

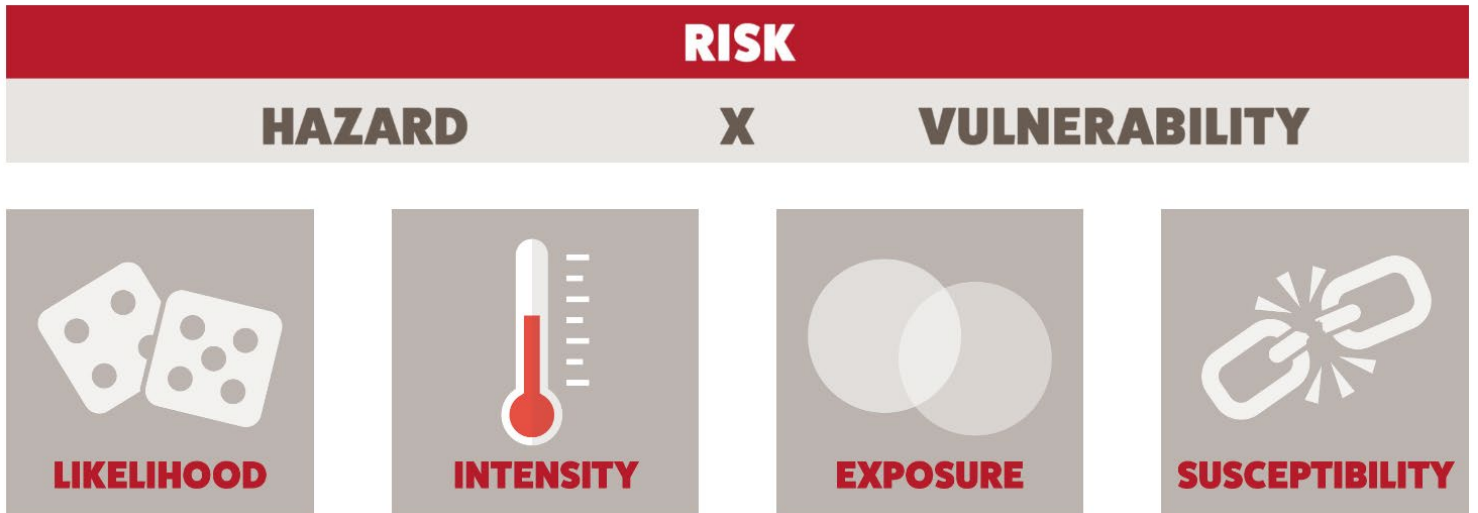
San Benito Wildfire Risk Assessment and Strategies

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Ian Moore, Spatial Informatics Group



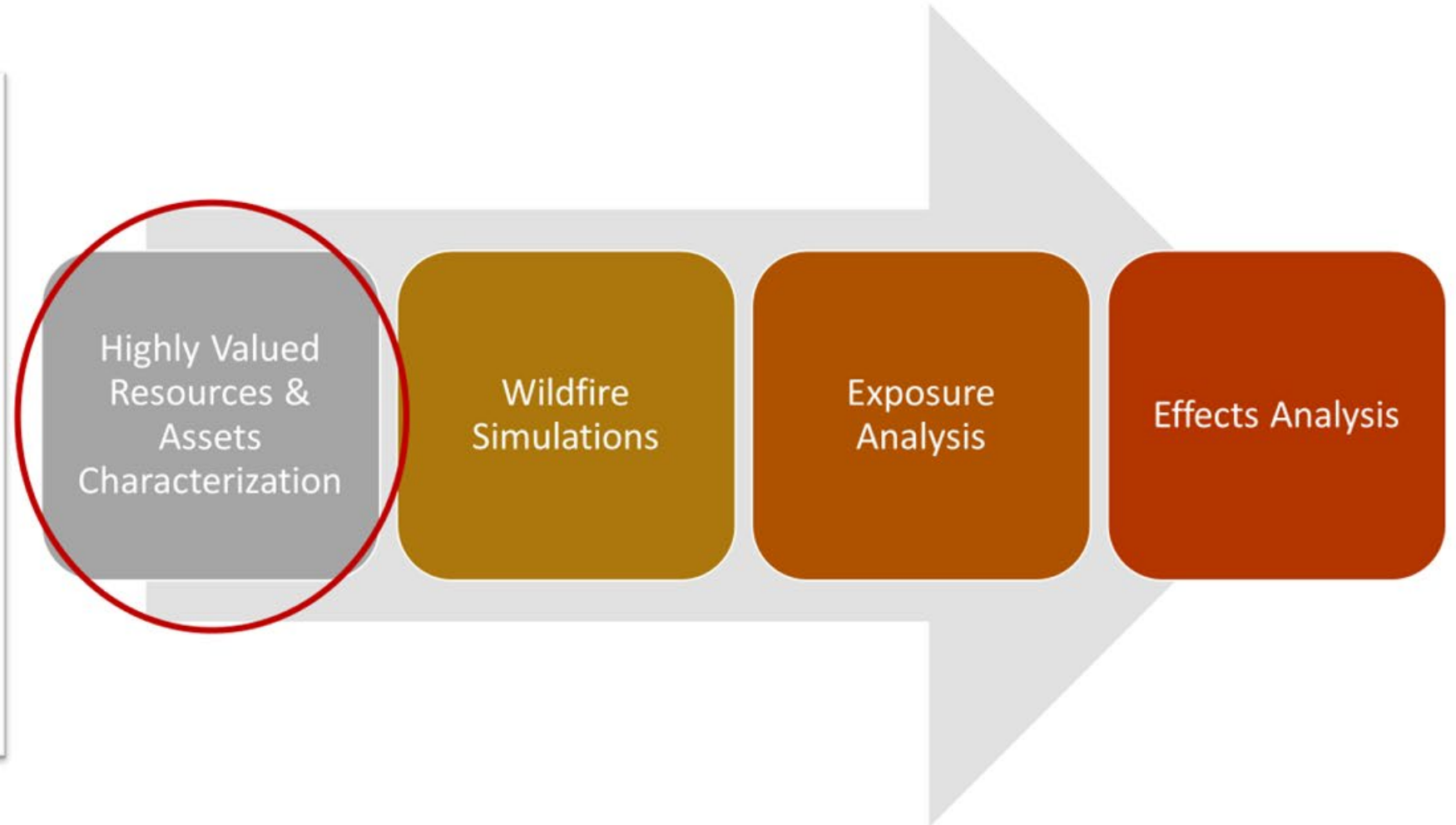
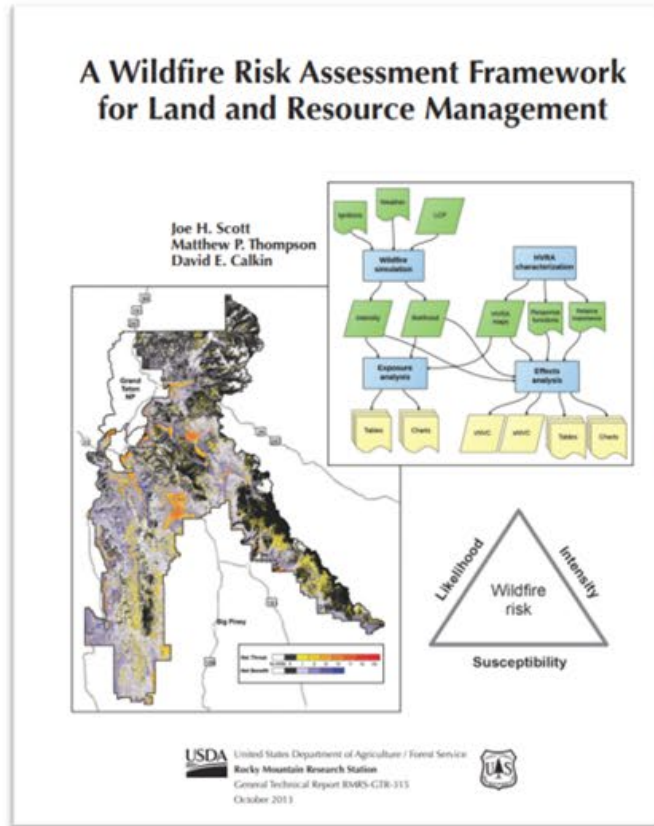
Values, Resources, and Assets at Risk

- Human lives
- Properties/Structures/
Infrastructure
- Businesses
- Habitats and species
- Air quality
- Water quality and supply
- Recreational sites
- Cultural sites
- Historic sites



Identifying and prioritizing Highly Valued Resources and Assets (HVRAs) helps evaluate the potential consequences of wildfires and develop targeted strategies to reduce risk.

Overview of Wildfire Risk Assessment Process



Scott et al. (2013), Gen. Tech. Rep. RMRS-GTR-315

What are Highly Valued Resources and Assets (HVRAs)?

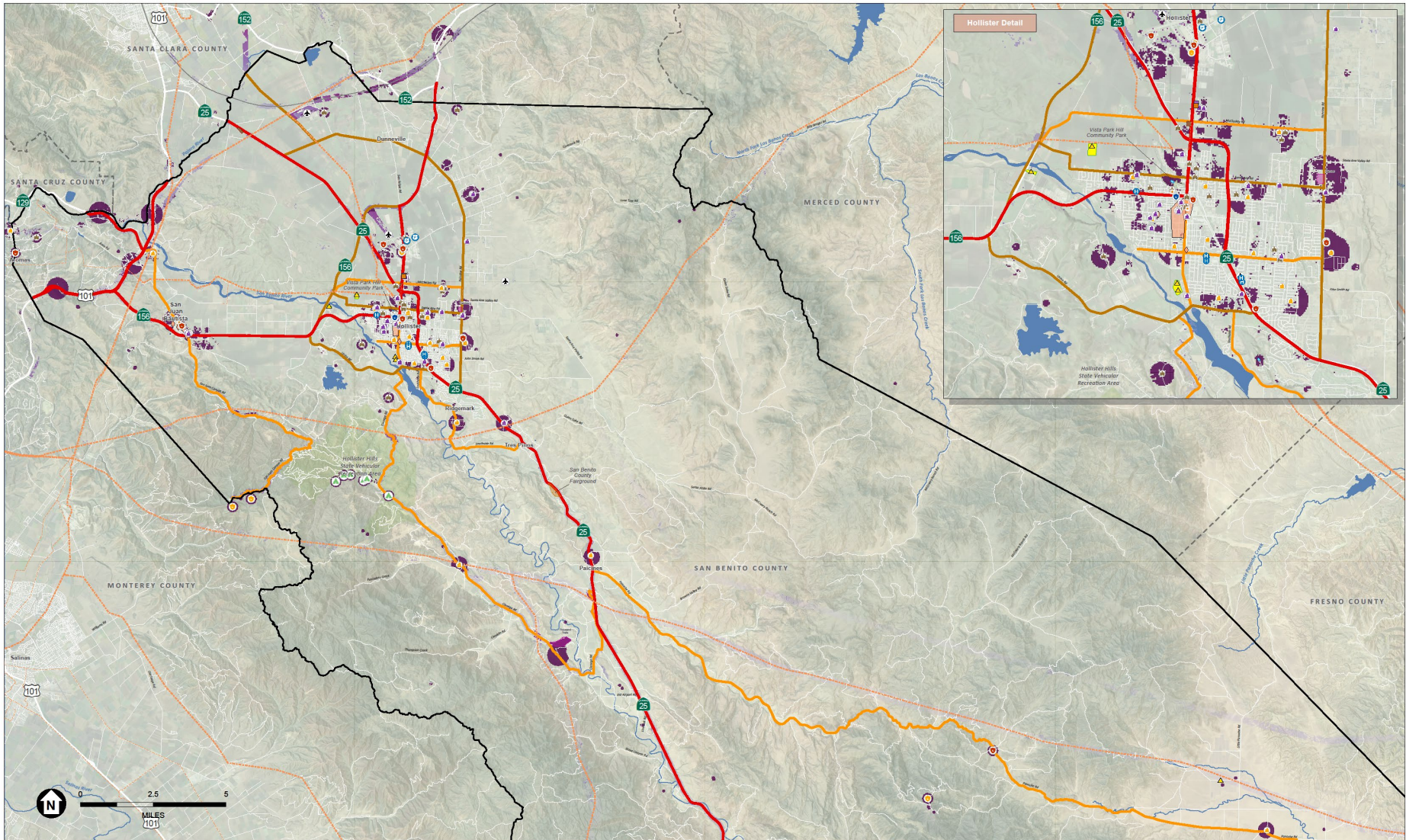
- Landscape features that are valued and can be influenced beneficially or detrimentally by fire.
 - **'Resources'** are naturally occurring (e.g., riparian habitat, T&E species) or culturally/historically significant.
 - **'Assets'** are human-made (e.g., utilities and structures)



Resource

Asset





SAN BENITO COUNTY WILDFIRE RESILIENCE PROGRAM

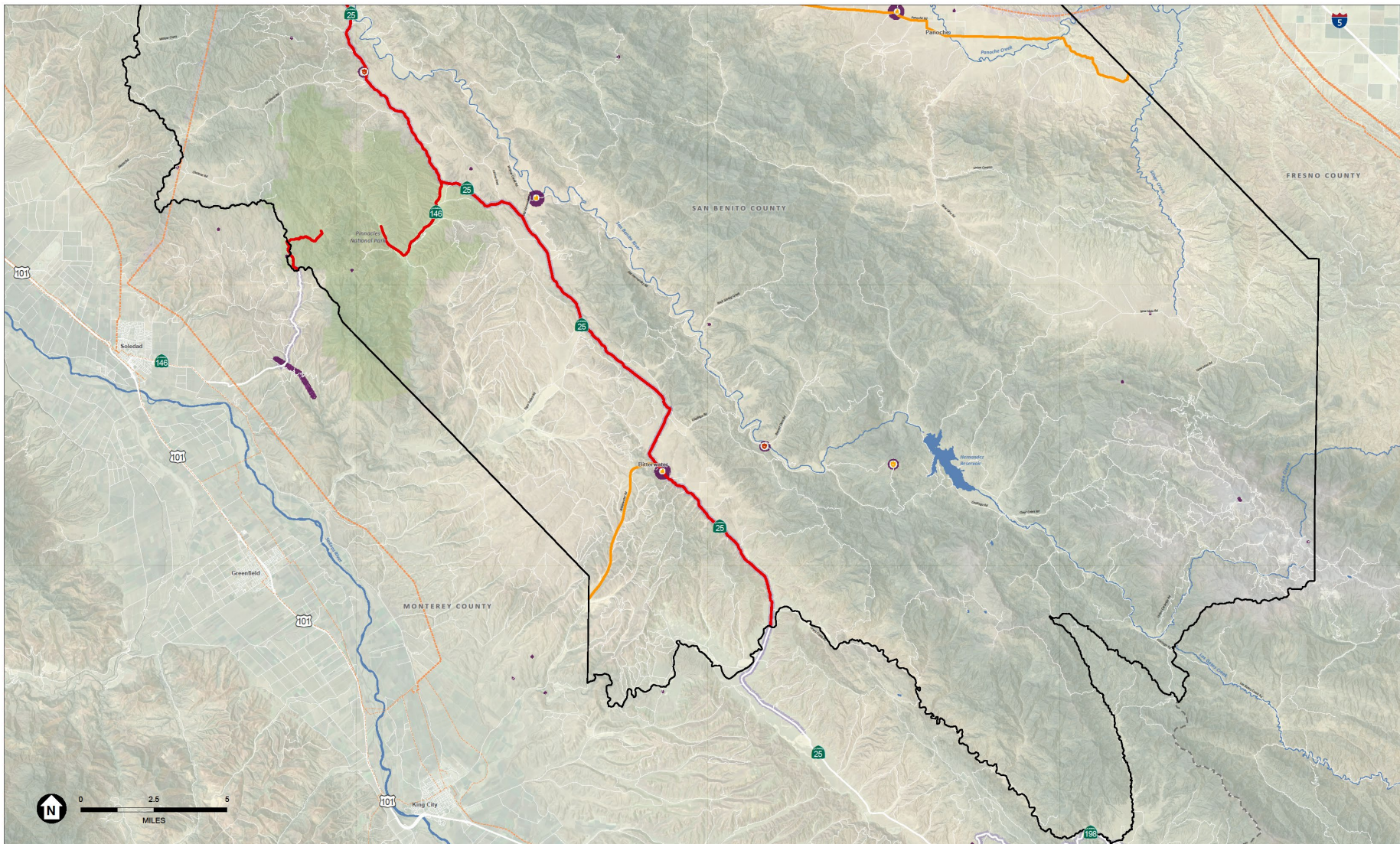
HVRA Risk Analysis



SOURCE: Esri, 2024; Google, 2024; San Benito County, 2024; SIG, 2024; ESA, 2024

- San Benito County
 - County Boundaries
 - Major Rivers & Streams
- Emergency Response**
 - Fire Stations
 - CalFire Facilities
 - San Benito Emergency Operations Center
 - Law Enforcement Stations
 - Emergency Shelters
 - Hospitals and Health Care
 - Community Food Bank
- San Benito County Fairground
 - Water Tanks
- Evacuation Routes**
 - Regional Routes (UASI)
 - Local Routes: Primary
 - Local Routes: Secondary
- Community**
 - Schools
 - Preschools and Daycares
 - Nursing Homes
 - Mobile Home Parks
 - Homeless Shelter
 - Campgrounds
 - Places of Worship
 - Registered National Historic Place
- Critical Infrastructure**
 - Aviation Facilities
 - Power Plants
 - Solar Farms
 - Petrochemical Plants
 - CA High Speed Rail Alignment
- Electric Transmission Lines**
 - KV (Sort)**
 - Smaller than 110 KV
 - 110 KV or Greater
- HVRA Combined Expected Net Value Change (eNVC)**

0.001
-24.571



SAN BENITO COUNTY WILDFIRE RESILIENCE PROGRAM

HVRA Risk Analysis



SOURCE: Esri, 2024; Google, 2024; San Benito County, 2024; SIG, 2024; ESA, 2024

- | | | | | | |
|---|---|---|--|---|--|
| <ul style="list-style-type: none"> San Benito County County Boundaries Major Rivers & Streams | <p>Emergency Response</p> <ul style="list-style-type: none"> Fire Stations CalFire Facilities San Benito Emergency Operations Center Law Enforcement Stations Emergency Shelters Hospitals and Health Care Community Food Bank | <p>Evacuation Routes</p> <ul style="list-style-type: none"> Regional Routes (UASI) Local Routes: Primary Local Routes: Secondary | <p>Community</p> <ul style="list-style-type: none"> Schools Preschools and Daycares Nursing Homes Mobile Home Parks Homeless Shelter Campgrounds Places of Worship Registered National Historic Place | <p>Critical Infrastructure</p> <ul style="list-style-type: none"> Aviation Facilities Power Plants Solar Farms Petrochemical Plants CA High Speed Rail Alignment <p>Electric Transmission Lines
kV (Sort)</p> <ul style="list-style-type: none"> Smaller than 110 kV 110 kV or Greater | <p>HVRA Combined Expected Net Value Change (eNVC)</p> |
|---|---|---|--|---|--|

Scoring and Ranking

Summary of HVRA Identification and Response Functions

HVRA/Sub-HVRA	Response Function					
	0-2 ft	2-4 ft	4-6 ft	6-8 ft	8-12 ft	>12 ft
Row Labels						
Critical Infrastructure	0	0	-1	-2	-3	-3
Communications	0	0	-1	-2	-3	-3
Emergency Response	-1	-1	-2	-2	-3	-3
Other	0	0	-1	-2	-2	-2
Utilities	0	-1	-2	-2	-3	-3
Cultural/Historic	-1	-1	-2	-3	-3	-3
Historic Sites	-1	-2	-3	-3	-3	-3
Prehistoric Sites	-1	-2	-3	-3	-3	-3
Traditional Cultural Resources	1	1	0	-1	-2	-3
Natural Resources	0	0	-1	-2	-2	-3
Ecological Reserves	1	1	0	-1	-2	-3
Riparian Habitat and Stream Corridors	0	0	-1	-2	-2	-3
Special Status Plants and Habitats	0	0	-1	-1	-2	-3
Upland Special Status Animals & Habitats	0	0	-2	-3	-3	-3
Populated Areas	-1	-1	-2	-2	-3	-3
Community	-1	-1	-2	-2	-3	-3
Emergency Response	-1	-1	-2	-2	-3	-3
Recreation Facilities	-1	-1	-2	-2	-3	-3

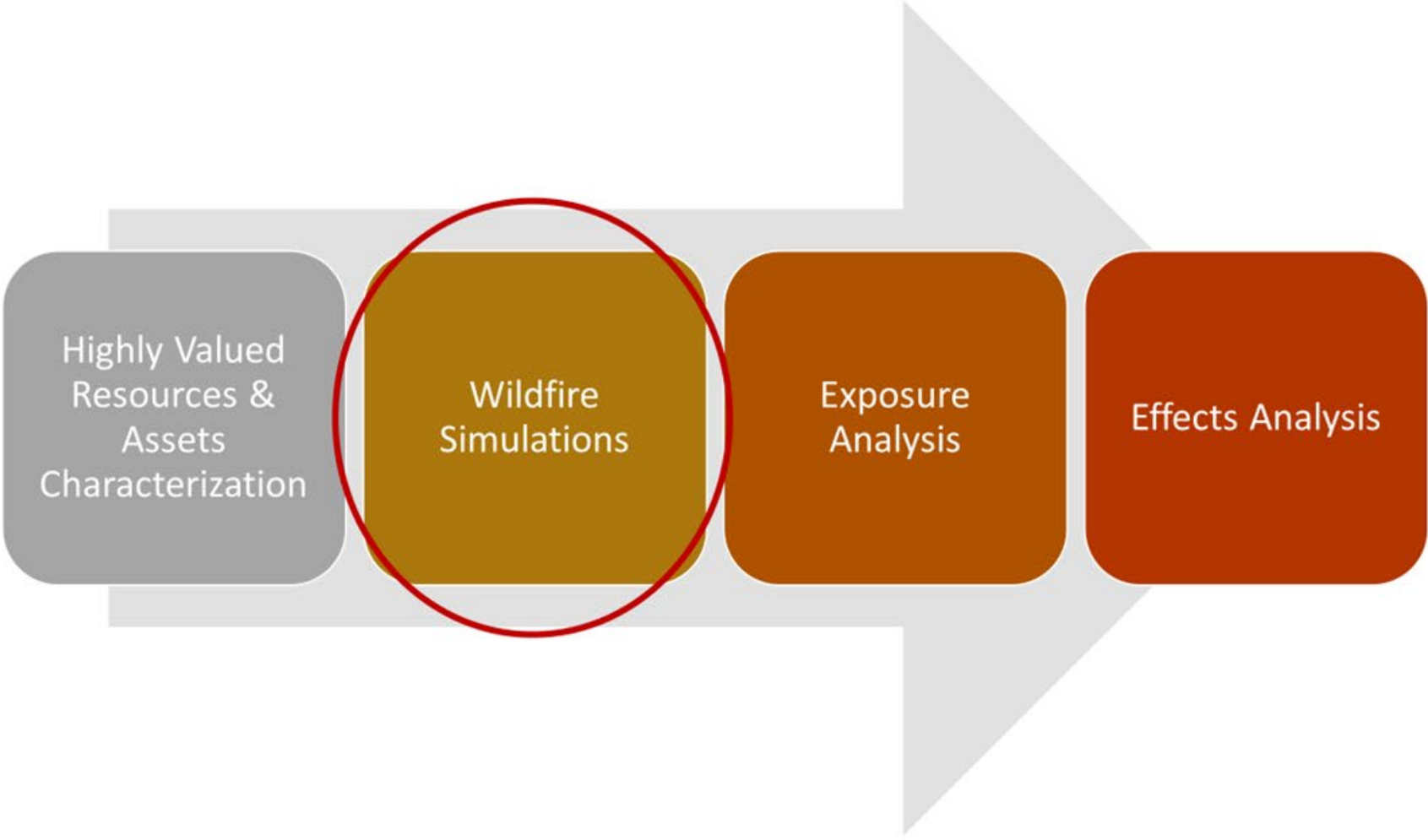
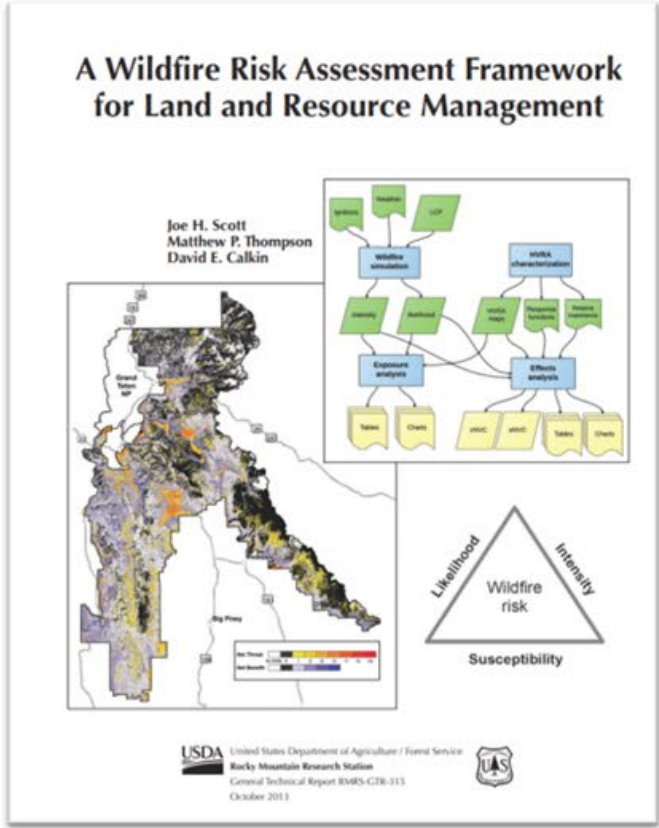
Relative Importance Scoring Criteria, from 0 to 5: Uniqueness/Rarity/Endemism, Replaceability, Legal Requirement to Protect

Wildfire Response Function Score: 3 = Highly Beneficial, -3 = Highly Detrimental

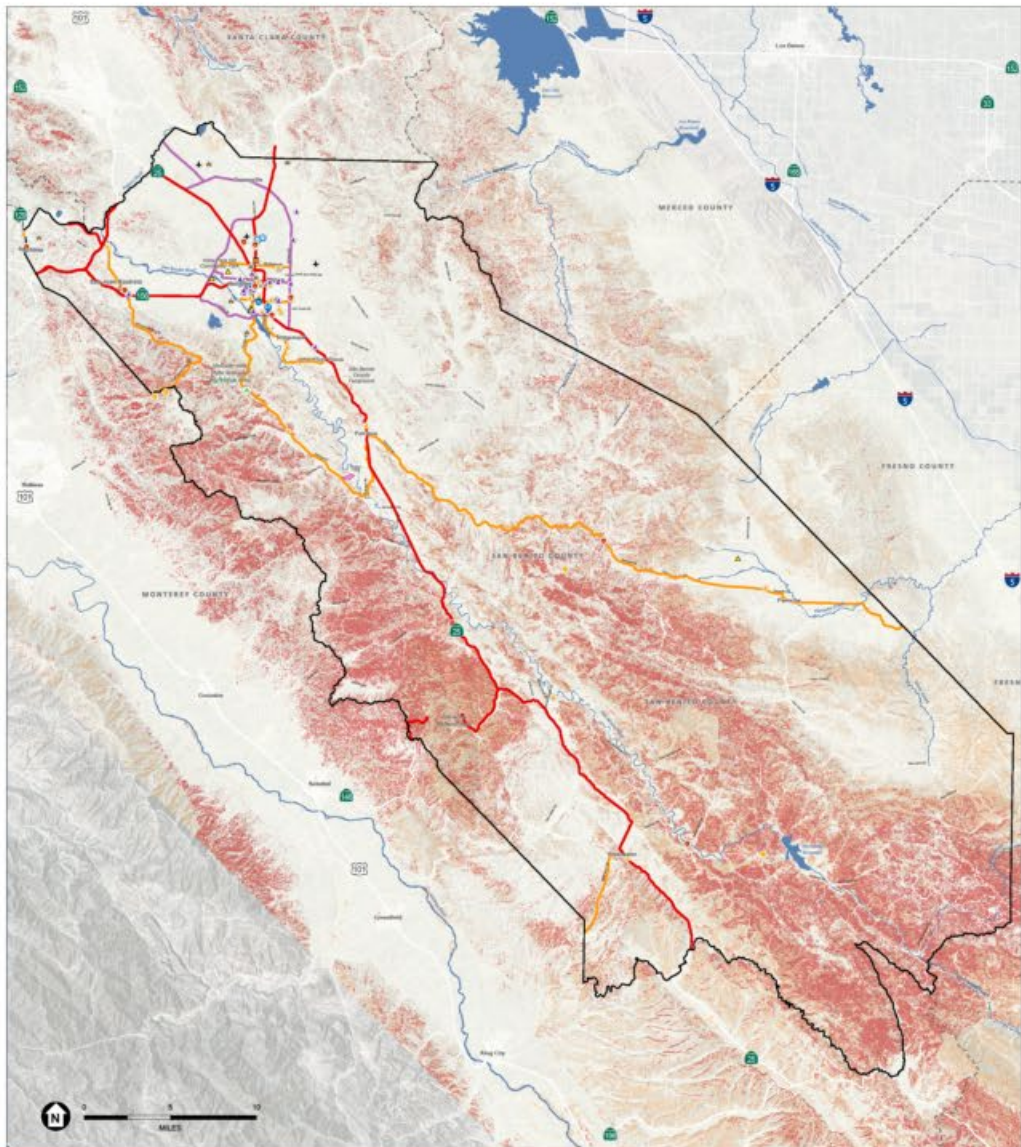
Response function (fire effects) scoring options for Sub-HVRAs

Response Function Score	Response Function Description
-3	Highly detrimental
-2	Moderately detrimental
-1	Slightly detrimental
0	No beneficial or detrimental effect
1	Slightly beneficial
2	Moderately beneficial
3	Highly beneficial
N/A	Unsure/Don't know

Overview of Wildfire Risk Assessment Process



Scott et al. (2013), Gen. Tech. Rep. RMRS-GTR-315

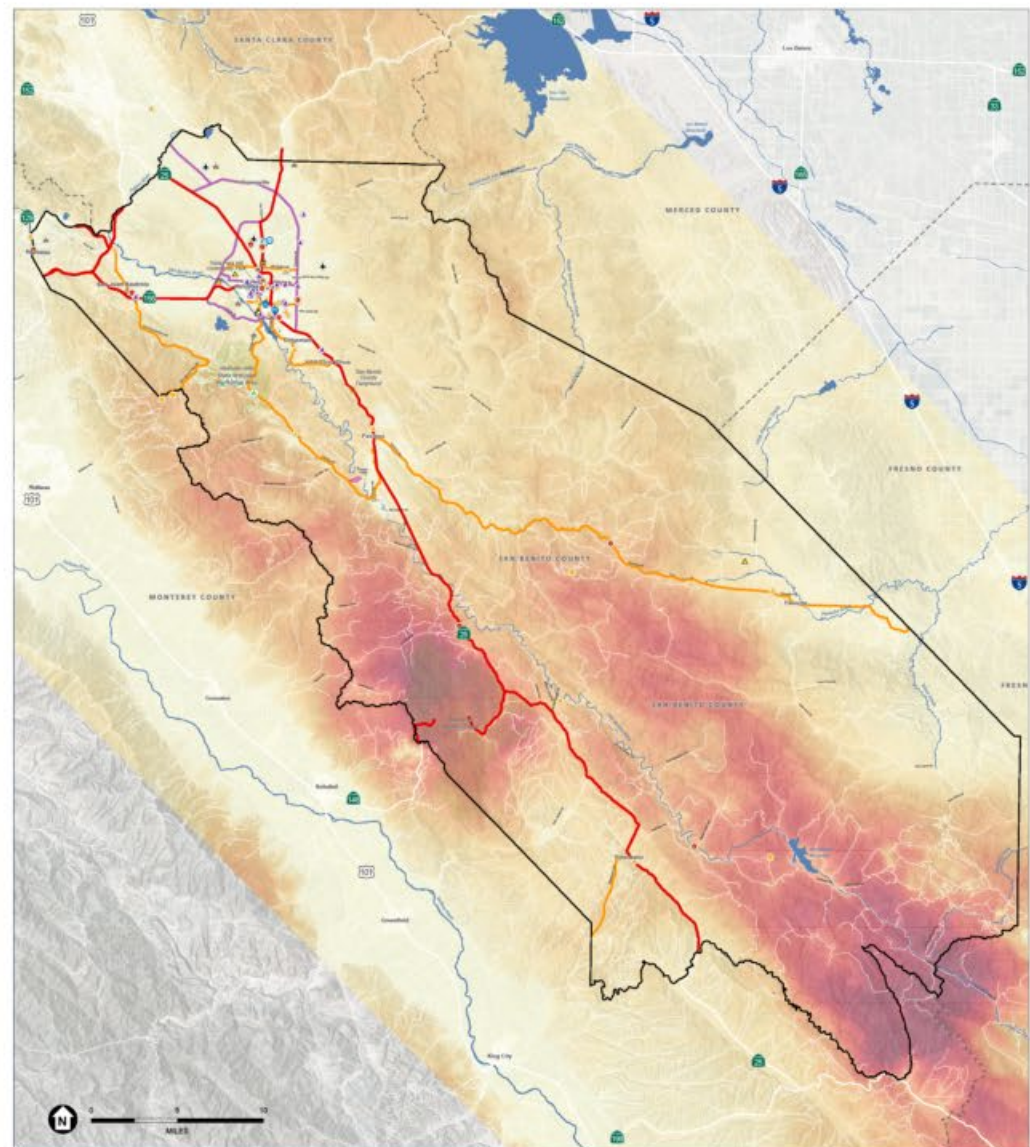


SAN BENITO COUNTY WILDFIRE RESILIENCE PROGRAM

Flame Length

- | | | | | |
|--|---|---|--|---|
| <ul style="list-style-type: none"> San Benito County County Boundaries Major Rivers & Streams | Emergency Response <ul style="list-style-type: none"> Fire Stations Cafine Facilities San Benito Emergency Operations Center Law Enforcement Stations Emergency Shelters Hospitals and Health Care Community Food Bank San Benito Fairgrounds Water Tanks Evacuation Routes <ul style="list-style-type: none"> Regional Routes (US95) Local Routes: Primary Local Routes: Secondary | Community <ul style="list-style-type: none"> Schools Preschools and Daycares Nursing Homes Mobile Home Parks Homeless Shelter Campgrounds Places of Worship Registered National Historic Place | Critical Infrastructure <ul style="list-style-type: none"> Airport Facilities Power Plants Solar Farms Petrochemical Plants | Flame Length <ul style="list-style-type: none"> > 8 ft.: High Intensity 4 - 8 ft.: Moderate Intensity 0 - 4 ft.: Low Intensity |
|--|---|---|--|---|

SOURCE: Esri, DeLorme, Garmin, 2024, San Benito County, 2024, SDC, SDC, SDC, ESA, 2024



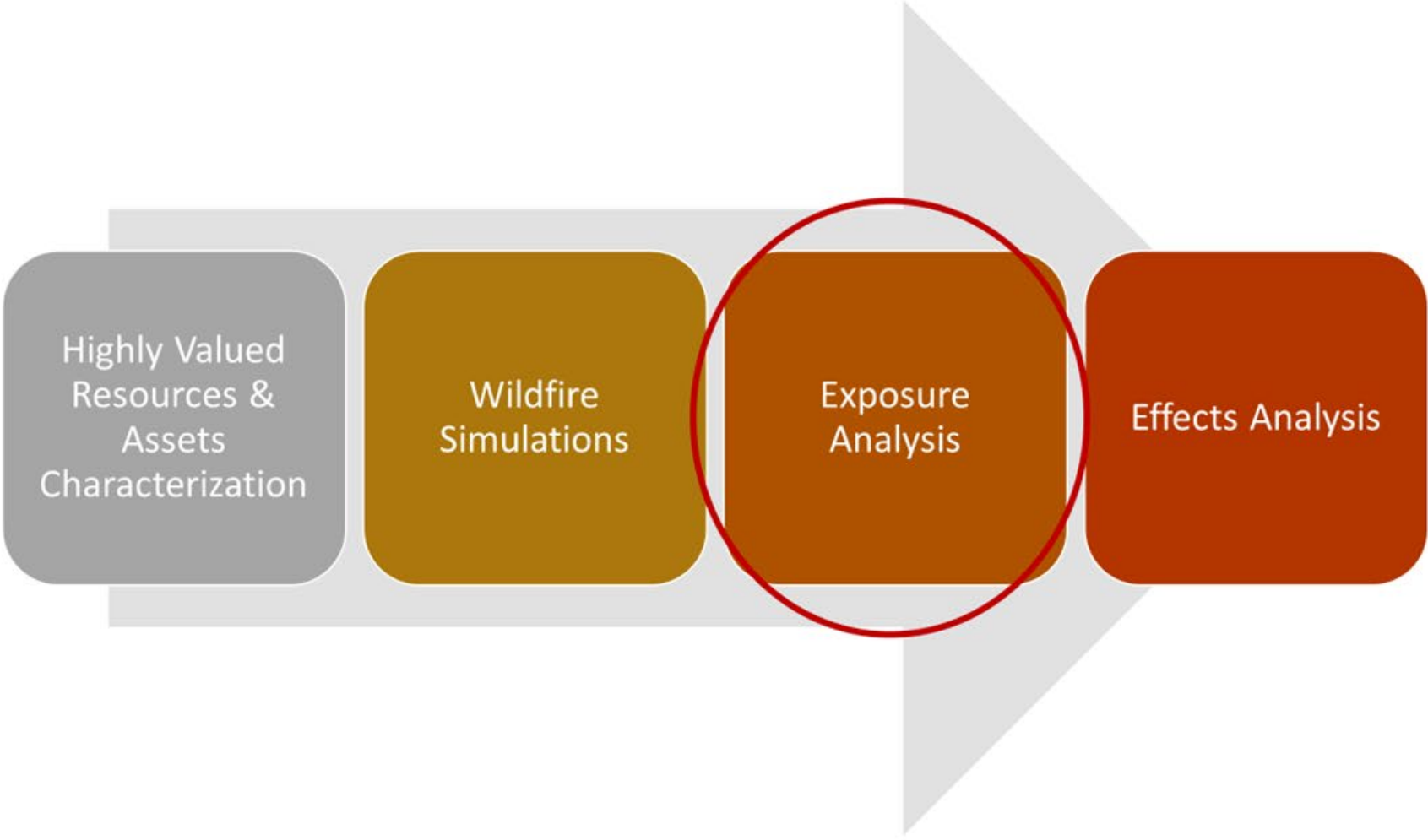
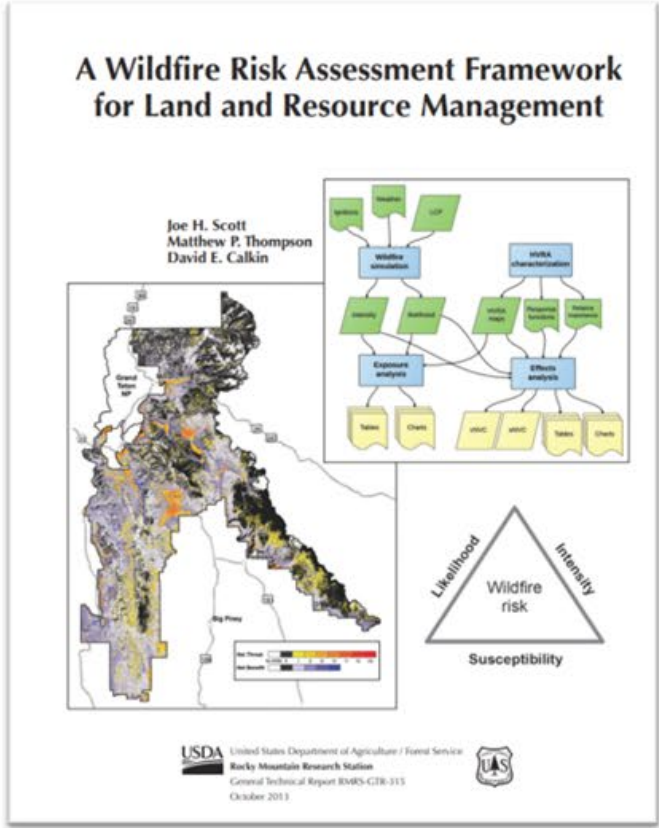
SAN BENITO COUNTY WILDFIRE RESILIENCE PROGRAM

Wildfire Burn Probability

- | | | | | |
|--|---|---|--|--|
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|--|---|---|--|--|

SOURCE: Esri, DeLorme, Garmin, 2024, San Benito County, 2024, SDC, SDC, SDC, ESA, 2024

Overview of Wildfire Risk Assessment Process

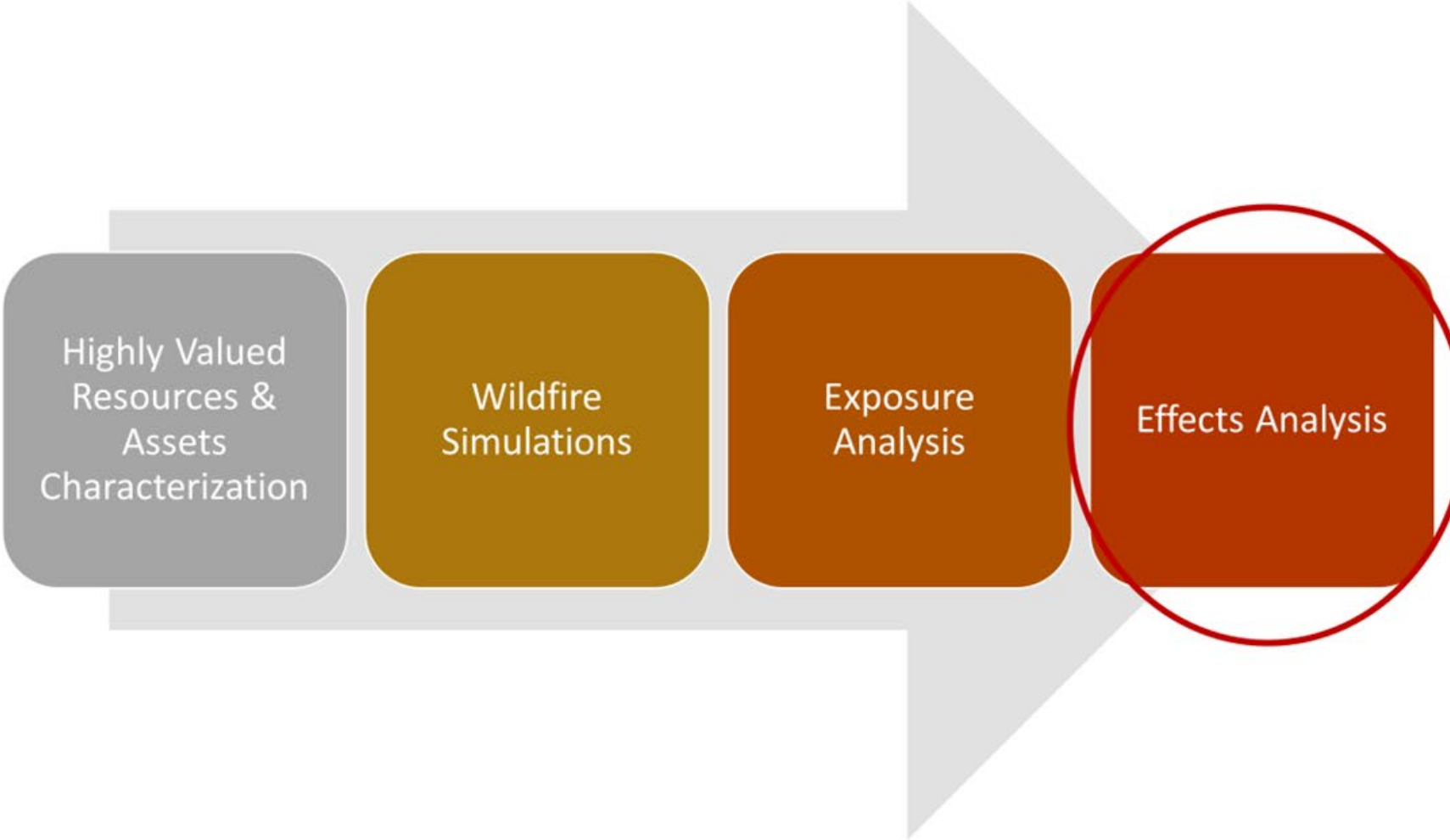
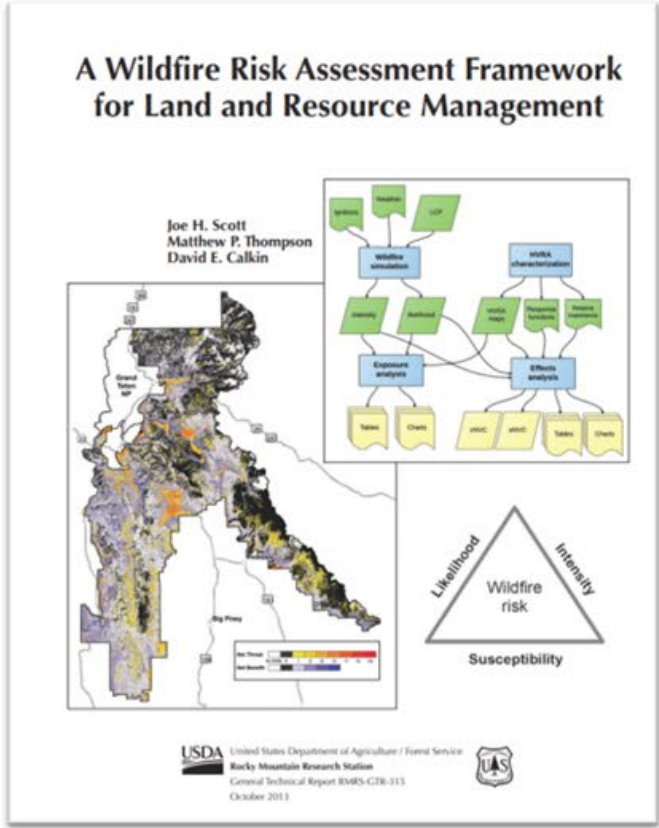


Scott et al. (2013), Gen. Tech. Rep. RMRS-GTR-315

Preliminary Exposure Analysis Results

HVRA	Sub-HVRA	Avg. Max Flame Length	Avg. Burn Probability	Likely Flame Length
Critical Infrastructure	Communications	2.1	0.7%	2.0
Critical Infrastructure	Emergency Response	2.5	1.1%	2.2
Critical Infrastructure	Other	1.2	0.3%	1.2
Critical Infrastructure	Utilities	2.9	0.8%	2.8
Cultural/Historic	Historic	0.1	0.0%	0.1
Populated Areas	Community	0.9	0.3%	1.0
Populated Areas	Recreation	3.2	1.1%	3.1

Overview of Wildfire Risk Assessment Process



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National Cohesive Wildland Fire Management Strategy



Fire Adapted Communities

- Goal is for people and communities to be as prepared as possible to prevent, respond to, and recover from wildfire.

- ✓ Reduce human-caused ignitions
- ✓ Public education and outreach programs
- ✓ Home/structure improvements



Resilient Landscapes

- Goal is for lands and waters to be resilient to fire, insect, and disease disturbances.

- ✓ Fuels reduction treatments
- ✓ Fuel breaks and buffers
- ✓ Prescribed grazing
- ✓ Removal of invasive species
- ✓ Pest management (insects and diseases)
- ✓ Post-fire recovery (e.g., reforestation, seeding)



Safe, Effective Wildfire Response

• Goal is for firefighting is for all partners and agencies to participate in making and implementing safe, effective wildfire response.

- ✓ Improve access to water supply; diversify supply
- ✓ Improve response capacity (additional personnel, training, equipment)
- ✓ Ensure easy and safe access
- ✓ Improve emergency notifications and communications



Identifying Priority Areas

- Priority strategies and locations for hazardous fuel reduction and other types of projects
- Collaborating with community and Core Collaborators Team to identify priority areas
- Helps with prioritization of investment of money, time, energy, etc. to protect:
 - People/Communities
 - Natural and Cultural Resources
 - Firefighter Safety

