

Post Fire Activities and Management Perspective Paper

Wildland Fire Management Science and Technology Coordination Workshop

June 17-19, 2014 Washington DC

Overview of Post Fire Activities:

The Department of Interior (DOI) land management agencies (BIA, BLM, NPS, & FWS) as well as the Department of Agriculture (USDA) Forest Service (FS) and Natural Resources Conservation Service (NRCS) use the Burned Area Emergency Response (BAER) process to manage unacceptable post-fire risks within a year of a wildfire being contained. These efforts, also known as Emergency Stabilization (ES), protect life & property and prevent further degradation of natural & cultural resources. Landscapes that are threatened from post-fire floods, debris flows, or are susceptible to serious degradation are assessed and treated by Burned Area Emergency Response (BAER) teams of trained resource specialists when scale and complexity exceed local capacity.

Another important post-fire program is the DOI Burned Area Rehabilitation (BAR) program. The BAR program initiates longer-term actions to repair damages caused by wildfire by maintaining proper ecosystem function in landscapes and begin the recovery of fire-damaged lands within three years of the wildfire. These objectives are achieved by such actions as seeding and reforestation, control of invasive species, restoring wildlife habitat, and repairing minor facilities damaged by wildfire. DOI's BAR program is funded in an annual competitive process at the departmental level that is based on priorities and a cap is applied to the amount of funding available to avoid impacts to preparedness, response, and fuels allocations. It is expected that the local resource unit will shoulder the responsibility for maintenance and monitoring of these activities past the programs one and three year program time limits.

The USDA Forest Service post wildland fire recovery program is very similar to the DOI program except the Forest Service does not have the BAR element.

The USDA FS Research Stations, Remote Sensing Application Center (RSAC), US Geological Survey, Joint Fire Science Program (JFSP), and numerous academic institutions provide support in post wildland fire research. The USDA FS Research Stations, Remote Sensing Application Center (RSAC), and US Geological Survey (USGS) provide the Burned Area Reflectance Classifications (BARC) satellite images that allow BAER teams to complete burn severity maps and then use them for prioritizing assessment and treatment areas.

Numerous activities occur on various jurisdictions following fire disturbance. In some cases very little needs to be evaluated or done to achieve post fire recovery objectives. Some areas have conditions that require very intense management to minimize the risk to the public or resources. Initial assessment and emergency stabilization actions are only a part of the post fire recovery portfolio of activities. Other activities include the adjustments of land uses such as grazing and timber salvage, modification may be necessary for management of a given disturbed area for a number of years based on the impacts of the fire. Traditional objectives may not be possible for extended periods of time due to the nature and extent of the damage. Climate change is a key factor influencing our probability for successful rehabilitation of at risk landscapes in many areas. Managing for vegetation outcomes based on a snapshot of “what was there” will not be as effective as managing for “what the site will look like in 25 years on the current weather trend”. Other activities that are considered part of the post fire portfolio are vegetation manipulation activities such as weed and invasive plant species management, re-vegetation or restoration efforts to meet a variety of recovery objectives, the adjustment of land management functions such as planning, risk evaluation, valuation of land characteristics, and the rank in priority for the disturbed area related to other areas of concern.

Capabilities:

The DOI typically funds 46 Full Time Equivalents (FTE) in the BAER program, including four full time National BAER coordinators, one for each agency. The remaining 42 FTE’s are funded during BAR project implementation, primary within BLM as the largest consumer of BAR services. ES is under the fire suppression account and personnel are only funded for emergency incident work, similar to wildland fire suppression. BIA funds one additional BAER person to assist with BAER tribal coordination and additional Indian Country workload. Agency resource programs provide the majority of BAER personnel.

The DOI maintains a national roster of BAER team leaders and specialists who respond to national or regional significant BAER incidents that local BAER teams cannot handle or need additional help with resource or technical expertise. The USDA Forest Service BAER teams are formed at the local Forest level in an “expand as needed” concept.

In the eight years from 2006 to 2013, the DOI and USDA FS spent \$457.5 billion on BAER implementation work at an average of \$57 million per year with an approximate equal split by each department of \$28 million per year. Within the Department of Interior, BLM spends approximately 87%, BIA 7%, NPS 4%, and FWS the remaining 2% of the ES funding. The DOI ES spending is capped at 10% of the ten-year rolling suppression average. The DOI BAR program receives a yearly budget appropriation that has varied from a high of \$20 million to a low of \$13 million per year. The FY14 BAR appropriation is \$16 million.

Gap Analysis:

The post wildland fire program has not had a formal gap analysis done; however, there have been severe fire seasons that BAER needs, especially BAR, exceeded available funding. The 2003 GAO report Wildland Fire, Better Information Needed on Effectiveness of Emergency Stabilization and Rehabilitation Treatments (GAO-03-430) identified that neither the Department of Interior or USDA Forest Service could determine whether emergency stabilization and rehabilitation treatments were effective. There has been follow-up work done with monitoring and research to determine treatment effectiveness, but there are still knowledge gaps in effectiveness of certain treatments. There have been BAER team assignments when certain BAER specialties have been in short supply, like hydrologists for determining watershed effects and flow modeling.

- Improvements are needed to forecast and monitor rainfall distribution across the burn area to improve the use of the Automated Geospatial Watershed Assessment (AGWA) model developed by the USDA-Agriculture Research Service - Southwest Watershed Research Center to predict runoff and erosion on post wildland fire events. DOI BAER is also using the AGWA model. The BAER watershed group has proposed improvements to the AGWA model through the Joint Fire Science Program but it was not approved due to lack of funds.
- Develop real-time modeling for post-fire assessments with current radar precipitation, satellite images, resource layers like soils, vegetation, etc. to get more accurate watershed response information and results.
- Seek disposable rain and stream flow gages that could be deployed immediately after the wildland fire event to provide a network of sensors feeding real time information back to the National Weather Service (NWS) offices and other Emergency Warning Systems for delivering rapid downstream flood alerts to downstream property owners. Testing of sensors and vehicles (space, aerial and ground) to allow better and faster mapping of burn severity across all areas of the fire and reduce risk to BAER specialist during field assessments.

Challenges:

The BAER program continues to face challenges in the following areas:

- Need for post-fire rehabilitation is highly variable annually so retaining and expanding capacity of qualified personnel is essential.
- Modeling science to support activities has been limited to single question focus or research that is limited to individual sites or site type.
- Defining requirements for remote sensing of burn severity factors and temporal and spatial delivery needs for greater efficiencies for post-fire emergency stabilization and rehabilitation.