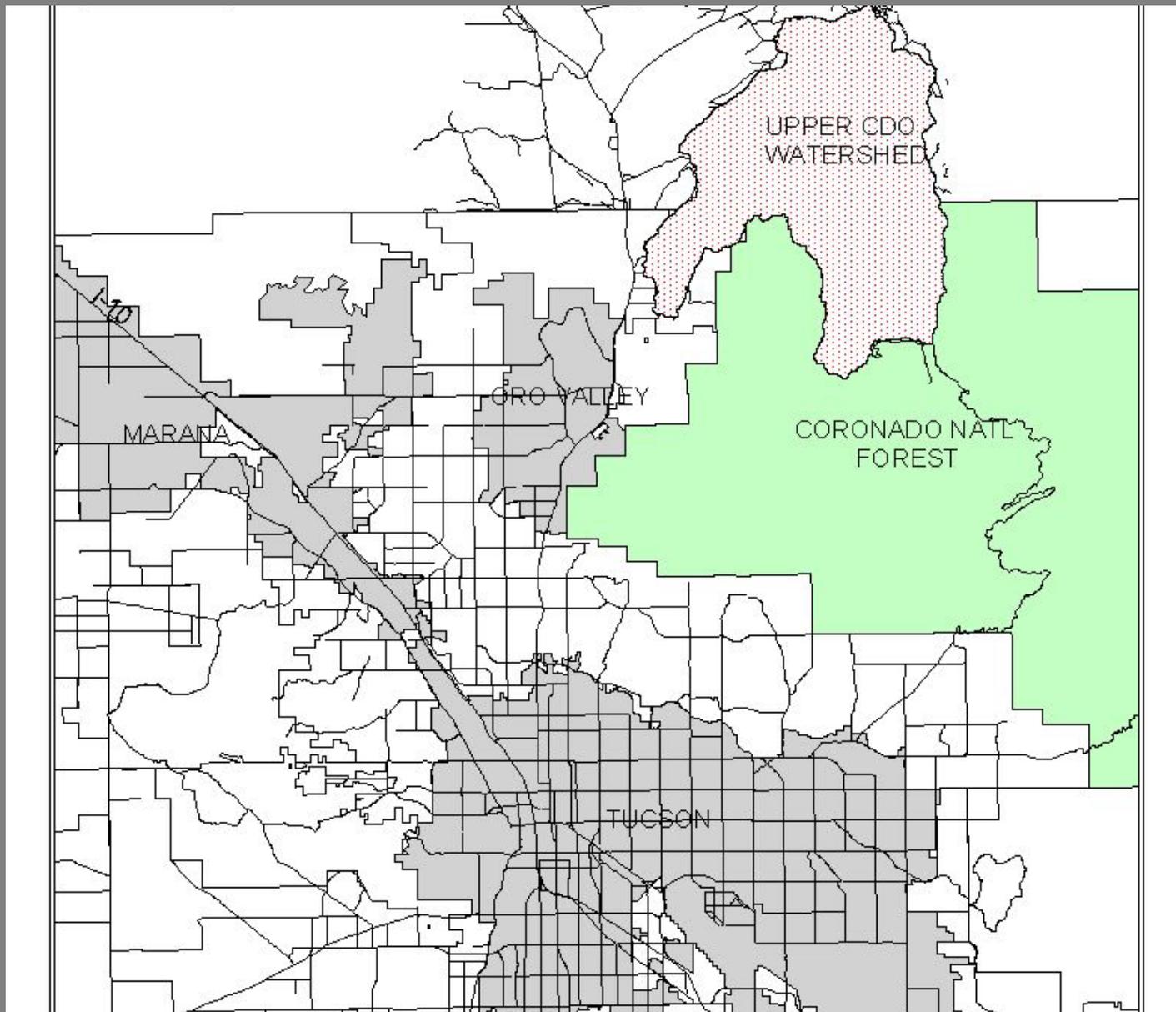

Pima County ALERT System Response to the effects of the Aspen Fire on the Upper Cañada Del Oro Watershed

Andy Wigg

Pima County Regional Flood Control District





Aspen Fire

- The Aspen Fire was started by human activity on June 17, 2003, south of the community of Summerhaven

- It was officially contained on July 15 after burning approximately 84,750 acres and destroying 333 structures.

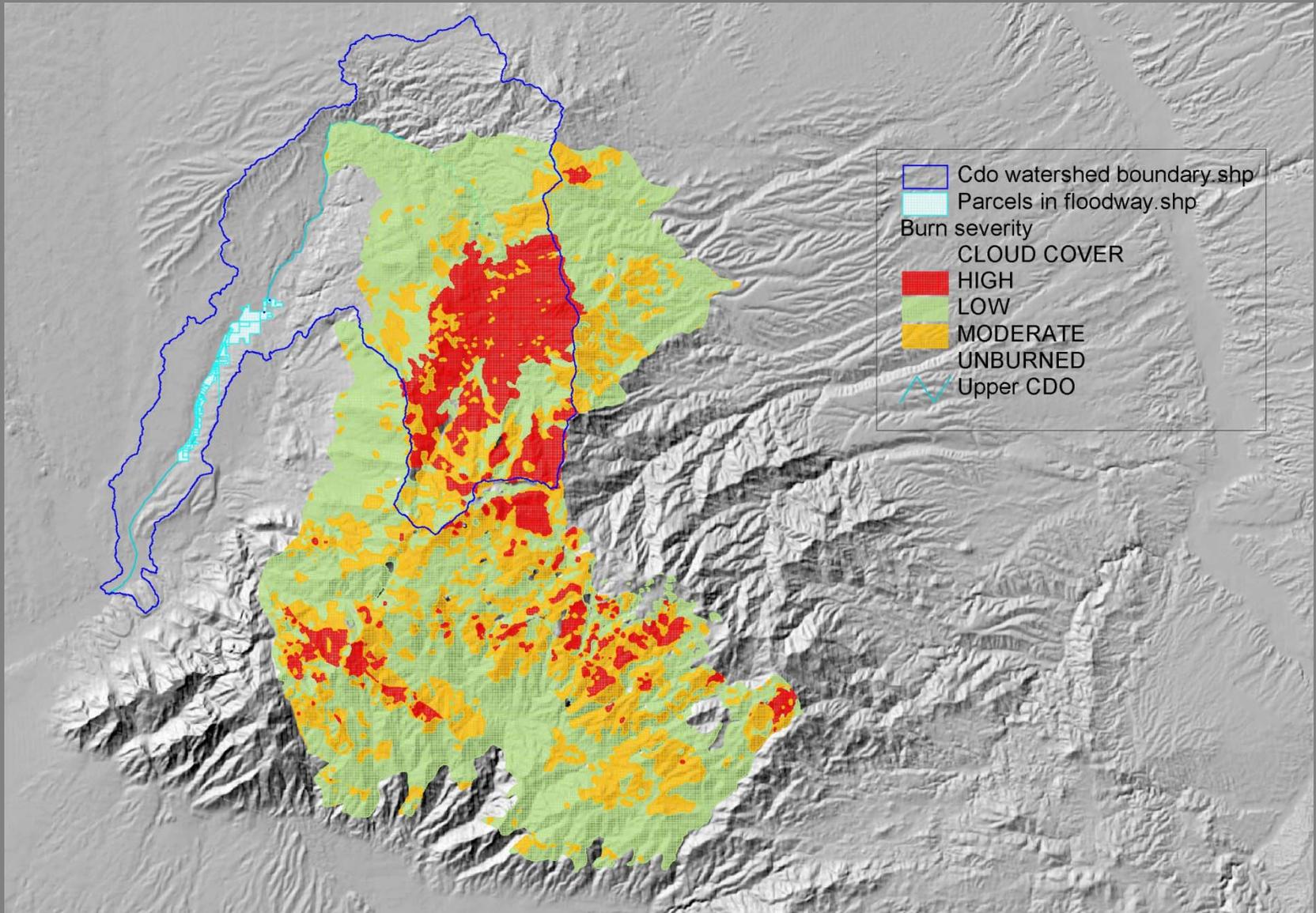




JUL 28 2003



JUL 28 2003

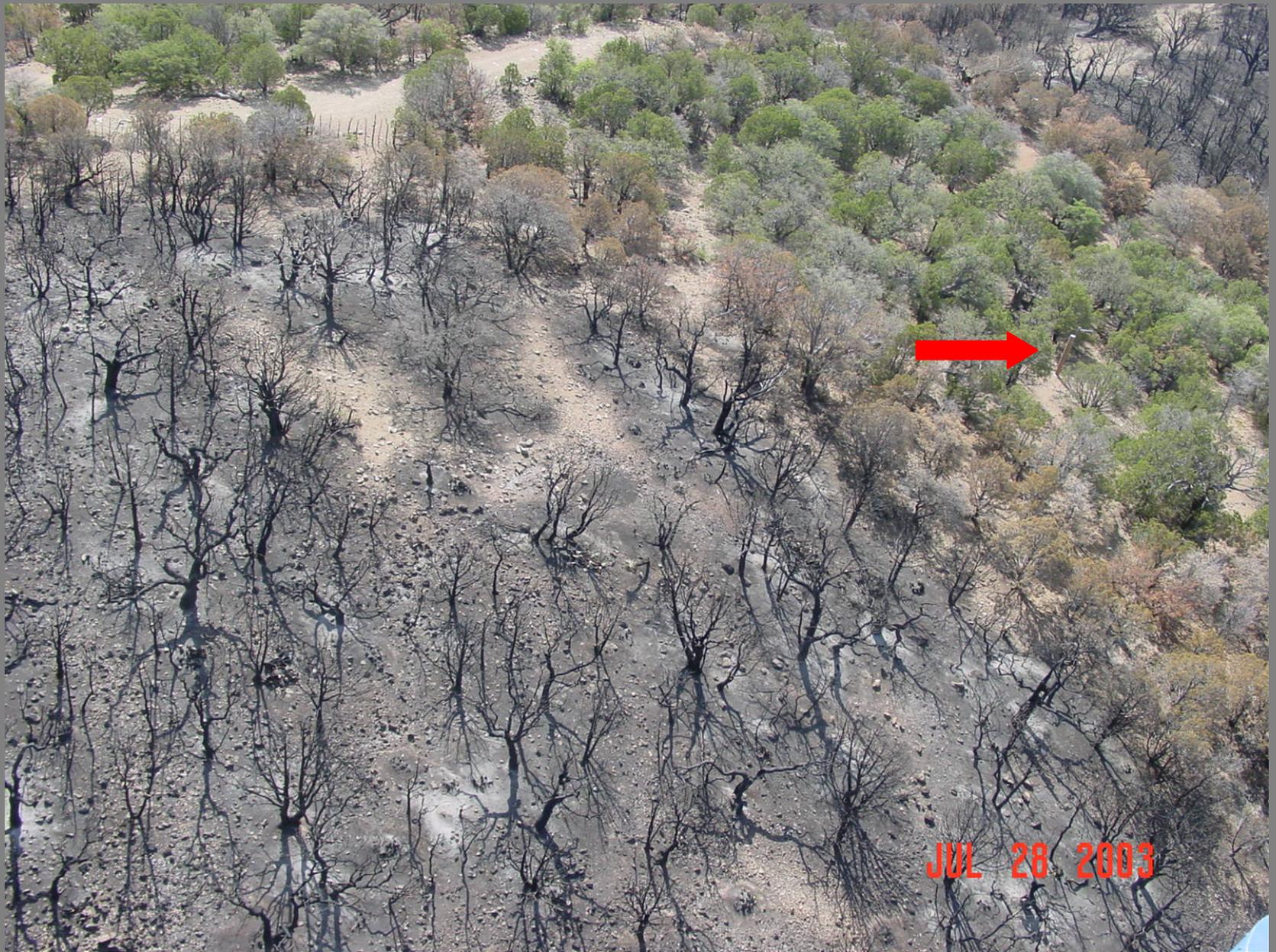


Canada del Oro Watershed

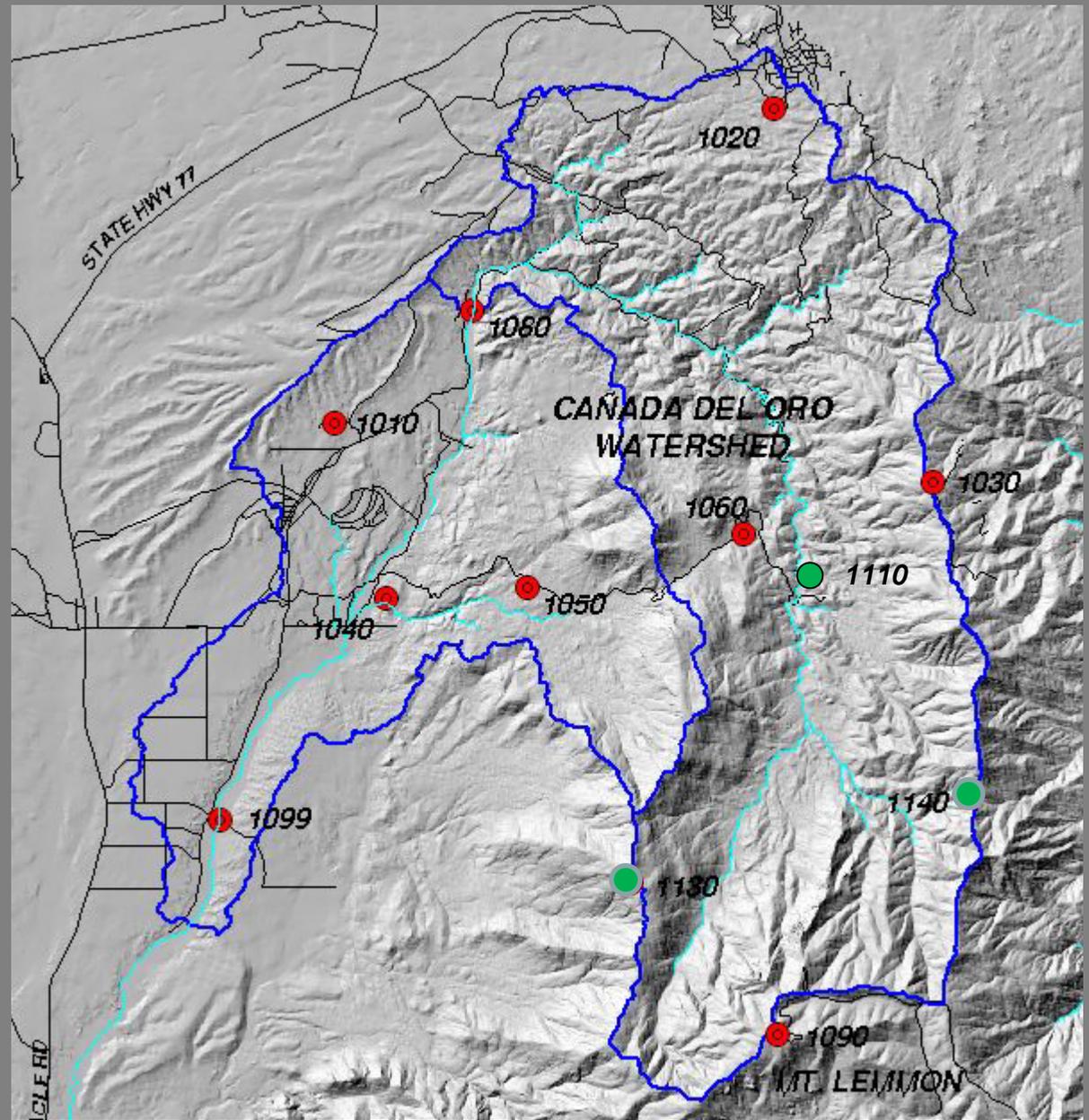
- Majority of high Intensity fire was concentrated in the CDO watershed
- 59% of the watershed burned
- 20% of the watershed burned at high intensity



- Runoff from the Canada del Oro Watershed flows directly into developed areas of Pima County.
-



Location of
ALERT
sensors
within the
Canada del
Oro
Watershed



Post Aspen Fire Flooding

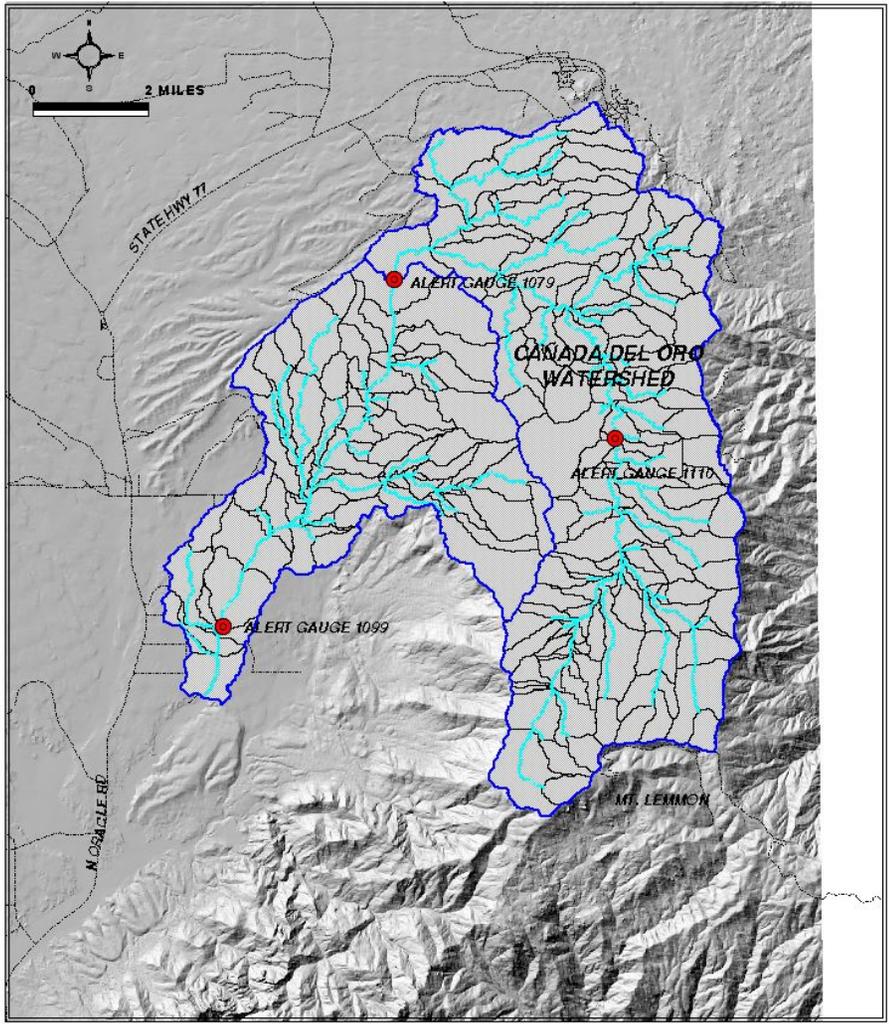
- August 1st and 14th, 2003, the flood flows at Golder Ranch Road were approximately 4,000 cfs and occurred after ½ to 1 inches of rainfall.



- August 25, 2003, a larger rainfall event, averaging between 1 and 2 inches of rainfall in less than one hour, resulted in a flood flow of about 6,000 to 7,000 cfs. Flooding necessitated an evacuation of 40 residences located within the floodplain in the community of Catalina.
 - Previous high flows (1983, 1993) ~ 2000 cfs.
-



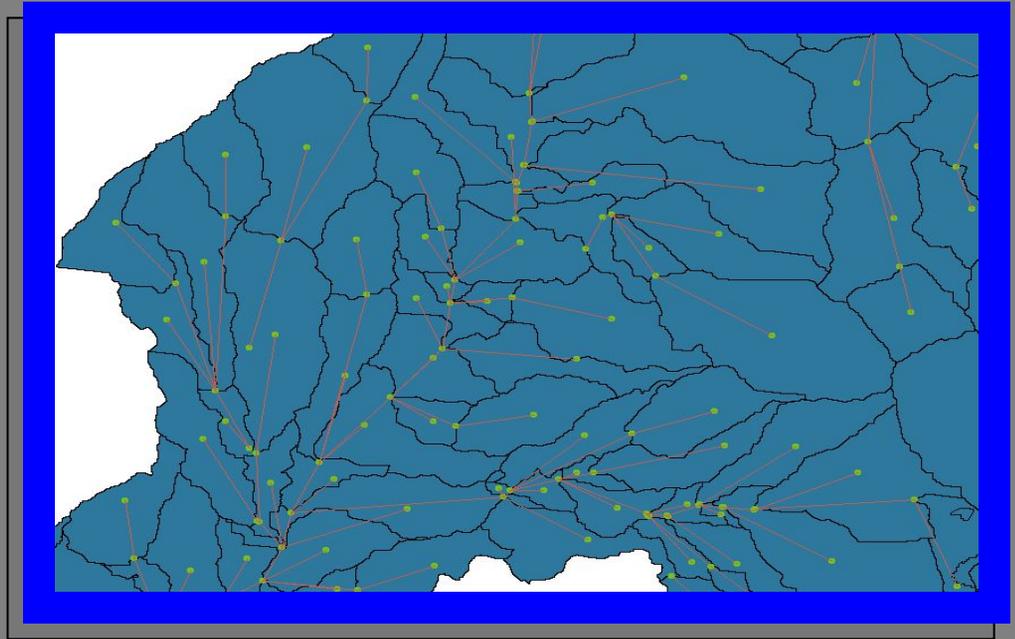




STREAM NETWORK

ALERT Data

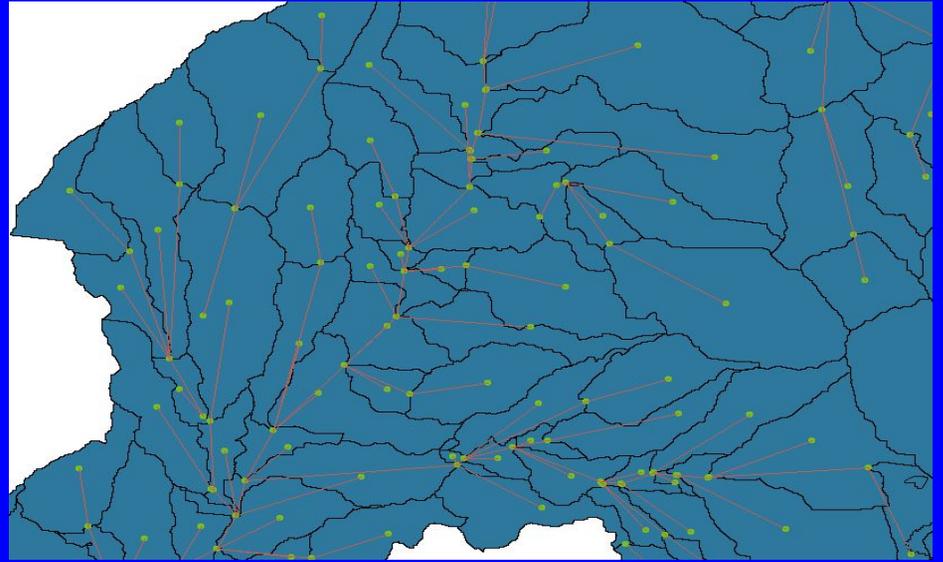
- Thunderstorm
- 8/25/03, 8:20 pm
- Maximum precip 1.85 in.
- Peak intensity 4.47 in/hr.



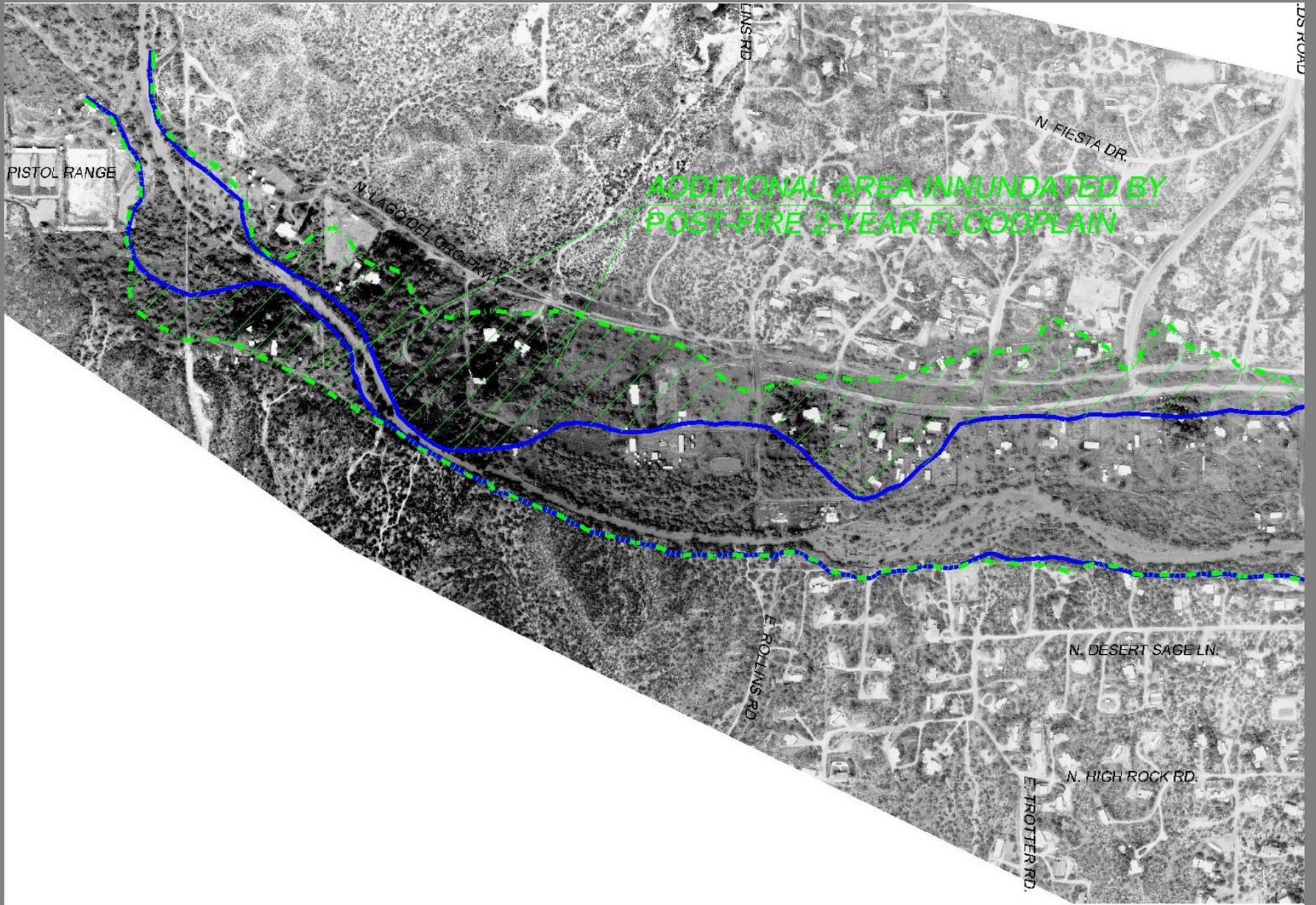
- Hydraulic connectivity noted between Rancho Solano and Golder Ranch ALERT gages. Evacuations of floodprone properties
 - Peak flow at Rancho Solano 12.58 feet / ~ 7,000 cfs
 - Peak flow at Golder Ranch 5.25 feet / ~7-8,000 cfs
 - PPT and stream flow data used to calibrate HMS model. Curve Numbers in burned areas generally reduced.
-

Model Results

Runoff Summary at Golder Ranch Road Bridge (with Calibration)



Recurrence Interval	Pre-fire (cfs)	Post-fire (cfs)
100-year	11,381	24,531 (+116%)
50-year	8,750	19,739 (+126%)
25-year	6,386	15,385 (+141%)
10-year	3,795	10,361 (+173%)
5-year	1,819	5,991 (+229%)
2-year	586	2,476 (+423%)



Success Stories

- Data from the ALERT system in conjunction with information gained from the modeling effort assisted in providing more timely and accurate information to emergency responders.



- Evacuations of residents from flood hazard areas.
 - Timely barricading of at-grade road crossings.
-

Success Stories

- Data collected from ALERT system provided quantifiable evidence of the increased post-fire flood hazard.



- This data was used in a successful FEMA Pre-Disaster Mitigation Grant.
 - Pima County awarded \$3 million to purchase flood prone properties downstream of the burned CDO watershed.
 - Over 40 residences in the CDO floodplain have been purchased, greatly reducing a significant flood hazard.
-



