



**Glacier National Park
Fire Ecology Annual Report
Calendar Year 2008**



Rising Sun Fire – St. Mary area (08-11-2008)

Summary

Every year is unique, and 2008 proved itself to be a little more unique than other years. The program lost funding for two seasonal fire monitor positions, but by juggling (shortening) the seasons, we maintained two seasonal fire monitors for 7.5 payperiods. Fortunately, it worked out well for all concerned and we did not have to lay anyone off. We also had a Suppression Specialist vacancy until June and Mike McClellan, the Lead Fire Monitor, detailed to fill and help orient that position from April until July. Scott Lang was detailed into the Lead Fire Monitor position for the same time period.

The 2008 fire season proved to be light to moderate; five starts with one WFU. All remained at one tenth of an acre. The ERC reached the 90% for about 3 weeks starting about August 1st. The Autumn Singularity was strong in 2008 and the ERC's dropped out after August 18th and never recovered to a high fire danger level. The monitors did get dispatched to three small fires in the park and one in the Flathead National Forest.

Most of the fire management staff was heavily involved in the Hwa SAR that lasted almost two weeks. Jien Hwa was a solo backpacker that disappeared on his first day out in late August. Although a huge effort was put forth and a couple thousand man hours were spent searching, no clues were ever found. Divoky filled the Situation Unit Leader, GIS Tech Support, and Logistics working under the Plans Chief, Dave Soleim. The rest of the fire staff, including all of the fire ecology staff were assigned as searchers, or helped with helicopter operations.

Mike McClellan spent a good amount of his fire ecology time on working with the FFI database and making it work for our FMH and non-FMH databases. Mike also managed the programming of all the fire management radios. Our radios are a different brand and are programmed dramatically different than the rest of the park. Mike ensured that fire management communications were compatible with all of our tribal, state, and federal partners.

Mike McClellan organized and taught the park Chainsaw Safety Course, and field certified 23 sawyers in May and June. The organizing, planning, and teaching of this course was considerable and Mike received a STAR award for his efforts.

Scott Lang supervised the crew and directed the field work. A good portion of their time was spent rereading sixteen 1988 Red Bench plots that were installed by USFS researchers, Dutton and Cooper. The real challenge was not so much in rereading the plots, but finding them. All they had to go by was a verbal description and an "x" on a xeroxed 1:24,000 map. In 1988, GPS was not readily available to federal agencies. Incredibly, they found 16 out of a total of 27. These plots were installed in the fall of 1988 to study fire severity. This was well before the NBR\CBI protocols had been established. Our intention is to use these plots as part of the long term forest succession/fire severity monitoring.

Scott Lang worked for Carl Key for two payperiods this winter (2007) producing CBI posters.

Lang and crew collected bimonthly fuel moisture samples and maintained a database and produced reports and charts, which were emailed to all of our interagency partners.

Lang received a performance based award in October.

Divoky had a detail as a Burn Boss (RXB2) at El Malpais NM in April. He helped them burn over 700 acres over an 8 day period. It was an excellent and challenging assignment. Divoky also filled the Plans Section Chief and GIS Support on the Colburn SAR in early October.

Divoky provided logistical and data support to Dave McKensie for his Masters project “Changes in the Cedar-Hemlock Forest of the Lake McDonald Valley. He also assisted Peter Robichaud’s study comparing erosion rates between salvaged logged Tribal Lands within the 2006 Red Eagle Fire and similar sites within the park that were not disturbed.

The complete Fire Ecology staff visited the 2007 Lee Ridge Fire to record fire severity and to investigate if the large amounts of retardant used during the suppression effort had any effect on vegetation adjacent to the burn. One year postburn we were unable to discern any obvious changes in vegetation either within the burn or adjacent to the burn.

The Fire Ecology Staff cut out the Howe Ridge Fire Trail over three days in late September. This is a Class IV trail and would more than likely, not get cut out on a yearly basis. There were approximately 200-300 downed trees over six miles. The trail runs along the top of Howe Ridge that was burned in the 2003 Robert Fire. The trail runs through a variety of forest types and fire severities and is an excellent fire succession interpretive trail.

In October Divoky, McClellan, and Lang helped to burn piles at Camas, Swiftcurrent Cabins, Many Glacier Housing area, and at the Many Glacier bone pile.

Table 1. Fire Effects Plot Workload 2008

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-	Immed. Post	Postburn (1-20 yrs)	Total Plots
Glacier	1988 Red Bench Fire	Long Term Monitoring			16	16
Glacier	1988 Red Bench Fire	Dozerline Ecodata			4	4
Glacier	2007 Lee Ridge Fire	CBI			1	1
Glacier	Fuel Reduction Parkwide	Photo points	22		40	62
Glacier	Fuel Reduction Parkwide	Brown’s Transects	16			16
Total			38		61	99

Table 2. Fire Ecology Staffing 2008

Ecologist and Monitors	Starting Date	Ending Date	# of Pay Periods	READ Qualified (Yes or No)	Training and Development
Dennis Divoky	1/1/2008	12/31/2008	26	Yes	Attended “The ’88 Fires – Yellowstone and Beyond”; Dutton Soil Training; Wilderness Stewardship Training; Safety for Supervisors Training; Bear Training; various FFI training; Annual 24 hour Structural Fire Refresher and monthly Brigade Training;
Mike McClellan				Yes	Lead Instructor for GNP Chainsaw Safety Course; Dutton Soil training
Scott Lang	4/28/2008	11/20/2008	15	Yes	Dutton Soil training; Monthly Structural Fire Training ; Annual Fire Refresher; Worked for Carl Key for month of April; RXB2 taskbook open.
Jason Stoffer	6/9/2008	9/18/2008	7.5	No	Dutton Soil training; First Responder Refresher; Annual Fire Refresher.
Jane Fery	6/23/2008	9/25/2008	7	No	Dutton Soil training; B3, Basic Fire School.

Table 3. Management Objectives and Monitoring Results 2008

Monitoring Unit	Management Objective (Restoration)	Monitoring Results (90% confidence interval)	Objective Achieved?
Ponderosa pine	Limit overstory Ponderosa pine mortality to $\leq 20\%$ at year 05.	Mortality = 36% (<i>n=18 plots, 4 unique fires*</i>)	No
	Reduce ladder fuels (pole and seedling conifers other than P-pine) $\geq 40\%$ at year 5	Mortality = 35% (<i>n=18 plots, 4 unique fires*</i>)	Yes
	Maintain 95% relative cover by native herbaceous species 5 years postburn.	Non-native species = 3.9%	Yes

Initial analysis resulted in a 36% reduction for overstory (dbh > 15.1cm) Ponderosa pine across all 18 of the plots in the monitoring type. The fire management objective was to limit mortality to 20%. The 20% target was an agreed upon desired condition made among the Vegetation

Ecologist (Carolyn), Fire Ecologist (Divoky), Fire Management Officer (Vanhorn) and the Regional FMO at the time (Dan O'Brien). It was a sociological limit rather than a science based limit. Various burn units in this pine monitoring type were burned wholly and partially by prescribed fire, wildfire, and fire use with a wide gamut of resultant fire severities. The prescribed burned plots did meet the $< 20\%$ mortality. Not surprisingly, the wildfire and fire use did not, skewing the overall results. Poles (2.5 – 15.0cm dbh) were reduced by 35% with the fire management objective looking for a reduction of 30-80%. The almost 4% increase in non-natives would be alarming if not for the fact that all of the species were exclusively naturalized non-natives such as dandelion, timothy, and the various clovers. None of the non-natives were noxious weeds.

*There is a significant challenge in analyzing and presenting this five year data. Two plots were burned only by prescribed fire, 6 plots burned in a WFU, 2 plots burned in a prescribed fire and subsequently reburned in a WFU, and finally 4 were burned entirely in a wildfire. This does provide a unique opportunity to compare and contrast the various fire entries, but it also eliminates any solid statistical analysis due to limited plot numbers in any one fire type.

Table 4. Fire Ecologist Accomplishments/Focus Areas

Category	Percent Time	Accomplishments and/or areas of activities
Planning	5	• Worked with the Fuels Specialist on projects at Many Glacier. • IA FMP Annual Review • Team member on a committee to update the parks vegetation map within the recently burned areas
Presentations	10	• GNP all Interpretation Staff Training – 12 hours (11 hrs prep and 1 hr presentation) on Fire Ecology and Management • Provided fire ecology training to West Lakes Interpretive staff for a half day Rocky Point Fire Nature walk. (2 hours prep, 3 hrs on the trail) • Provided fire ecology training to St Mary Interpretive staff for a half day Red Eagle Fire Nature walk. (2 hours prep, 4 hrs on the trail) • Taught a one hour fire ecology session to an undergraduate /graduate level class from the University of Montana. Led a three hour snowshoe field trip. • Taught S-190 at Basic Fire School, assisted with 8 hr refreshers; 18 hrs • Provided Fire Effects Training for Lewis and Clark FUM; 2 days • Western State Forester Group; 2 hours
NPS Meetings/ task groups	5	• Member of GNP Type III All Risk ICS Team – Situation Unit Leader, GIS Tech, and Logistics, • Weekly supervisors meetings, Division meetings • Ranger/Warden meeting
Interagency work		• Managed contract with USGS for Early Warning System for flooding on Divide Creek
Fire & SAR Assignments	15	• RXB2 at ELMA for 8 days; RX burned 700+ acres • Hwa and Colburn SAR's
Research	3	• Assisted Dave McKensie in Masters project • Assisted Peter Robichaud with a Postfire Erosion study in Red Eagle Fire
Data entry	5	• GNP (3 stations) COOP, WIMS (4 stations), and Weather Pro 3 data manager
Data Conversion	3	• Data checking FFI conversion
Data analysis	10	• Additional work on PIPO and familiarity with FFI
Supervision/Admin	10	• Directly supervise two permanent employees and indirectly two seasonal • Managed project accounts and acquired supplies and materials for fire monitoring.
Training	15	• GNP Bear Refresher • West Lakes Fire Brigade, monthly meetings and a 24 hour Level 2 live fire annual refresher • assorted online FFI training • Wilderness Stewardship • B3 refresher • Multitude of mandatory training; Safety, Credit Card, Privacy, Federal Information Systems Security Awareness, Quicktime, Approving Official, Discrimination and Whistleblowing in the Workplace, Records Management Awareness, NPS Responsibilities for Computer Use, DOI Diversity Training,
Miscellaneous	20	• Managed four NFDRS RAWS stations • Managed Red Eagle BAER Funds • Park liaison for Venn Economic Impact/Wildland Fire Survey • Park Co-coordinator for Adopt a Highway Roadside cleanup • GIS Map products for fire management and other divisions • In conjunction with the Lead Lookout and the GNP Sign Shop produced an ArcMap project for all active Northern Region Fire Lookouts that will be mounted and used in 16 lookouts throughout GNP, Flathead NF, Lolo NF, Lewis and Clark NF, and Montana DNRC. • Error checking GNP Fire Atlas Geodatabase; 150+ hours. • Attended The '88' Fires – Yellowstone and Beyond Symposium

		• Wrote fire and weather summaries for annual park summary reports for Concessions, Backcountry, North Fork Subdistrict, and Re-vegetation monitoring reports.

Table 5. Fire Effects Crew Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots	0%	None read in 2008.
WUI plots	10%	- Photo point re-takes of plots in West Glacier, and Logging Ranger Station, and Two Medicine Fuel Reduction Projects. - Set up and took initial photo point pictures of plots in Many Glacier Fuel Reduction Project. - Completed 16 Brown's transects at Many Glacier Fuel Reduction Project.
CBI plots	1%	- Visited 2007 Lee Ridge Fire and did CBI burn severity work. - Visited 2006 Quartz Ridge Fire and did CBI burn severity work.
Other plot work	15%	- Long Term Monitoring in 1988 Red Bench Fire – Completed 16 plots. 1988 Red Bench bulldozer line Ecodata control plot rereads. Completed 4 plots. - Searched for hard and soft data from Red Bench Fire Monitoring. - Scanned a portion of the Red Bench Plot photos.
Fuel Moisture Sampling	5%	Bimonthly fuel moisture sampling, data management, and sent out an interagency email.
Fire Assignments	10%	Assisted with Fire Suppression on four (4) fires in and around Glacier National Park with multiple assignments. A few weeks of severity overtime and extended hours.
Fuels Project work	5%	- Assisted Fire Crew as part of IA stand by. - Lang and McClellan assisted with burning piles.
Data entry	8%	- Completed 95% of data entry from 2008 field season. - Some error checking of past data.
Data conversion	20%	- Converted Long Term Database to FFI - Completed some error checking of data and species list.
Data analysis	3%	Some minor analysis of Long Term and Red Bench Plots.
Supervision/Admin	10%	- McClellan hired two seasonal monitors - Lang supervised seasonal employees - McClellan filled in for the (Vacant) Fire Operation Specialist Position. - Lang filled in as the Lead Fire Effects Position for McClellan.
Training	4%	- McClellan instructed S-212 and assisted with Basic Fire School. - Lang assisted with instructing Basic Fire School and Refreshers. - Fery attended Basic Fire School - Orientation, Bear, All Employee, B3, etc.
Miscellaneous	10%	- Collected fuel moisture samples every two weeks throughout season and reported to neighboring agencies. - Performed maintenance and repair of the park's three NFDRS RAWs stations. - Fire History work - Assisted other park divisions in clearing roads and trails. - Office maintenance work - Assisted with numerous Search and Rescue missions in Park. - Lang assisted with presentations of fire program and fire history to other divisions and the public.

Attached Annual Report Supplement (“2008 Annual Report Supplement.xls”)

1. All GLAC Fire Ecology Databases; FMH, Long Term Monitoring, Non-native, and Red Bench are all converted to the FFI format. We do have some additional cleanup work with the latter two. The BIHO database has been converted, but needs a complete check.
2. We held no specific FMH data presentations with Resource Management this past year. We are mid cycle between YR05 and YR10 plot reads.
3. We had a fire management discussion with Resource Management. The most recent discussion involved the topic our parks response to global climate change in regards to fire management. The concern is that there are possibly species, both plant and animal, that may require refugium that early seral stages cannot provide. All the various resource managers (vegetation – rare plant and wetlands, IPM – noxious weeds, fisheries – T&E, wildlife - T&E, avian, carnivore, and amphibian) were instructed to review the resources under their expertise and to work with the Fire Ecologist. The Ecologist would gather all of specific concerns, and help develop a strategy with fire management and resource management to address those concerns, and make those viable strategies (fire exclusion, fuel reduction, fire behavior prescription, etc) readily available to park management, resource management, fire management, incoming fire management teams, and Resource Advisors. One logical product of this task would be an ArcMap project that would collate all of the concerns in a geodatabase and to produce an operating manual for Resource Advisors.