



**National Park Service
Fire Ecology Annual Report
Calendar Year 2005**

Summary

A crew of three (two seasonals and myself) conducted 22 plot reads this season. Thirty-six reads were scheduled for 2005. First priority was preburn reads in the Saddle burn unit which was scheduled to burn this year. We were able to find 10 of the 12 QUAR09 plots and six of the seven PILE04 plots. Directions and/or GPS coordinates were sketchy at best for some of the plots which were last read between 1999 and 2001. Due to this inconvenience, we switched to guerrilla travel tactics (off-trail plot travel) in attempts of increasing the probability of finding some of these poorly documented plots. It made for brushy, slow and sometimes painful progress to our destinations but paid off in the discovery of one previously “lost” plot (that after 2+ miles of off-trail travel was found less than 200 meters from a trail). Casual observation noted that the PILE plots seemed to have been more severely burned in the 1994 Rincon fire than the QUAR plots. Second priority was year 01 reads in the Devil’s Bathtub burn unit. All plots were located and read in this unit as I had previously visited these plots. One crewmember assisted our FUM in the Frank Church Wilderness with a WFURB. Another crewmember from 2004 flew back from St. Louis on her own dime to assist us in plot reads for a PP. Saguaro is in the process of finalizing its FMP so in the spirit of teamwork I assisted in the map making, preparation/review & edits/filing of the FMP, EIS, BA, BO, ROD and NOA. To date it has not been finalized but should be soon. It was/is fun. I would recommend it to everybody who hasn’t tried it and can’t wait to do it again. During the season I also assisted the Flagstaff Area Parks with their FMP, collaborated with TNC on a project for the FS, provided I&M with data and a synopsis of the program, assisted a former employee (with FWS now) with data for a fuel model for the Park and wrote an article for the Sky Island Alliance looking at seasonal burning and its effects on structure and composition. I finished the season assisting as a FEMO for a small burn at BANWR. They are looking at the effect of the burn season on invasive woody and exotic species (mesquite and Lehmann lovegrass). All in all it was a pretty relaxed season.

Table 1. Management Objectives and Monitoring Results 2005

All results shown are 90% confidence intervals of the mean. Fuel reduction and stand density objectives/results are indicted below. An underlined number of plots indicates that the minimum sample size has been attained for that variable.

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (90% confidence interval)	Objective Achieved?
Ponderosa Pine and Oak Stringer (Devil's Bathtub Burn Unit)	50% total fuel reduction 1-yr postburn	Total fuel reduction: 5.3% QUHY09: 0-44.8 tons/ac (<i>n</i> =2 plots, 2 fires) PIPO09: 2-53 tons/ac (<i>n</i> =4 plots, 2 fires)	Uncertain – sample size too small
	2-yr postburn stand reductions: reduce trees 2.5cm -15cm DBH by 15-30% reduce trees >15.1cm DBH by no more than 15%	Stand density: QUHY09: 0-1981 trees/ac 2.5-15 cm DBH QUHY09: 116-167 trees/ac ≥ 15.1 cm DBH (<i>n</i> =2 plots, 2 fires) PIPO09: 24-396 trees/ac 2.5-15 cm DBH PIPO09: 59-159 trees/ac ≥ 15.1 cm DBH (<i>n</i> =4 plots, 2 fires)	Uncertain – sample size too small
Pine-Oak Forest (Saddle Burn Unit)	30-50% total fuel reduction	Current fuel loads: PILE04: 14.2-19.3 tons/ac (<i>n</i> =6 plots, 0 fires) QUAR09: 22.4-26 tons/ac (<i>n</i> =10 plots, 0 fires)	Area not burned
	5-yr postburn stand density: ≤ 35% mortality trees <15 cm DBH ≤ 15% mortality trees ≥ 15.1 cm DBH	Current stand density: PILE04: 146-487 trees/ac 2.5-15 cm DBH 45-145 trees/ac ≥ 15 cm DBH (<i>n</i> =6 plots, 0 fires) QUAR09: 126-186 trees/ac 2.5-15.1 cm DBH 180-245 trees/ac ≥ 15.1 cm DBH (<i>n</i> =10 plots, 0 fires)	Area not burned

Table 2. Fire Effects Plot Workload 2005

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-burn	Immed. Post	Postburn (1-20 yrs)	Total Plots
Saguaro National Park 70 plots	Ponderosa Pine Forest PIPO 09 122.321	28 FMH Forest Plot	76	54	115	70
	Madrean Evergreen Woodland- Encinal Woodland QUAR 06 123.31	10 FMH Forest Plot	10	10	30	
	Pine-Oak Forest	12 FMH Forest	22	0	0	

	QUAR 09123.32	Plot				
	Douglas Fir-Mixed Conifer Forest PSME 10 122.312	10 FMH Forest Plot	30	10	10	
	Oak Stringer within Pine Forest 123.321 QUHY 09	3 FMH Forest Plot	6	5	12	
	Pine Oak Forest 123.322 PILE 04	7 FMH Forest Plot	13	0	0	
Sunset Crater N.M. 15 Plots	Montane Meadow 142.411 BOGR 02	10 FMH Grassland Plot	10	10	10	15
	Pine Encroachment Area of Montane Meadow 142.411 PIPO 02	5 FMH Brush Plot	5	5	5	
Wupatki N.M. 16 Plots	Plains/Great Basin Grassland-short grass community HIJA/BOER 01 142.121	16 FMH Grassland Plot	9	0	7	16
Walnut Canyon N.M. 12 Plots	Ponderosa pine Forest PIPO 09 122.32	11 FMH Forest Plot	11	9	18	13
	Pinyon-Juniper Forest PIED 02 122.41	2 FMH Forest Plot	1	2	2	
Total	10 monitoring types	82 Forest 5 Brush 26 Grassland	193	105	209	114

Table 3. Fire Ecology Staffing 2005

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Ed Kuklinski	5/30/05	10/1/05	9	WFURB assignment
Brad Donaldson	6/13/05	10/1/05	8	Not red carded
James Leckie	1/10/05	11/11/05	21	S-390, vegetation monitoring, MSO training

Table 4. Fire Ecologist Accomplishments/Focus Area

Category	Percent Time	Accomplishments/Focus Areas
Planning	15%	FMP-Skim/edit FMP, create maps, write ROD/NOA, 106 initiation, publication preparation and filing, amending FMU's EIS-Track down appendices, creating monitoring schedules, and collaboration with GIS, Region and Natural Resources. BA-Attend meetings, multiple edits, write vegetation description, provide data analysis and feedback, conduct field and document research, design protocols for section 7, provide information/coordinate with Superintendent, NR, FWS, GIS and Region. Burn Plan-Creating maps and monitoring protocols section. Flagstaff- Consultation on fire effects monitoring objectives and fire

		ecology research opportunities.
Presentations	2.5%	Scientific meetings, park staff, public, etc
NPS Meetings/ task groups	5%	FEAT, conversion
Interagency work	<1%	FPA
Fire Assignments	<1%	FEMO at BANWR-1 shift
Research	0%	
Data entry	<1%	Data entry
Data Conversion	10%	FEAT conversion
Data analysis	5-10%	Data analysis for SAGU, WACA, TNC, Sky Island Alliance
Supervision/Admin	15%	Hiring, supervision, travel, payroll, develop EPAP etc.
Training	7.5%	Vegetation monitoring, S-390, MSO
Outreach	5%	Science fair judge, career days, job fairs, Manning Camp celebration etc

Table 6. Fire Effect Crew Accomplishments

Category	Percent Time	Notes
FMH plots	60%	FMH plot data collection
Fire Assignments	10%	FEMO for a day 1 crewmember had 1 PP for WFURB
Data entry	15%	Entered 2005 data
Data conversion	10%	convert FMH data to FEAT
Data analysis	0%	
Supervision/Admin	<5%	Travel, payroll, etc
Training	0%	
Miscellaneous	0%	