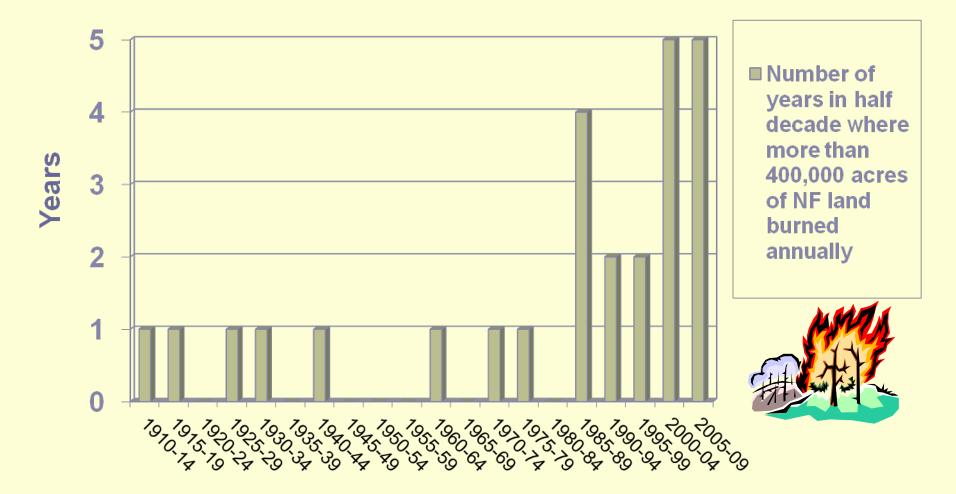
2011 Western Wildfires

Impact on Watersheds

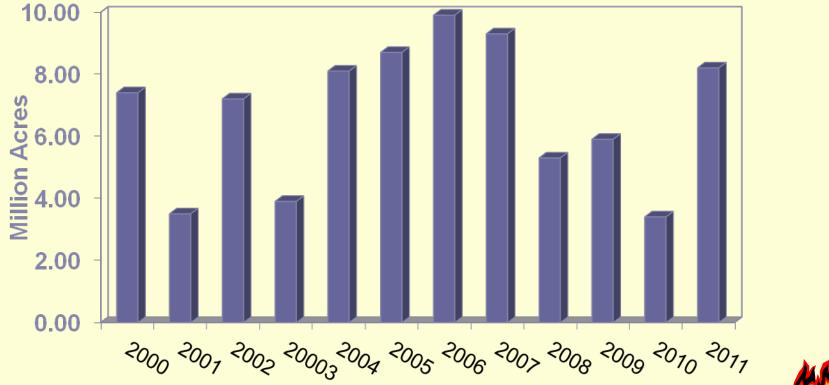
Penny Luehring October, 2011

Major Forest Service Fire Years



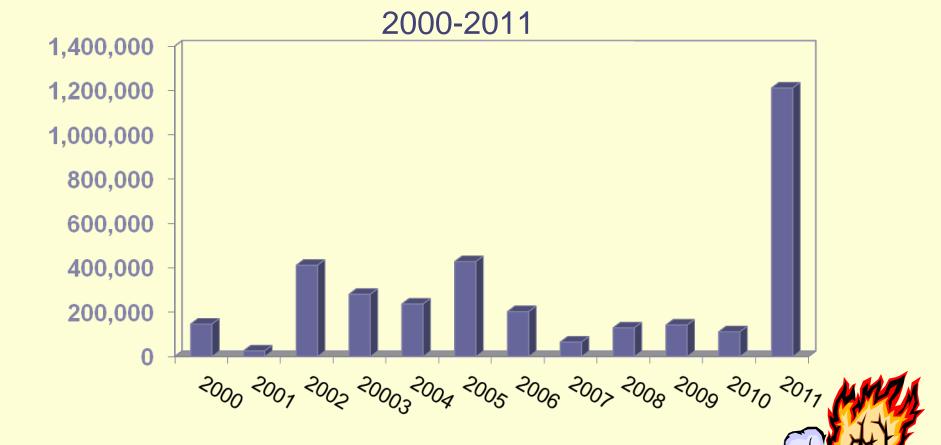
Acres Burned Annually in the U.S.

2000-2011

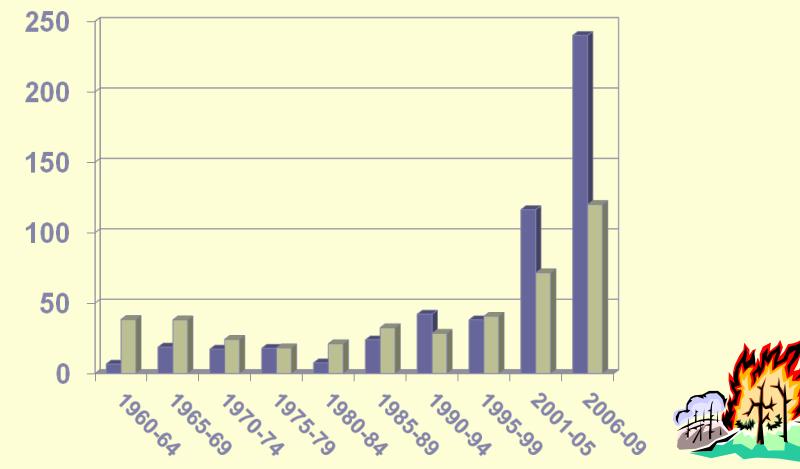




Acres Burned Annually in the Southwest



Average Fire Size Regionally and Nationally (acres)

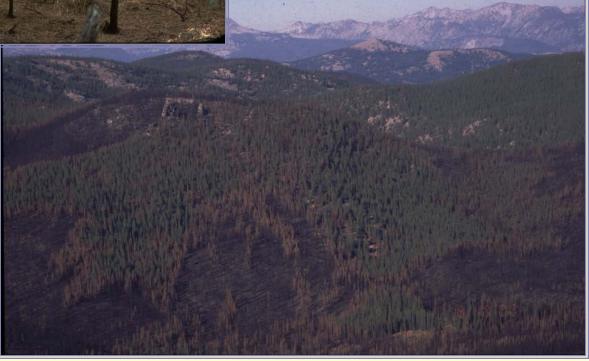


Fact: Large, damaging wildfires are occurring in the United States with greater frequency!



Fire Effects and Post-Fire Concerns

Low severity burn and mosaic pattern = few negative effects





Fire Effects and Post-Fire Concerns



High severity burn and concentrated pattern = significant negative effects

<u>Water</u>

- Quality
- Peak flow
- Timing of flow
- Base flow/discharge

fiects on Ecosystem

Sedimentation

<u>Soil</u>

- Water repellency
- Nutrients
- Erosion

<u>Vegetation</u> <u>Wildlife</u> Air







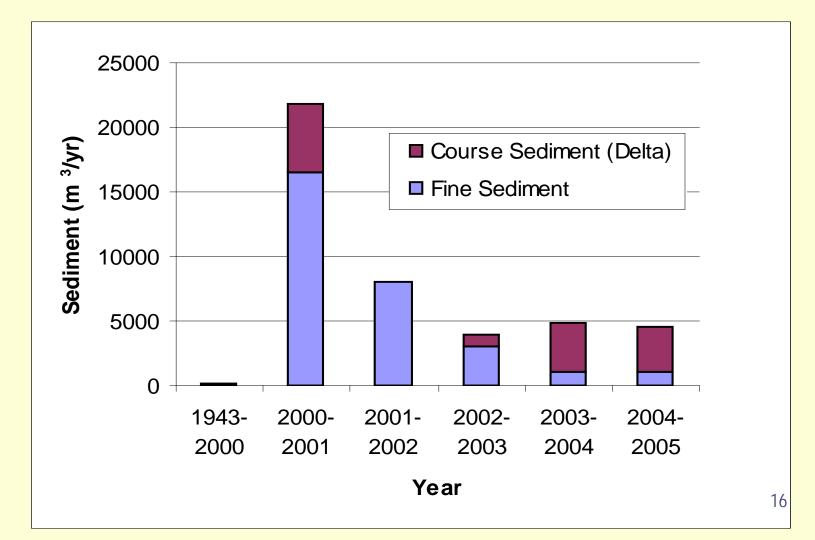


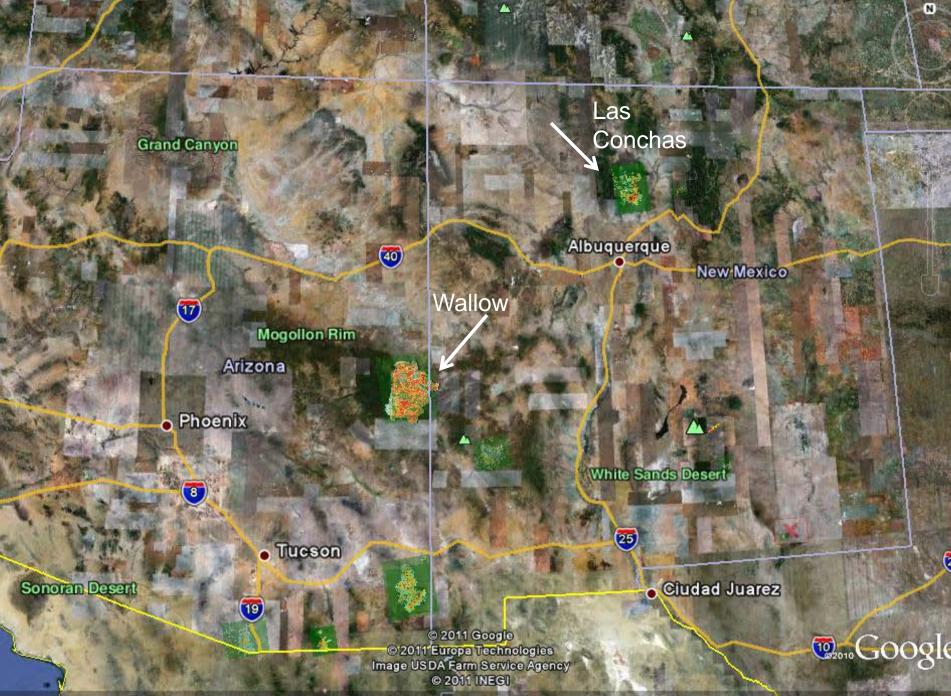




Sediment Yield, Los Alamos Canyon Cerro Grande Fire, 2000-2005

Alexis Lavine1, Gregory A. Kuyumjian2, Steven L. Reneau1, Danny Katzman1, and Daniel V. Malmon3 1 Earth and Environmental Sciences Division, Los Alamos National Laboratory, Los Alamos, NM, 875452 U.S.D.A., Forest Service, Los Alamos, NM, 875443 Western Earth Surface Processes Group, U.S. Geological Survey, Menlo Park, CA 94025





34°09'49.56" N 108°32'50.83" W elev 6256 ft

Eye alt 594.60 mi

Las Conchas Fire Los Alamos NM

Started: 6/26/11 Burned:156,000 acres



For the second time in 11 years, the town of Los Alamos and the National Lab were threatened by fire and evacuated.

Large areas of high burn severity



Burn severity + steep slopes = high flood risk

Cochiti Canyonbefore monsoons





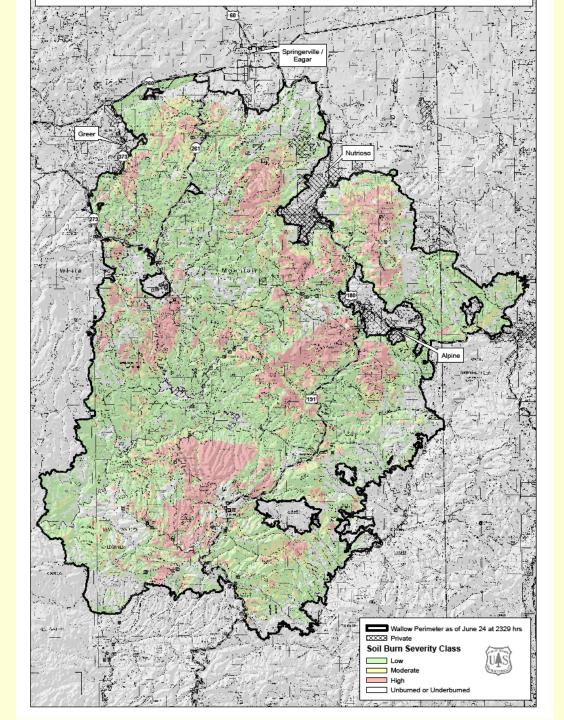
Cochiti Canyonafter monsoons

Wallow Fire

Started: 5/29/11 Burned: 538,000 acres

30% of area (160,000 ac) burned at mod/high severity

844 miles of roads potentially affected













Burned Area Emergency Response (BAER) Program

Objective: To identify imminent post-wildfire threats to human life and safety, property and critical natural or cultural resources and take immediate actions to manage unacceptable risks

BAER Assessment Team

- Identify critical values and threats
- Determine if there is unacceptable risk to life, property, or cultural and natural resources

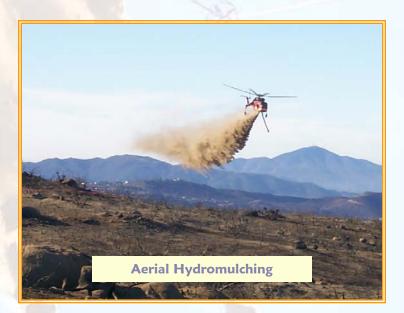




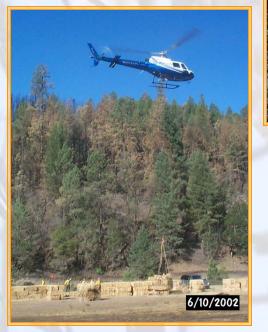


Land Treatments

- Mulch Application
 - Mulch is used to provide immediate soil cover to reduce rain impact and soil erosion.
 - Mulch may be applied manually or mechanically.



Aerial Straw Mulch (Helimulch)





Seeding

- Purposes
 - Increase vegetative cover to reduce soil erosion and runoff
 - Replace native seed bank where it is severely reduced by fire
 - Out-compete invasive species
- Methods
 - Manual (hand seeding)
 - Mechanical
 - Aerial (helicopter/fixed wing)
 - Ground (range drill)
 - Seed may be applied with or without mulch
- Policy
 - Priority is to use native seed or short-lived annual

Land Treatments





Land Treatments



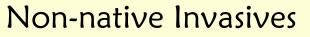
Runoff Barrier Installation

- Log erosion barriers (LEBs)
- Fiber rolls
- Contour tilling





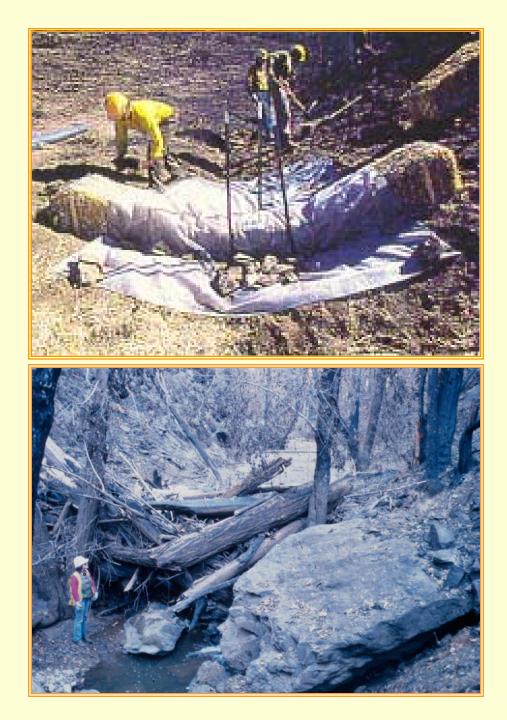
Land Treatments



- Preventative seeding
- Manual treatment
- Chemical/Biological treatment

Channel Treatments

- In-stream Structures
 - Small straw or log dams
 - Rip-rap
- Debris Removal
 Clearing vegetative obstructions



Road & Trail Treatments





The Candy Rock Road beyond this point is closed for public safety until Spring 2002. The Darby Fire burned several locations above the road resulting in potential rockfall, mudflow and washout hazards to road users. The road is expected to be reopened prior to the fishing and swimming season in April 2002.

Thank you for your cooperation.

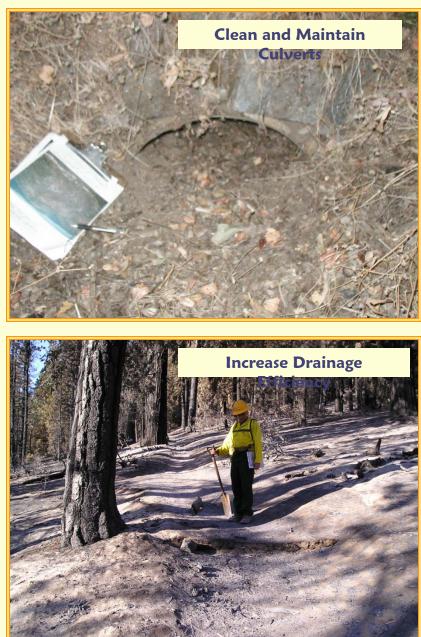
/s/ Rob Briffith District Ranger Calaveras Ranger District 5519 Highway 4 P.D. Box 500 Histhaway Pines, CA 95233 (209) 795-1381



Road & Trail Treatments



- Supplement drainage features along roads & trails
- Patrol roads during storm season



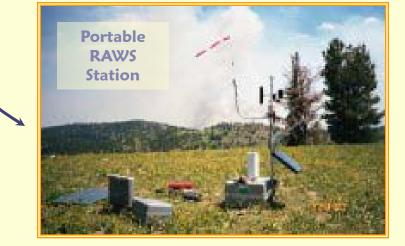
Hazard Warnings

Automated flood warning systems Road and trail warning signs

WARNING

BURNED WATERSHED NEXT 3 MILES

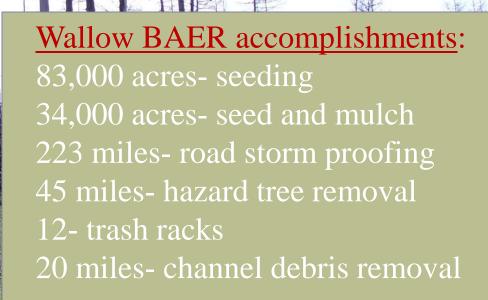
RISK FROM FLASH FLOODS, ROCKFALL AND DEBRIS



Media announcements

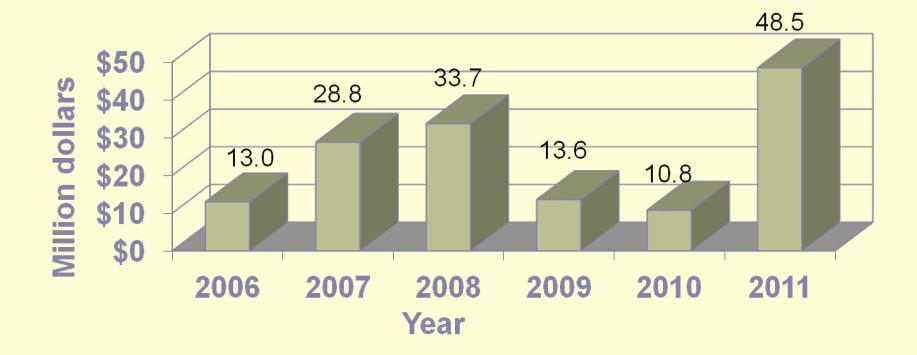
Evacuations





Las Conchas BAER accomplishments: 6,700 acres- seeding 1,000 acres- seed and mulch 30 miles- road storm proofing 30 miles- channel debris removal 1120 acres- cultural site stabilization Road closure gates Warning signs

Emergency Stabilization Expenditures Forest Service



Fuel buildup + drought + bugs + fire = PROBLEMS