



Executive Summary: RAVAR (Rapid Assessment of Values At Risk)

RAVAR is the primary fire economics tool within the Wildland Fire Decision Support System (WFDSS). RAVAR was developed by Dr. Dave Calkin and Kevin Hyde (METI contractor) from the Rocky Mountain Research Station's Missoula Forestry Sciences Lab. RAVAR identifies the primary resource values threatened by ongoing large fire events. RAVAR is typically integrated with the FSPro model to identify the likelihood of different resources being impacted in the potential fire path of an ongoing event but can be linked to any expected fire spread polygon.

The RAVAR model produces two primary outputs. The Tier I map and report identifies private structures, public infrastructure, public reserve areas, and hazardous waste sites. Tier II products focus on regionally identified natural resource and wildland management priorities. Private structures within the Tier I layer are based on two sources: county level geospatial cadastral data; and where cadastral data is unavailable, structure points derived from aerial photo interpretation produced by the USGS, Rocky Mountain Geographic Science Center. Acquisition of the cadastral data has been coordinated by the National Cadastral Sub-Committee and resulted in the pre-staging of structures layers for use in the RAVAR for approximately two thirds of all western US counties in 2007. The cadastral committee has reached out to local county offices including assessors, planners, natural resources, and GIS staffs, to acquire the county's spatial (GIS) parcel records. From the cadastre record, a building clusters map is developed representing the general location of structures identified within the parcel records. Public infrastructure includes water supply systems and reservoirs, major power lines, pipelines, communication towers, recreation facilities, and other significant landmarks. Tier I also identifies designated wilderness and roadless areas, wild and scenic river corridors, and national recreation areas. Superfund sites and mines are mapped and reported along with other HAZMAT locations.

Tier II reports are used to identify highly valued natural resources and management priorities that may be affected by an ongoing fire event. The RAVAR staff has coordinated the acquisition and staging of the appropriate layers through direct interactions with regional Forest Service fire and natural resource staff members. Examples of Tier II layers include sensitive wildlife habitat, recreation zones, restoration priority areas, and Appropriate Management Response zones.

RAVAR was initially tested in 2005 with increased testing and prototype applications delivered during the 2006 and 2007 season. During the active fire season of 2007, over 100 RAVAR reports were delivered through the web-based WFDSS to fire events in real time. The WFDSS was developed by the Forest Service and is currently being adopted by Department of Interior agencies.

RAVAR can help agency administrators, incident managers, and fire planners develop wildland fire suppression strategies by rapidly identifying and quantifying the significant resource values most likely to be threatened by an ongoing fire event. In the area command setting, RAVAR has been shown to be useful in prioritizing fires for assignment of scarce suppression resources. Additionally, RAVAR can help support the development of Long Term Implementation Plans (LTIP), and will be a critical component of the WFDSS as the system transitions to replace the Wildland Fire Situation Analysis in 2009.

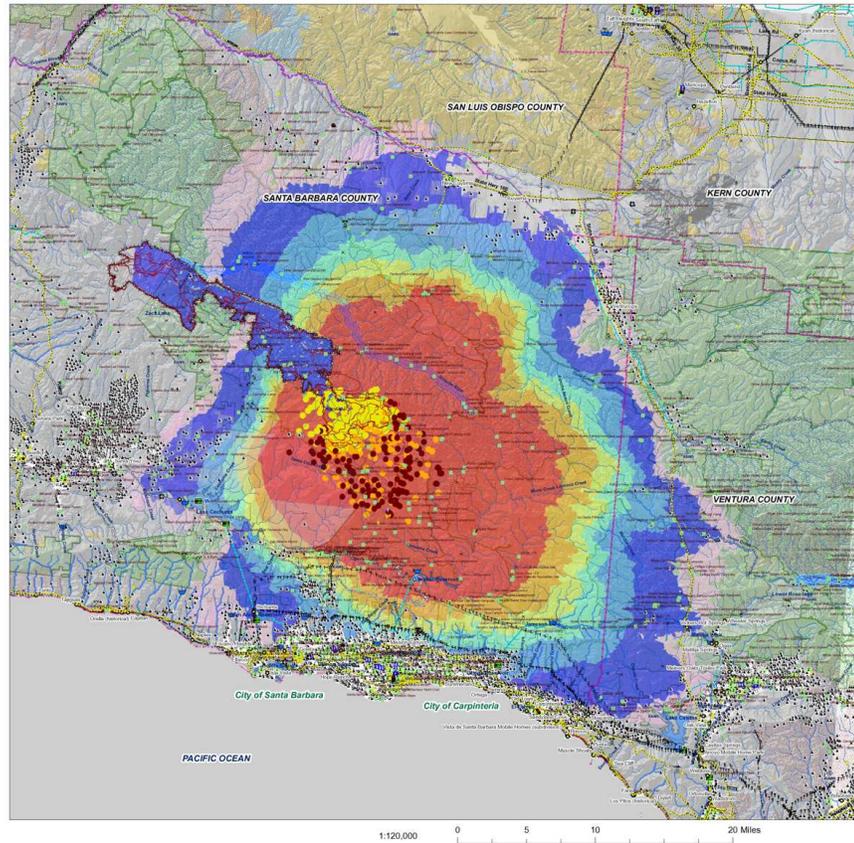


WFDSS: Wildland Fire Decision Support System

FSPRO RAVAR: Rapid Assessment of Values-at-Risk

Zaca Fire, CA
4 August 2007 - T1_E_070803_1_3h
Major Values-at-Risk per
FSPRO Fire Spread Probabilities:
14 days as of 5 August 2007

- Fire Perimeter as of 5 August
- MOODS last 8 days
 - 4 August
 - 3 August
 - Phenosis 8 days
- Purple Fire 1994-2006
- FSPRO Fire Spread Probability
 - > 80%
 - 60 - 80%
 - 40 - 60%
 - 20 - 40%
 - 5 - 20%
 - 1 - 5%
 - < 1%
- FSPRO Spread Barriers
 - ARANS Stations
 - Building Clusters: Ventura Co.
 - Improved Parcels: Santa Barbara Co.
 - Water: Dams > 100ft
 - Water Supply: Makes
 - Water Treatment Plants
 - Water Pipeline - Appurtenant - Canal
 - Powerlines
 - Industrial Plant
 - Power Pylon
 - Communication Towers
 - Oil & Gas Transmission Lines
 - Airports
 - Airport Runways
 - Police Stations
 - Hospitals
 - Fire Stations
 - Schools
 - HAZMAT: Mines
 - HAZMAT: Suspended Sites
 - HAZMAT: Hazardous Waste
 - Other Landmarks
 - Interstates
 - Major Roads
 - Railways
 - County Boundary
 - Private
 - State
 - BLM
 - BOR
 - USFS
 - Inventoried Roadless
 - Designated Wilderness
 - WSP-Scenic-Red Flows
 - Building Clusters: Santa Barbara Co.



*Building Clusters represent the center of parcels where county assessor records indicate taxable improvements are present. One or more structures and other improvements may exist proximate to these point locations.

CAUTION: Defer to air photos or local knowledge for exact structure and other feature locations.

Prepared by Ronny Hyatt, METS for USFS RMRS Fire Ecology Science Lab, Moscow, MS-2011-147 (pub/fig/147)

Figure 1: One of eight RAVAR maps produced during the progress of the Zaca Fire, Santa Barbara County CA. This large, long-duration incident threatened thousands of homes, oil and gas pipelines, communication towers, municipal supply watersheds, and dozens of recreation and historic sites.