

Emergency Response Planning Island Style

A collaborative project by:
Los Angeles County Fire Department
and
Catalina Island Conservancy



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Catalina Island
Conservancy



Challenge

- Navigating the network of dirt roads and locations throughout the remote island interior.
 - Lack of street signs.
 - Many road names and geographical locations were local knowledge only.
 - Previous map products were incomplete and inconsistent.

Solution

- Create a digital map product that captures local knowledge and combines the various independent map products on the island into one agreed upon standard.



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Objectives

- Create an accurate detailed map of Catalina Island for land and water navigation during emergency incidents.
- Create a map book for incident responders.
- Create an operational map for incidents.
- Create a custom map for GPS units with matching data.
- Create a geodatabase for current and future needs.



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Additional Benefits

- Documentation of local historical knowledge through Geodatabase.
- Provides base data for ecological studies.
- Provides for integration with CAD system for incident response.
- Provides a base map and data for incident preplanning and post incident analysis.



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Project Data and Software

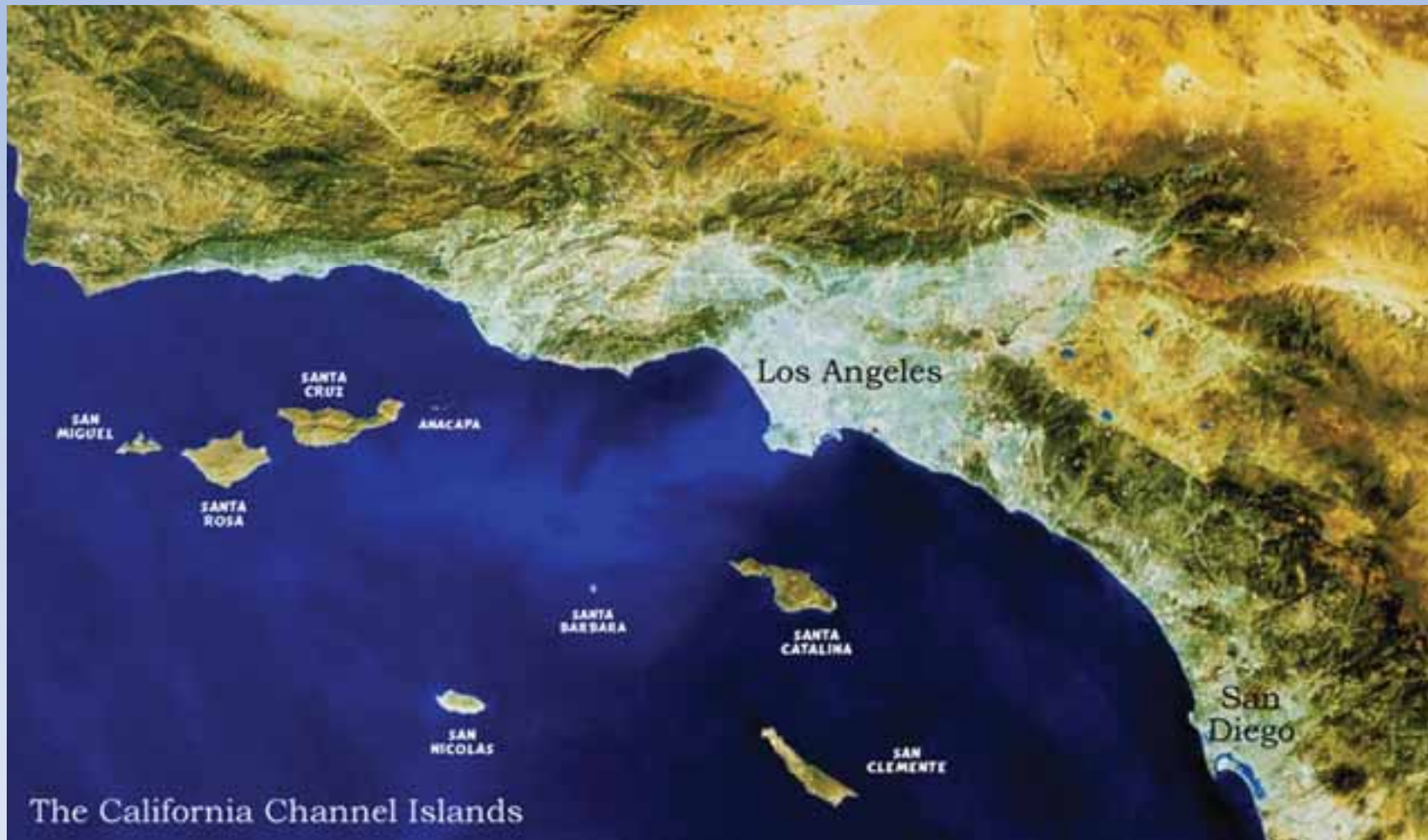
- Catalina Conservancy field data collected since 1997 using Trimble GPS units.
- LAR-IAC2 (Los Angeles Region Imagery Acquisition Consortium) 4 inch resolution aerial imagery.
- 5 meter DEM
- Arcgis 9.3 and 10



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Santa Catalina ...one of California's Channel Islands



Santa Catalina Island

- Located in the County of Los Angeles
- Population
 - Residents: 4,200 Tourists: 1,000,000 annual
- Ownership
 - City of Avalon: 3 sq. miles
 - Catalina Island Conservancy: 66 sq. miles
 - Santa Catalina Island Company: 8 sq. miles

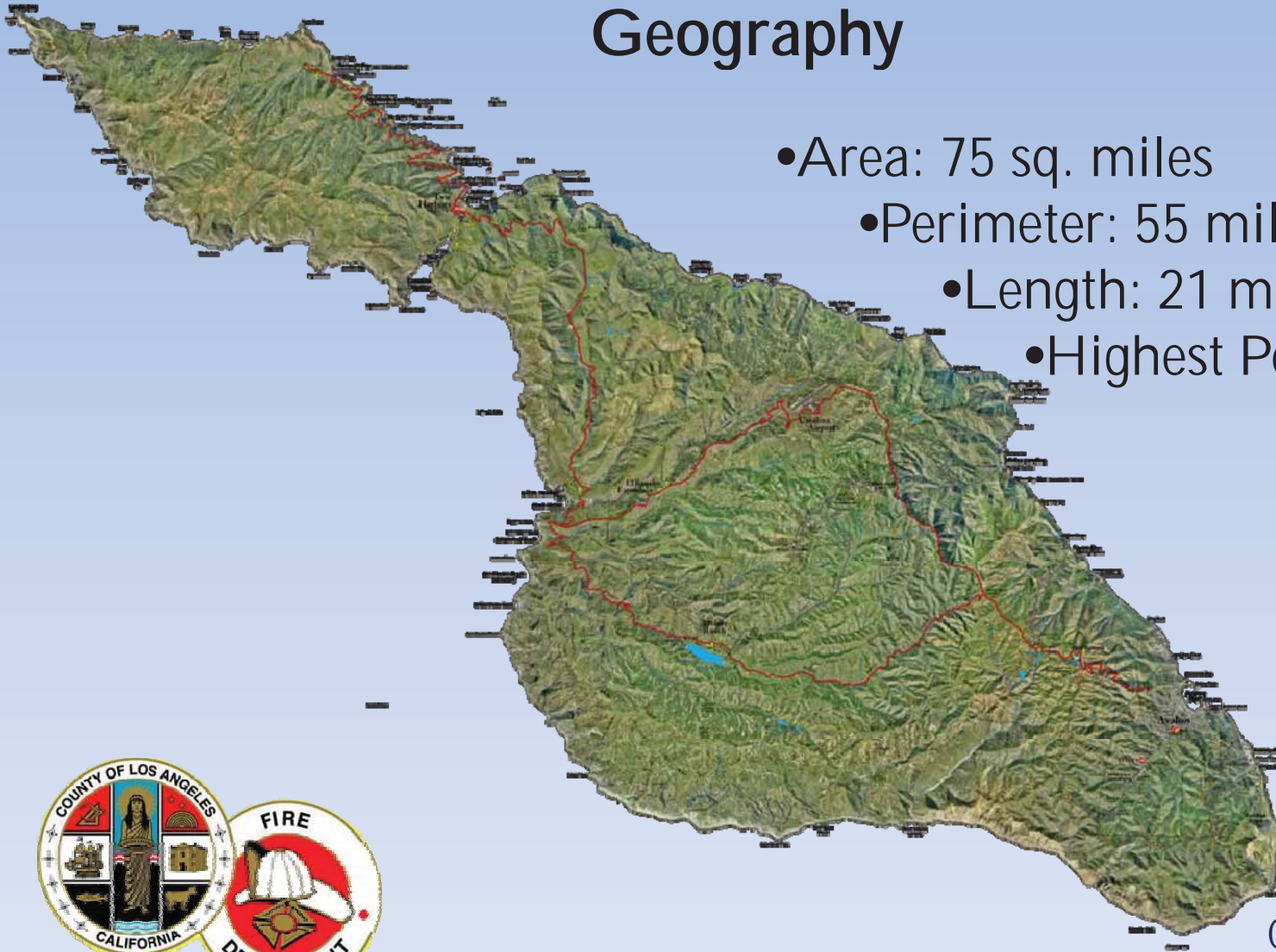


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Santa Catalina Island Geography

- Area: 75 sq. miles
- Perimeter: 55 miles
- Length: 21 miles
- Highest Point: 2,103 ft.



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Island Fires

Since 1999 five fires have burned 10% of the island

- Goat Harbor Fire..268 acres....(1999)
- Airport Fire.....127 acres... (2003)
- Empire Fire.....1,063 acres.(2006)
- Island Fire.....4,760 acres.(2007)
- Echo Lake Fire.....22 acres.....(2010)

U.S Navy Hovercraft



Island Fire - City of Avalon



Post-Fire Ecological Effects and Costs

- Natural fires on Catalina are very rare. Catalina's flora has evolved with only occasional fires.
- Too much fire or fire at the wrong time of year can seriously effect many of the island's native ecosystems which may take decades to recover or under-go a vegetation type conversion.
- The Conservancy has spent over \$1,000,000 on post-Island Fire monitoring and protection of rare plant communities and more than \$800,000 on debris structures for property protection.



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Emergency Response Resources

Los Angeles County

• Fire Department • Baywatch Lifeguards • Sheriff's Department

City of Avalon • Fire Department • Harbor Department

Catalina Island Conservancy • Rangers • Facilities

Catalina Island Search and Rescue Team

United States • Coast Guard • Navy

Southern California Edison

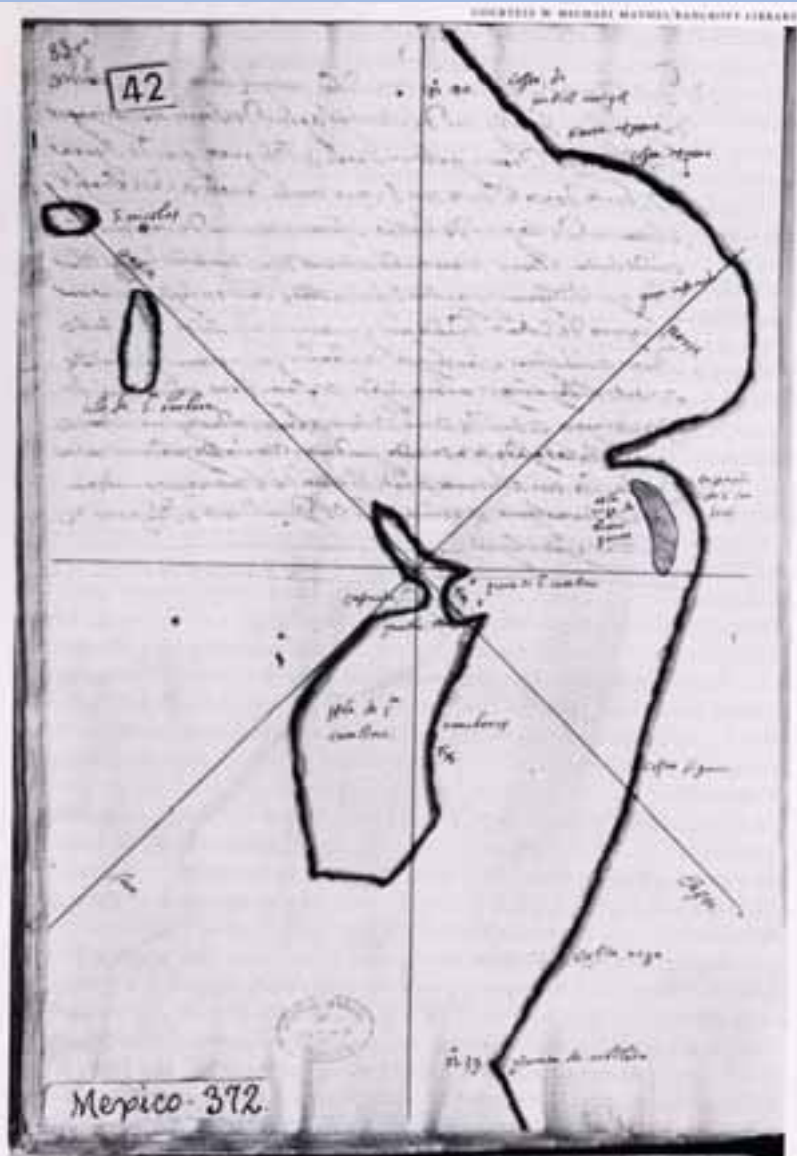
Volunteer Groups



Data Collection

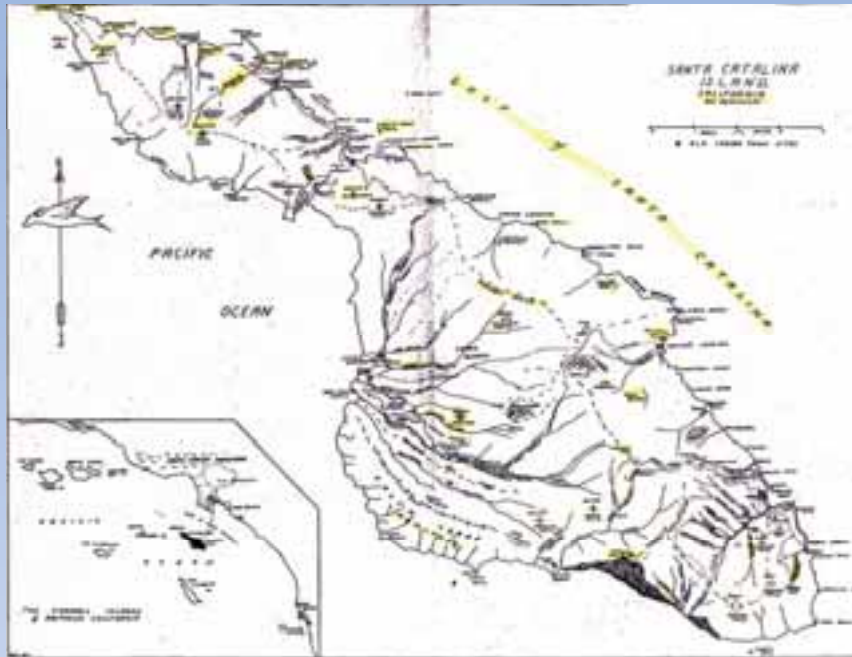
- Historical maps
- Literature
- Photographs
- Local knowledge

- Existing map products
- Agency specific maps



Sebastian Vizcaino
1602 Chart





Meadows, 1939

Los Angeles County
Fire Department,
George Boss, 1988



Let's Build a Map of Catalina Island

Add: 65 mile shoreline from old data



Add: LAR-IAC2 4 inch resolution Aerial Imagery

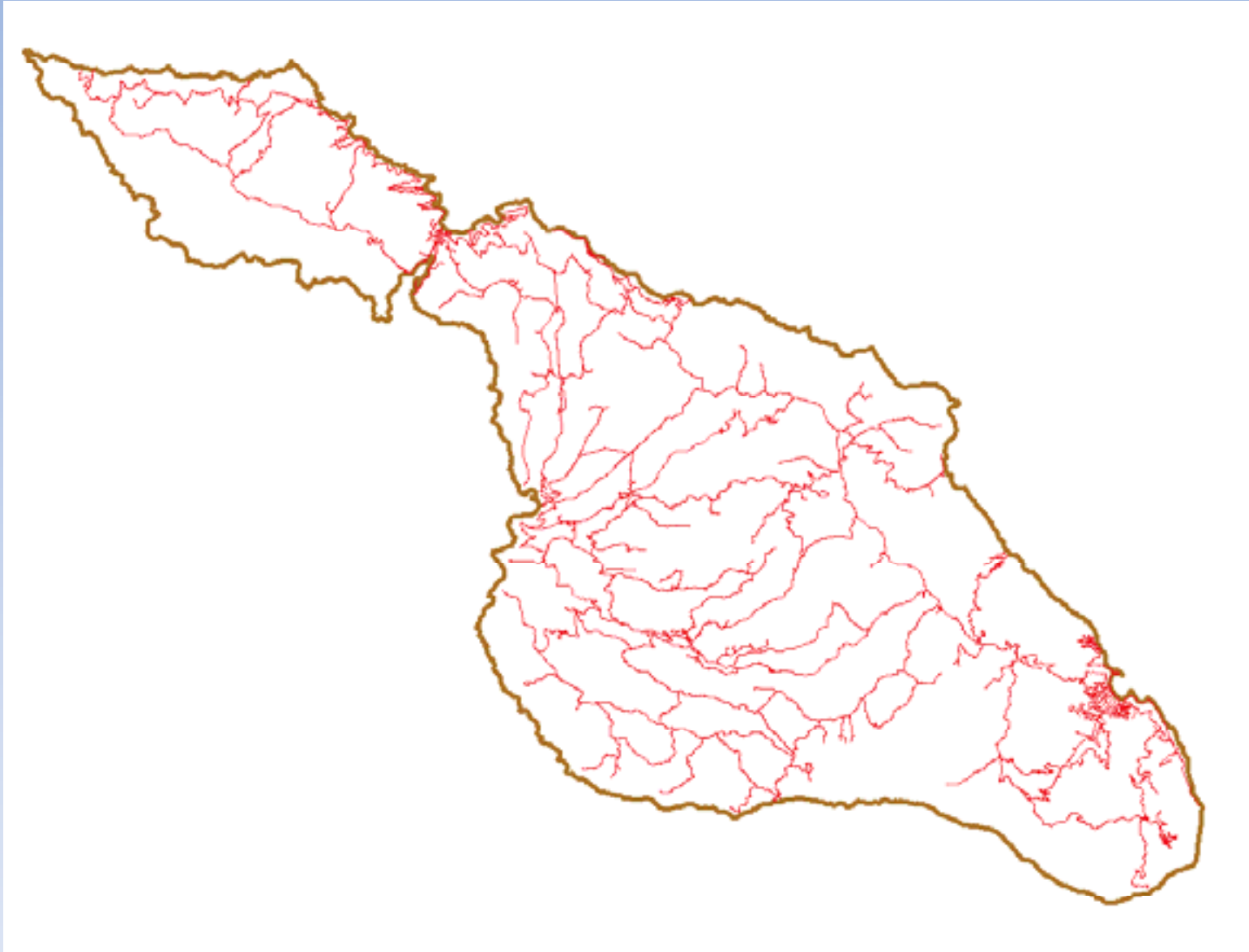
Problem: Shoreline does not match geography and improvements



Solution: Edit shoreline using aerial image



- Add: 257 miles of Roads and Trails from field data collection



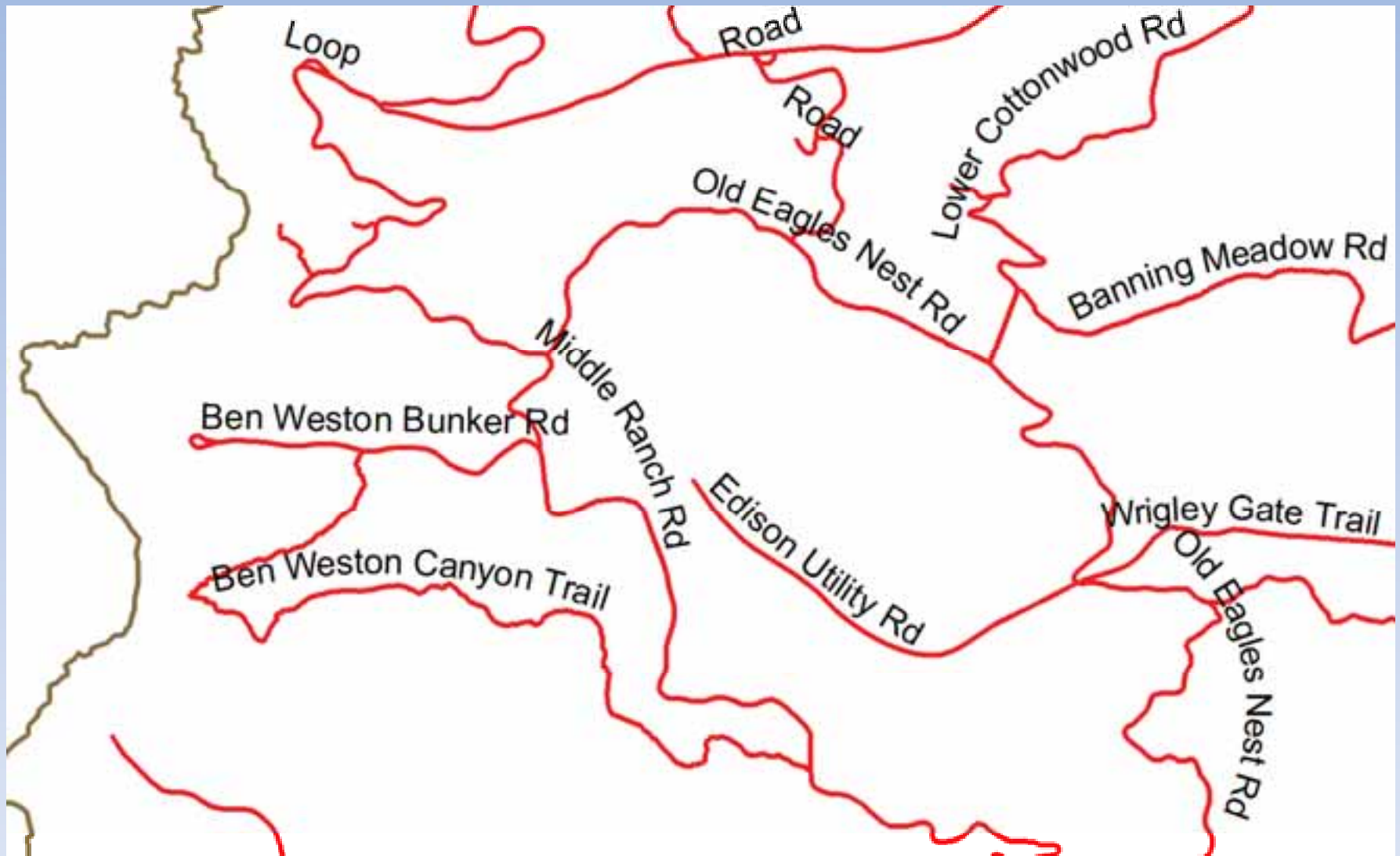
Problem: Topology errors and misalignment with roads



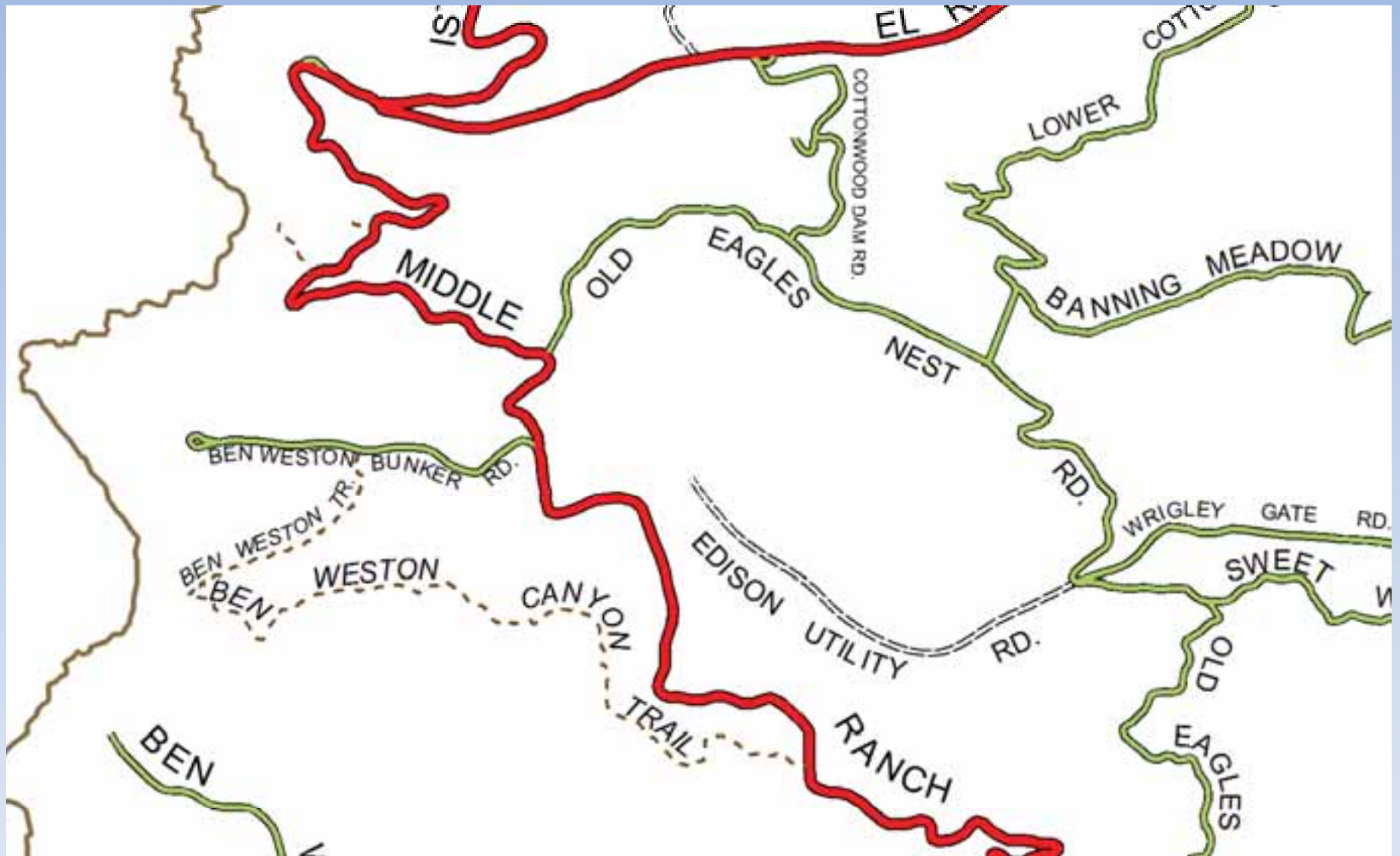
- Solution: Use topology and editing tools to edit roads



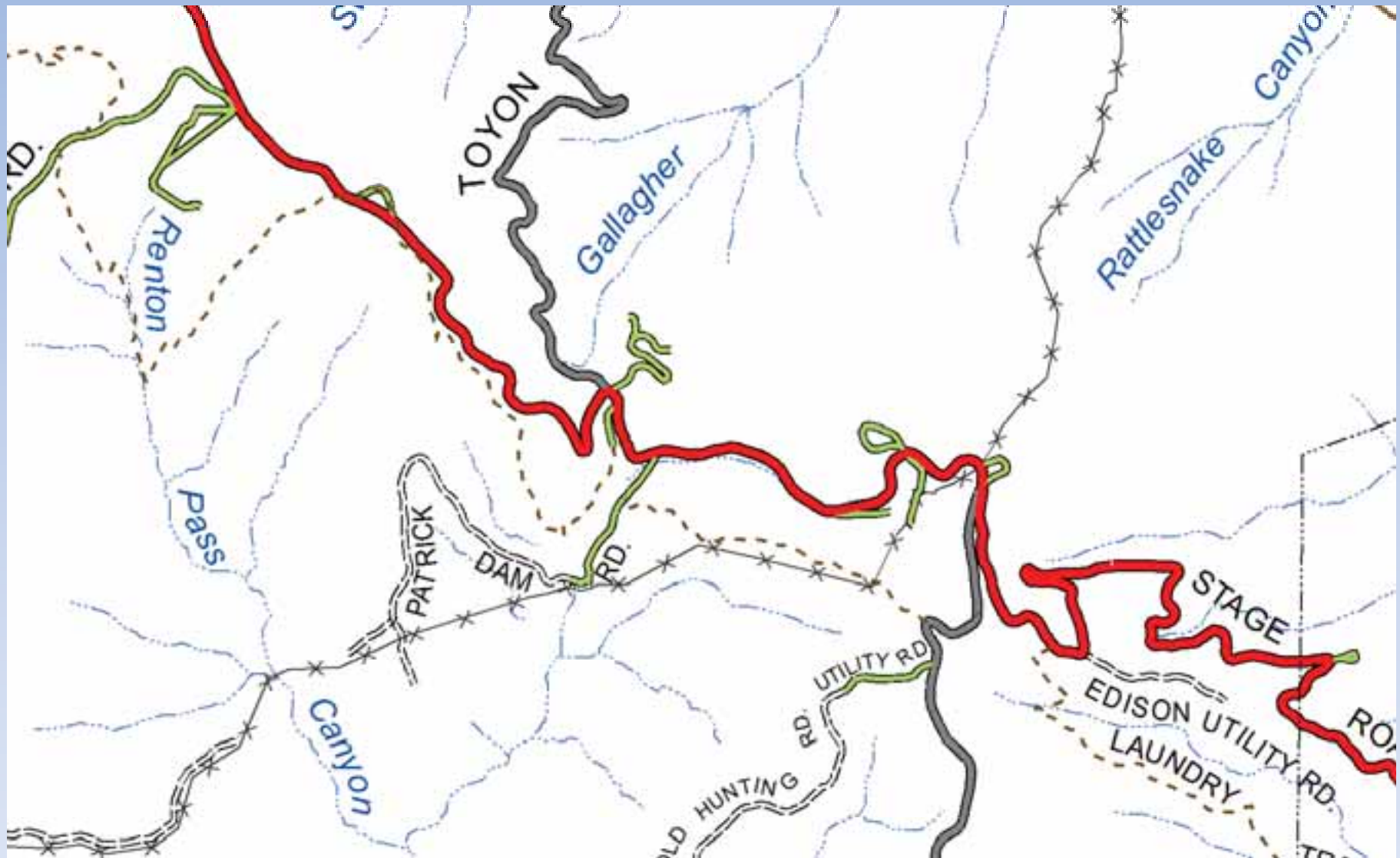
- Problem: Road Names and Symbology



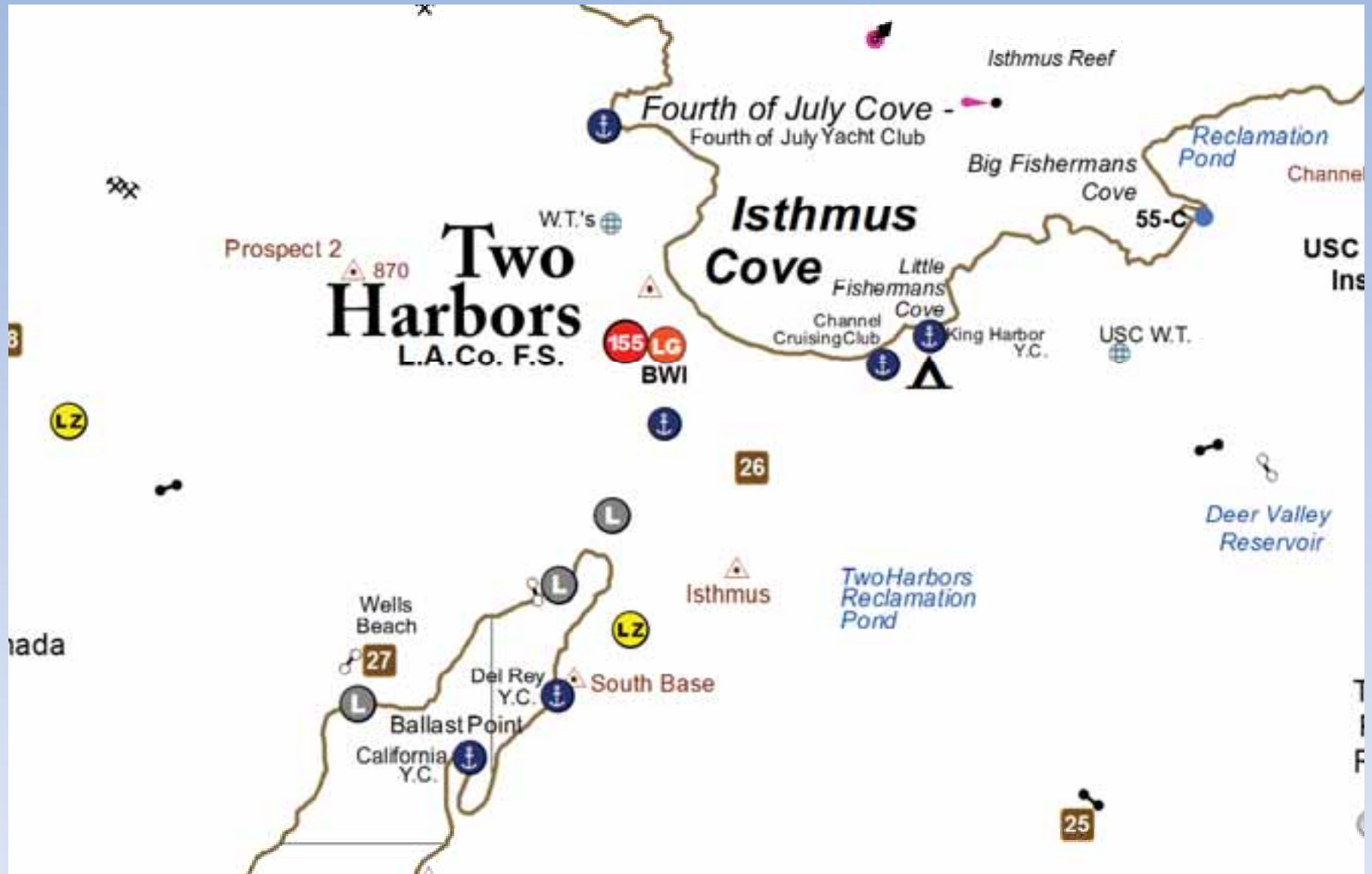
- Solution: Geodatabase Annotation and Custom Symbolology



- Add: Line features - Hydrology, Fenceline, Ownership



Add: Point features and Annotations



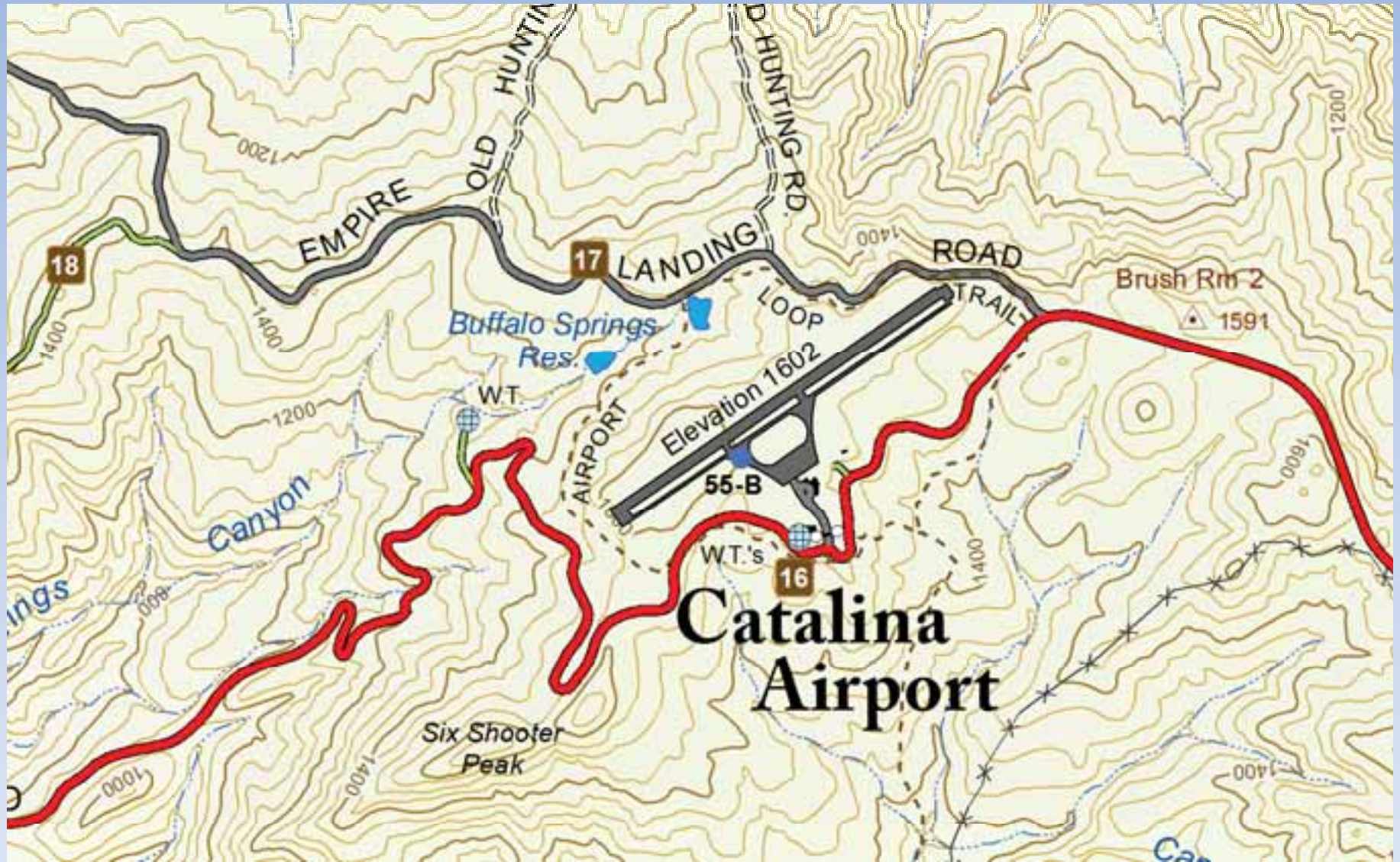
- Add: Polygon features – Reservoirs, Airport, Structures, etc.



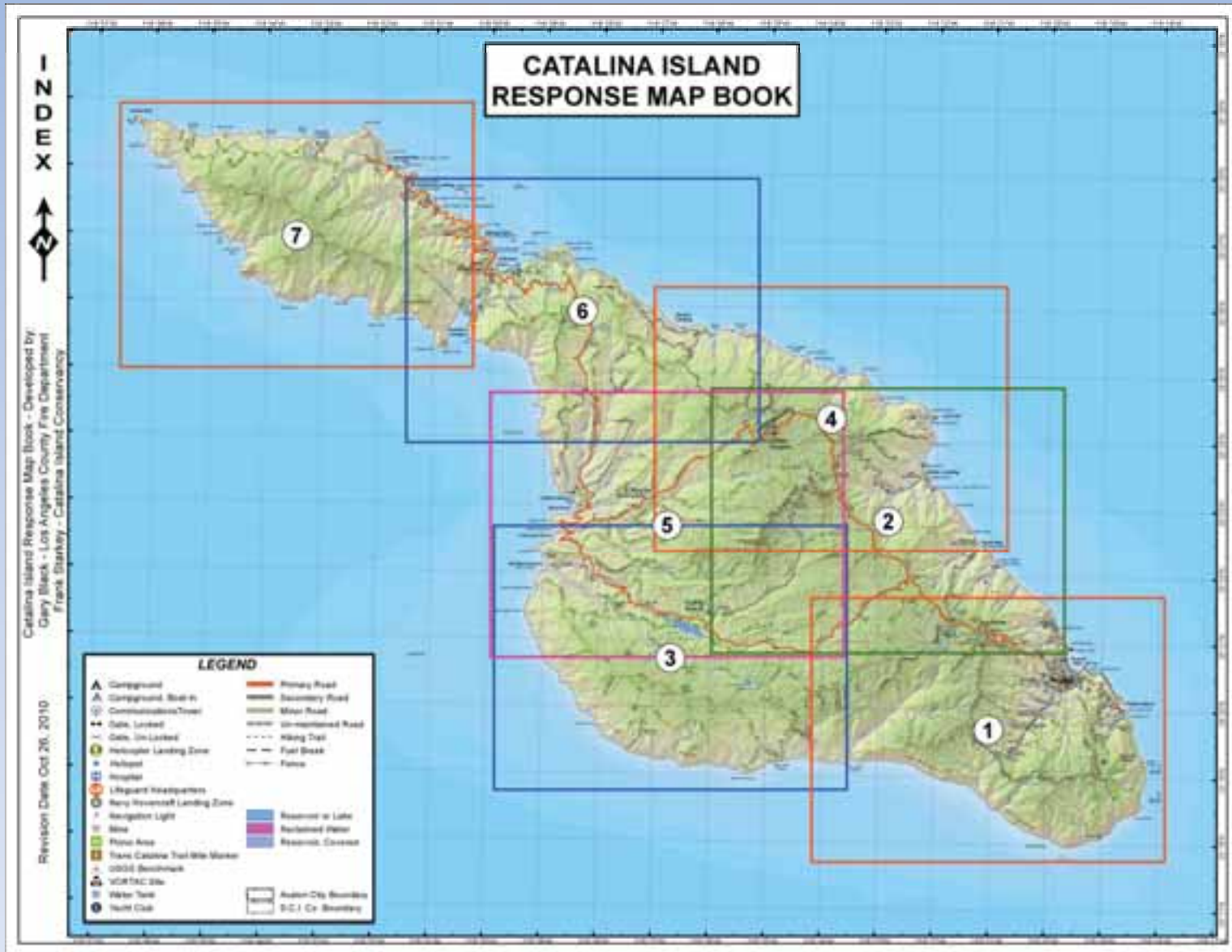
- Completed Catalina Map - Hillshade



- Completed Catalina Map - Contours



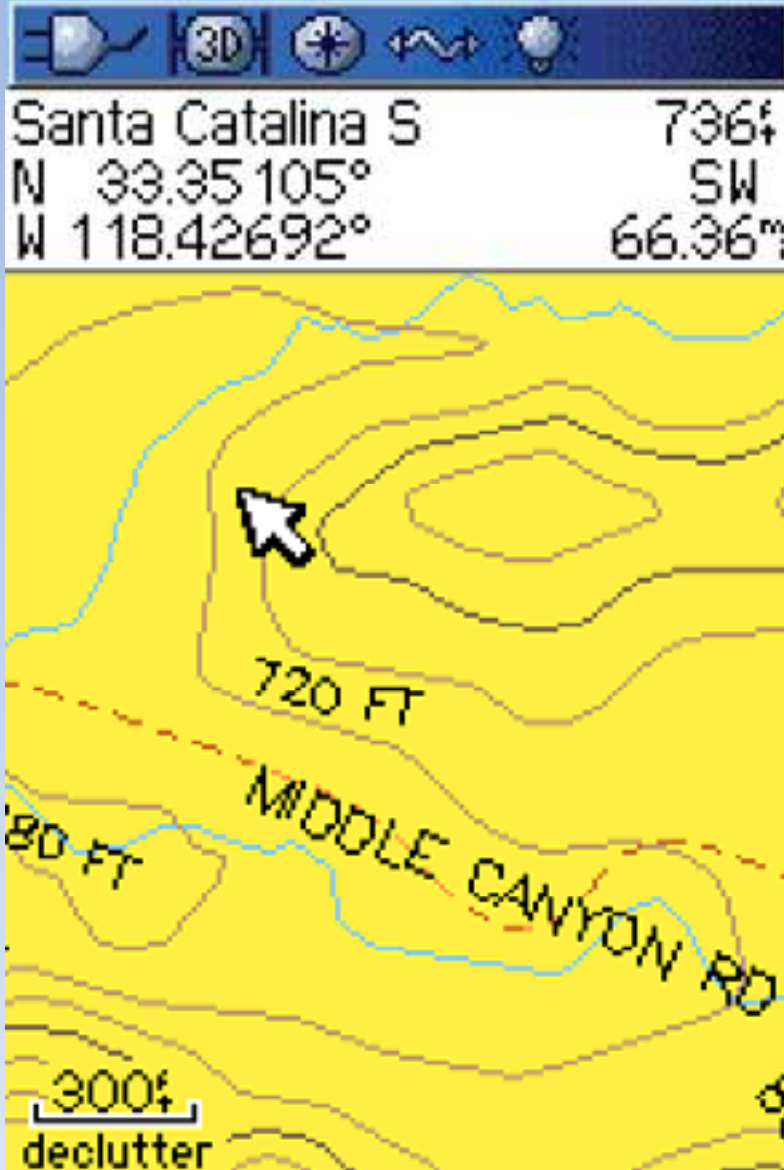
- Map Book Index Page



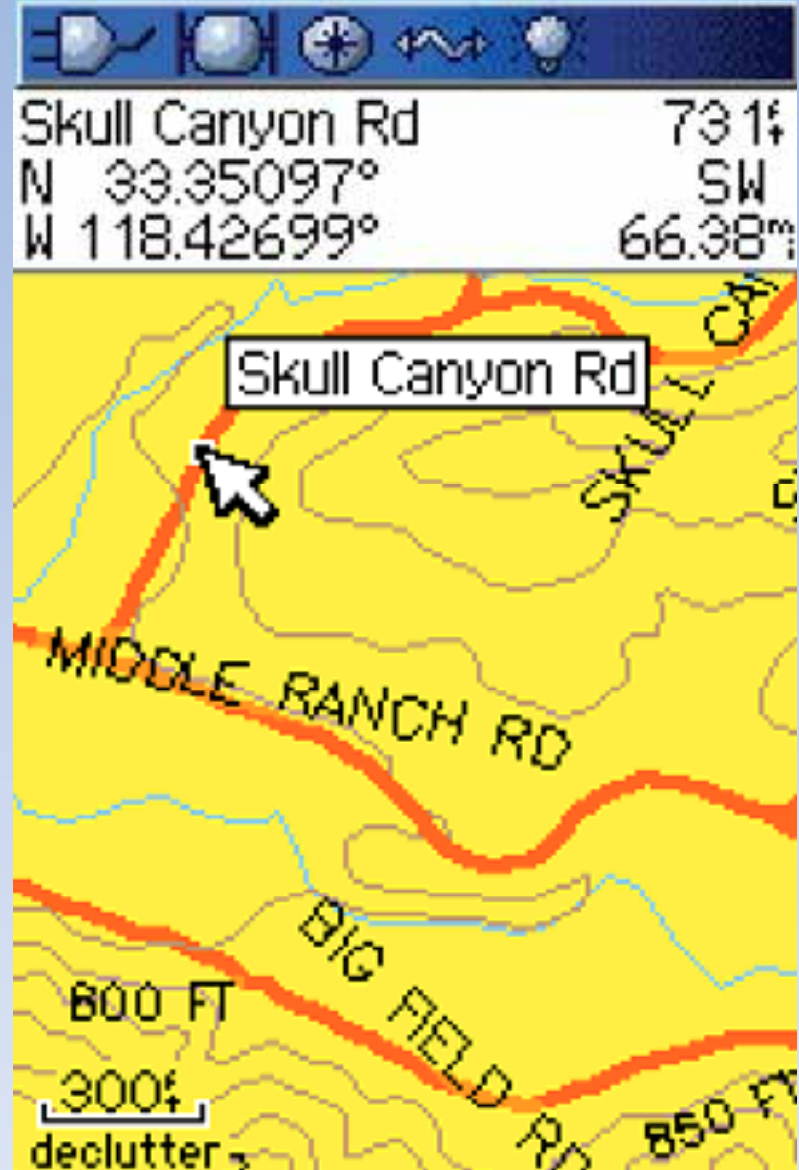
- Map Book Page



Garmin Topo



Custom Garmin Catalina Topo



LOS ANGELES COUNTY FIRE DEPARTMENT FIRE HISTORY OF SANTA CATALINA ISLAND



1962 FIRES 1962 FIRE July 2, 1962 143 Acres	1967 FIRES 1967 FIRE July 24, 1967 344 Acres	2002 FIRES 2002 FIRE January 5, 2002 128 Acres	2006 FIRES 2006 FIRE July 1, 2006 1,764 Acres	2007 FIRES 2007 FIRE May 1, 2007 4,758 Acres	2018 FIRES 2018 FIRE July 1, 2018 25 Acres	Fires Under 10 Acres	Scale 0 0.25 0.5 1 1.5 2 Miles December 11, 2018
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Island Fire Operations Map



