VI. MONITORING AND EVALUATION

A. Short and Long Term Monitoring Programs

All units implementing fire use activities must develop short and long term monitoring programs to assess accomplishments and to determine effects of management activities on cultural and natural resources.

The primary aim of monitoring is to provide information to fire and resource managers, which allows them to determine whether treatment objectives (prescribed fire, fire use, or non- fire) are being met or to identify and correct deficiencies. Fire effects monitoring involves the systematic collection, documentation, and analysis of a variety of data such as fuel loading, vegetation composition and structure, topography, weather conditions, air quality, and fire behavior.

Fire and resource staff will follow monitoring protocols derived from the National Park Service Fire Monitoring Handbook (2003). Other monitoring protocols may be used as appropriate [e.g. see Coulloudon et al. (1996), Elzinga et al. (1998), Hall (2002a,b) for alternative monitoring protocols]. A variety of monitoring techniques may be used depending on treatment type, resource objectives, and variables to be monitored. Monitoring protocols must be reviewed and approved at the regional office level before receiving funding. The Fire Monitoring Plan is included as Appendix C.

The NPS Fire Monitoring Handbook (FMH) identifies four levels of monitoring:

Level 1 – Environmental Conditions	Weather; fire danger rating; fuel conditions; resource availability; concerns and values to be protected; other biological, geographical or sociological data.
Level 2 – Fire Observations	Stage I: Reconnaissance - fire cause, location, size, logistical information, fuel and vegetation types, current and predicted fire behavior, potential for spread, current and forecasted weather, resource or safety threats and constraints, and smoke volume and movement. Stage II: Fire Conditions – topographic variables, ambient conditions, fuel model(s), fire characteristics, smoke characteristics, holding options, and resource advisor concerns.
Level 3 – Short-term Change	Fuel reduction, vegetative change or other objective-dependent variables within 2 years following a burn.
Level 4 – Long-term Change	Continued monitoring of Level 3 variables to measure trends and change over longer periods of time.

Fire management activities will be monitored at the appropriate level in relation to the type and scale of each project. Monitoring data will be archived and reviewed for future refinement of target conditions and treatment prescriptions and to determine program success and effectiveness.