THOMPSON RIDGE FIRE

BAER ASSESSMENT

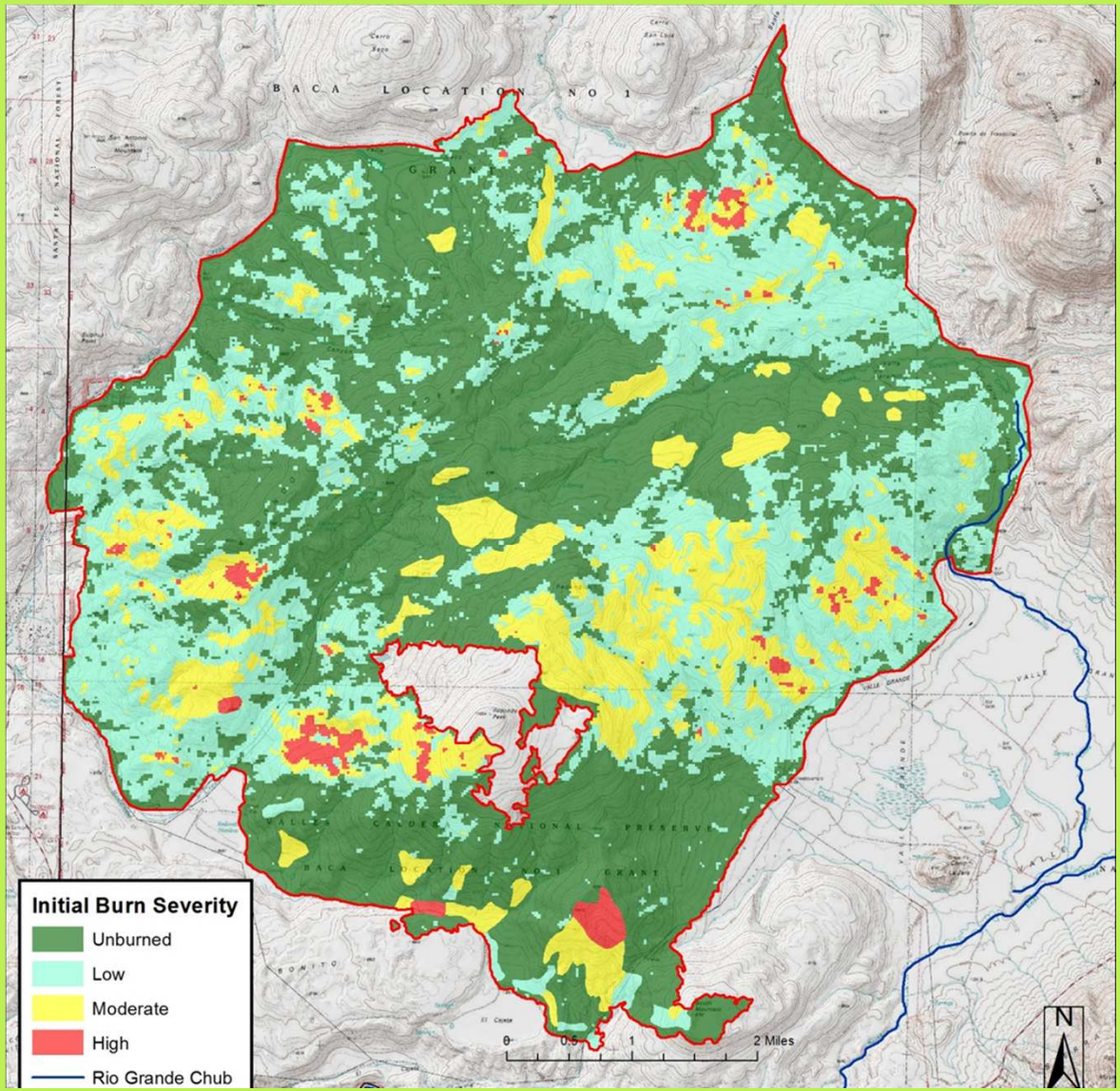
BAER

BAER PROCESS

- BARC Map
- Burn Severity Map
- Evaluate Watershed Response
- Determine Threats to VAR
  - Human Life and Safety
  - Property
  - Natural/Cultural Resources
- Propose Treatments
- Develop BAER Report
  - 7 Days After Containment
- Implementation
- Monitoring

BAER PROCESS

BURN SEVERITY MAP



VALUES AT RISK

- HUMAN LIFE, HEALTH & SAFETY
- PROPERTY
  - Structures / Facilities
  - Roads / Trails
- NATURAL RESOURCES
  - Water Sources
  - Soils
  - Threatened & Endangered Species
  - Unique Botanical Resources
    - Spread of Noxious Weeds
- CULTURAL-HERITAGE RESOURCES
  - Pre-historic Resources
  - Historic Resources

HAZARD TREE ASSESSMENT

HAZARD TREE ASSESSMENT

Probability of Damage & Magnitude of Risk

- Focus on where the wildfire crossed areas of high human use and private property
- Roads, bus stops and routes, subdivision ingress/egress, administrative use areas

HAZARD TREE ASSESSMENT

Bus Stop

Ingress/Egress

HAZARD TREE ASSESSMENT

Private Boundary Fence

Administrative Use Area

HAZARD TREE EXAMPLES

HAZARD TREE EXAMPLES

VALUES AT RISK

PROPERTY - Infrastructure

ROADS

VALUES AT RISK

PROPERTY - Infrastructure

ROADS

VALUES AT RISK

PROPERTY - Infrastructure

ROADS

VALUES AT RISK

PROPERTY - Infrastructure

ROADS

VALUES AT RISK

NATURAL RESOURCES – Water Resources

WATER SOURCES

SOILS

- Primary duties:
  - Verify the BARC Map via field reconnaissance and ground-truthing
  - Identify and determine soil burn severity trends in different burn severities derived from the BARC map
  - Sample in the areas that present the largest potential impacts to life, property, water quality, and soil productivity
  - Model erosion and sedimentation rates of soil loss, summarize findings, and prescribe mitigation treatments if modeled to be necessary

FIELD OBSERVATIONS

- **Post-fire soil characteristics observed in the field:**

  - Ground cover
  - Surface color and ash depth
  - Soil structure and root condition
  - Soil water repellency (hydrophobicity)
  - Soil burn severity

VALUES AT RISK

NATURAL RESOURCES - SOILS

FIELD OBSERVATIONS

Site ID	Date	Ash Color	Depth (cm)	Structure	Roots	Soil Hydrophob.	Soil Burn Severity Class	Veg Burn Intensity	Surface Rock (%)	Ground Cover (%)
1	6/17/2013	Gray	0.7	No Change	Intact	High	Moderate	High	> 50	< 20
2	6/17/2013	Gray	0.4	No Change	Intact	Low	Low	High	> 50	< 20
3	6/17/2013	Gray	0.3	No Change	Intact	High	Moderate	High	> 50	< 20
4	6/17/2013	Gray	0.7	No Change	Intact	Low	Low	Moderate	20 - 50	20 - 50
5	6/18/2013	White / Gray	1.5	No Change	Intact	Low	Low	Moderate	> 50	20 - 50
6	6/18/2013	White / Gray	3.5	No Change	Intact	Low	Low	Moderate	> 50	20 - 50
7	6/18/2013	White / Gray	1	No Change	Intact	Moderate	Low	Moderate	> 50	20 - 50
8	6/18/2013	Gray / Black / White	2	No Change	Intact	Low	Low	High	> 50	< 20
9	6/18/2013	Gray / Black / White	0.5	No Change	Intact	Low	Low	Low	20 - 50	> 50
10	6/19/2013	Dark Gray / Black	2	No Change	Intact	Low	Low	High	> 50	< 20
11	6/19/2013	Dark Gray	1.5	No Change	Intact	Low	Low	Moderate	> 50	< 20
12	6/19/2013	White / Gray	3	No Change	Intact	Low	Low	High	> 50	< 20
13	6/19/2013	Light Gray	0.3	No Change	Intact	Low	Low	Moderate	> 50	< 20

VALUES AT RISK

NATURAL RESOURCES - SOILS

HIGH SEVERITY BURN

VALUES AT RISK

NATURAL RESOURCES - SOILS

MODERATE SEVERITY BURN

VALUES AT RISK

NATURAL RESOURCES - SOILS

LOW SEVERITY BURN

SUMMARY

- Upon the consensus of the BAER team and with our findings ,we feel the initial BARC map has been adequately verified. Fieldwork is completed and datasets are being prepared for erosion modeling.

- Our field observations in areas of concern for values at risk indicate that in the moderate and high burns, effective organic ground cover is less than 20 percent. Inevitably, this will exacerbate soil loss tendencies compared to pre-fire conditions as well effect nutrient cycling for soil productivity.

- Overall, soil hydrophobicity has not been significantly affected in areas of concern. A couple severely burned sites exhibited some high hydrophobicity, but most sites showed low hydrophobicity tendencies. Generally, forested ecosystems exhibit natural hydrophobicity.

SUMMARY

- The mineral soil has responded well in some ways. Fire effects across all burn severities appear to have had minimal effect on soil surface stability.

- Soil structure has not changed and roots are intact. Granular soil structure at the surface fosters good infiltration and root establishment. Hearty root structure aids in good infiltration and keeps the soil intact. These are also positive indicators of potential soil productivity for re-establishment of vegetation.

- Also, surface rock fragment amounts were over 50% on most sites. Surface rock fragments are a component of effective ground cover and contribute to soil loss protection against rain drop impaction and overland water-flow.

WILDLIFE

Photo courtesy of the Valles Caldera Preserve

Effects to Wildlife Habitat

FISHERIES

Fisheries – Brown & Rainbow trout

- **Jaramillo Creek**
- **San Antonio**
- **East Fork Jemez River**

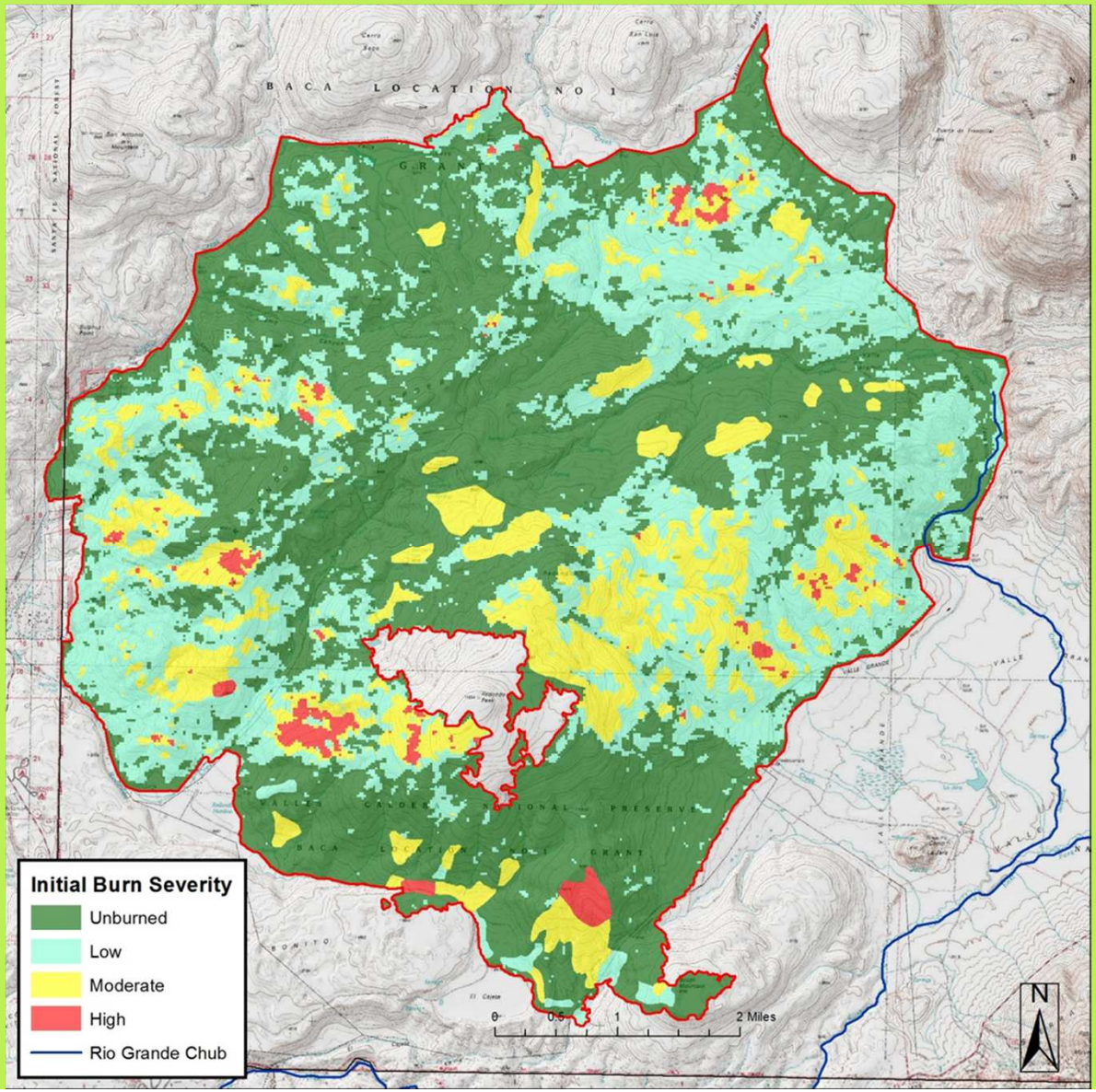
Rio Grande Chub – East Fork Jemez & Jaramillo Creek

Photo by Chad Thomas, Texas State University, San Marcos

Photo by Zachary Shattuck, Texas State University, San Marcos

VALUES AT RISK

NATURAL RESOURCES - Wildlife



UNIQUE BOTANICAL RESOURCES

- Spread of Noxious Weeds

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

CULTURAL RESOURCES SITE - UNBURNED

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

HISTORIC BUILDING

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

LIGHTLY BURNED

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

LIGHTLY BURNED OVERVIEW

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

LOW TO MODERATE SEVERITY

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

MODERATE TO HIGH SEVERITY

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

POST-FIRE TWO YEARS

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

SCORCHED

VALUES AT RISK

CULTURAL – HERITAGE RESOURCES

UNBURNED OVERVIEW

QUESTIONS?