Wildfire Modelling:

Unleashing Reinsurance Potential

Jamie Knippen

Senior Product Manager

CoreLogic®

Yahoo Finance

Limited home insurance options in California as major carriers pull back

San Francisco Chronicle

California home insurance crisis: Insurers still selling policies

Newsweek

California Homeowners 'Dumbfounded' After Insurance Premiums Double

KPBS

Home insurance crisis forcing thousands of San Diego homeowners onto costly FAIR Plan

Los Angeles Times

Column: Unaffordable homeowner's insurance is leaving Californians exposed to the elements

San Francisco Chronicle

California insurance crisis: 2 more insurers withdraw from state

The North Bay Business Journal

California insurers get rate-hike approvals as state tries to shore up coverage

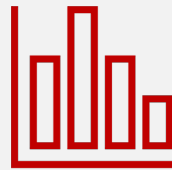**Spectrum News**

California's home insurance crisis, explained

KMPH

Home insurance skyrockets nearly 50% in 5 years, people are choosing to go without

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High-Fidelity Modelling

300,000 years of simulation
Across all perils

Valuable insights for high-frequency / low-severity events + low-frequency/high-severity events

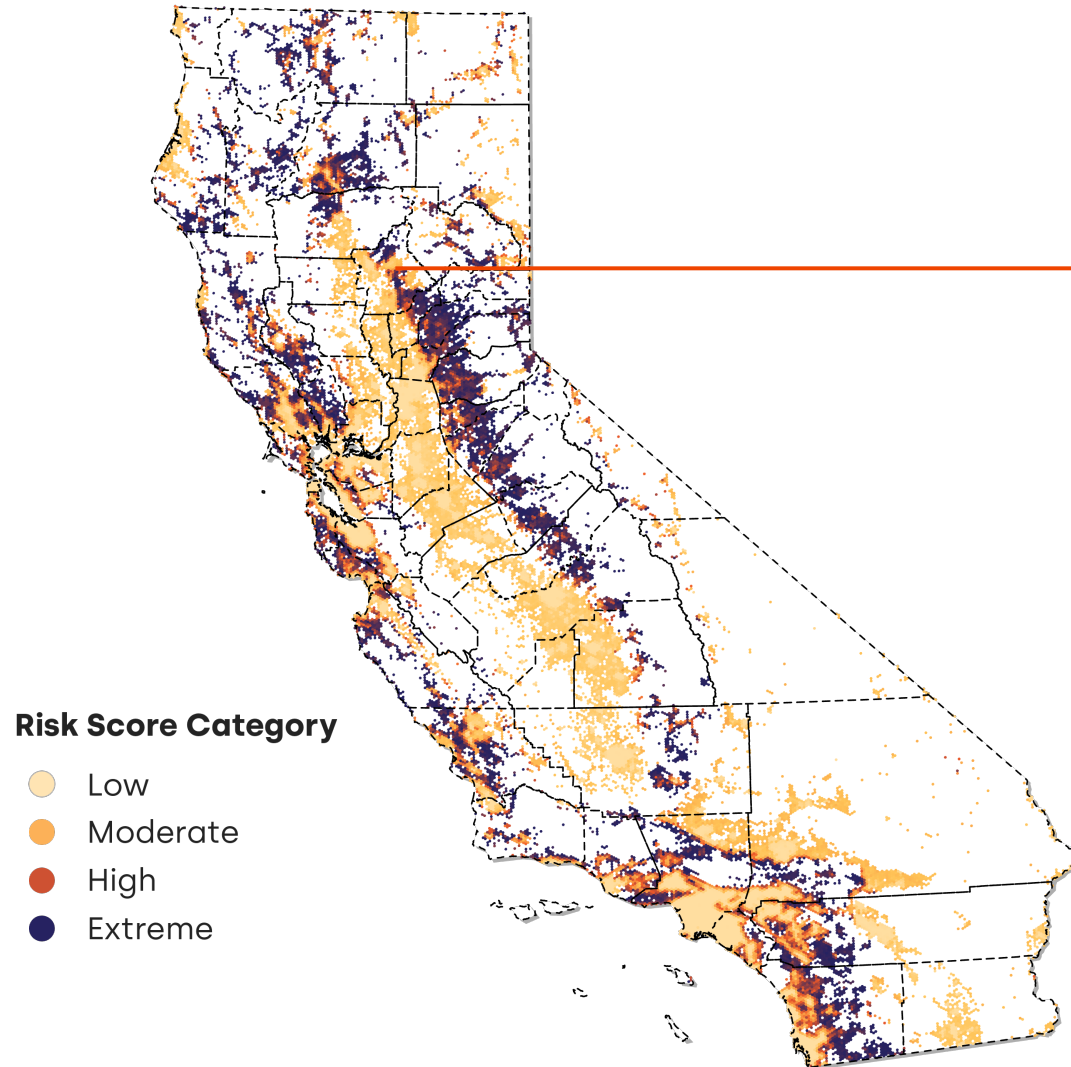**Better captures the tails that drive the reinsurance purchase**

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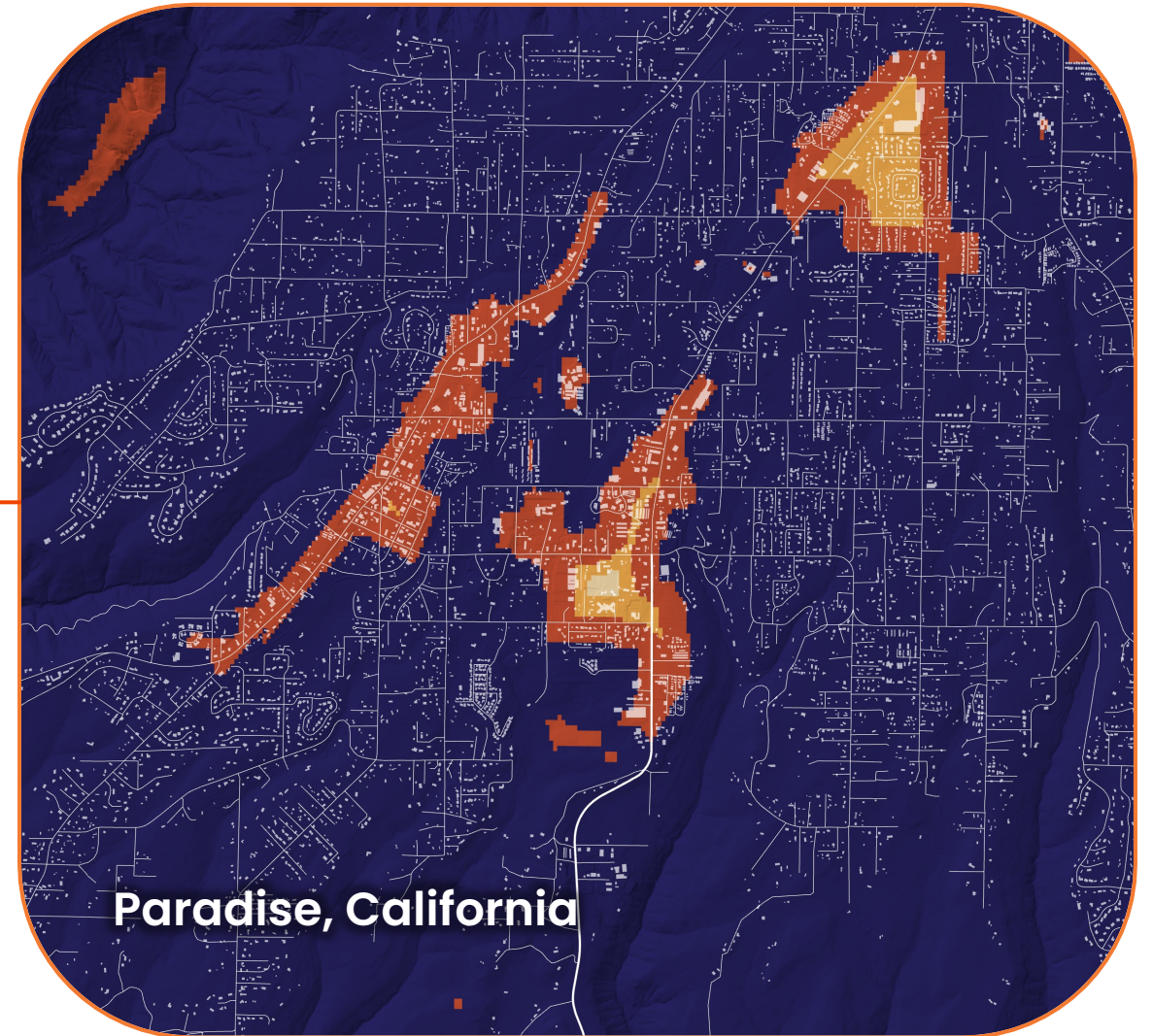# Addressing Concentration Issues

by identifying the truth on the ground

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Wildfire Risk Score of all the Residential Areas in California

Risk Score Category

- Low
- Moderate
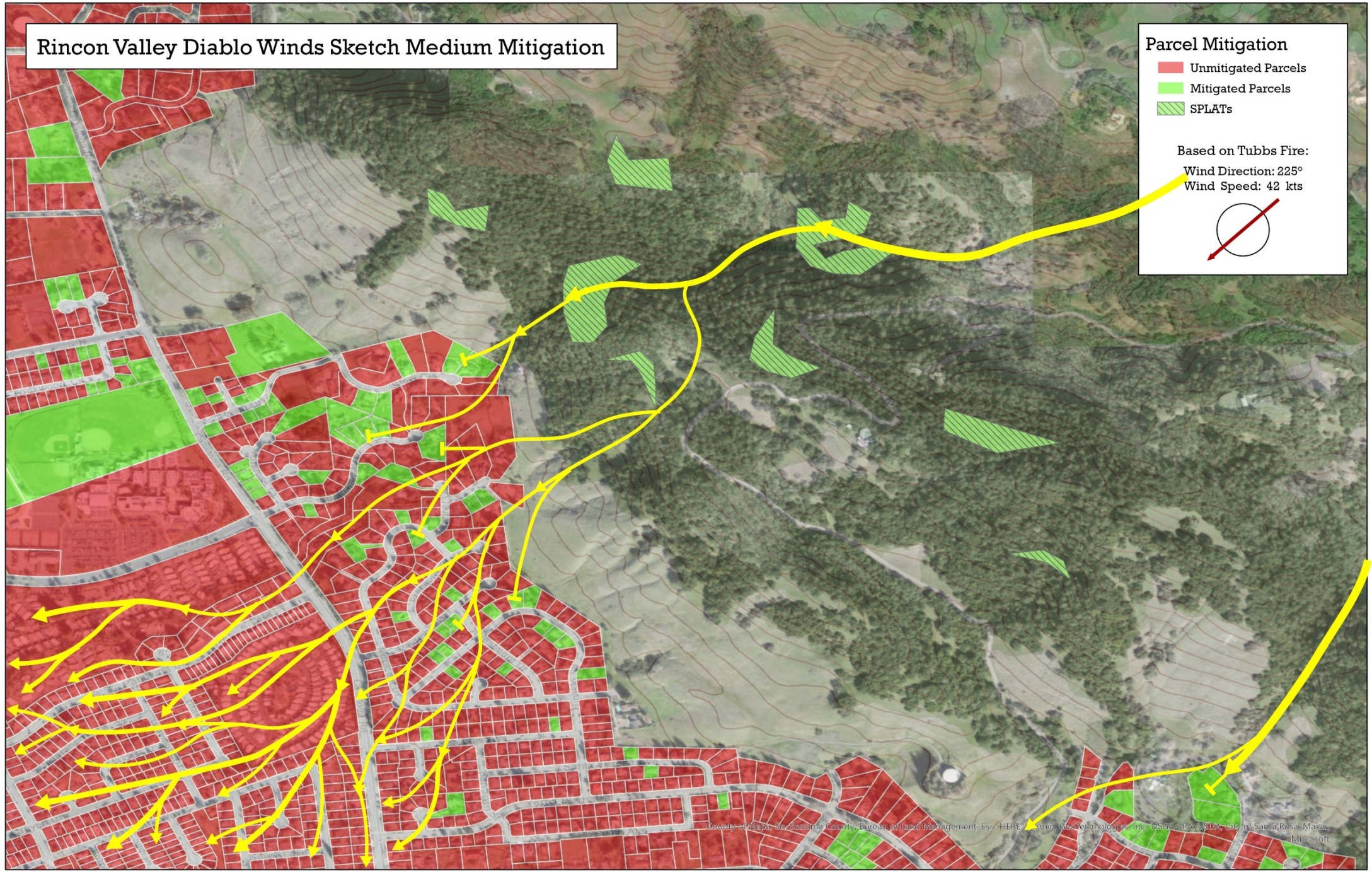- High
- Extreme

Paradise, California

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Rincon Valley Diablo Winds Sketch Medium Mitigation

Parcel Mitigation
- Unmitigated Parcels
- Mitigated Parcels
- SPLATs

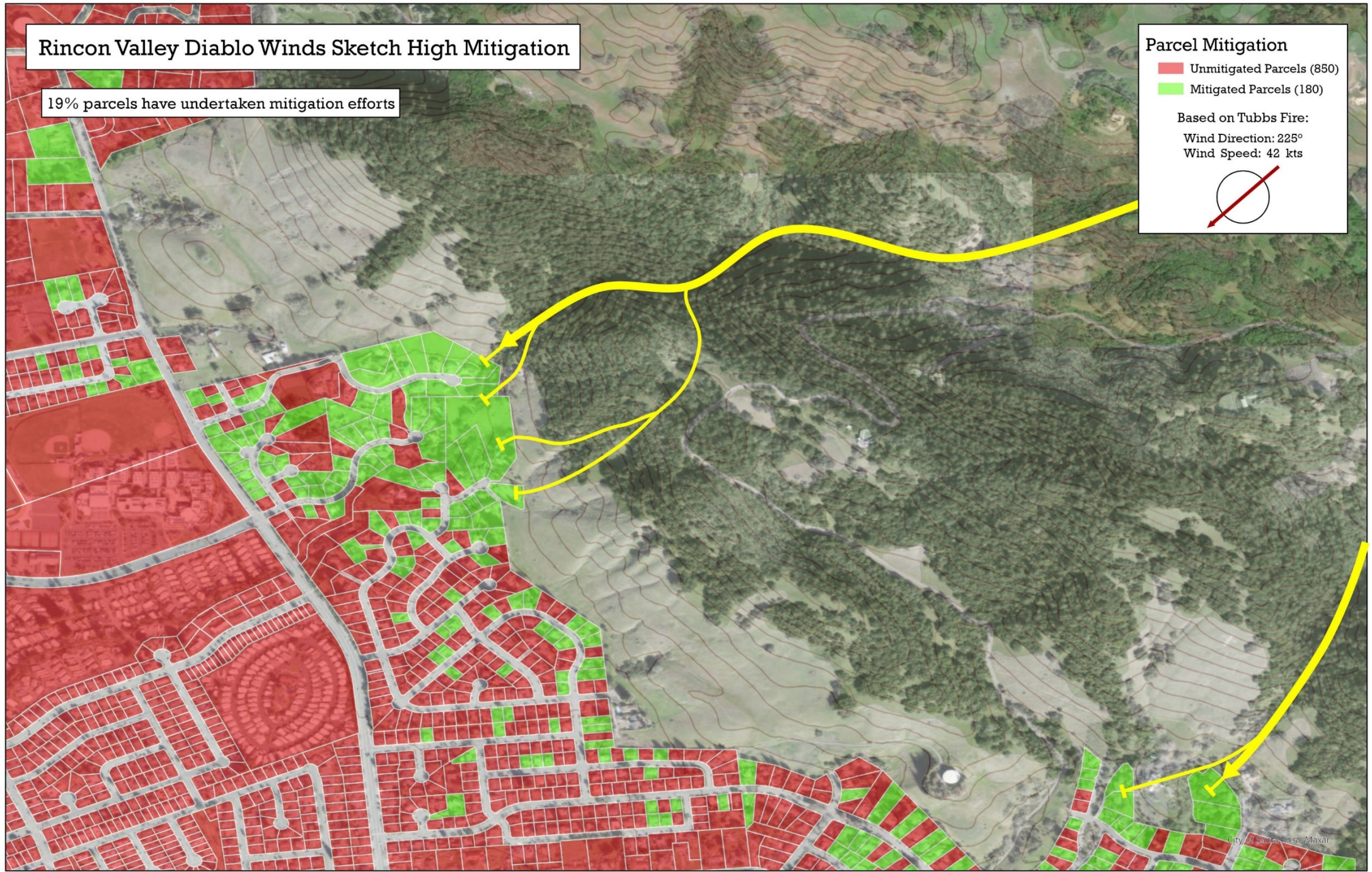Based on Tubbs Fire:

Wind Direction: 225°
Wind Speed: 42 kts

Rincon Valley Diablo Winds Sketch High Mitigation

19% parcels have undertaken mitigation efforts

Parcel Mitigation

Unmitigated Parcels (850)

Mitigated Parcels (180)

Based on Tubbs Fire:

Wind Direction: 225°
Wind Speed: 42 kts

A MILLIMAN AND CORELOGIC REPORT
Prepared with funding from the California Resilience Challenge Grant

Town of Paradise
California Resilience Challenge
Task 1 to Task 4

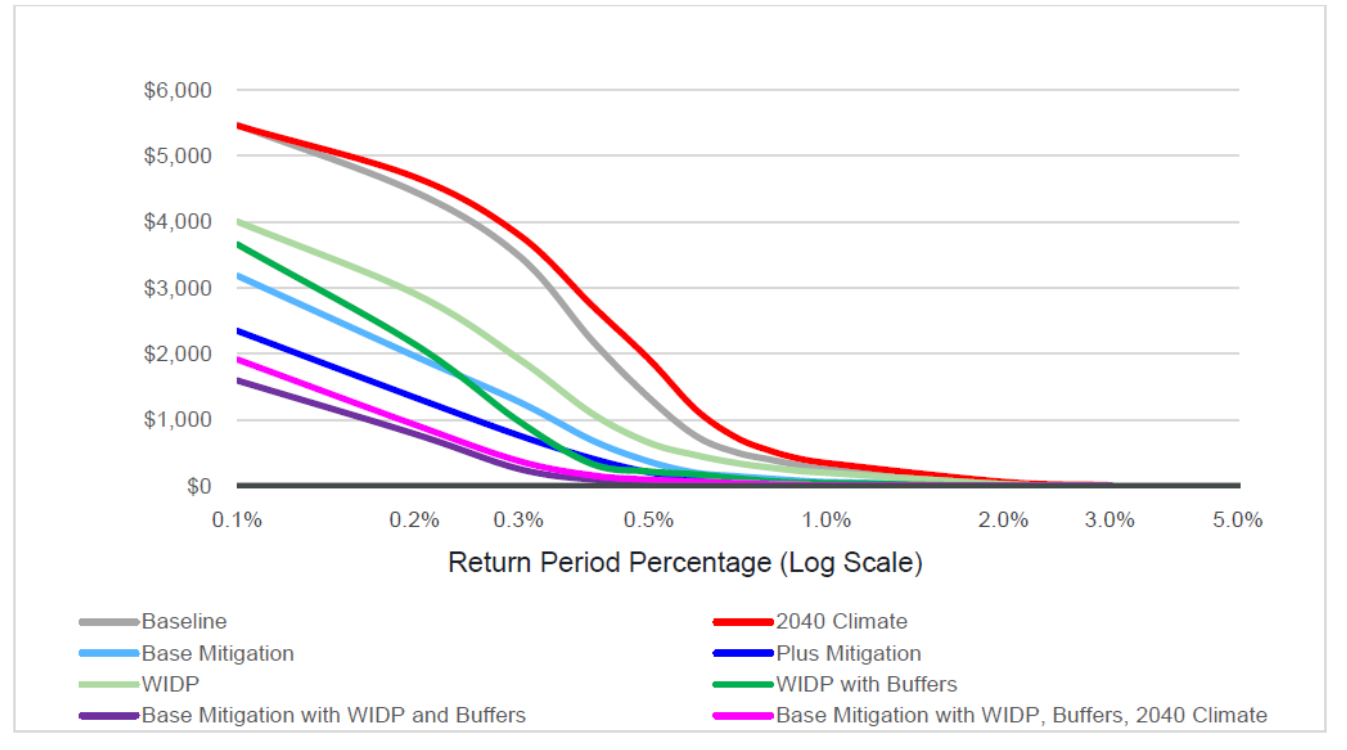Risk Reduction, Climate Change, and Insurance Premiums

April 2023

MILLIMAN
Matt Chamberlain FCAS, MAAA
Robert Lee, FCAS, MAAA
Taylor Deacon
Nancy Watkins, FCAS, MAAA

CORELOGIC
Kent David
Fan Lei
Ilyes Meftah

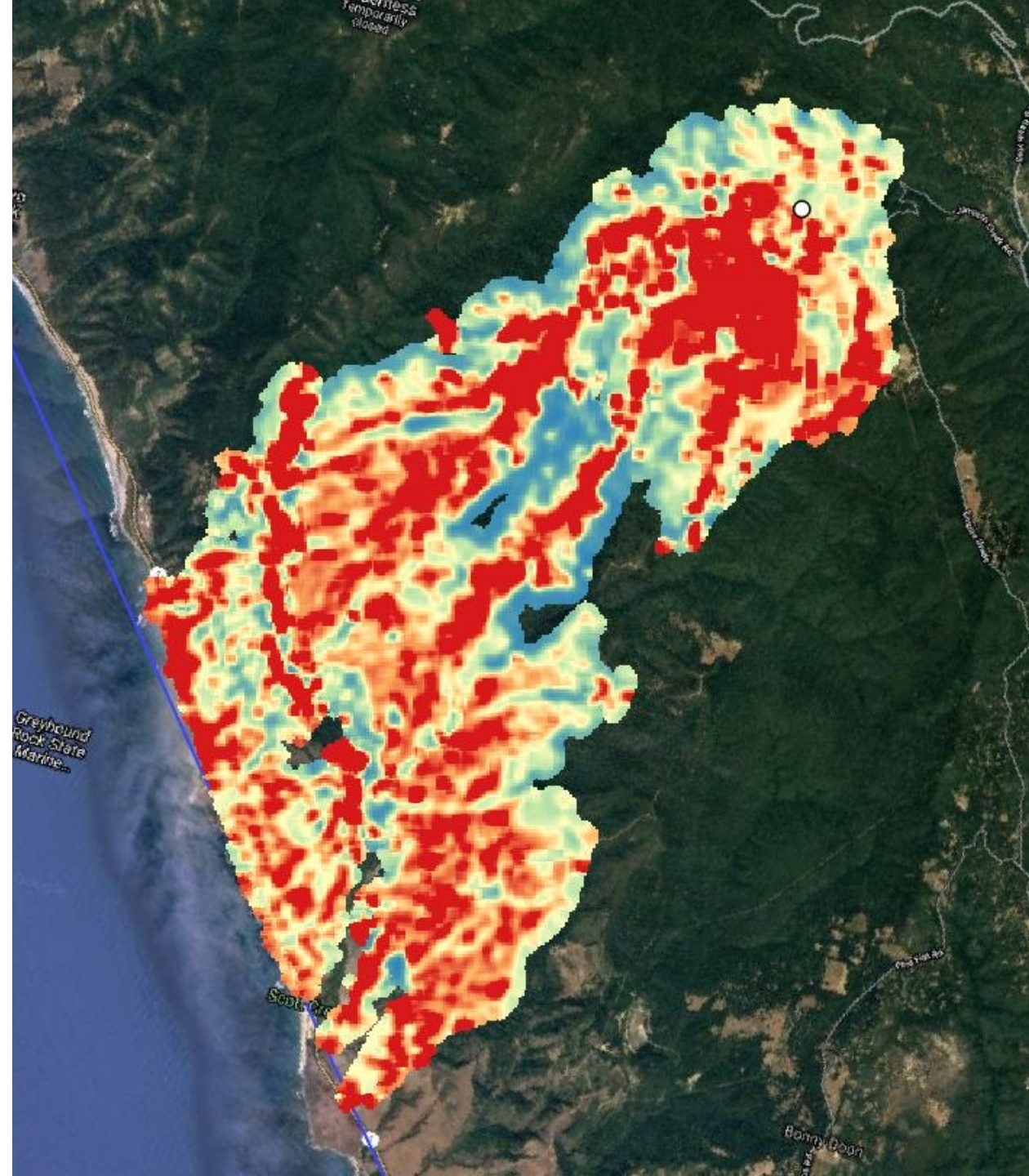FIGURE 13: AGGREGATE EXCEEDANCE PROBABILITY CURVE, ALL SCENARIOS

Legend:
- Baseline
- 2040 Climate
- Base Mitigation
- Plus Mitigation
- WIDP
- WIDP with Buffers
- Base Mitigation with WIDP and Buffers
- Base Mitigation with WIDP, Buffers, 2040 Climate

What does a modeled fire look like?

Millions of Simulated Events Representative of Real Fires
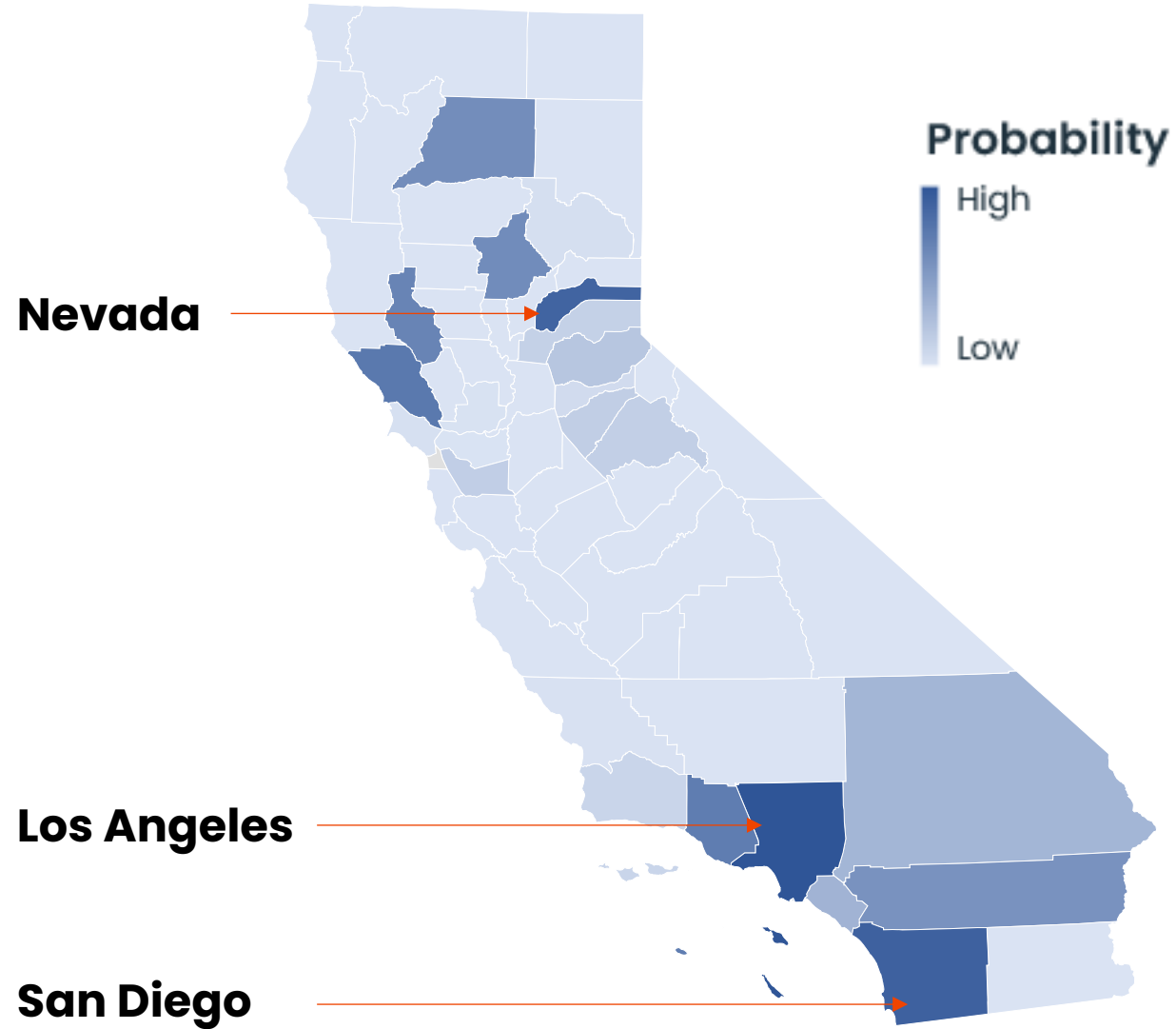
Shown: Single ignition near Santa Cruz, CA

- Strong offshore winds (40+ mph; consistent with local meteorological records)

- Low humidity summer conditions

- Heavy Timber Litter and Understory chaparral fuels supports larger fires

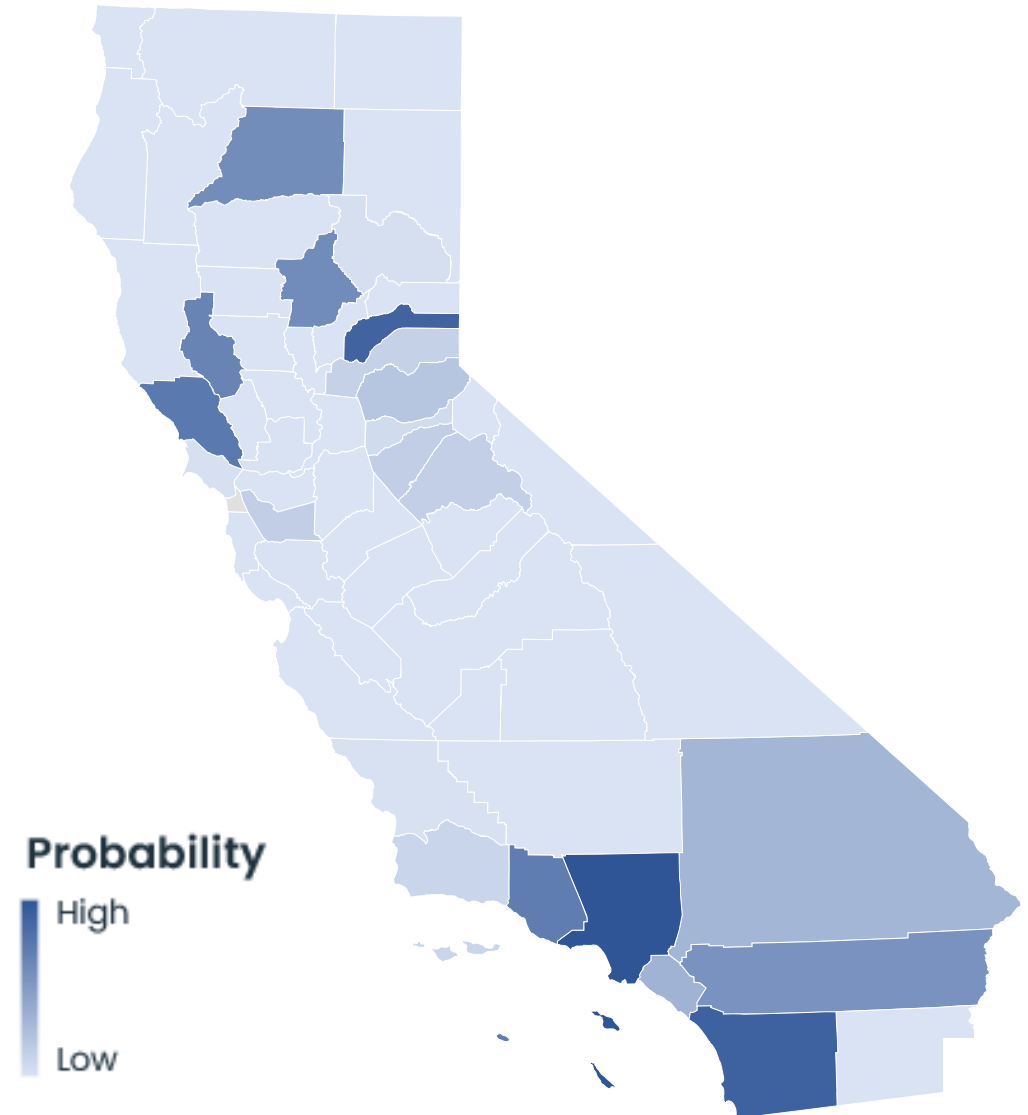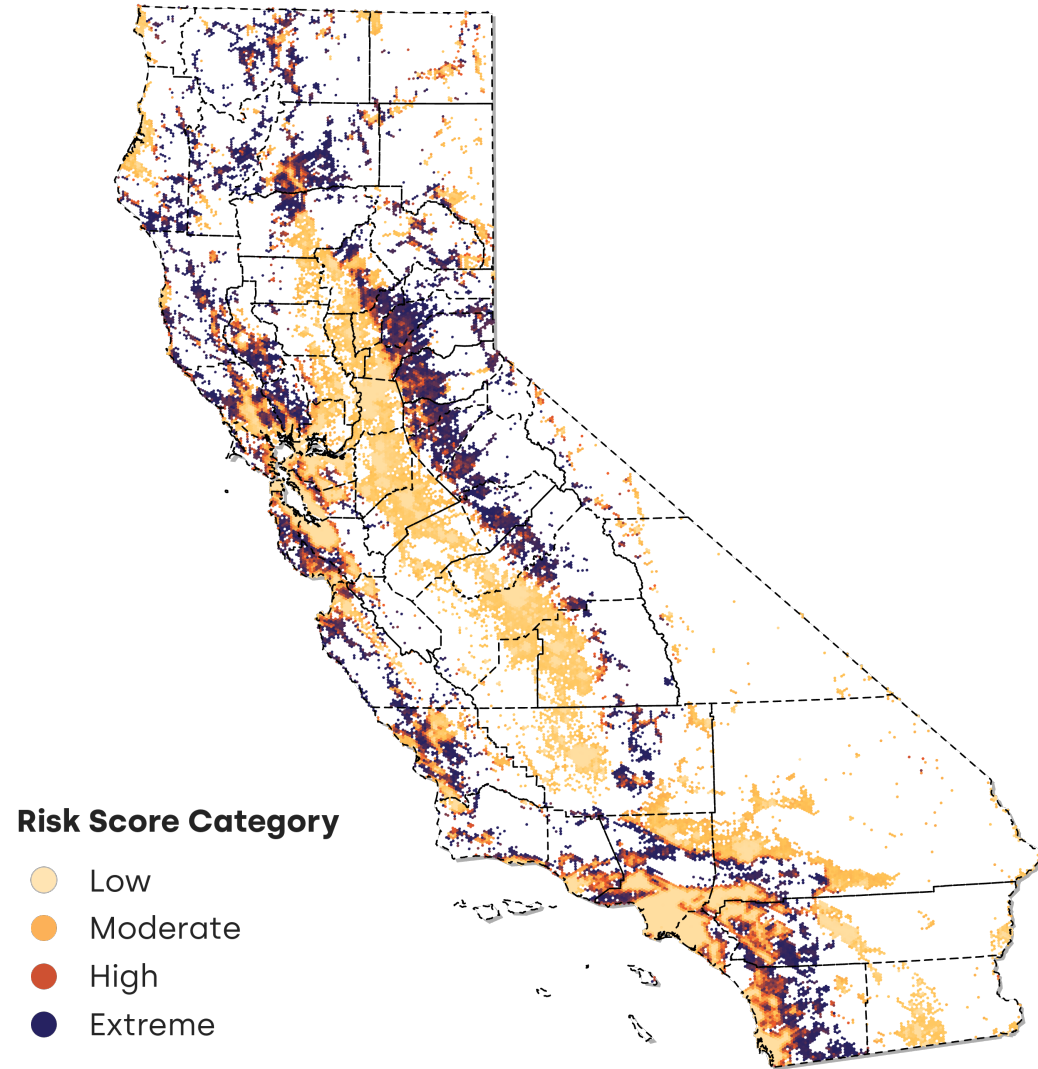Rapid spread during offshore dry-wind events in late summer-fall season

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Probability of a 2% Event OEP by County

Identifying the most at risk counties

Probability

High

Low

Nevada

Los Angeles

San Diego

Powered by Bing
© GeoNames, Microsoft, TomTom

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Utilizing the right tools to limit the risk in your portfolio

Risk Score Category

- ○ Low
- ○ Moderate
- ○ High
- ○ Extreme

Probability

High

Low

Times are changing and you should be ready

STATE OF CALIFORNIA
DEPARTMENT OF INSURANCE
300 Capitol Mall, 17th Floor
Sacramento, CA 95814

WORKSHOP DRAFT TEXT OF REGULATION

CATASTROPHE MODELING AND RATEMAKING

March 14, 2024   REG-2023-00010

Adopt Section 2644.4.5. Use of Catastrophe Models.

(a)   Permitted uses.

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CoreLogic US Wildfire Model

Broadly used in catastrophe risk management

$350 Million in cat bond support (2020 to date)

The most granular wildfire risk model

No loss surprises

Thought leader in wildfire risk

Urban conflagration

Wildfire smoke

Research
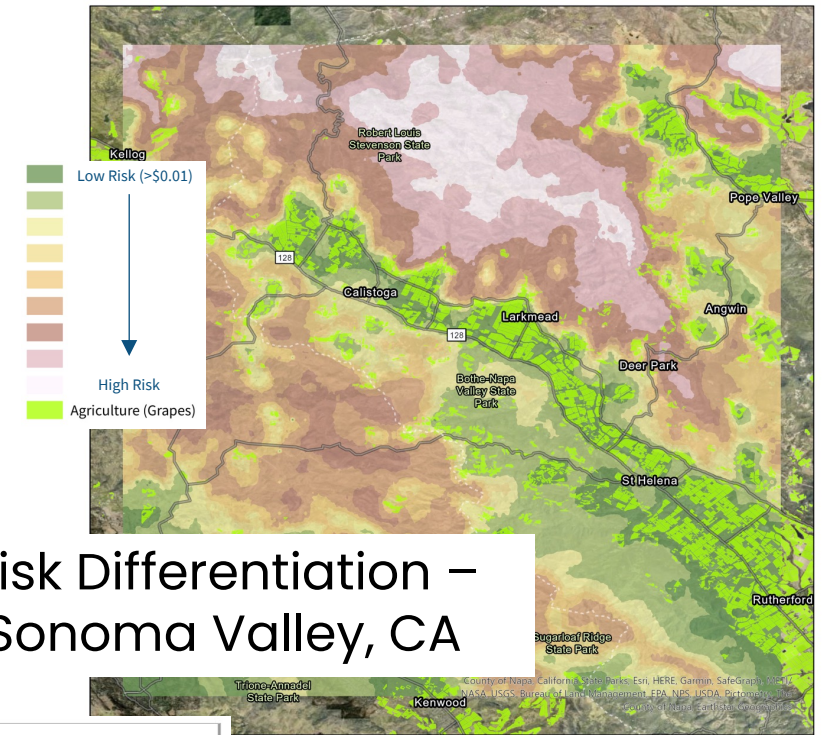
Risk Differentiation – Sonoma Valley, CA

Dynamic Fire Modeling

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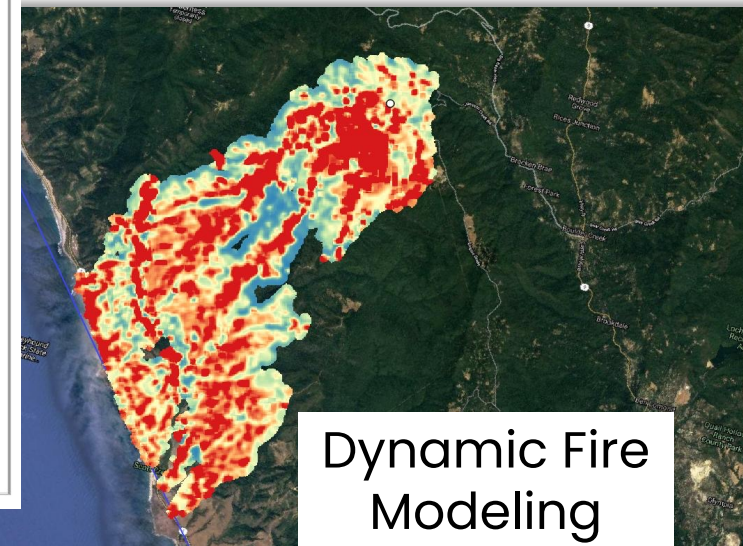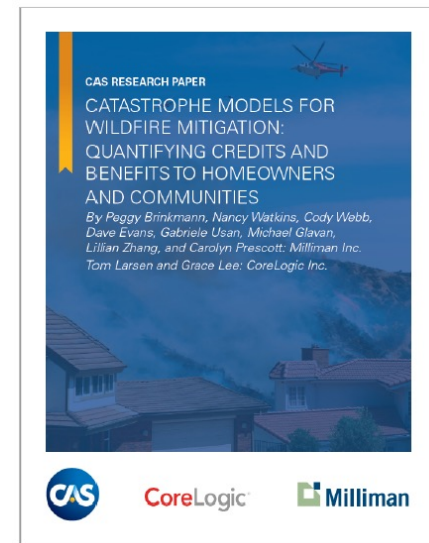
Severe Convective Storm

Forensic-based footprints as anchor to reality

Accurate Peril Footprints Enable:

Improved Event Representation

Event Frequency

Event Severity

Claims Calibration

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Hail Verification Technology
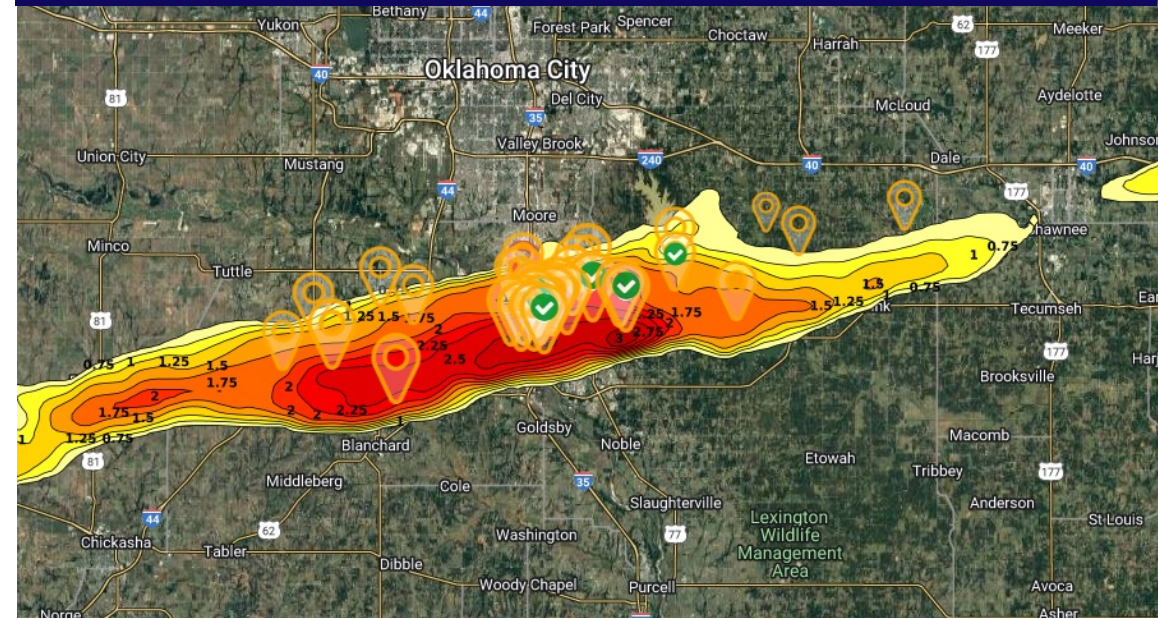
Wind Verification Technology
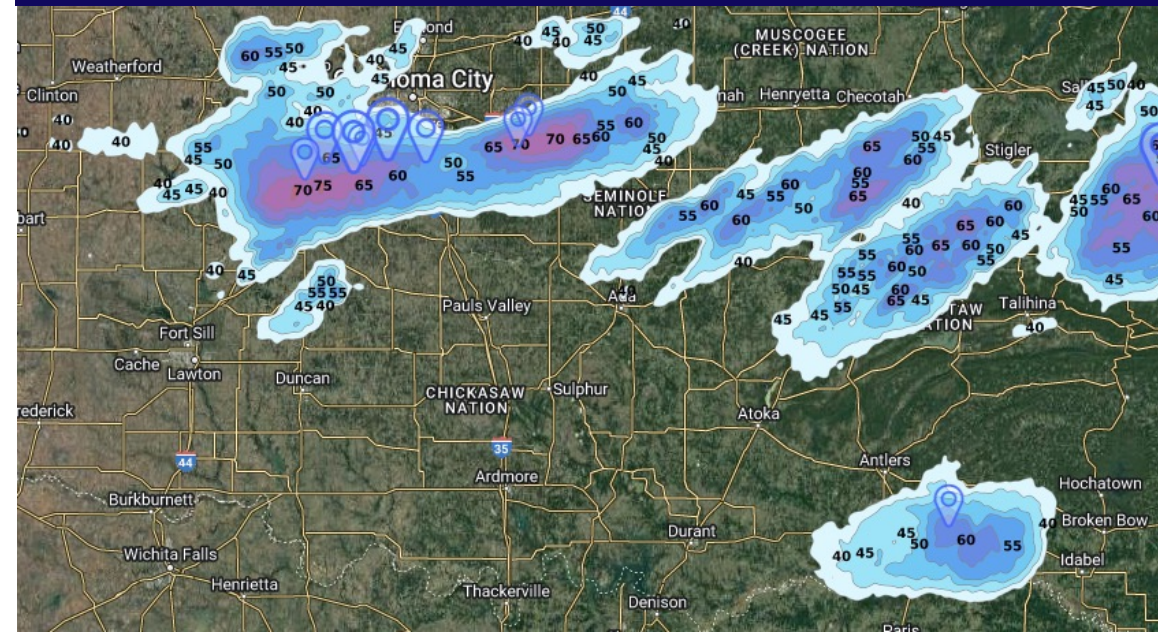
US Earthquake Model

Leading model incorporating 2018 USGS

RQE 22
local soil
500-years

SA 1.0 sec
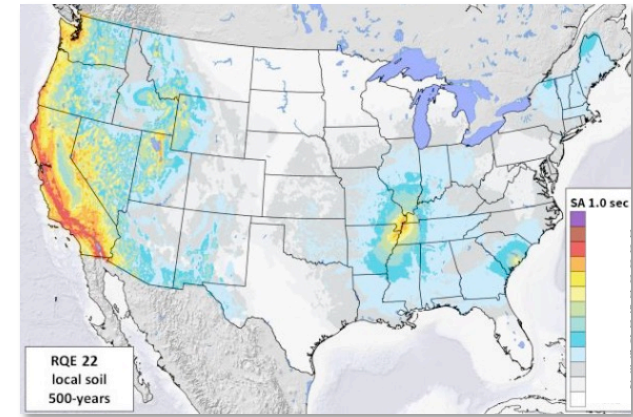
Consistent

First adopter

Ground Shake, Liquefaction, Landslide, Fire Following and Sprinkler Leakage

Dr. Ken Campbell, world-renowned expert in ground motion modeling

Time Dependent probabilities
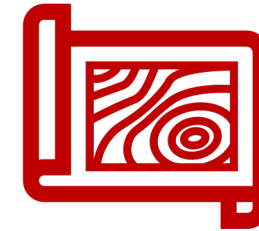
Latest high-res local soil (Vs30) maps to 90m

CEA's exclusive model for setting rates since 1995

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CATASTROPHE MODELS · Peril and Region

Central America
- Costa Rica
- El Salvador
- Guatemala
- Honduras
- Nicaraua
- Panama

South America
- Columbia
- Venezuela
- Argentina
- Brazil
- Chile
- Ecuador
- Peru

Middle East
- Oman
- United Arab Emirates
- Yemen
- Israel
- Lebanon
- Turkey
- Qatar
- Saudi Arabia
- Bahrain

North America
- United States
- Mexico
- Canada

Caribbean/Atlantic
- Anguilla
- Antigua & Barbuda
- Aruba
- Bahamas
- Barbados
- Bermuda
- British Virgin Islands
- Cayman Islands
- Cuba
- Dominica
- Dominican Republic
- Grenada
- Guadeloupe
- Haiti
- Jamaica
- Martinique
- Montserrat
- Netherlands Antilles
- Puerto Rico
- St. Kitts & Nevis
- St. Lucia
- St. Vincent & the Grenadines
- Trinidad and Tobago
- Turks and Caicos
- Virgin Islands, U.S.

Europe
- Germany
- Austria
- Belgium
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Monaco
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Slovakia
- Spain
- Sweden
- Switzerland
- United Kingdom

Asia/Pacific
- Australia
- China
- Hong Kong
- India
- Indonesia
- Japan
- Macao
- Malaysia
- New Zealand
- Pakistan
- Philippines
- SIngapore
- South Korea
- Taiwan
- Thailand
- Vietnam

Africa
- Kenya
- Malawi
- South Africa
- Reunion

Legend:
- Wildfire
- Earthquake
- Offshore Energy
- Convective Storm
- Winterstorm
- Flood
- Windstorm
- Cyclone
- Typhoon
- Hurricane

CoreLogic

A CoreLogic managed, Catastrophe Modeling SaaS solution, providing easy access to the full suite of CoreLogic cat models.

Hassle-free IT life

Secure

Scalable

Same model results

Web browser User Interface

Controllable costs

CoreLogic

Earthquake Currently Available

Oasis / CoreLogic Integration

Please come talk to us about other models of interest

Thank you