

Burned Area Emergency Response (BAER) Information Brief



THREE PHASES OF WILDFIRE RECOVERY

There are **three phases of recovery** following wildfires on federal lands:

- Fire Suppression Repair
 - Emergency Stabilization-Burned Area Emergency Response (BAER)
 - Long-Term Recovery and Restoration
- **Fire Suppression Repair** is a series of immediate post-fire actions taken to repair damages and minimize potential soil erosion and impacts resulting from fire suppression activities and usually begins before the fire is contained, and before the demobilization of an Incident Management Team. This work repairs the hand and dozer fire lines, roads, trails, staging areas, safety zones, and drop points used during fire suppression efforts.
 - **Emergency Stabilization-Burned Area Emergency Response (BAER)** is a rapid assessment of burned watersheds by a BAER team to identify imminent post-wildfire threats to human life and safety, property, and critical natural or cultural resources on **National Forest System** lands and take immediate actions to implement emergency stabilization measures before the first major storms. Fires result in loss of vegetation, exposure of soil to erosion, and increased water runoff that may lead to flooding, increased sediment, debris flows, and damage to critical natural and cultural resources. BAER actions such as: mulching, seeding, installation of erosion and water run-off control structures, temporary barriers to protect recovering areas, and installation of warning signs may be implemented. BAER work may also replace safety related facilities; remove safety hazards; prevent permanent loss of habitat for threatened and endangered species; and prevent the spread of noxious weeds, and protect critical cultural resources.
 - **Long-Term Recovery and Restoration** utilizes non-emergency actions to improve fire-damaged lands that are unlikely to recover naturally and to repair or replace facilities damaged by the fire that are not critical to life and safety. This phase may include restoring burned habitat, reforestation, other planting or seeding, monitoring fire effects, replacing burned fences, interpreting cultural sites, treating noxious weed infestations, and installing interpretive signs.



Post-Fire BAER Assessment

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KEY ELEMENTS OF THE BAER ASSESSMENT

Forest Service **BAER** assessment teams are established by **Forest Supervisors** before wildfires are fully contained. The teams coordinate and work with the **USDA Natural Resources Conservation Service (NRCS)**, **Bureau of Land Management (BLM)**, **Fish & Wildlife Service (FWS)**, **National Weather Service (NWS)**, local counties, **California Department of Transportation**, and other federal, state, and local agencies to strategically assess potential post-fire impacts to the watersheds burned from wildland fires.

- The **BAER** assessment teams are evaluating watershed conditions to determine the level of potential risks to human life, safety, property, natural and cultural-heritage resources, and determine if there are appropriate and effective emergency stabilization measures that can be implemented on federal lands in a timely manner to reduce unacceptable risks from potential flooding and debris flow threats.
- The **BAER** assessment team conducts field surveys and uses science-based models to rapidly evaluate and assess the burned area.
- **BAER** assessment teams are staffed by specially trained professionals that may include: hydrologists, soil scientists, engineers, geologists, biologists, botanists, archeologists, geographic information system mapping specialists, recreation and trails specialists, and others who evaluate the burned area and prescribe temporary emergency response actions to protect the land quickly and effectively.
- **BAER** assessments usually begin before a wildfire has been fully contained.
- The **BAER** assessment 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 watershed response to the wildfire. The map identifies areas of soil burn severity by categories of low/unburned, moderate, and high which corresponds to a projected increase in watershed response.
- The **BAER** team presents these findings and treatment recommendations to the **Forest Supervisor** in an assessment report that identifies immediate and emergency stabilization actions needed to address potential post-fire risks to human life and safety, property, cultural-heritage and critical natural resources.
- The **BAER** report describes watershed pre- and post-fire response information, areas of concern for human life, safety and property, and recommended short-term emergency stabilization actions for federal lands that burned.
- In most cases, only a portion of the burned area is actually treated. Severely burned areas, steep slopes, places where water run-off will be excessive, fragile slopes above homes, businesses, municipal water supplies, and other valuable facilities are focus areas and described in the **BAER** assessment report as values-at-risk.
- The **BAER** assessment team and the **Natural Resources Conservation Service (NRCS)**, **Resource Conservation Districts (RCDs)**, work together and coordinate with other federal and local agencies, and counties that assist private landowners in preparing for increased run-off and potential flooding.
- Federal assistance to private landowners regarding post-fire potential impacts is the primary responsibility of the **NRCS** through the **Emergency Watershed Protection (EWP) program** (www.nrcs.usda.gov/wps/portal/nrcs/detail/ca/programs/?cid=nrcs144p2_064025).
- **NRCS** conducts damage survey reports for the private land adjacent to and downstream from the burned areas. **NRCS** uses these reports, along with the **BAER** team's assessment report, to develop recommended emergency measures for businesses and private home and landowners to reduce the impacts to their property from potential increased water and debris flows.
- If the **BAER** assessment team determines there may be potential emergency situations, the short-term goal is to have flood and erosion control protection measures completed before the first large, damaging rain events occur.
- Timely implementation is critical if **BAER** emergency response actions are to be effective.



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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 health, safety, human life, property and values-at-risk.
- 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** 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:

Multiple agencies work with the **BAER** team and look at the full scope and scale of the situation to reduce the potential threats to human life and property; however, **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.

resources, are focus areas and described in the **BAER** assessment report if they affect values-at-risk. Time is critical if the emergency stabilization measures are to be 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, digging of below-grade pits to store sediment, and other treatments to keep roads and bridges from washing-out during floods, are but a couple of examples. The **BAER** team also assesses if there is a need to modify drainage structures such as installing debris racks and additional drainage features to allow drainage to flow if culverts become plugged, upsizing culverts to handle increased post-fire run-off, installing rolling dips, and constructing emergency spillways. **BAER** treatments 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:
Install water or erosion control devices.	
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.	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.	
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 \$500,000. Approval for **BAER** projects exceeding this limit is forwarded onto the Washington Office.

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