

**National Park Service
Fire Ecology Annual Report
Yosemite National Park
Gus Smith, Fire Ecologist
Isaiah Hirschfield, Fire Effects Lead Monitor**

Executive Summary

It was a productive year for the Yosemite Fire Ecology program although not a busy fire season within the Park. As a result of high fire activity region wide, fire use fires were not permitted in Yosemite well into the fall for the second consecutive year limiting the program's ability to reach its objectives. However several landscape scale prescribed burns were completed in the spring and fall. In Wawona, first entry spring and fall prescribed burns totaling 1,740 acres north of the community created a contiguous block of recently burned area with the 2007 Jack Fire, providing enhanced community protection from wildfire and reintroducing fire to areas far outside of normal fire return intervals. In Foresta, the community devastated by the A-Rock Fire of 1990, 55 acres were prescribed burned in complex fuels and terrain. Multiple second and third entry prescribed burns were conducted in the Mariposa Grove of Giant Sequoias (units 1, 9, 10 and 13). In Yosemite Valley, prescribed burns were conducted in Rocky Point (unit YV-15) and Bridalveil North (YV-4); a first entry burn. In addition, hazardous fuels reduction treatments were initiated this fall along the Wawona Road (lop and scatter) and the Foresta Road (mastication). The Foresta mastication project was delayed when snow impeded the contractor's progress. It will resume when conditions permit.

Fifteen FMH plot visits were made this year including one pre-burn and 14 post burn reads. Twenty-three mechanical treatment plots, 25 wildfire monitoring plots, and 26 Sydoriak plots were also read. Additionally, 50 CBI plots were read in one Rx burn (PW-17) and in the 2007 Jack Fire, 40 PILA (sugar pine) survival plots read, and we made the final visit to 28 PILA tree plots five years post Tuolumne Fire to study the effects of heavy retardant slurry on mature tree survival. And finally, all the data from the field season was entered and quality checked.

The fire ecologist position, which had been vacant since the fall of 2007, was filled by Gus Smith in August of 2008 filling a much needed position. Isaiah Hirschfield, who had taken on fire ecologist duties while the position was vacant, continued on as the fire effects lead (since fall 2006). The fire effects seasonal crew was smaller than usual with three instead of four seasonal employees, due to a combination of lighter than usual scheduled plot workload and lack of qualified applicants. Travis Espinoza was the sole returnee, in his first year in the assistant lead position. The fire effects crew was able to complete all scheduled field work and data entry, get training opportunities, and still contribute on all local prescribed burns and on off Park assignments in northern California and Oregon.

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Wawona Northwest Rx fire background, Sierra Nevada Research Station foreground, April, 2008, Yosemite National Park.

Fire Ecology Program Activity

The Fire Effects crew read 236 plots during the 2008 field season (Table 1). We read 15 FMH plots, 23 mechanical thinning plots, 25 Wildland Fire Use plots, 26 Sydoriak plots, 50 CBI plots, 40 sugar pine mortality study plots, and 28 sugar pine – retardant survival plots.

Table 1. Fire Effects Plot workload 2008.

Park	Monitoring Unit	Type of Plot	Pre	Immediate Post	Post burn	Total plots
YOSE	BAGGI1D01	FMH brush			8	8
YOSE	FABCO1T08	FMH tree		3		24
YOSE	FPIPO1T02	FMH tree			2	18
YOSE	FSEGI1T08	FMH tree	1	1		13
YOSE	Mixed conifer	Sydoriak			26	50
YOSE	Mixed conifer	CBI WFU		20		189
YOSE	Mixed conifer	CBI Rx fire		30		
YOSE	WFU	Rapid assess			25	32
YOSE	Mech. Thin	Rapid assess			48	61
YOSE	Tuolumne fire	PILA ¹ survival			28	28
YOSE	PILA	PILA treatment			40	40
YOSE	Yosemite Valley	Valley visualization	23			23

¹PILA – sugar pine

The Fire Effects crew and lead entered all data collected in 2008 into FFI and spreadsheets, filed all plot photos, and complete training sessions and/or attended conferences for professional development (Table 2). Our FEAT database was converted to FFI this year and Isaiah Hirschfield and Gus Smith attended FFI training.



Fire Effects crew in Yosemite Valley Meadow plot, 2008.

Table 2. Fire Ecology staffing in 2008.

Staff Member	Starting Date	Ending Date	# of Pay Periods	Training and Development
Gus Smith	8/17/08	12/31/08	9	S-290, FEMO taskbook initiated, FFI training, AFS training, computer security, charge card, attended CAFÉ conference in San Diego
Isaiah Hirschfield	3/02/08	12/06/08	19	Crew Boss taskbook completed, submitted to committee; FFI workshop; YOSE Hydro-climate Conference; HECM Refresher
Travis Espinoza	6/01/08	11/08/08	10.5	New GS-6 Hire; S-290; Jepson (<i>Plant Families</i>); ArcMap Training YOSE; Tehipite Fire SEKI; FEMO taskbook completed; YOSE Hydro-climate Conference
Athene Eisenhardt	5/11/08	11/08/08	12	Jepson (<i>Poaceae</i>); Carey Fire, Shasta-Trinity NF; YOSE Hydro-climate Conference
Tod Flowers	5/11/08	11/08/08	12	Intro to Fire Effects Monitoring; Plant ID Data Collection/Entry; CRWB Summit Springs Fire, OR ; FEMO initiated/completed, ICT4 taskbook initiated; YOSE Hydro-climate Conference

FMH

The FMH protocol is our standard fire effects monitoring protocol from the Fire Monitoring Handbook (2003). We read seven forest plots and eight brush plots in four different monitoring types. The eight brush plots were located in Leidig and Sentinel Meadows and were one year post Rx fire reads, with histories of two treatment burns. We had two plot reads in the SEGI monitoring type; one immediate post burn read and a re-read since the plot had not been treated within the last three years. Three other plots in the Mariposa Grove were read immediately post Rx burn. These plots had burned three times prior to this year's read. We read two PIPO plots in the "Soupbowl" five years post Rx burn. These plots had burned two times since they were established.

FMP restoration objectives

We used only monitoring data from FMH plots to determine the effectiveness of our projects in the suppression zone. Methods for determining our progress of restoration will be documented and filed with the original copy of the 2008 Annual Report.

There is little guidance in our FMP or the FMH on how to evaluate whether the Fire Program is meeting its objectives for each Monitoring Type. Without creating a benchmark year as the year to begin evaluating our effectiveness, I used the most recent plot visit as the "current condition" of the monitoring type and compared these conditions across all plots, to our stated objective in

the FMP. In the future, I would seek more input from other Park Fire Ecologists and other experts to evaluate our effectiveness.

Below are tables illustrating our objectives in each monitoring type from the FMP, the “current conditions” (from above paragraph) and whether we are meeting our objectives.

Table 3a. Restoration target conditions and monitoring results of tree density, YNP, 2008.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results $\bar{X}$ (+/- 90% CI)	Objective Achieved Yes or No
red fir forest FABMA1T08 (n = 2 plots)	20-202 trees/ac <31.5in dbh	38.4 trees/ac <31.5in dbh (+/-36.6)	No confidence
	4-30 trees/ac >31.5in dbh	20.2 trees/acre > 31.5in dbh (+/- 6.7)	Yes
giant sequoia/mixed conifer forest FSEGI1T08 (n = 13 plots, 1 fire)	20-101 trees/ac <31.5in dbh	116 trees/ac <31.5in dbh (+/- 43.0)	No confidence
	4-26 trees/ac >31.5in dbh	10.4 trees/ac >31.5in dbh (+/- 2.6)	Yes
white fir/mixed conifer forest FABCO1T08 (n = 24 plots)	20-89 trees/ac <31.5 in dbh	<31.5 in – 97.1 trees/ac (+/- 25.0)	No confidence
	4-20 trees/ac >31.5 in dbh	>31.5 in – 13 trees/ac (+/- 2.9)	Yes
ponderosa pine/mixed conifer forest FPIPO1T09 (n = 4 plots)	4-91 trees/ac <31.5 dbh	<31.5 in – 409.8 trees/ac (+/- 311.0)	No confidence
	4-30 trees/ac >31.5 dbh	>31.5 in – 15.2 trees/ac ¹ (+/- 5.7)	Yes
ponderosa pine/bear clover FPIPO1T02 (n = 18 plots)	No management objectives at time of FMP	<31.5in – 165.4 trees/ac (+/- 79.3) >31.5 in – 8.8 trees/ac (+/- 2.4)	

¹Total of 15 mature trees in four plots.

Stem density

Obviously, if we would like better confidence on the impact of fire on stem density in the red fir type (FABMA1T08) we need more plots to be able to track changes due to fire and to monitor whether we are meeting our FMP objectives in this vegetation type. However, we do not have much project activity in this vegetation type and the only plots we have occur in a single, large landscape Rx burn. If we wish to monitor Fire Use fires more extensively, we could use our Rapid Assessment protocol or FMH to monitor fire effects here. We have a five year history of using Rapid Assessment rather than FMH to monitor Fire Use fires.

In the giant sequoia – mixed conifer type we do not have enough plots that have been treated with fire to confidently establish if we are meeting our objectives for the smaller diameter stems. Local experts believe that we have “saturated” all possible locations in the three groves with plots because of roads and trails, so we might consider this sample size as the maximum. Also, though groves are an extremely important vegetation type (Special Management Area), they are a small fraction of our total project area.

In the white fir – mixed conifer type we do not have enough plots to confidently determine if we are within our desired range of smaller diameter, “post – settlement” trees. However, we could decrease our confidence by increasing alpha, or increase our sample size. The Fire Ecologist will evaluate sample size and power issues this spring before the 2009 field season.

In the ponderosa pine – mixed conifer vegetation type we clearly do not have enough plots to evaluate stem density of the “post – settlement” trees. We will evaluate how many plots we will need to add in the next few years to confidently determine if we are meeting our objectives.

In the ponderosa pine – bear clover vegetation type we do not have management objectives in the FMP. We can work on these and propose objectives when we write the Monitoring Plan.

Table 3b. Restoration target conditions and monitoring results for species composition, YNP, 2008.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results $\bar{x}$ %	Objective Achieved Yes or No
red fir forest FABMA1T08 (n = 2 plots)	70-100% fir, 0-30% pine	Trees < 31.5 in dbh 56% ABMA, 44% ABCO Trees > 31.5 in dbh 70% ABMA, 30% ABCO	Yes Yes
giant sequoia/mixed conifer forest FSEGI1T08 (n = 13 plots)	35-65% fir, 0-20% SEGI, 40-55% pine	Trees < 31.5 in dbh 73% ABCO, 11% PILA, 11% CADE, 2% SEGI, 2% CONU, <1% PSME & PIPO Trees > 31.5 in dbh 55% PILA, 23% SEGI, 20% ABCO, 3% CADE	No No, but very close
white fir/mixed conifer forest FABCO1T08 (n = 24 plots)	40 – 60% fir, 15 – 50% pine, 0 – 10% cedar	Trees < 31.5 in dbh 69% ABCO, 20% CADE, 5% PILA, <5% ABMA, PIJE, PIPO, < 1% Quercus & CONU Trees > 31.5 in dbh 49% ABCO, 24% PILA, 16% CADE, 7% PIJE, 4% PIPO	No Yes
ponderosa pine/mixed conifer forest FPIPO1T09	60-95% pine, 15-40% cedar, 1- 10% oak	Trees < 31.5 in dbh 62% ABCO, 16% CADE, 17% pine, 3% oak, 2% PSME Trees > 31.5 in dbh	No Yes

(n = 4 plots)		74% pine, 20% CADE, 7% oak	
ponderosa pine/bear clover FPIPO1T02 (n = 18 plots)	No management objectives at time of FMP	Trees <31.5 dbh 41% CADE, 29% PIPO, 19% QUKE, 5% PILA, 5% ABCO, 1% PSME, < 1% QUCH Trees <31.5 dbh 65% PIPO, 30% CADE, 3% PILA, 3% QUKE	

(ABCO = white fir, ABMA = red fir, CADE = incense-cedar, CONU = mountain dogwood, PIJE = Jeffrey pine, PILA = sugar pine, PIPO = ponderosa pine, PSME = Douglas-fir, Quercus = oak genus, QUCH = canyon oak, QUKE = California black oak, SEGI = giant sequoia)

Species composition

In the red fir vegetation type we appear to be meeting our species composition objective but again caution that we are only monitoring two plots in one Rx burn unit that has experienced one landscape scale Rx burn.

In the giant sequoia type we are meeting our species composition objectives in the smaller diameter stem class but not in the larger diameter stem class. However, it is our expert opinion that having an under representation of white fir and over representation of giant sequoias is very acceptable deviation from the FMP objective.

In the white – fir mixed conifer monitoring type we do not meet the species composition objective in the small diameter tree class but we do meet the objective in the large diameter class. Although the FMP does not break species composition into “pre – settlement” and “post – settlement” trees, we thought this breakdown would be instructive. Interestingly, the post – settlement species composition does not meet our FMP objective because of white fir and incense cedar densities. This is perhaps our “poster child” vegetation type demonstrating the impacts of a century of fire suppression. The pre – settlement forest shifts from ~50% white fir, three pine species and incense cedar to a post –settlement forest dominated by white fir and only one pine species with > 1% contribution.

In the Ponderosa pine – mixed conifer vegetation type we see a similar pattern. We don’t meet the objective in the “post – settlement trees” but do meet the objective in the “pre – settlement” trees. Again white fir is overabundant and is not desired in this vegetation type. We should investigate our prescriptions to decrease or eliminate white fir from this vegetation type.

As in the density objective, we do not have management objectives in the ponderosa pine – bear clover vegetation type. We will consult with experts and determine objectives for this vegetation type when we write the monitoring plan.

Table 3c. Restoration target conditions and monitoring results for fuel loading, YNP, 2008.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results	Objective Achieved Yes or No
giant sequoia/mixed conifer forest	5-30 tons/ac 20-40% of unit 30-60 tons/ac 20-50% of unit >60 tons/ac 5 -20% of unit	8% of plots 5-30 t/ac 46% of plots 30-60 t/a 46% of plots > 60 t/a	No Yes No
white fir/mixed conifer forest FABCO108	5-30 tons/ac 20-40% of unit 30-60 tons/ac 20-50% of unit >60 tons/ac 5 -20% of unit	46% of plots 5-30 t/ac 38% of plots 30-60 t/ac 17% of plots > 60 t/ac	No Yes Yes
ponderosa pine/mixed conifer forest FPIPO1T09	5-30 tons/ac 20-40% of unit 30-60 tons/ac 20-50% of unit >60 tons/ac 5 -20% of unit	Not enough plots have been treated to determine if we meet these objectives	-
ponderosa pine/bear clover FPIPO1T02	No management objectives at time of FMP	50% of plots 5-30 t/ac 28% of plots 30-60 t/ac 22% of plots > 60 t/ac	

Fuel loading

The purpose of these objectives is to manage for heterogeneity in fuel loading within projects and within the landscape. Because we rarely have multiple plots per burn unit, we can't adequately test whether we're meeting this objective as written. However, we considered our plot distributions in each vegetation type a "landscape" of plots and then analyzed what proportion of the plots fell within each of the fuel loading ranges. So the above results quantify loading across multiple burn units within each vegetation type, not multiple plots per burn unit.

In the giant sequoia vegetation type we meet the moderate (middle) fuel loading objective range but fall short of the low fuel loading range objective and above the higher fuel loading. These results are difficult to interpret and generalize from. If we burned cooler, we might meet our low fuel loading objective but we'd probably add to our high fuel load range, which is already above desired conditions. We will explore these results over the next year.

In the white fir – mixed conifer forest we just overshoot the low fuel loading range and meet the other two objectives. These results suggest that our prescriptions are well-matched for this vegetation type.

In the ponderosa pine – mixed conifer vegetation type we don't have enough plots that have been treated with fire for this kind of analysis. We have four plots and only one has burned.

In the ponderosa pine – bear clover vegetation type we don't have management objectives but will create them when we write the Monitoring Plan.

Adaptive Management Cycle

Fire Ecologist and Fire Effects Lead will meet with Fire Managers and Resource Managers to present our results and analysis prior to the 2009 season. Although there are several mechanisms

in place to give input to both Fire Managers and Resource Managers, we would like to create a more formal mechanism to present our analyses and discuss ways we can improve our tactics and strategies for meeting the FMP objectives.

Rapid Assessment

The rapid assessment protocol is a stripped down version of the FMH protocol that YOSE Fire Effects crew uses to evaluate mechanical treatments as well as fire effects from wildfires. We read 22 plots three years post mechanical thinning and 21 plots three years post wildfire (Whiskey and Kibbie WFU fires), and five plots three years post wildfire (Echo WFU fire). Fuels data are entered and stored in FFI database and forest structure and composition data are stored in Excel spreadsheets.

Fire Use Fires

Change in fuel loading over time among plots and fires was highly variable. Whiskey fire plots declined in total fuel loading five years post fire, while the other two wildfires had higher fuel loading three years post (Echo) and five years post (Kibbie) wildfire (Figure 1). Kibbie had the greatest variability in fuel loading among plots (Range 5.5 - >400 t/ac) five years after the Kibbie fire. The majority of the fuel was in the 1000 hr sound and rotten logs. Obviously fire severity 5 years ago is responsible for fuel loading today, but it might be interesting to develop a model of fuel loading from fire severity or dNBR data.

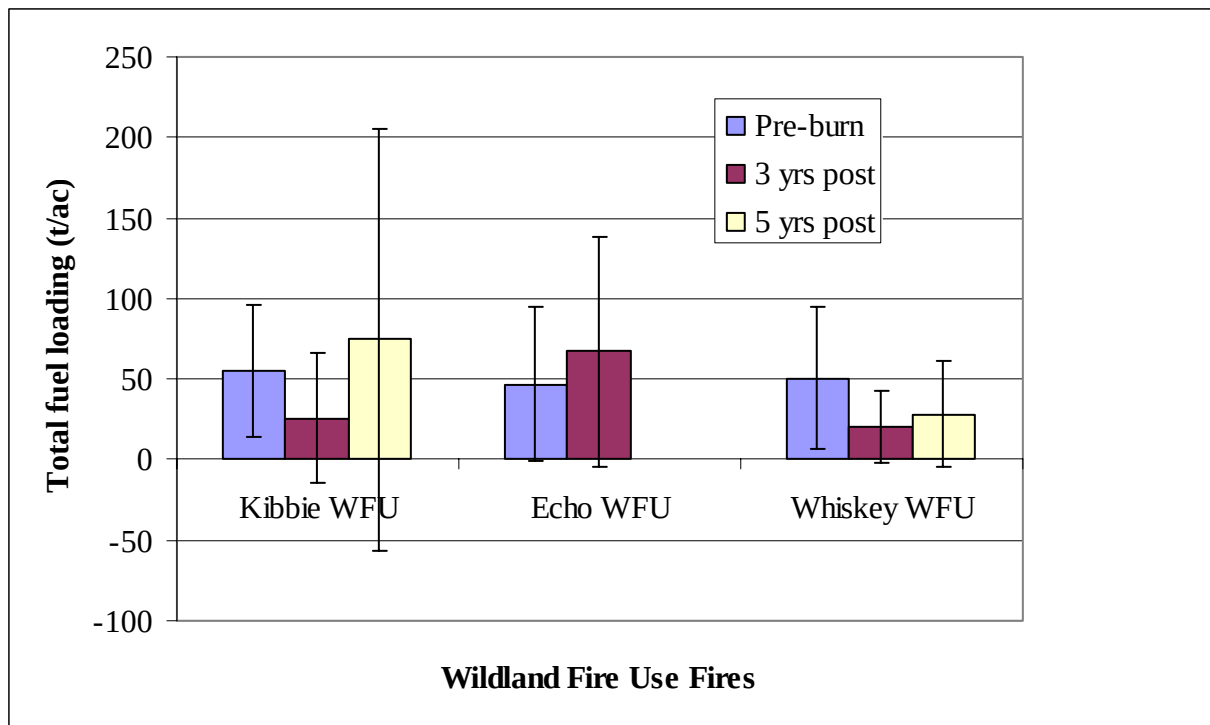


Figure 1. Average (+/- 1 std) fuel loading of Rapid Assessment plots in three Fire Use fires in Yosemite National Park, 2008.

Litter and duff (t/ac) declined post wildfire on nearly all plots in all fires. Even after five years, litter and duff fuel loading was less than pre-fire. One hour – 100 hr fuel loads remained below the pre-fire benchmark on all fires except the Echo Fire, although sample size in this fire is extremely small because only a fraction of the plots were burned.

Mechanical Thinning

The Yosemite West thinning and burning project was monitored prior to thinning, one and three years post thinning, and one and three years post burning. Total fuels were reduced from 35.4 to 18.6 tons/ac (Figure 2). The bulk of the fuel loading was in the 1000 hr sound and rotten fuels.

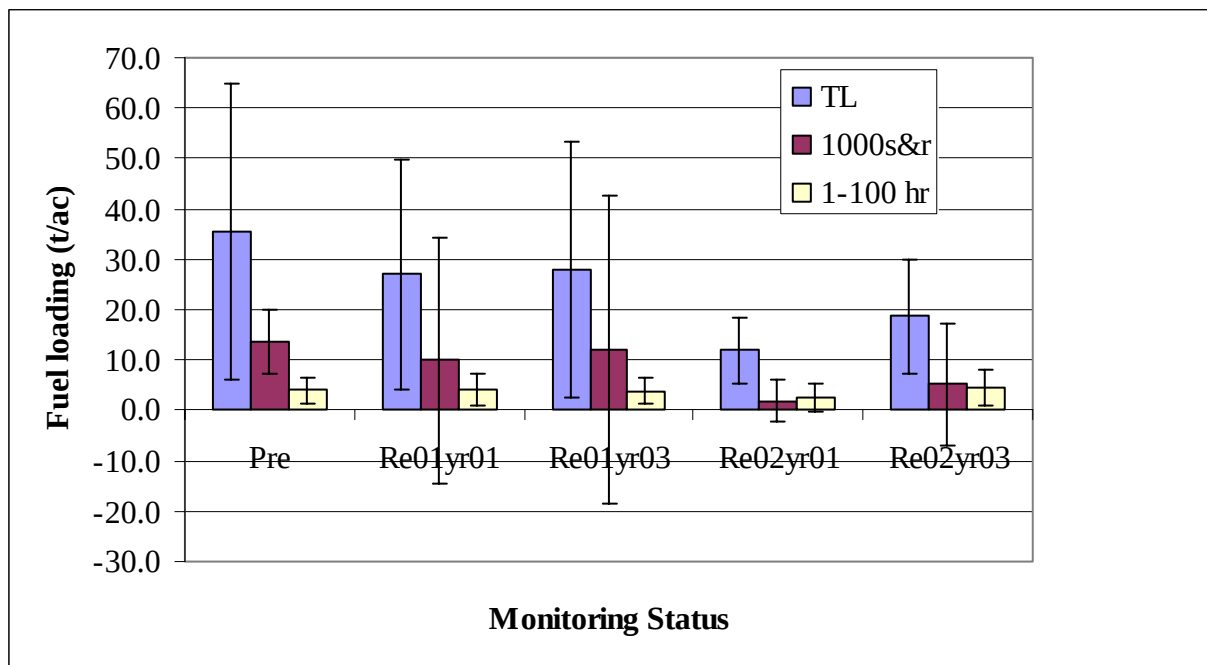


Figure 2. Average fuel loading (+/- 1 std) among plots on the Yosemite West mechanical fuels reduction + burn treatment, Yosemite National Park, 2008.

In two fuels reduction projects along the Big Oak Flat and Wawona Roads trees up to 6 inches dbh were removed. However, within those treatments, patches were selected where trees up to 20 inches dbh were removed. The location of the patches was determined by roadside pull-offs where a harvester with a mechanical arm could cut trees in the unit. We monitored the plots within the patches where trees up to 20 inches dbh were removed.

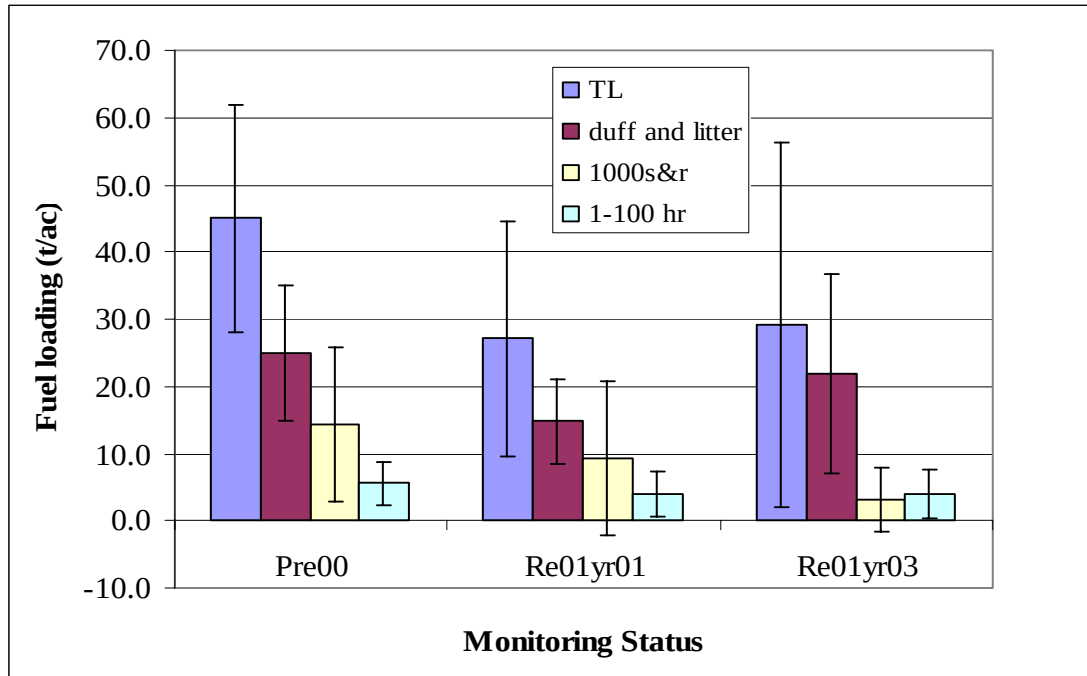


Figure 3. Average (± 1 std) fuel loading among plots along the Big Oak Flat and Wawona Rd in patches where trees up to 20 in dbh were removed, Yosemite National Park, 2009.

Sydoriak Plots

The Sydoriak plot protocol was developed by Charisse Sydoriak in the early 1980s and permanent plots were established in 1983 and 1984. We reread 26 plots this summer in the Mariposa grove of giant sequoias. We have no results to present in this report because the 2008 field season data has not yet been entered.

PILA retardant survival study

After the Tuolumne fire (2003) individual sugar pines (*Pinus lambertiana*) were monitored to assess potential heath effects from suppression efforts in October 2003. Fire suppression on this portion of the Tuolumne fire included extensive use of fire retardant slurry on mature sugar pines to the extent that it concerned Resource Advisors. That winter, 28 healthy, mature sugar pines within and outside of the slurry drop zone were chosen at random, tagged, and given an initial health record. Standard damage codes were used to identify disease, fire scars, flagging, etc. Eighteen trees were “treated” with retardant and 10 trees were outside the fire’s perimeter and used as controls. Trees were visited and assessed for damage in 2004 and 2008 after the initial 2003 assessment.

Results

In 2008, we concluded the study and determined that the slurry had no negative impact on sugar pine health. Two of 10 (20%) control trees were dead by 2008, while only 1 of 18 (6%) slurry-treated trees died by the final visit. The one treated tree that died by 2008, had mistletoe in the initial visit. Intensive retardant drops on sugar pines does not appear to negatively affect tree health five years post fire.

Prescribed fire projects

The Yosemite Fire program had a below average year for prescribed fire projects (Table 4) and a non-fire season for Fire Use fires. Two prescribed burn projects were completed in the spring: Wawona NW (1124 ac) and Foresta Rx (50 ac). In the fall, we completed two burns in Yosemite Valley; YV-15 (44 ac), and YV-4 (18 ac). We also burned 4 burn units in the Mariposa Grove for a total of 132 acres. And lastly, our burning season ended with another Wawona Northwest burn (616 ac) that burned the northern most end of the unit, tying together the Jack Fire (2007) on Turner Ridge and the other Wawona WUI burns.

Table 4. Prescribed fire projects in Yosemite National Park, 2008.

Rx Project	Date	Acres	County
Wawona Northwest	4/9/2008	1124	Mariposa
Foresta Rx	6/5/2008	50	Mariposa
YV-15	9/17/2008	44	Mariposa
YV-4	9/18/2008	18	Mariposa
Mariposa Grove	9/30/2008	132	Mariposa
Wawona NW	10/14/2008	616	Mariposa
	TL	1984	

Wildfires

Because of the large number of wildfires burning in California and the proximity of two large wild fires to the Park and gateway communities, no large wildland fire use fires were permitted in the Park this year. In fact, 11 WFU candidates were suppressed in the WFU zone (Table 5).

Table 5. Wildland Fires in the Wildland Fire Use zone, Yosemite National Park, 2008.

Cause of fire	# fires	Acres	County	Notes
Lightning	2	823	Tuolumne	North Mountain fire originated on Stanislaus NF total size: 2,889 ac.
Human	6	0.6	Tuolumne	
Lightning	12	20.7	Mariposa	Largest fire = Hill Fire 12.4 ac.
Human	17	9.5	Mariposa	
TL	37	853.8		

Research Projects

The Fire Effects crew Lead, Fire Ecologist and Fire Effects crew facilitated several fire-related research projects in the park this summer. We provided physical labor, data, and expert advice on where to locate their plots, or helped to facilitate or provide logistical support. Below are short summaries of the active projects in the park that we assisted with.

Dr. Alan Taylor, the Pennsylvania State University, began work in the inner WUI in Yosemite Valley on a project to create a visualization product that will help managers demonstrate the effects of different thinning prescriptions. A century and a half of fire suppression in the valley has changed the density and composition of trees and fuels from pre – settlement conditions. Alan’s project will provide us with tools to illustrate the visual impacts and effectiveness of different levels of thinning in the inner WUI of Yosemite Valley. His results may also be helpful

to the committee on scenic vistas. The Fire Ecologist will meet with the convener of this committee to give them a summary of Alan's work and deliverables.

Dr. Chris Dicus (PI) and Chris Hamma (graduate student), California State University San Luis Obispo, are examining the trade-offs in fire hazard versus the social benefits of trees in the WUI. Dicus and Hamma recognize the fire hazards of trees in the WUI in Sierra Nevada mixed conifer forest type but also recognize the value of trees for aesthetics, shade, wildlife, air pollution mitigation and carbon sequestration, storm water run-off, etc. A strictly fire hazard reduction approach would propose tree removal and vegetation clearances around all structures in the WUI. These investigators propose to measure fuels inside the Park and in the National Forests, model fire potential behavior under different fuel composition and structure, topography and weather combinations. They will also assess societal benefits of fuels in the WUI using UFORE (Urban Forest Effects model) and other models.

Dr. Scott Stephens and Dr. Rick Everett (postdoc Fellow) completed another year of work in the park reconstructing the 1911 forest structure and composition from General Land Office (GLO) records of 1911. Rick has one additional field season to collect tree cores and cookies for reconstructing the fire histories in those areas.

Dr. Gyamni Shrestha, UC-Merced, and graduate student, Sunny Grunloh, studied black carbon in soils in Yosemite. They investigated the contribution of black carbon from prescribed and wildfires in the park. They also investigated other sources of black carbon; fossil fuel combustion, biomass combustion, etc.



2008 Fire Effects Crew in Leidig Meadow, Yosemite Valley, June 2008.

Workload and Staffing

Below we list the Fire Ecologist's and Fire Effects Crew Lead and crew accomplishments and focus areas. Details on education from the supplement spreadsheet are provide in the next report section "education and outreach".

Table 6. Fire Ecologist Accomplishments/Focus Areas.

Category	Percent time ¹	Accomplishments and/areas of activities
Conferences/training	20%	CAFÉ/AFE in San Diego, FFI in Austin, S-290, budget training, computer security, charge card training, others
Reading	15%	FMP, Vegetation Management Plan, Invasives Management Plan, RM-18, YOSE, NPS, DOI documents, fire literature, Annual reports, etc.
Supervision/Administration	15%	Learning AFS budgeting, programming budget, working with Fire Effects Lead and crew in the field to get to know what they do and how, learning systems: payroll, travel, overtime, comp-time, travel time, etc.
Data analysis	10%	Learning how to use FFI and presenting data for final report, and report to YOSE, presenting results to Rx fire managers, analyses for future public education on Rx fire program
Education	10%	Lectures at UC-Merced, Field trip with CalPoly Field Biology students, Lecture at FORE fellowship retreat, presentation to RM&S, reviewing Fire Information literature
NPS Meetings	10%	Standing meetings, impromptu, and scheduled meetings re: natural resources, program management, getting to know all the players I'll interact with.
Planning	5%	Reviewed and assisted with 2 research proposals -great grey owls - JFSP -Carbon sequestration - NPPP Reviewed and commented on 2009 burn plans
Fire Assignments	5%	All in-park Rx burns (FFII, FEMO trainee)
Field work	5%	FMH plots, Rapass, PILA
Data Conversion	5%	Error checking, following up on inconsistencies, plot issues, etc.
Data entry	< 1%	Nearly all done by Fire Effects crew & Lead
Research	0%	No research activities this year

¹Percent time of 9 pay periods: mid August – 31 December 2008.

Table 5. Fire Effects Crew Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH Plots	10%	7 forest plots, 8 brush plots
Mechanical Treatment Plots	10%	23 mechanically thinned plots, 37 plots concluded/pulled
Wildfire monitoring Plots	10%	25 plots
Sydoriak	5%	26 plots
CBI Plots	5%	30 plots in 2007 Yosemite West (PW-17) RX Fire 20 plots in 2007 Jack Fire
Other Plot Work	10%	--Valley Visualization, Penn St University --Retardant Impact on Sugar pine (2003 Tuolumne Fire) concluded
Fire Assignments and Fuels Projects	15%	--Crew assisted on multiple prescribed fires as CRWB(T), FEMO, FEMO(T), FFT1 and FFT2 (~8 shifts) --Crew responded on 2 wildfires as ICT4(T), CRWB, CRWB(T), FFT2 (~5 shifts) --3 crewmembers went on off park assignments with YNP WFU module or as single resource. (~35 shifts) --Crew assisted on off days as HECM, FFT2, not factored in Percent Time total --No WFU fires in 2008
Data Entry	15%	--All FMH data from 2008 entered into FFI, Excel --Some of the backlog of Sydoriak plots remain un-entered
Data Management and Information Technology	5%	--Quality checking --Problem solving FFI networking, access, functionality, etc.
Supervision/Admin	5%	--Travel --Payroll --Meetings (Fire Staff and park wide)
Training & Professional Development	5%	--All crewmembers attended refresher training --Intro to fire effects monitoring, plant i.d., data collection/entry --Jepson herbarium workshops (Poaceae/50 Plant Families) --Yosemite Hydroclimate Conference --S-290 Int Wildland Fire, ICT-4 Type 4 IC
Miscellaneous	5%	--Presentations for visiting elementary, high school and college groups (Scotland University) --VIP walk through presentations in RX burns --Cross-training --Required online federal trainings --Facilitating data exchange, providing data to interested parties

Education and Outreach

Isaiah Hirschfield gave a presentation to all of the fire staff at the 2008 Fire School. Isaiah described the Fire Ecology and Fire Effects program and information we provide to fire management. He also described the importance of fire in our ecosystems and helped young fire fighters understand the implications of suppressing or letting our fires burn. He incorporated other non-Fire Effects crewmembers from within the YOSE fire organization to train and assist on CBI burn severity field work and facilitated the completion of FEMO taskbooks for trainees both in and out of YOSE Fire Management.

Gus gave two lectures at UC-Merced to two classes in the fall. He presented a lecture on “Fire in the Sierras” to a General Education requirement course called “environment in crisis”. He also presented a lecture and discussion based on a paper by Steve Pyne in the journal Conservation Biology “Pyromancy: reading stories in the flames.”

Gus gave a lecture to the Merced Union High School science teachers on the role of fire in Yosemite National Park, how we monitor our successes, and how high school kids can get involved in fire monitoring.

Gus gave a field trip lecture to a “field biology” course from California State University San Luis Obispo. He took students and teachers to the YV-15 burn and described fire effects, burn objectives, and the role of American Indians in the fire history in Yosemite Valley.



Leidig Meadow, August 2007



Leidig Meadow, December 2007

*(Note conifer encroachment in August 2007 photo, and conifer mortality post-fire in December)