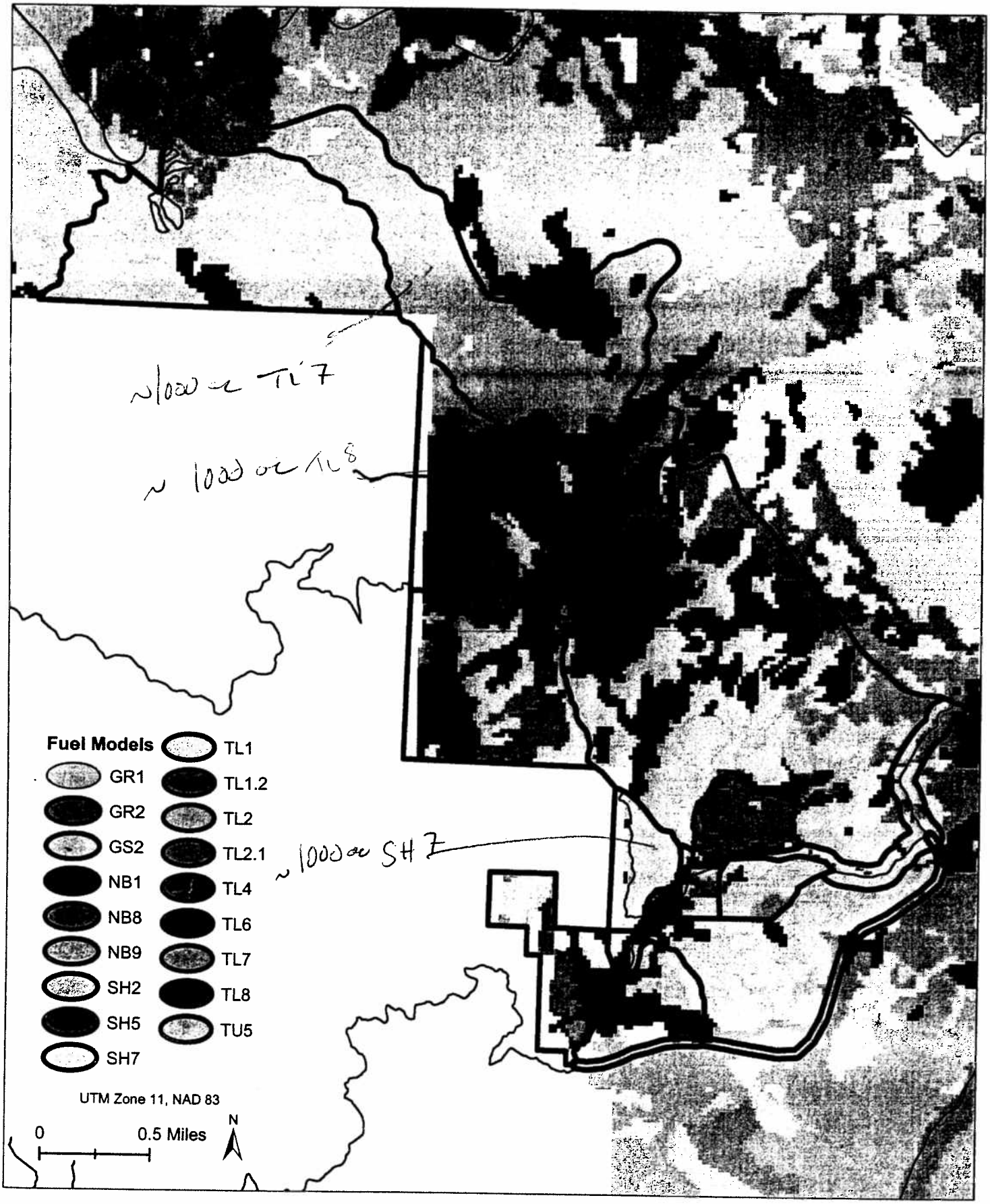


FILE: W:/tools/mxd/fire/rx_burn_plans/foresta_rx/D_Vegetation.mxd

Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Fuels Map
Appendix E

Yosemite National Park
National Park Service
U.S. Department of the Interior

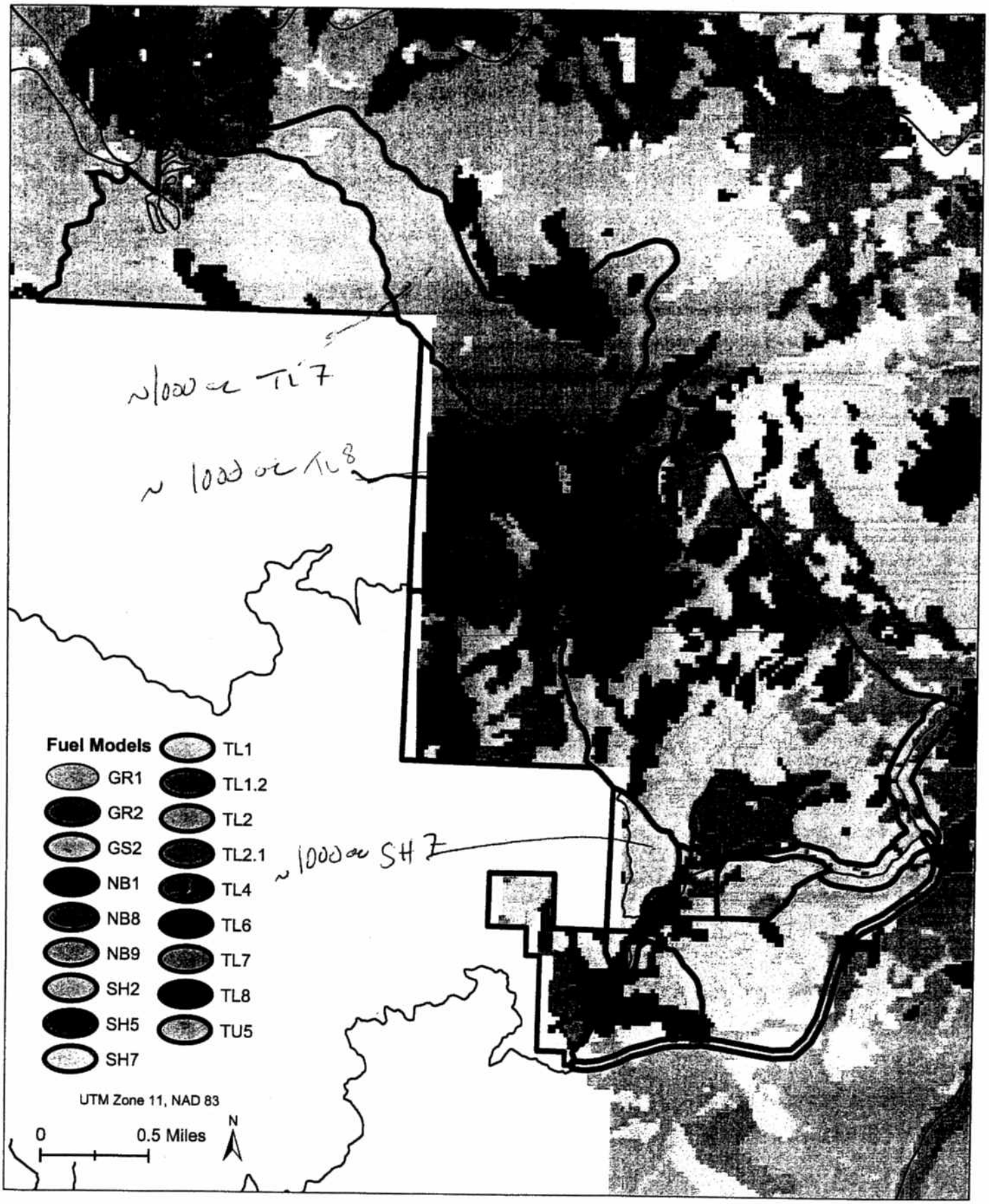


FILE: W:/tools/mxd/fire/rx_burn_plans/foresta_rx/E_Fuels.mxd

Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interfa rescribed Burn Units
Fuels Map
Appendix E

emite National Park
National Park Service
U.S. Department of the Interior



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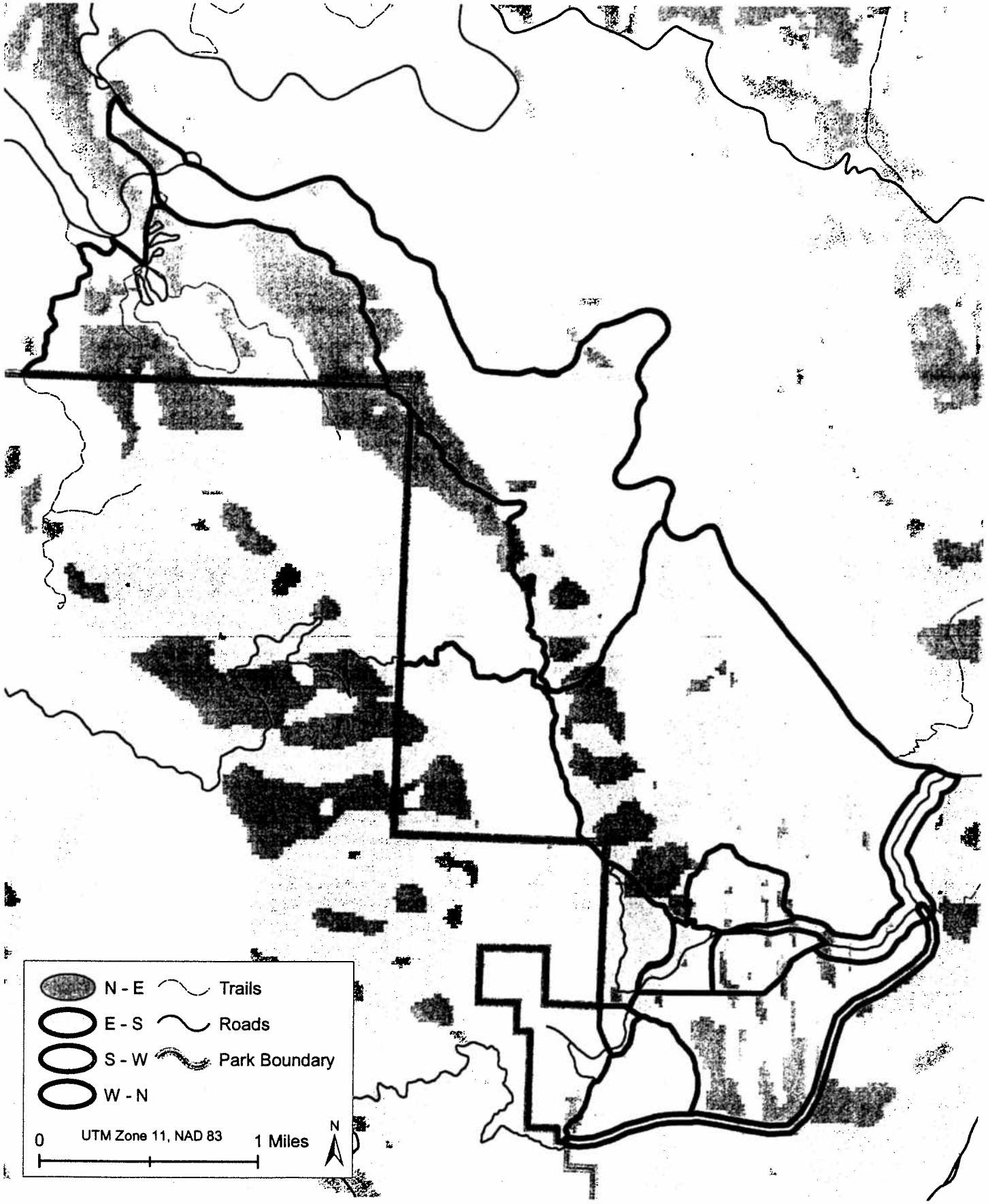
Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Aspect Map
Appendix F

Yosemite National Park
National Park Service
U.S. Department of the Interior

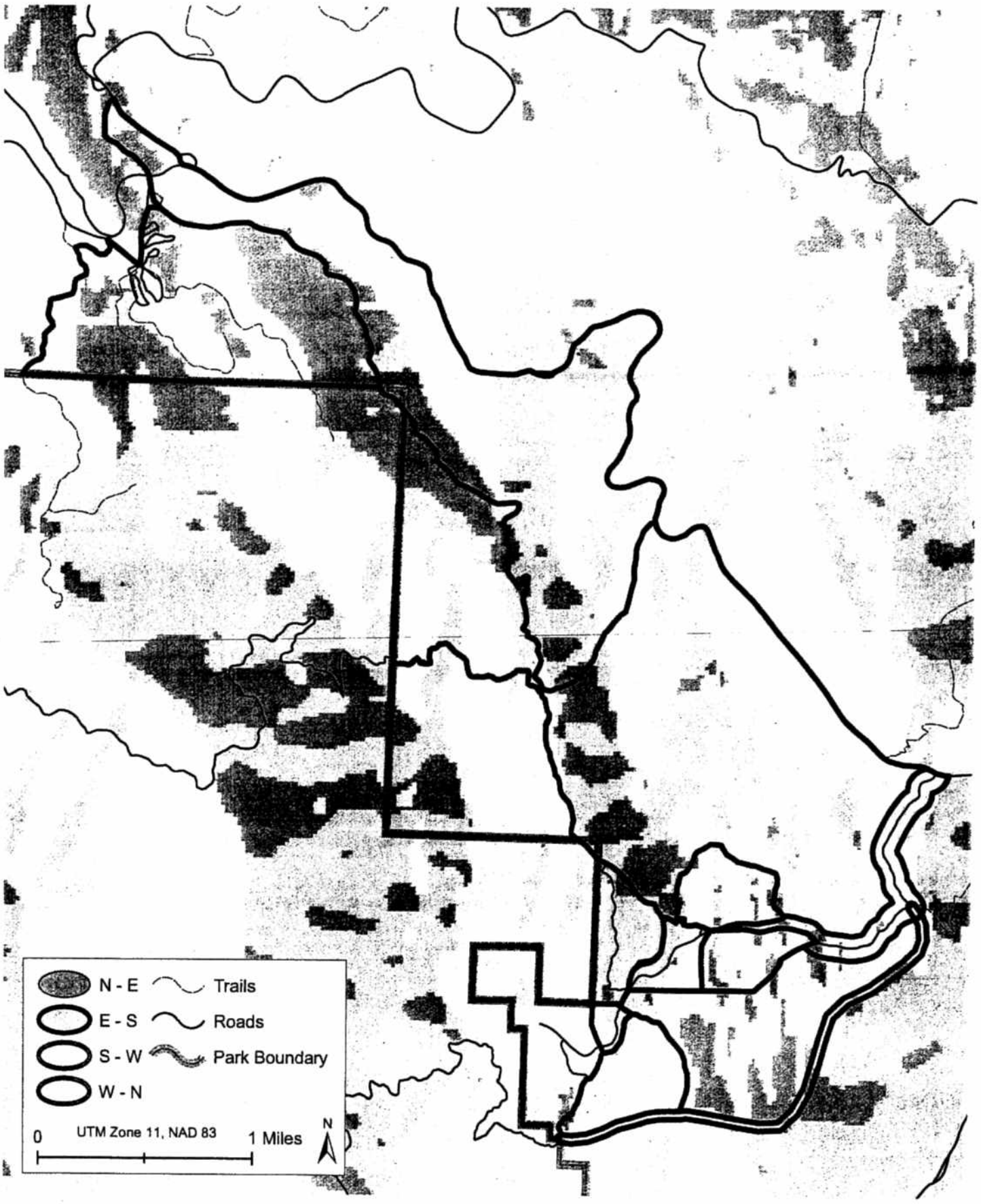


FILE: W:/tools/mxd/fire/rx_burn_plans/foresta_rx/F_Aspect.mxd

Yosemite Fire GIS kvw 6 Mar 2008

Foresta Wildland-Urban Interf. Prescribed Burn Units
Aspect Map
Appendix F

Yosemite National Park
National Park Service
U.S. Department of the Interior

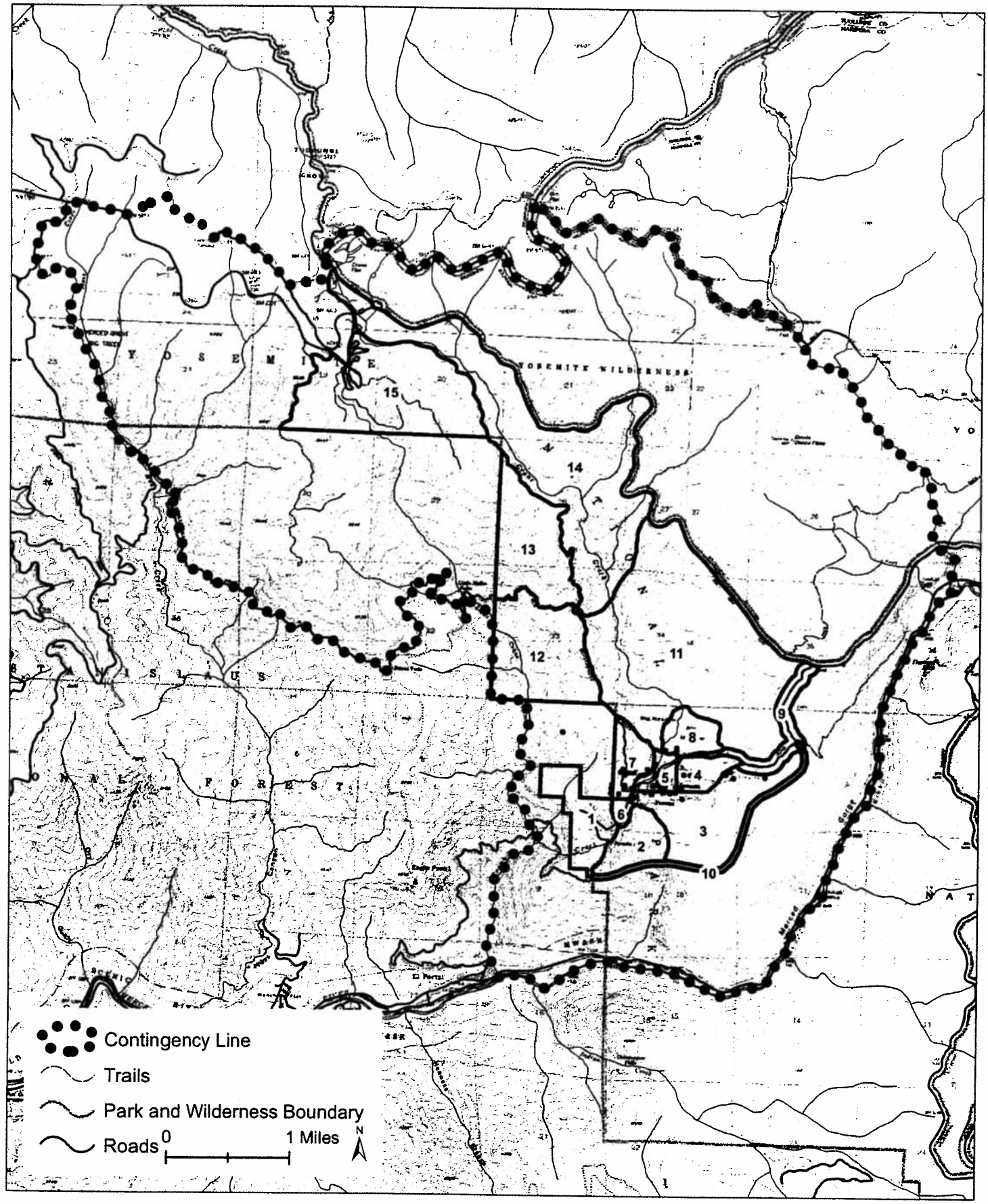


FILE: W:/tools/mxd/fire/rx_burn_plans/foresta_rx/F_Aspect.mxd

Yosemite Fire GIS kvw 6 Mar 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Contingency Map
Appendix G

Yosemite National Park
National Park Service
U.S. Department of the Interior

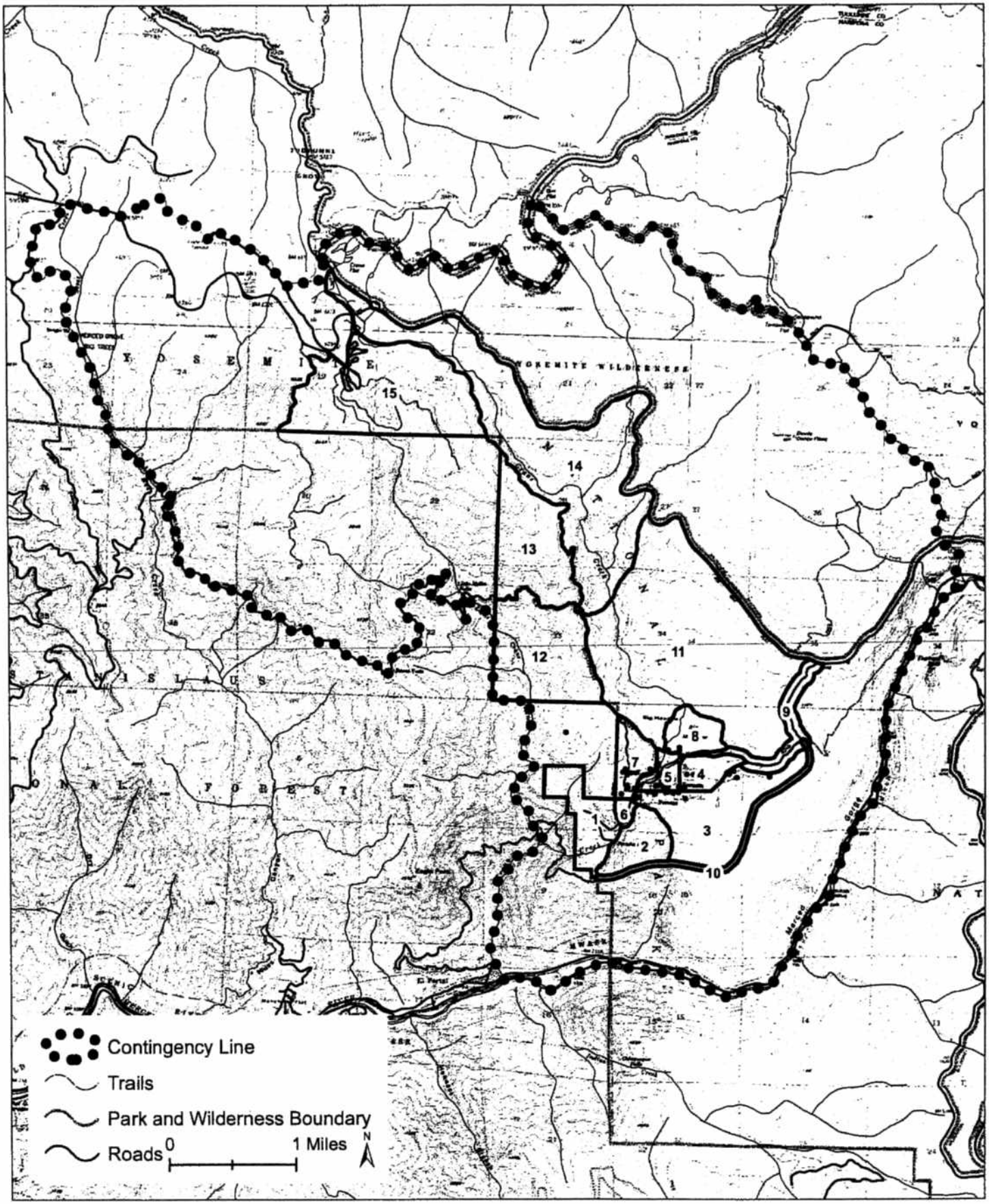


FILE: B_Project.mxd MAP: w/maps/fire/rx_burn_plans/foresta/G_Contingency.pdf

Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interfa[illegible]rescribed Burn Units
Contingency Map
Appendix G

[illegible]emite National Park
National Park Service
U.S. Department of the Interior

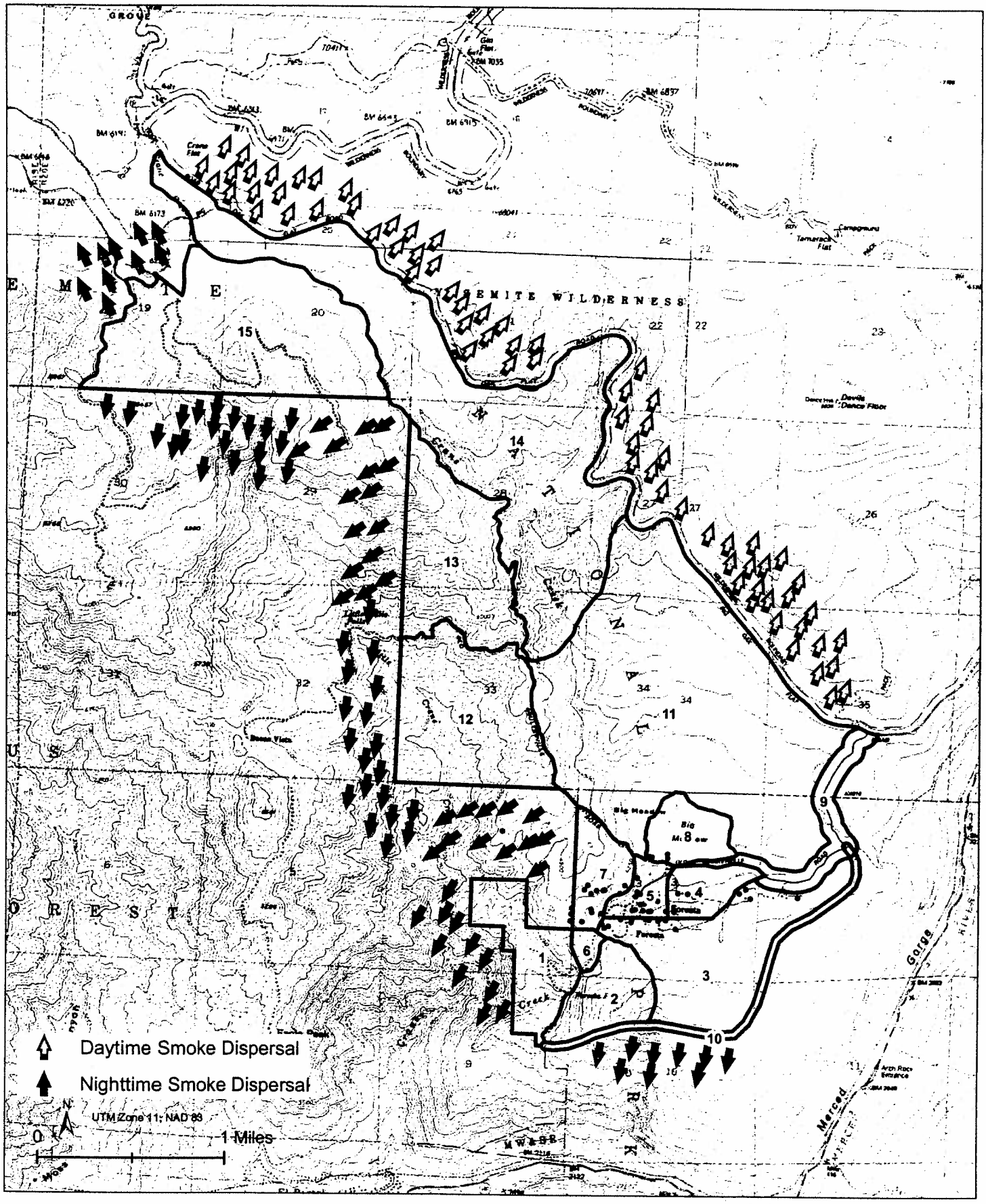


FILE: B_Project.mxd MAP: w/maps/fire/rx_burn_plans/foresta/G_Contingency.pdf

Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interface Prescribed Burn Units
Smoke Map
Appendix H

Yosemite National Park
National Park Service
U.S. Department of the Interior

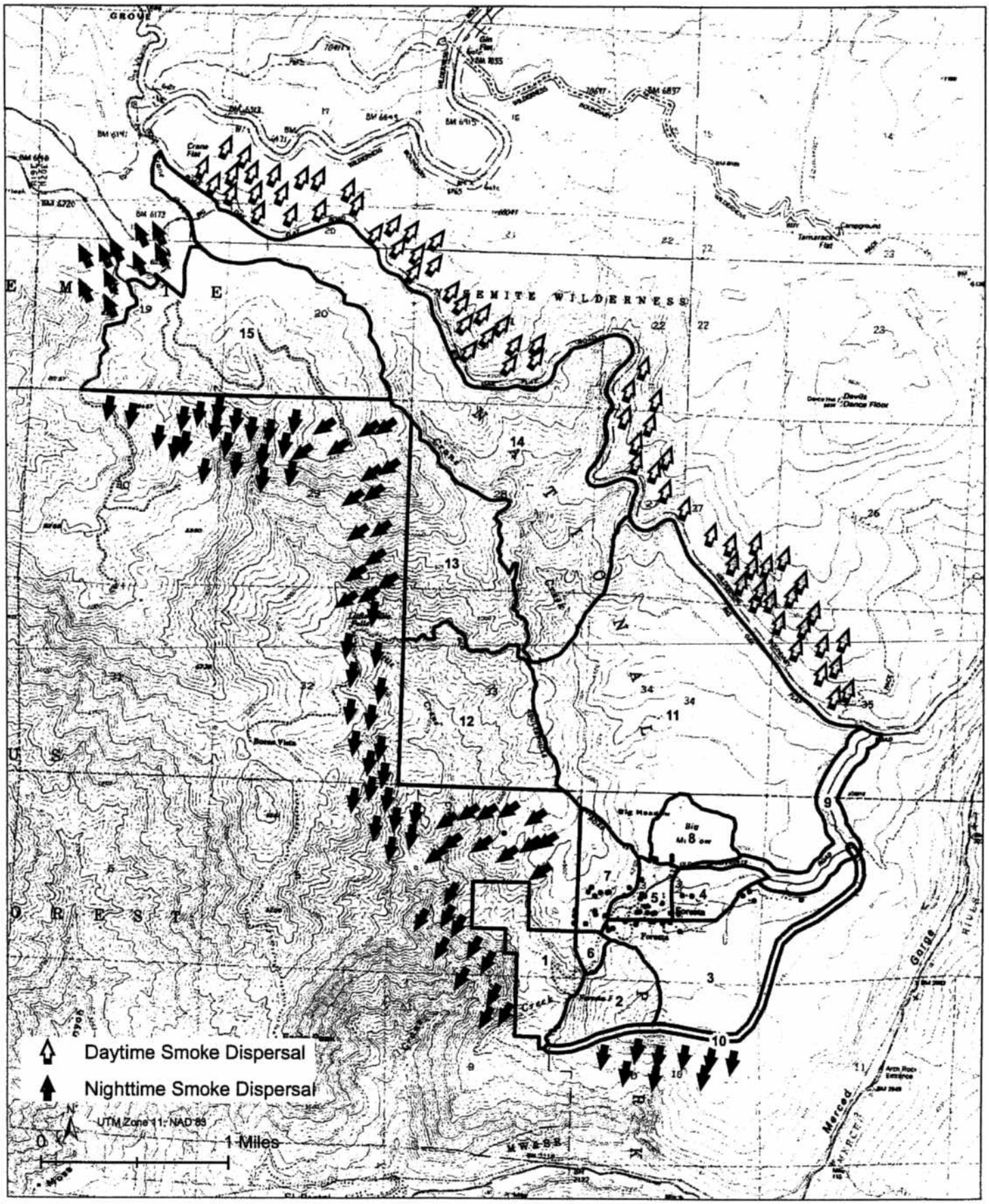


FILE: B_Project.mxd MAP: w/maps/fire/rx_burn_plans/foresta/H_Smoke.pdf

Yosemite Fire GIS kvw 5 Mar 2008

Foresta Wildland-Urban Interfa[illegible]rescribed Burn Units
Smoke Map
Appendix H

[illegible]emite National Park
National Park Service
U.S. Department of the Interior



FILE: B_Project.mxd MAP: w/maps/fire/rx_burn_plans/foresta/H_Smoke.pdf

Yosemite Fire GIS kvw 5 Mar 2008