



**National Park Service  
Fire Ecology Annual Report  
Calendar Year 2006  
Southern Plains Fire Cluster  
Lake Meredith National Recreation Area**

## **Summary**

The 2006 season proved to be a new endeavor for the fire effects program at Lake Meredith NRA and the rest of the Southern Plains Fire Cluster parks. The Lead Fire Effects position was hired in November, 2005 and Becky Seifert-Smith started at the end of January, 2006. This is the first time a fire effects program has been physically stationed and fully funded at Lake Meredith for the Southern Plains Fire Cluster.

The Southern Plains Fire Cluster manages and works in seven parks in four different states. Before the Lake Meredith Lead arrived the Bandelier fire effects crew had installed plots at Lake Meredith, Capulin Volcano and Washita Battlefield working with the Bandelier Fire Ecologist. When the fire effects program was started at Lake Meredith in January, Richard Gatewood, the Chihuahuan Desert Fire Ecologist, was assigned to the program.

The newness of the situation at Lake Meredith caused the Lead to spend the first few months of her time becoming familiar with Lake Meredith operations and trying to get a working office set up. Because there was no equipment to work with she spent much of the summer trying to research, buy and acquire equipment for the crew. This included not only monitoring equipment, but computers, office supplies, office furniture, camping and fire equipment and all of the little things such as pens, pencils and even calculators that seem to get taken for granted, except for when they are missing! It was decided to not hire crewmembers to allow time and money for the program to get off of its feet while funding was used to acquire the tools necessary to support the crew the following summer.

In between buying equipment and trying to get settled in the new position, the Lead helped with suppression activities as it was a historical fire season for the Panhandle of Texas with a record number of fires. A trip was made to Chickasaw NRA in February to meet with the fire ecologist for the first time, discuss sampling techniques for the various parks and install two pilot sampling

plots in burn units. Also that spring she participated in two prescribed burns in Chickasaw and one prescribed burn in Big Bend trying to help familiarize her with new fuel types and fire behavior within the region. The lead attended three training classes, S-234, S-260 and S-261 all in Grants, New Mexico throughout the spring and summer, acted as a crew boss trainee on a 20 person crew dispatched out of Albuquerque, and took an assignment as a technical specialist and fire guru in Yellowstone during the summer.

During her travels the lead stopped by Bandelier in the late spring to pick up what plot data they had for the new program along with various supporting documents, field guides and plant specimens from their work in three of the parks. Unfortunately the lead was not able to actually meet with the Bandelier Fire Ecologist at the time. Between training and details she waited patiently for green-up to install plots at Lake Meredith so that the vegetation would be identifiable (green-up came in September). In September the lead hired an AD as a crewmember and one existing FMH plot was re-read. More were scheduled to be re-read in the unit, but because of UTM's being severely off we were able to only find one plot and the rest remain missing (hopefully a metal detector and good detective work will fix this issue). Photo points were installed on a wildfire that came onto the park and in five of the burn units that were scheduled to burn last winter/spring but were put off until 2007 because of the drought. Two fuel moisture sampling sites were established in Chickasaw and two sites in Lake Meredith to help fire managers understand the fuel moisture trends better and help with prescribed burn planning. Also in September the lead decided to take the plunge and get married during a two week furlough.

October brought change to the Southern Plains Fire Cluster with a new FMO, Mike Bland, arriving at Lake Meredith. This change brought a higher understanding from management of fire effects programs and prescribed fire, a change in attitude about how science drives prescribed fire, not acres, and higher expectations of everyone involved. After returning back from furlough the Lead attended a BEHAVE and L-380 class at the Texas Fire Academy in Bastrop, Texas and then hit the road running with new enthusiasm, expectations and support from the FMO for the fire effects program. November was spent between Oklahoma, Bent's Old Fort NHS and Capulin Volcano frantically re-reading and installing plots before burning the units the next day. At Bent's Old Fort it was discovered that FMH plots were all ready installed, although the standard FMH protocols were interpreted a little differently and plots were installed in a 100 by 50 meter area versus the typical 50 by 20 meter area. When re-sampled the day before the burn, with help from resource people in Bents and engine crewmembers from Lake Meredith, only a quarter, or 50 by 25 meter areas, of three of the plots were sampled. Four of nine existing photo points were also visited before the burn. The Bandelier Fire Use Module helped install photo points at Capulin before the burn and then Lake Meredith engine crewmembers were used to go back and install brown's transects and a rapid assessment radial plot at the photo points before the unit was ignited.

The remainder of time was eaten up by preparing paperwork, position descriptions and getting ducks in a row to hire seasonals and SCA crewmembers for the following field season. While at Chickasaw in December, data for four FMH plots that were installed in 1998 was discovered and time was taken to re-read the plots in units that were scheduled to burn. This data should be valuable as one of the plots was installed before a treatment was completed on the Eastern Red

Cedar in the unit. A volunteer was also found and has been working one day a week to help install plots in units scheduled to burn early next year. Engine crewmembers have also been trained to stand in as fire effects crewmembers when needed until seasonals are hired next spring.

**Table 1. Fire Effects Plot Workload 2006**

| <b>Park</b>                                      | <b>Monitoring Unit</b>          | <b>Type of Plot (FMH, photo point, other)</b>                              | <b>Pre-burn</b> | <b>Immed. Post</b> | <b>Postburn (1-20 yrs)</b> | <b>Total Plots</b> |
|--------------------------------------------------|---------------------------------|----------------------------------------------------------------------------|-----------------|--------------------|----------------------------|--------------------|
| <b>Lake Meredith and Alibates Flint Quarries</b> | Low Density Mesquite            | FMH brush plot                                                             |                 |                    | 1                          | 17                 |
|                                                  | High Density Mesquite           | FMH brush plot                                                             |                 |                    |                            | 21                 |
|                                                  | Riparian, Cottonwood            | Rapid assessment, radial plot (pilot sampling)                             | 3               |                    |                            | 3                  |
|                                                  |                                 | Photo point                                                                | 5               |                    |                            | 5                  |
|                                                  | Other RX units                  | Photo point                                                                | 26              |                    |                            | 26                 |
|                                                  | Salt Cedar mechanical treatment | Photo point                                                                | 2               |                    |                            | 2                  |
|                                                  | Wildfire area                   | Photo point                                                                |                 | 7                  |                            | 7                  |
|                                                  | Mixed Grass prairie             | Nested quadrant                                                            |                 |                    |                            | 30                 |
| <b>Chickasaw</b>                                 | Post Oak                        | Rapid assessment, radial plot (pilot sampling)                             | 3               |                    |                            | 3                  |
|                                                  |                                 | FMH forest plot                                                            | 1               |                    | 1                          | 2                  |
|                                                  | Eastern Red Cedar               | FMH modified grass plot                                                    |                 |                    |                            | 2                  |
| <b>Bents Old Fort</b>                            | Riparian, Cottonwood            | FMH modified forest plot                                                   | 3               |                    |                            | 5                  |
|                                                  | Riparian, Cottonwood            | Photo point                                                                | 4               |                    |                            | 9                  |
| <b>Sand Creek Massacre</b>                       | No plot work in 2006            |                                                                            |                 |                    |                            |                    |
| <b>Washita Battlefield</b>                       | Big Bluestem                    | FMH shrub plot                                                             |                 |                    |                            | 6                  |
| <b>Capulin Volcano</b>                           | One seed Juniper                | FMH forest plot                                                            |                 |                    |                            | 3                  |
|                                                  | Pinyon Juniper                  | Photo point, fuels transect, rapid assessment radial plot (pilot sampling) | 10              | 10                 |                            | 10                 |
| <b>Total</b>                                     |                                 |                                                                            | 57              | 17                 | 2                          | 151                |

**Table 2. Fire Ecology Staffing 2006**

| Monitor                  | Starting Date | Ending Date | # of Pay Periods | Training and Development                                                                                                                                             |
|--------------------------|---------------|-------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Becky Seifert-Smith      | 1/22/06       |             | 22               | S-234, S-260, S-261, BEHAVE, L-380; TelNet: Retirement Training for New Employees, Hiring Flexibility, Ethics Training; SMIS training; Crew Boss task book completed |
| Briana Potts (volunteer) | 12/4/06       |             | 24 hours         | Refresher                                                                                                                                                            |

**Table 3. Management Objectives and Monitoring Results 2006**

We do not have any monitoring results completed at this time for the Southern Plains Fire Cluster.

**Fire effects crew accomplishments and area of focus.**

| Category           | Percent Time | Notes                                                                                                                                                                                              |
|--------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FMH plots          | 20%          | This includes all prep time, plant identification and some travel time; other travel is related to prescribe burns.                                                                                |
| WUI plots          | 0%           |                                                                                                                                                                                                    |
| CBI plots          | 0%           |                                                                                                                                                                                                    |
| Other plot work    | 5%           | Photo points for RX burns, salt cedar removal                                                                                                                                                      |
| Fire Assignments   | 15%          | CRWB (T), Yellowstone detail, BIBE RX                                                                                                                                                              |
| Fuels Project work | 0%           |                                                                                                                                                                                                    |
| Data entry         | 2%           | Time spent creating field sheets, no data entry done yet                                                                                                                                           |
| Data conversion    | 3%           | FEAT has been installed on one computer and down loaded for the other, has not been installed yet on main computer or PDA's, but have been told that all data from BAND has been converted to FEAT |
| Data analysis      | 0%           |                                                                                                                                                                                                    |
| Supervision/Admin  | 15%          | Travel, payroll, training paperwork, permanent paperwork when I started, hiring paperwork for seasonals                                                                                            |
| Training           | 12%          | See above, Table 2 for specific classes                                                                                                                                                            |
| Miscellaneous      | 28%          | 6% suppression at LAMR, 17% RX burns Southern Plains Cluster, 3% PT, 2% misc. such as organizing burn plan room, safety committee, fee collection system audit                                     |

## **Optional**

The upcoming year should be a busy one for the Southern Plains Fire Effects crew. The addition of three or four crewmembers will increase the crew's ability to catch up on the work load and install plots in burn units before the actual week of the burn! The Lead will be working in the upcoming months to get FEAT up and running along with two PDA's for field use. Increased knowledge of the different ecosystems and the ability to work with the fire ecologist will immensely improve the programs functioning ability and effectiveness. The continued support and enthusiasm from FMO Mike Bland will help propel the Southern Plains Fire Effects crew into an efficient and involved crew which will help create an excellent, scientifically based fire program.

## **Alternate Plot Protocols**

At Lake Meredith the typical FMH shrub plot is being evolved into a plot that includes browns transects and clip plots. The new protocols were designed by Laura Trader, Bandelier Fire Ecologist, after discussions with Mike Davin (former FMO) concerning the ability to monitor the objectives more accurately. This was done before the Lead started at Lake Meredith and she fully supports Laura's work and has implemented it on the one FMH plot in Lake Meredith that has been re-read. These new protocols include adding four browns transects at the 5, 10, 25 and 29 meter mark on the 30 meter vegetation transect. Four 0.25 m<sup>2</sup> clip plots are being implemented at each of the four corners of the 10m wide shrub belt (5 meters on each side of the vegetation transect). The initial clip plots will be located at the 0 and 30 meter corners of the shrub belt, with the post reading moving 1 meter towards the center of the transect, therefore the plots will be placed at the 1 and 29 meter mark, and so on, each time the plot is re-read.

Also at Lake Meredith, Chickasaw, and other forested areas of the parks we are trying to implement a rapid assessment radial plot. This is a 20 meter radius plot where all of the over story trees are tagged and mapped. Pole size trees will be recorded in either a 10 meter radius or 5 meter radius within the plot. Heights of all pole and overstory trees will be collected and a picture is taken from the center of the plot using a fish eye lens. This picture is then put into HemiView Software, a computer program that should help identify canopy density without having to take all of the tedious, time consuming measurements required to otherwise get these numbers. Seedlings and shrubs are recorded in either a 5 meter or 10 meter radius plot and three browns transects are recorded at 0°, 120° and 240° azimuths from the center of the plot. One picture is taken down each browns transect to capture plot photos. Vegetation is done on a random azimuth from the plot center, 50 meter transect. A one m<sup>2</sup> frame is placed at the 10, 20, 30, 40 and 50 meter marks of the transect. Within each plot species are clipped and placed into bags according to individual species, weighed, and therefore giving us tons per acre of each species present. These techniques are still being developed to help us find the most efficient, repeatable protocols that will work in various fuel types throughout the cluster of parks.



Jessica Erickson and Becky Seifert-Smith working as FEMOs on the Santa Elena prescribe burn in BIBE.

Steve Fisher, LAMR GIS guru nailing tags and Mike Bland, LAMR FMO recording while assisting Lead with rapid assessment radial plot in December at Chickasaw.

