Las Conchas Wildfire (NM):

Progression, Management, and Context

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LA-UR-12-22538

Photo Credit: Kristen Honig

Las Conchas Fire

- Background
- Fire Timeline/Summary
- Daily Growth
- Acres by Agency
- Burn Severity
- Historical Fires
- Observations

Incident Background Information

Location: Jemez Mountains, north-central NM

Land ownership:

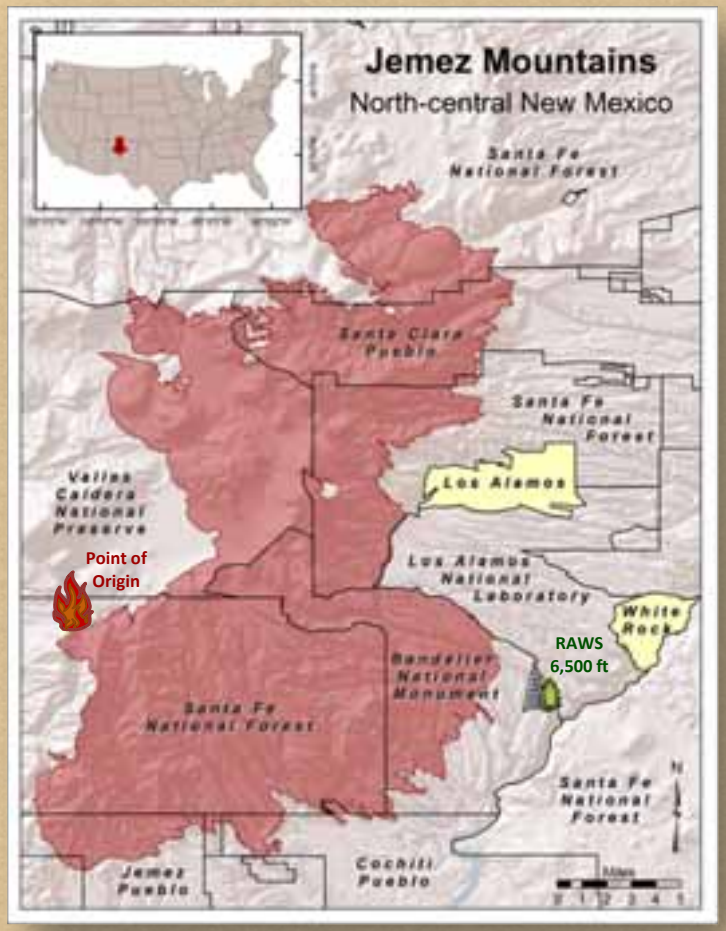
- Federal Property (USFS, DOI, DOE)
- Native American Tribal Lands
- Urban Areas (Los Alamos & White Rock)
- Private property scattered throughout

Topography: steep canyons & mesa tops

Elevation: 10,720 – 5,980 feet

Climate: @ Tower RAWS Station (July 2011)

- Temperature (Mean Daily Max): 90.8 F
- Relative Humidity (Mean Daily Min): 15%
- Wind gusts of 41 mph first day of fire



Incident Background Information (cont.)

Vegetation: FM8 and FM10 (Timber)

- Ponderosa Pine & Mixed Conifer
- Piñon-Juniper woodlands

Historic Forest Conditions: pre-1900

- Open canopy, large diameter trees
- Frequent, low intensity surface fire
- Fire return interval 5 to 25 years *(Allen et al. 1998)*

Current Forest Conditions:

- Increased forest densities since early 1900's
- Persistent drought across Southwest since 1996
- High intensity, stand-replacing crown fires

Photo Credit: USFS

Photo Credit: Kristen Honig / NPS

Photo Credit: USFS

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Las Conchas Fire Timeline:

DAY 1 – Sunday, June 26

- **1:00 pm** aspen tree falls into powerline and starts fire
  - 13 miles SW of Los Alamos
  - Local resources respond
  - Incident Commander (Morales, Santa Fe NF)
- **3:30 pm** air tankers ordered (400 acres)
- **4:30 pm** Type 1 Incident Mgmt Team (IMT) ordered (Reinarz IC)
- **Evacuations:** rural private property, federal lands (Bandelier and Valles Caldera NP)

Las Conchas Fire Timeline

DAY 2 – Monday, June 27

- **3:00 am** fire mapped at 43,597 acres (IR imagery)—MaxROS ~acre/second
- **1:30 pm** mandatory evacuation of Los Alamos; voluntary evacuation of White Rock & Cochiti Pueblo (~20,000 people)
- **5:00 pm** 1 acre spotfire contained at Los Alamos National Laboratory (LANL) (~50,000 acres total)
- **6:00 pm** Reinarz IMT takes over management of fire

Las Conchas Fire Timeline

DAY 3 – Tuesday, June 28

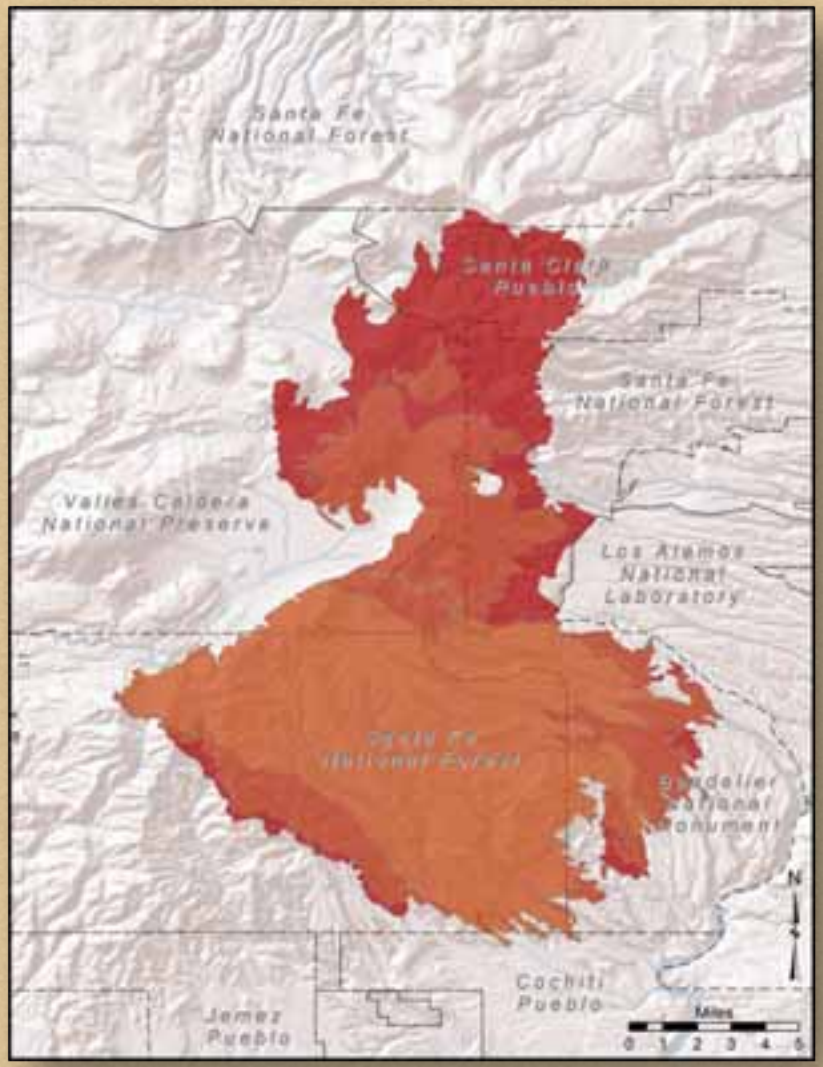
- 60,741 acres
- Short range spotting and crown runs; growth in all directions

DAY 4 – Wednesday, June 29

- 69,555 acres
- Long range spotting on NE edge of fire; advanced into Santa Clara Canyon (exceeded Temp Flight Restriction)
- Area Command (Oltrogge AC) and a second Type 1 IMT (Hughes IC) assigned to fire
- Split into zones:

  North Zone: Reinarz IMT

  South Zone: Hughes IMT



Las Conchas Fire Timeline

DAY 5 – Thursday, June 30

- 92,735 acres
- Advanced NE past NM-144 into Cerro Grande Fire scar

DAY 6 – Friday, July 1

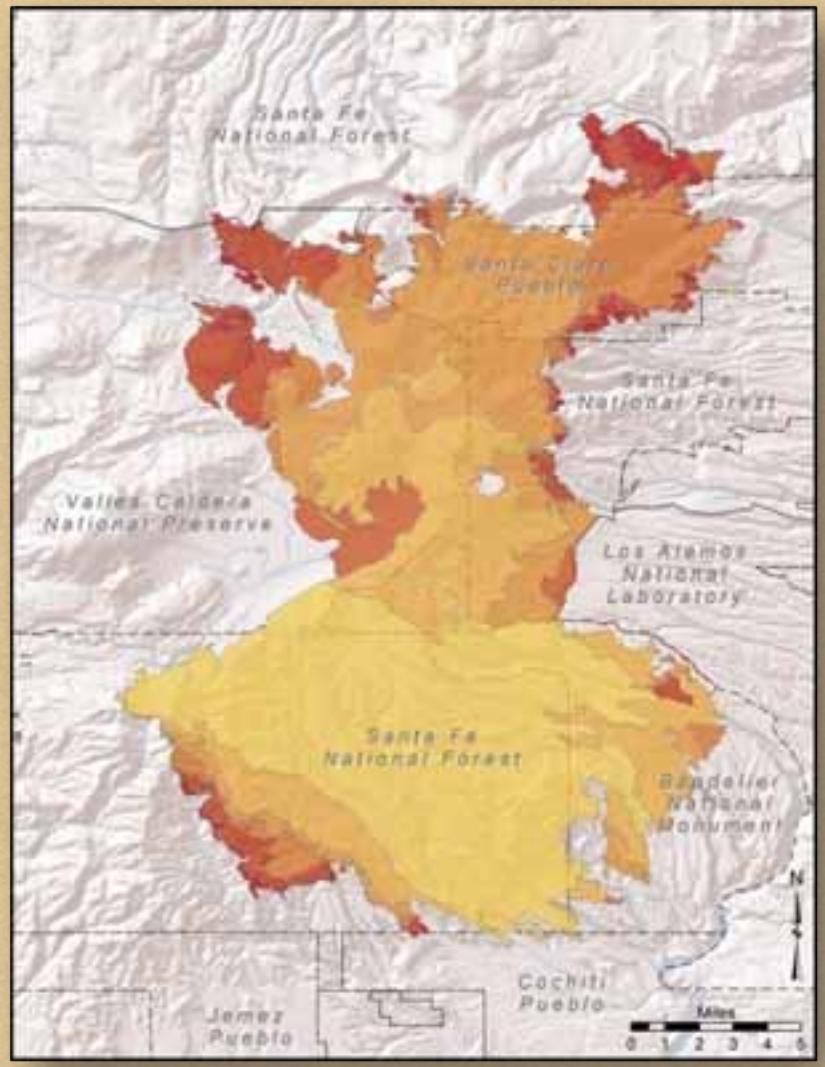
- 103,993 acres
- Largest fire in NM history*

DAY 7 – Saturday, July 2

- 113,734 acres
- Advanced SW into Bland, Cochiti, and Peralta Canyon

DAY 8 – Sunday, July 3

- 121,248 acres
- Evacuation lifted Los Alamos



*Surpassed by the 2012 Whitewater-Baldy Complex, Gila NF

Las Conchas Fire Timeline

DAY 9 – Monday, July 4

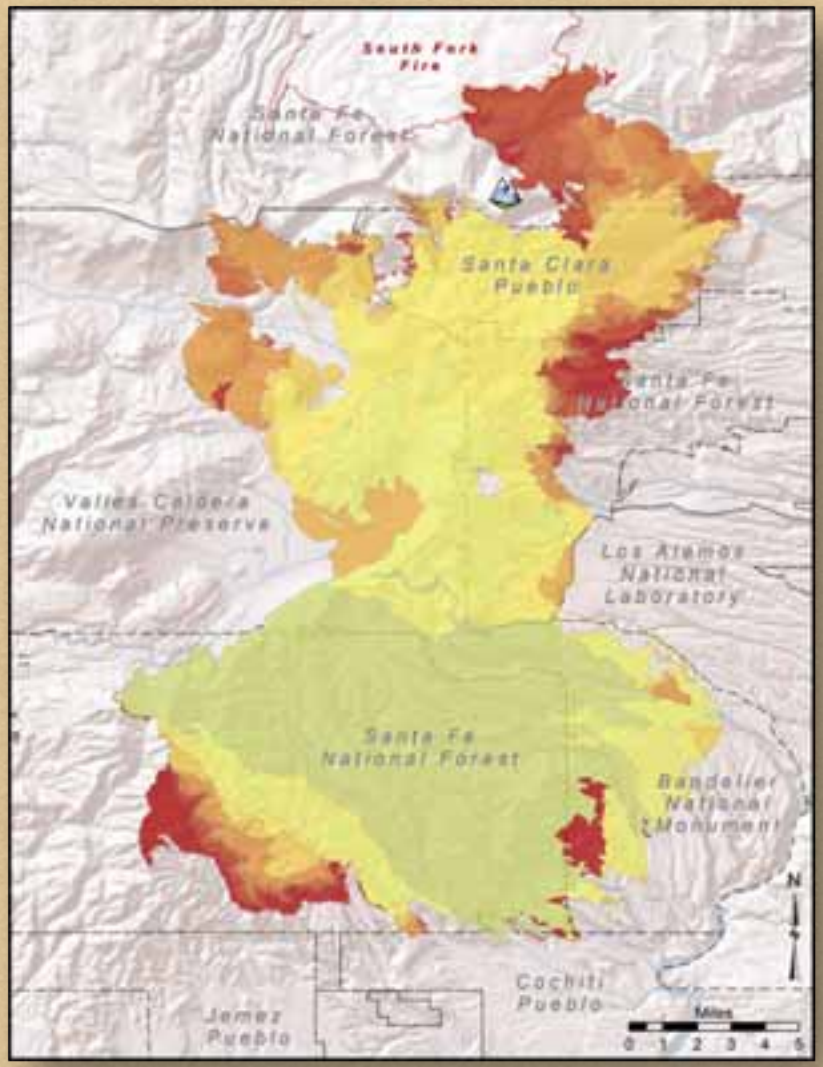
- 123,563 acres
- E/NE winds pushed fire toward north slope of Chicoma Peak *(sacred mountain)*

DAY 10 – Tuesday, July 5

- 127,821 acres
- Third Type 1 IMT (Morcom IC) assigned to NW Zone
- Extreme fire behavior w/in perimeter
- Reached South Fork fire scar to north

DAY 11 – Wednesday, July 6

- 130,691 acres
- Terrain-driven fire runs in drainages including Guaje Canyon



Las Conchas Fire Timeline

DAY 12 – Thursday, July 7

- 136,955 acres
- Flare-up in Guaje, and Santa Clara Canyons following thunderstorm

DAY 13 – Friday, July 8

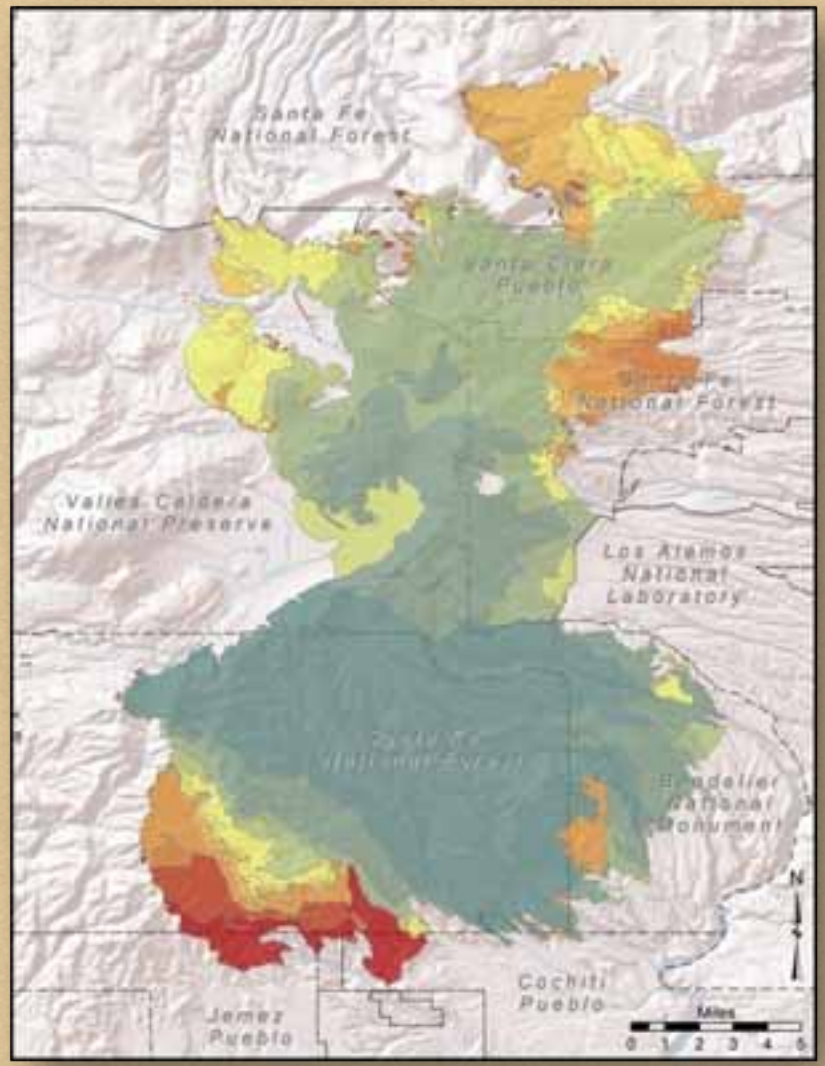
- 139,592 acres
- BAER and NIMO teams ordered

DAY 14 – Saturday, July 9

- 142,250 acres
- Terrain-driven fire runs toward SE

DAY 15 – Sunday, July 10

- 146,353 acres
- Transition of North Zone from Reinarz IMT to Turman's Type 1 IMT



Las Conchas Fire Timeline

DAY 16 – 19 (July 11 – 14)

- 147,642 – 150,041 acres
- Minimal growth primarily to SE

DAY 20 – 23 (July 15 –18)

- 150,568 – 155,451 acres
- Night burnout operations on SW edge of fire (approx. 2,000 acres)

DAY 28 – July 23

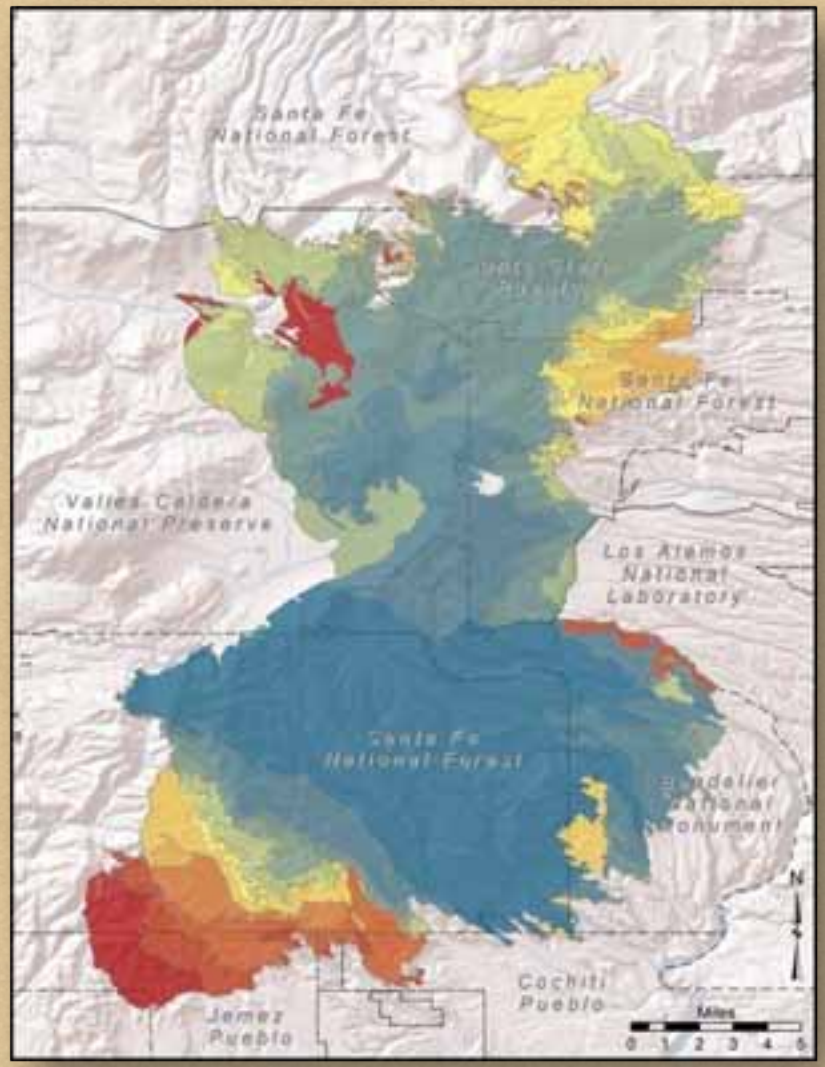
- NIMO (Kleinman IC) takes over management of Las Conchas Fire

DAY 37 – August 1

- 156,593 acres (100% contained)

DAY 39 – August 3

- Local resources assume mgmt of fire



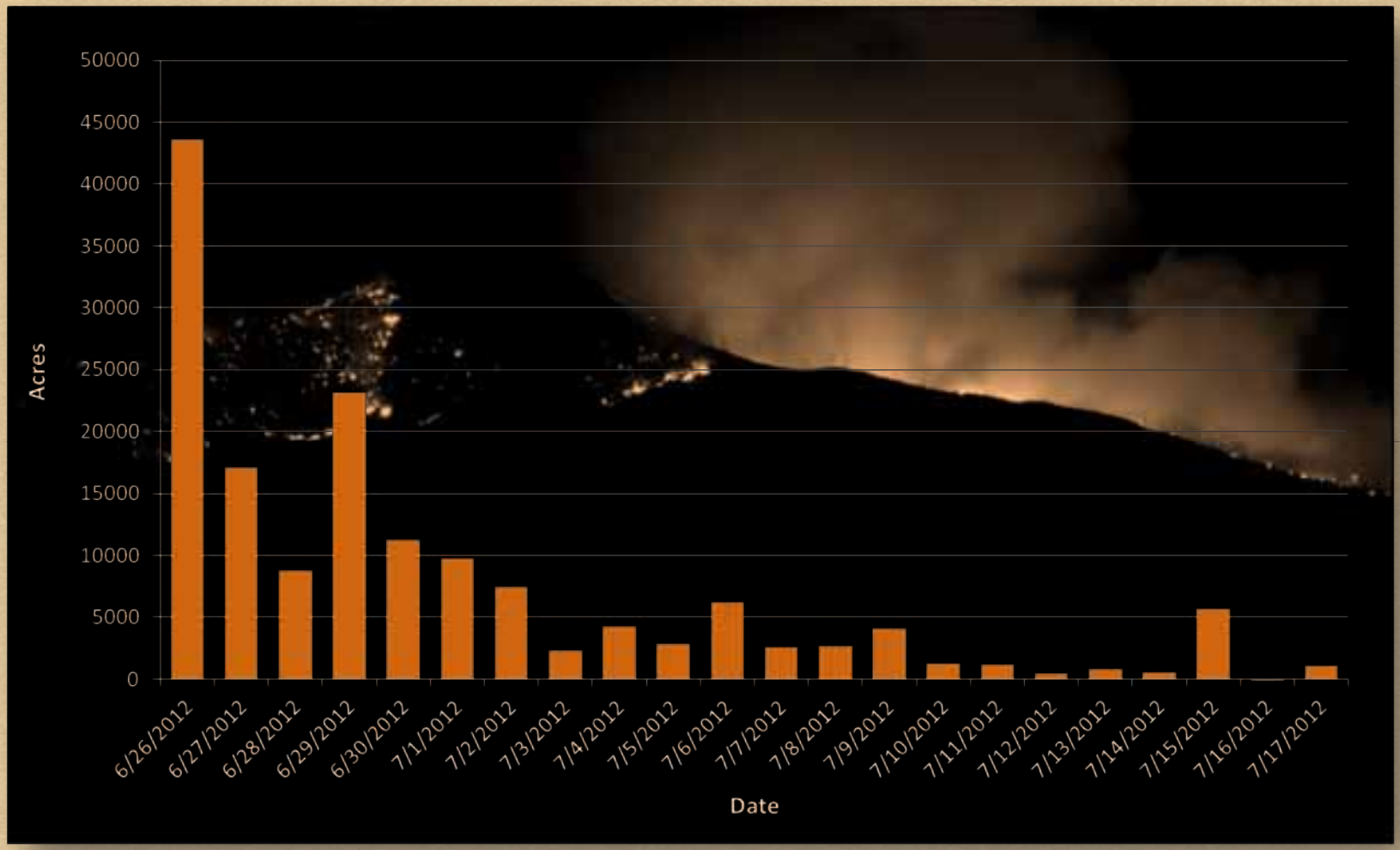
Las Conchas Fire Summary

- **Size:** 156,593 acres (**2nd** largest in State's history)
- **Duration:** 37 days until containment
- **Cost:** $48.4M (August 1st)
- **Resources:** 2,557 personnel at peak, including 63 crews
- **Casualties:** no fatalities, 15 injuries
- **Structures Destroyed:** 63 PRIM, 49 OUTB
- **Proximity to LANL:** Several miles from closest nuclear facility
- **Ecological Impacts:**

  Using 3D to Assess Reservoir Sedimentation Changes: *Sediment Deposition in Cochiti Reservoir and the Rio Grande, NM*

  Date/Time: Thu, Jul 26, 3:15PM - 4:30PM
  Location: Room 27 B

Fire Progression: Daily Growth



Acreage Burned by Agency

Department of Energy (118 acres)

US Forest Service (78,896 acres)

National Park Service (20,808 acres)

Approximately 2/3 of Bandelier

Valles Caldera NP (30,039 acres)

Approximately 1/3 of Valles Caldera

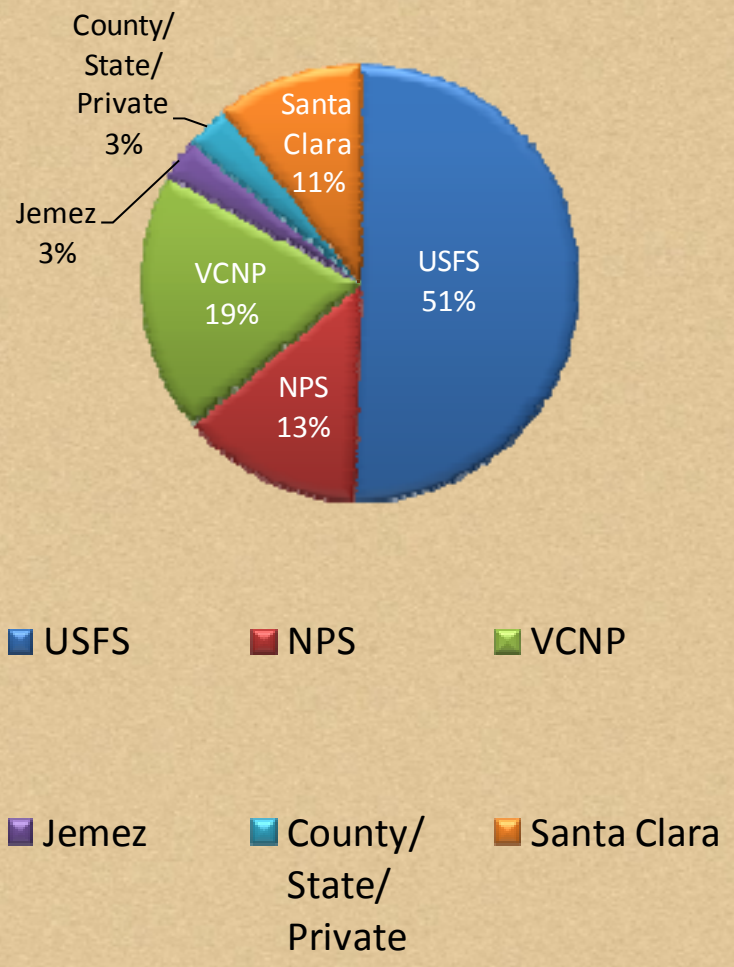
Santa Clara Pueblo (16,622 acres)

Approximately 1/3 of Santa Clara

Jemez Pueblo (4,750 acres)

Santo Domingo Pueblo (263 acres)

County/State/Private (5,097 acres)



Burn Severity (BAER Mapping)

Las Conchas (2011)

High Severity:
21% (32,992 ac)

Moderate Severity:
34% (53,904 ac)

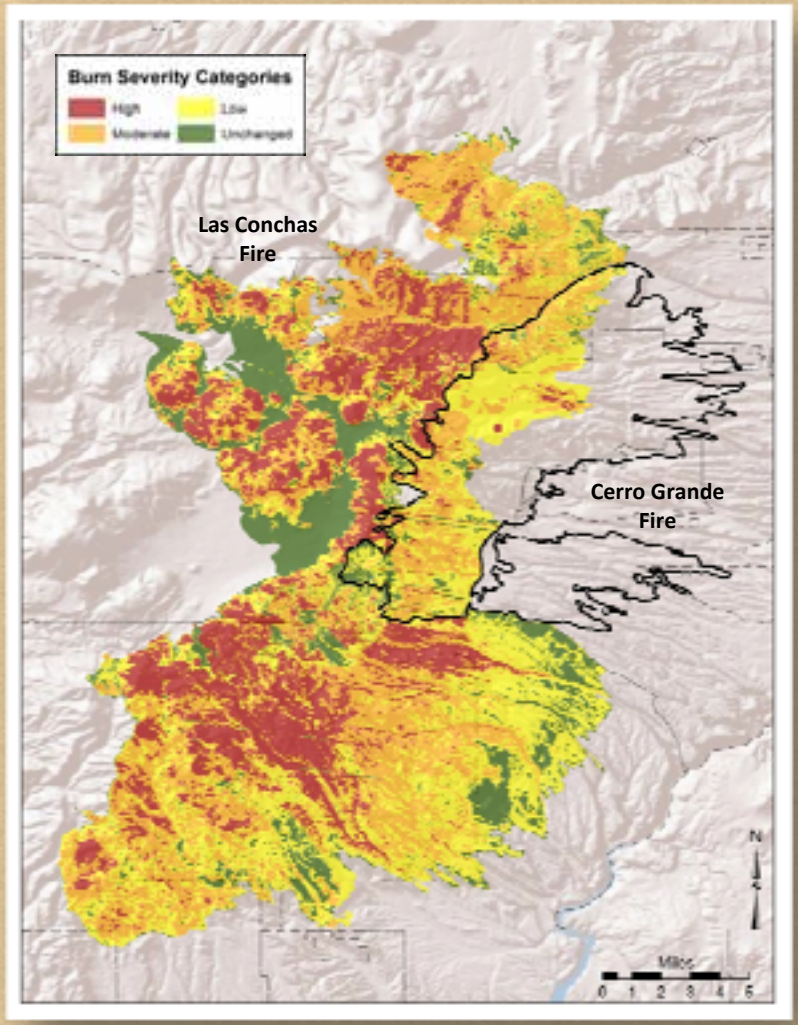
Areas Most Affected:
Cochiti, Frijoles, Santa Clara Canyons

Cerro Grande (2000)

High Severity:
34% (16,201 ac)

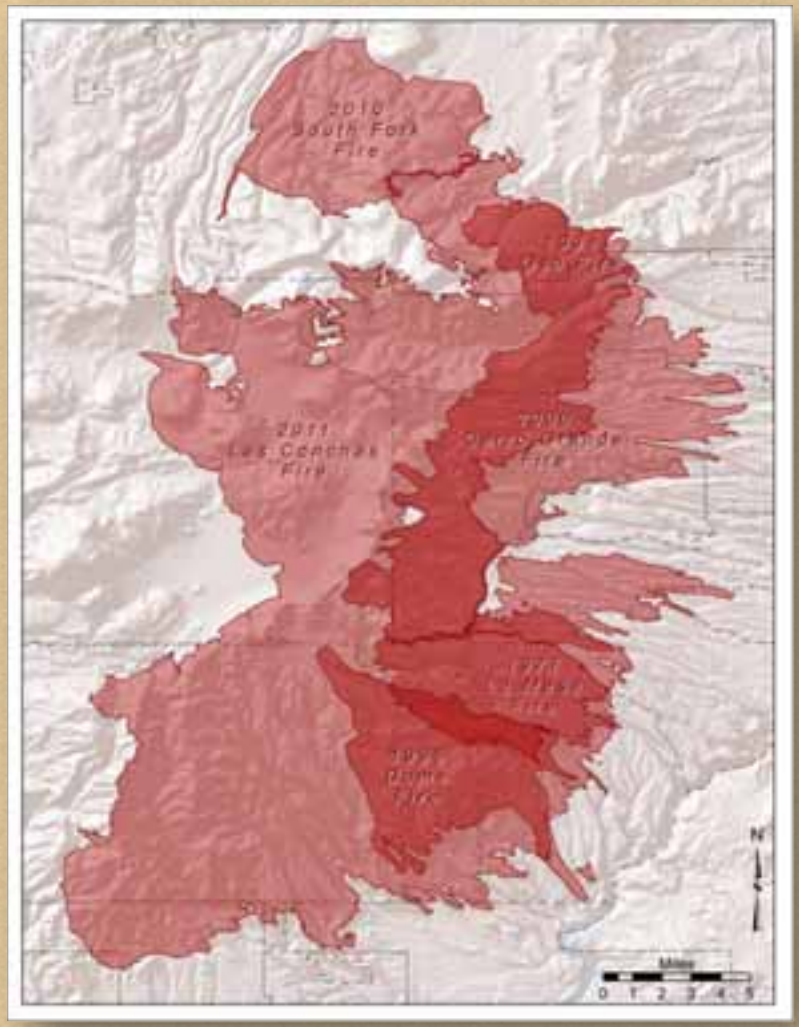
Moderate Severity:
8% (3,788 ac)

Areas Most Affected:
Mountains west and north of Los Alamos



35-Year History of Fires Near LANL

- 1977 La Mesa Fire: **% re-burn**
  - 14,282 acres **82%**
- 1996 Dome Fire:
  - 16,521 acres **97%**
- 1998 Oso Fire:
  - 6,515 acres **94%**
- 2000 Cerro Grande Fire:
  - 42,981 acres **44%**
- 2010 South Fork Fire:
  - 16,964 acres **1.4%**



Personal Observations

- Unprecedented extreme fire behavior (>300’ flame lengths) and rates of spread (>acre/second)
- Unified effort by thousands of firefighters from numerous jurisdictions and locations, from Oregon to New York
- Interagency collaboration of fuel mitigation projects were successful in protecting LANL and Los Alamos
- Las Conchas Fire burned fewer structures than the Cerro Grande Fire, but had a greater ecological impact on the forest
- Las Conchas Fire burned actively in 11-yr old fire scar, but was significantly slowed by 1-yr old fire scar and high severity burn areas of older fires (implications for Rx burning cycles)