

Integrating NHPA section 106 compliance and prescribed fire: a model

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In recent years, fire managers at Grand Canyon National Park have adopted an aggressive prescribed fire program. Burn units have grown from small blocks of a few hundred acres to large, landscape units encompassing thousands of acres. Annual burn acreage increased exponentially, from 1,550 acres in 1997 to nearly 10,000 acres in 2000.

Section 106 of the National Historic Preservation Act (NHPA) and its implementing legislation and guidelines directs land managers to consider the effects of their undertakings on cultural resources. In order to assess effects, resource managers must know the resources and possible effects on them. Currently, only about 3% of the land managed by Grand Canyon National Park has been systematically surveyed for cultural resources sites. Consequently, resource inventories are often needed as a part of the section 106 compliance process. The rapidly increasing prescribed fire acreage overwhelmed archeologists trying to complete inventories for NHPA section 106 assessments. In spite of the challenges presented in completing NHPA compliance for such a large prescribed fire program, the prescribed fire archaeology program at Grand Canyon has come to serve as a model.

Recognizing the need

To ensure the timely completion of NHPA section 106 compliance, fire managers at the park included an archeologists' salary in FIREPRO funding requests. The program has grown from a seasonal archeological technician funded for a few months in 1994 to include one archeologist and three archeological technicians working year-round.

In 1998, Grand Canyon prescribed fire managers recognized the enormous workload created in completing NHPA section 106 compliance for thousands of acres. The amount of work required was beyond what could be accomplished by the single archaeologist funded by park operational funds. Accordingly, they began funding an archaeologist and three archaeological technicians in term, subject-to-furlough positions rather than simply for the summer season. Recognizing the ongoing need for NHPA compliance, the archaeologist was converted to a permanent, subject-to-furlough position in 2001.

The chief of cultural resources supervises the archaeologist and archaeology crew, whose offices are in the park's science center, which houses resource management staff. However, prescribed fire staff determine work priorities. Essentially, cultural resource managers assure that work meets the appropriate standards, while prescribed fire staff dictate the work schedule.

The critical elements for this program's success are planning, communication, and respect. Through careful planning and close coordination, cultural resource managers and prescribed fire managers can assure that the objectives of both disciplines are met.

Planning

Careful planning by both the prescribed fire manager and the archaeologist assures that work priorities are established and followed. Prescribed fire managers

clearly articulate their priorities for the coming year and the next five years. These priorities dictate the work for the archaeologists. Each October, the archaeologist develops an annual work plan, which describes goals for the project, outlines what projects will be completed in the coming year, and estimates the time and cost to complete projects. The archaeologist prepares the annual work plan and the prescribed fire manager, fire management officer, and chief of cultural resources review and approve the plan. As prescribed fire priorities or projected timelines change, the annual work plan is amended. The annual work plan serves as a contract between the archaeologists and prescribed fire staff, articulating the commitments made by each party and ensuring that the program remains "honest," that is, the archaeologists actually work on prescribed fire projects, not other tasks.

An end-of-the-year accomplishments report details how the crew carried out the annual work plan. This report describes goals met, projects completed, acres surveyed, and costs for the program. In recent years, costs ranged from \$3 to \$36 per project acre and \$10 to \$50 per survey acre. Project and survey costs per acre may vary at other parks, because the crew at Grand Canyon does sample and judgmental surveys rather than 100% coverage for most prescribed fire projects. This allows archaeologists to obtain an estimation of site types and densities and do further surveys as necessary. For example, in high elevations on the North Rim, judgmental surveys are completed where historic sites are likely to occur and the remainder of the unit is sampled to estimate overall site types and densities. In one area of the South Rim, a sample survey revealed a number of Navajo and Havasupai sites such as wickiups, corrals, and sweat lodges. To assure that these resources were located, documented, and protected, the selective survey was increased to a 100% survey for this project.

In the first couple of years of this program, archaeologists were scrambling to complete projects in time for preferred "burn windows." It was not uncommon for project implementation to be delayed because NHPA compliance was not complete. In the last year, archaeologists have begun to get section 106 inventories completed a year or two before project implementation dates. This allows for a more efficient use of crew time and better protection of cultural resources. For example, in the past two years the archaeology crew has focused on fieldwork during the summer season and used the winter for data processing and report preparation. Previously, crews were so rushed to complete projects that much data processing and report writing occurred in the summer and we tried to complete fieldwork in the winter.

Communication

To ensure that work is completed following prescribed fire priorities, and to maintain integrity in the program, close communication is maintained between the archaeologists and prescribed fire staff. This is accomplished through many means: quarterly meetings between prescribed fire managers, the cultural resource manager, and the archaeologist; monthly written and telephone updates; and written planning documents. Documents include annual work plans, survey plans, and yearly summaries of accomplishments. These planning documents allow work to be clearly laid out and articulated and costs and accomplishments accurately summarized. Careful record keeping provides integrity for the program. Crew time and expenses are closely tracked, allowing for a detailed accounting of time and money.

Careful planning and communication also lead to better cultural resource protection during prescribed fire implementation. Prescribed fire managers include cultural resource preservation as an objective for each project. Archaeologists identify which sites have the potential to be affected by the proposed prescribed fire project, whether it is fuel piling and burning within a prehistoric artifact scatter or burning near a historic cabin. Prescribed fire staff and archaeologists work together to identify methods to protect sites and assure no effects occur.

For example, to accomplish landscape-scale burns, fire managers use aerial ignition extensively. This ignition method presented new challenges in resource protection since personnel are not allowed within burn areas during ignition. In some units, sites with combustible elements were within areas to be aerially ignited. To protect these sites, a combination of pre-treating and thorough marking aided in site protection. Protective measures include lining sites, limbing trees, and manually removing fuel from sites or features. Archaeologists and fire staff developed a system of aerial “non-targets” to mark site areas so they can be seen from the air. Ignition bosses were supplied with maps of sensitive resources and ignition ceased within these areas. Additionally, archaeologists are usually on-scene during prescribed fire implementation. They attend crew briefings and work with the on-the-ground firefighters. This helps convey the importance of cultural resources and assures that cultural resource preservation remains a priority. This is especially beneficial when working with crews from other park units or agencies that may be unfamiliar with Grand Canyon’s resources.

When cultural resource preservation is included as a prescribed fire objective, post-fire site visits are needed to ensure that the objective is met. Currently, the archaeology crew revisits sites identified as having the potential to be adversely impacted by the project. No new inventory survey is completed post-fire. A post-fire assessment report is completed to document the protection measures used and judge their effectiveness.

Respect

Inherent in this program is a recognition of and respect for the resources, and for those who seek to protect them. Prescribed fire managers must recognize the value of cultural resources and understand cultural resource preservation law. At the same time, cultural resource staff need to appreciate that fire is a powerful, science-based resource management tool.

Discussion

At Grand Canyon National Park, the prescribed fire archaeology program has been an outstanding success from the perspectives of both cultural resource managers and fire staff. Cultural resources are identified and preserved and burn objectives are met. Planning, communication and respect are the keys to success.