

Burned Area Emergency Response (BAER) Information Brief



Burned Area Emergency Response (BAER) Limitations

While many wildfires cause minimal damage to the land and pose few threats to the land or people downstream, some fires result in damage that requires special efforts to reduce impacts afterwards. Loss of vegetation exposes soil to erosion; water run-off may increase and cause flooding, soil and rock may move downstream and damage property or fill reservoirs putting community water supplies and endangered species at-risk.

The **Burned Area Emergency Response (BAER)** program is designed to identify and manage potential risks to resources on **National Forest System** lands and reduce these threats through appropriate emergency measures to protect human life and safety, property, and critical natural or cultural resources. **BAER** is an emergency program for stabilization work that involves time-critical activities to be completed before the first damaging storm event to meet program objectives.

BAER Objectives:

- Determine whether imminent post-wildfire threats to human life and safety, property, and critical natural or cultural resources on **National Forest System** lands exist and take immediate actions, as appropriate, to manage the unacceptable risks.
- If emergency conditions are identified, mitigate significant threats to human life and safety, Forest Service property and other critical natural and cultural resource values.
- Prescribe emergency response actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources.
- Implement emergency response actions to help stabilize soil; control water, sediment and debris movement and potentially reduce threats to the **BAER** critical values identified above when an analysis shows that planned actions are likely to reduce risks substantially within the first year following containment of the fire.
- Monitor the implementation and effectiveness of emergency treatments that were applied on **National Forest System** lands.

BAER Interagency Coordination:

Post-fire emergency response is a shared responsibility. There are several Federal, State and local agencies that have emergency response responsibilities or authorities in the post-fire environment. The **BAER** team coordinates with these agencies to look at the full scope and scale of the situation to reduce the potential threats to human life and property. It is important that BAER efforts are communicated with all affected and interested cooperating agencies and organizations regarding other post-fire recovery and restoration efforts.

BAER treatments cannot prevent all of the potential flooding or soil erosion impacts, especially after a wildfire-changed landscape. It is important for the public to stay informed and prepared for potentially dramatic increased run-off events.

One of the most effective **BAER** strategies is interagency coordination to provide post-fire threat information to local cooperators who can assist affected businesses, homes, and landowners to prepare for rain events. For example, the **Natural Resources Conservation Service (NRCS)** has the Emergency Watershed Protection (EWP) program for post-emergency assistance on private and tribal land, the **National Weather Service (NWS)** has responsibility for flood warning alerts, the **Federal Emergency Management Agency (FEMA)** has flood insurance and other responsibilities if the area is a Presidentially-declared emergency, **Resource Conservation Districts (RCD)** and counties, as well as State and local-highway and emergency services departments, Flood Control authorities, etc. It is important that landowners work directly with **NRCS** and other agencies to determine appropriate actions needed to protect private structures and other assets.

BAER Process:

BAER assessment teams are staffed by specially trained professionals that may include: hydrologists, soil scientists, engineers, biologists, botanists, archeologists, and others who evaluate the burned area and prescribe temporary emergency stabilization actions on **National Forest System** lands to protect the land quickly and effectively. **BAER** assessments usually begin before a wildfire has been fully contained.

A **BAER** assessment team conducts field surveys and uses science-based models to rapidly evaluate and assess the burned area and prescribe emergency stabilization measures. The team generates a “**Soil Burn Severity**” map by using satellite imagery which is then validated and adjusted by **BAER** team field surveys to assess watershed conditions and model potential watershed response from the wildfire. The map identifies areas of soil burn severity by categories of very low/unburned, low, moderate, and high which may correspond to a projected increase in watershed response. The higher the burn severity, the less the soil will be able to absorb water when it rains. Without absorption, there will be increased run-off with the potential of flooding.

The **BAER** team presents these findings in an assessment report that identifies immediate and emergency actions needed to address post-fire risks to human life and safety, property, cultural and critical natural resources. This includes early detection and rapid response (EDRR) treatments to prevent the spread of noxious weeds into native plant communities. The **BAER** report describes watershed pre- and post-fire watershed response information, areas of concern for life and property, and recommended short-term emergency stabilization measures for **Forest Service** lands that burned.

In most cases, only a portion of the burned area is actually treated. Severely burned areas steep slopes, and places where water run-off will be excessive and may impact important

resources, are focus areas and described in the **BAER** assessment report if they affect critical values. Response action timing is essential to ensure the emergency stabilization measures are effective.

There are a variety of emergency stabilization actions that the **BAER** team can recommend for **Forest Service** land such as mulching with agricultural straw or chipped wood to protect soil productivity, increasing road drainage to keep roads and bridges from washing-out during post-fire floods, and early detection rapid response invasive plant treatments to prevent spread of weeds into native plant communities. **BAER** treatments are preventative in nature but cannot prevent all damage, especially debris torrents in areas that are prone to sliding and have lost critical root structure from plants.

The Cans and Cannots of BAER:

| What BAER Can Do: | What BAER Cannot Do: |
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| Install water or erosion control devices. | Prevent all flooding and debris flows. |
| Seed or mulch for erosion control or stability reasons. | Replant commercial forests or grass for forage. |
| Install erosion control measures at critical cultural sites. | Excavate and interpret cultural sites. |
| Install temporary barriers to protect treated or recovering areas. | Replace burned pasture fences. |
| Install warning signs. | Install interpretive signs. |
| Replace minor safety related facilities, like burned guard rails. | Replace burned buildings, bridges, corrals, etc. |
| Install appropriate-sized drainage features on roads, trails. | Repair roads damaged by floods after fire. |
| Remove critical safety hazards. | Remove all hazard trees. |
| Prevent permanent loss of T&E habitat. | Replace burned habitat. |
| Monitor BAER treatments. | Monitor fire effects. |
| Implement EDRR treatments to minimize the spread of noxious weeds into native plant communities. | Treat pre-existing noxious weeds. |

BAER Funding:

Special Emergency Wildfire Suppression funds are authorized for **BAER** activities and the amount of these expenses varies with the severity of the fire season. Some years see little **BAER** activity while other years are extremely busy.

Because of the emergency nature of **BAER**, initial requests for funding of proposed **BAER** treatments are supposed to be submitted by the Forest Supervisor to the Regional Office within 7 days of total containment of the fire. The Regional Forester's approval authority for individual **BAER** projects is limited. Approval for **BAER** projects exceeding this limit is forwarded onto the Washington Office.