



**National Park Service
Fire Ecology Annual Report
Calendar Year 2005
Chiricahua National Monument and Fort Bowie National Historic Site**

Summary

2005 was a light fire effects monitoring year, with only three plots read at Chiricahua NM. With no budget for fire monitoring in either park, plots were read by Resource Management Biological Science Technician Ruth Olsen with the assistance of the preparedness fire crew. We hosted a University of Arizona undergraduate student intern this summer, who began inventory and monitoring of the prey base of the Mexican spotted owl in support of future prescribed burns in MSO PACs; small mammal and MSO monitoring/surveys will continue in and around the PACs as well as in prescribed burn units. The study to determine mortality of agaves from prescribed burning was completed this year, and results were submitted to the USFWS/Tucson office. Lesser long-nosed bat surveys continue.

At Fort Bowie, the Apache Spring Watershed Restoration project commenced, with 16 non-FMH plots installed in the riparian corridor to determine effects of treatment activities on vegetation structure and composition as well as spring water flow. With an approved Fire Management Plan, we hope to start plot installation on the Ruins Rx burn in Spring 2006.

New endeavors for FY2006 include conversion of data from FMH to FEAT and actually getting this report in on time! Additional research/monitoring for FY2006 include the continuation of the Chiricahua fox squirrel study and it's adaptation/preference for burned landscapes, the continuation of the coatimundi study to determine fire landscape/home range associations, and possibly the effects of prescribed burning on the banded rock rattlesnake and it's prey base (lizards).

Table 1. Management Objectives and Monitoring Results 2005

All results shown are 80% confidence intervals of the mean. Fuel reduction objectives/results are mean percent reduction from preburn to immediate postburn. Stand density objectives/results are

for five-year postburn mean stand density. Herbaceous grasses/forbs and brush objectives/results are for two-year percent cover. An underlined number of plots indicates that the minimum sample size has been attained for that variable.

Monitoring Unit	Management Objective	Monitoring Results (80% confidence interval)	Objective Achieved?
Forest - PIPO	1) Increase cover of native grasses and forbs by 10-30%, two years postburn.	Preburn cover = 5.5% Postburn cover = 10.6% (n=3)	Yes—increase of 92.7% (overachieved)
	2) Reduce manzanita cover by more than 40%, five years postburn	Preburn cover = 6.6% Postburn cover = 3.7% (n=3)	Yes—increase of 44.0%
	3) Reduce live pole-sized tree density by 30-60%, one year postburn.	Preburn stems/acre = 283.3 Postburn stems/acre = 141.6 (n=4)	Yes—decrease of 50.0%
	4) Reduce live overstory tree density by 5-20%, five years postburn.	Preburn stems/acre = 130.9 Postburn stems/acre = 110.6 (n=3)	Yes—decrease of 15.5%

Monitoring Unit	Management Objective	Monitoring Results (80% confidence interval)	Objective Achieved?
Mixed Oak--QUEM	1) Increase percent cover of native grasses and forbs by 10-30%, two years postburn.	Preburn cover = 13.8%; Postburn cover = 17.1% (n=5)	Yes—Increase of 23.9%
	2) Reduce manzanita cover by more than 40%, five years postburn	Preburn cover = 12.8%; Postburn cover = 5.6% (n=5)	Yes—Decrease of 56.3%
	3) Reduce live pole-sized tree density by 30-50%, five years postburn.	Preburn stems/acre = 142.5; Postburn stems/acre = 119.8 (n=5)	No—Decrease of 15.9%
	4) Reduce live overstory tree density by 5-30%, five years postburn.	Preburn stems/acre = 223.4; Postburn stems/acre = 212.9 (n=5)	No—Decrease of 4.7%
	5) Maintain non-native plant species to less than 10% of cover composition, five years postburn.	Preburn cover = 0%; Postburn cover = 0.3% (n=5)	Yes

Monitoring Unit	Management Objective	Monitoring Results (80% confidence interval)	Objective Achieved?
Mixed Grass—BOGR	1) Increase cover of native grasses and forbs by 10-30%, two years postburn.	Preburn cover = 69.9%; postburn cover = 77.4%. (n=7)	Yes— Increase of 10.7%
	2) Reduce cover of woody invasive species by 10-30%, five years postburn.	Preburn cover = 5.5%; postburn cover = 0.4% (n=7)	Yes— Decrease of 94.4%
	3) Maintain non-native plant species to less than 10% of cover composition, five years postburn.	Preburn = 1.0%; postburn = 15.8% (n=7)	No— Increase of 93.7%

Monitoring Unit	Management Objective	Monitoring Results (80% confidence interval)	Objective Achieved?
Manzanita Shrub—ARPU	1) Increase cover of native grasses and forbs by 10-30% where they occur, five years postburn.	Preburn cover = 63.9% Postburn cover = 59.4% (n=3)	No—decrease of 7.0%
	2) Reduce shrub cover 30-50%, immediate postburn.	Preburn cover = 54.7% Postburn cover = 27.7% (n=3)	Yes—decrease of 49.4%
	3) Maintain shrub cover at less than 50%, five years postburn.	Preburn cover = 54.7% Postburn cover = 27.7% (n=3)	Yes—27.7% cover

Table 2. Fire Effects Plot Workload 2005

Park	Monitoring Unit	Type of Plot (FMH, photo point, other – describe)	Pre-burn	Immed. Post	Postburn (1-20 yrs)	Total Plots
Chiricahua N.M. 2005	BOGR – native grass	FMH	0	0	0	3
	QUEM – forest	FMH	0	0	0	
	ARPU – shrub	FMH	1	0	0	
	PIPO - forest	FMH	0	1	1	
Total			1	1	1	

Table 3. Fire Ecology Staffing 2005

Monitor	Starting Date	Ending Date	# of Pay Periods	Training and Development
Carrie Dennett	5/15/05	6/30/05	3	
Ruth Olsen	5/15/05	6/30/05	3	FEMO taskbook initiated
Seasonal Forestry Techs	6/1/05	6/15/05	1	

Table 4. Fire Ecologist Accomplishments/Focus Area

Category	Percent Time	Accomplishments/Focus Areas
Planning	50%	• Wrote CHIR and FOBO FMPs • Wrote CHIR EIS and FOBO CE • Wrote CHIR and FOBO BAs • Reviewed and made comments on GUMO and SAGU FMPs and EISs • Wrote various prescribed burn plans for CHIR and FOBO • Administered research program • Committee member for SE Arizona FPU (FPA)
NPS Meetings/ task groups	1%	• Annual FMO conference • Cluster budget meetings • FWS/SAGU meetings about Mexican spotted owls and FMP/EIS
Interagency work	10%	• Committee member for SE Arizona FPU • SEZ Board Meetings (Board Member) • FPA Weighting Factors workshop
Assignments	20%	SITL on Type 1 team dispatched to Mississippi and Florida
Research	1%	• Small mammal trapping • Mexican spotted owl surveys
Data analysis	1%	Just for this report
Supervision/Admin	10%	• Supervised Biological Science Technicians, Forestry Technicians, volunteer lookout, and student intern • Travel and time paperwork
Training	5%	• Taught firefighter refresher • Taught S130/190 • PT
Miscellaneous	2%	Other miscellaneous fire effects plots

Table 5. Fire Effects Crew Accomplishment

Category	Percent Time	Notes
FMH plots	<5%	One forest plot scheduled & read this year; installed & pre-read one new brush plot
WUI plots	0	
CBI plots	0	
Other plot work	10%	Did pre- and post-treatment reads on vegetation plots (non-FMH--16 total) within the fuel reduction area for FOBO Apache Spring project.
Fire Assignments	35%	• Crew and bio tech assisted on 1 local wildland fire (Barfoot).

		• 2 crew members went on 2 week severity fire assignment as engine crew members. • 3 crew members and bio tech detailed with SAGU FUM on 2 fire use fires, one Rx burn, and one fuels reduction/severity/Rx project. • Bio tech dispatched as overhead/FEMO trainee on Fire Use fire. • 1 crew member detailed with BAND for training/fuels/wildland fire.
Fuels work	35%	Three crew members and bio tech completed extensive fuels reduction project at FOBO; also removed hazard trees from roadway and removed bug infested trees from critical use areas at CHIR. Continued fuel break & hazard fuels reduction work around park housing & visitor center area at CHIR.
Data entry	<5%	Completed data entry of plot data for 2005; entered live fuel moisture data into regional website.
Data conversion	<5%	In process of converting FMH to FEAT
Data analysis	0	
Supervision/Admin	<5%	Bio tech processed misc travel/time paperwork for crew; performed database (IQCS) management for crew qualifications.
Training	5%	Each crew member and bio tech had refresher training; FALC certification course attended by H. Martin.
Miscellaneous	5%	Bio tech assisted with completion/processing of FMP for CHIR & FOBO; crew participated in miscellaneous resource management studies – collecting live fuel moisture, collecting dendrometer data, recording precipitation events. Crew members and bio tech utilized school group and Youth Corps to work on hazard fuel reduction and non-native plant removal. Bio tech and crew assisted student intern with small mammal/vegetation type study to document prey species for Mexican spotted owl.

Optional: Provide graphics and/or tables of data analysis results presentations, photographs of monitoring and fire activities.



SAGU Matt igniting the Powerline Rx.



Superintendent Alan Whalon.
CHIR/FOBO 1994-2006.
We're losing our biggest supporter!