Wildland Fire Containment Suitability Mapping

AnthonyShafer

Suitability Mapping

Elements of Suitability Mapping

- Determine the significant features
- Reclassify the value of each layer into a relative scale
- Weigh the importance of each feature
- Add the individual layers together
- Assessment and evaluation

Containment Suitability Mapping

Objectives:

- Reduce the risk to wildland firefighters
- Increase the security of residential communities
- Develop an integrated wildland fire strategy

Strategy:

- Identification of those features that support the containment of wildland fire
- Identify, develop and pre-select containment lines
- Promote landscape level fuel mitigation

Containment Strategy

Elements :

- Identifies the features that lead to containment
- Identifies locations for possible fuel mitigation efforts that reinforce a containment strategy
- Promotes a strategy of containment zones or cells
- Identifies the strength and weaknesses within current containment network
- Provides a single fuel mitigation plan for all stakeholders

Containment Analysis

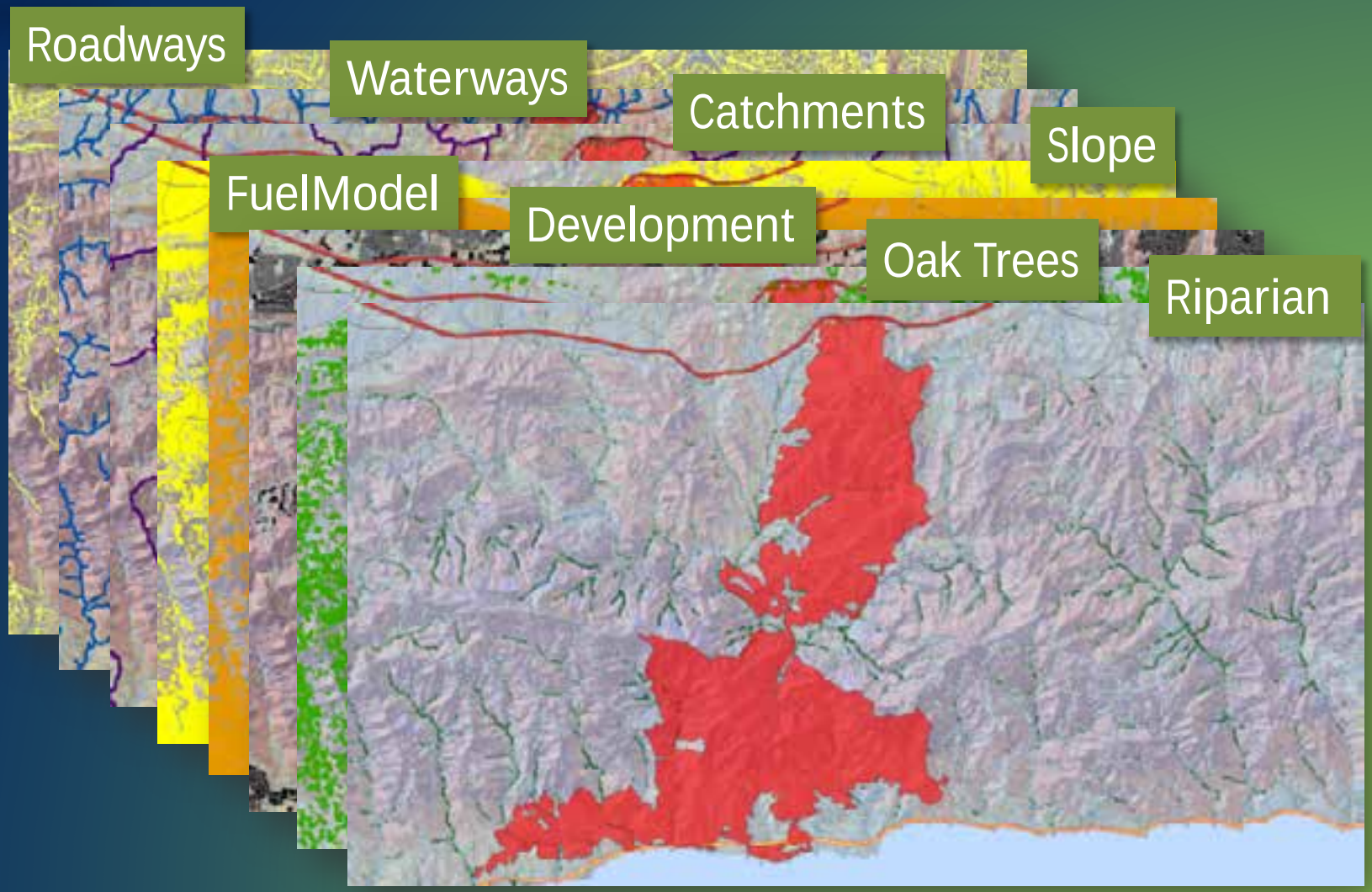
- Caveats:
  - Surface Spread Only
  - Chaparral Dominated Landscapes
  - Coastal Region of Southern California
  - Requires Suppression Resources

Background/Study Area

Suitability Datasets

- Lineal Features
  - Roadways: County Centerline Data
  - Waterways: ArcHydro
  - Catchments: ArcHydro
- Continuous Features
  - Slope: LandFire
  - Fuel Model: LandFire
- Enhancement Features
  - Development: County Assessors Parcel Data
  - Oak Trees: LandFire
  - Riparian LandFire

Containment Features



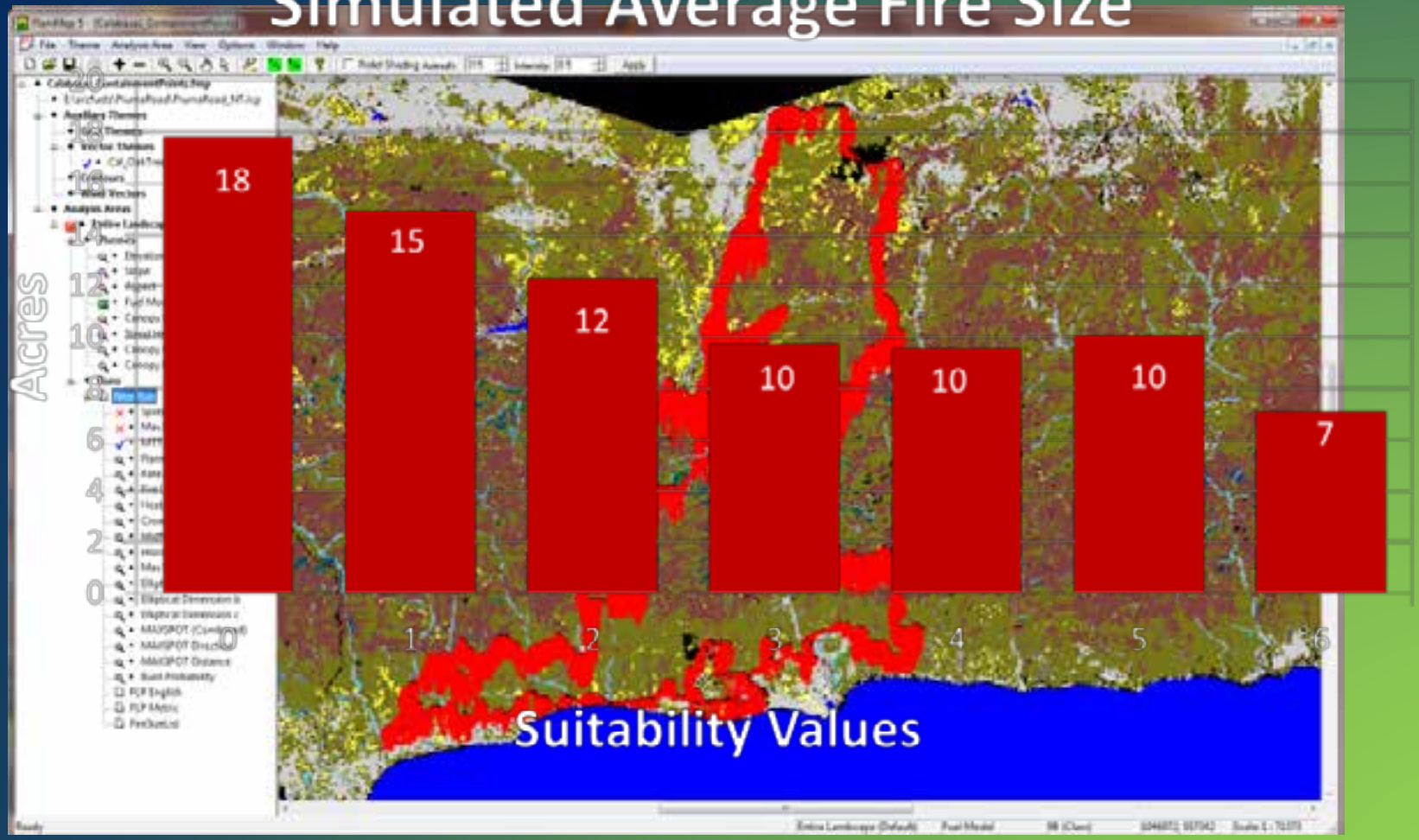
Suitability Criteria

- Roadways: 30 meters of centerline
- Waterways: 30 meters of centerline
- Catchments: 30 meters of centerline
- Slope: 20 degrees or less
- Fuel Load: 2.1 tons/acre or less
- Development: Residential 5 acres or less
- Oak Trees: Buffered by 30 meters
- Riparian Buffered by 30 meters

Suitability Map

Assessment

Simulated Average Fire Size



Benefits

- Fire Suppression
  - Pre-developed containment lines
  - Identified lower risk working areas
  - Identified safely zones & escape routes
- Fuel Mitigation
  - Landscape level fire containment planning
  - Ability to prioritize fuel mitigation
  - Ability to determine weakness in mitigation efforts
  - Ability to test the impact of fuel mitigation

Benefits

- Homeowners
  - Community wide fire protection planning
  - Identifies weakness within community fire protection
  - Identifies safety zones & evacuation routes
- Towns & Cities
  - Allows for a citywide wildland fire protection plan
  - Integrates the fire protection effort of all stakeholders
  - Provides a higher level of transparency in fire planning

- Questions ?