California Department of Insurance
Climate and Sustainability Branch

California Wildfire Safety and Risk Mitigation Program & Public Wildfire Model

Dec. 2, 2025

Program & Public Wildfire Model Funding

AGENDA

- MIKE PETERSON, SENIOR DEPUTY COMMISSIONER

    - BACKGROUND ON SUSTAINABLE INSURANCE STRATEGY

    - RECOMMENDATIONS FROM HUMBOLDT STRATEGY GROUP

    - PROGRAM & PUBLIC WILDFIRE MODEL FUNDING AND SB 429 (CORTESE)

- KARA VOSS, MODEL ADVISOR

    - CATASTROPHE MODEL BASICS

- MICHAEL SOLLER, DEPUTY COMMISSIONER OF COMMUNICATIONS

    - GRANT PROCESS AND FACT SHEET

Sustainable Insurance Strategy

Modernizing our Insurance Market

❖ Accessible Insurance for Californians

❖ Creating a Resilient Insurance Market

❖ Protecting Communities from Climate Change

Sustainable Insurance Strategy

Catastrophe Models and Mitigation

❖ Development of a Public Model
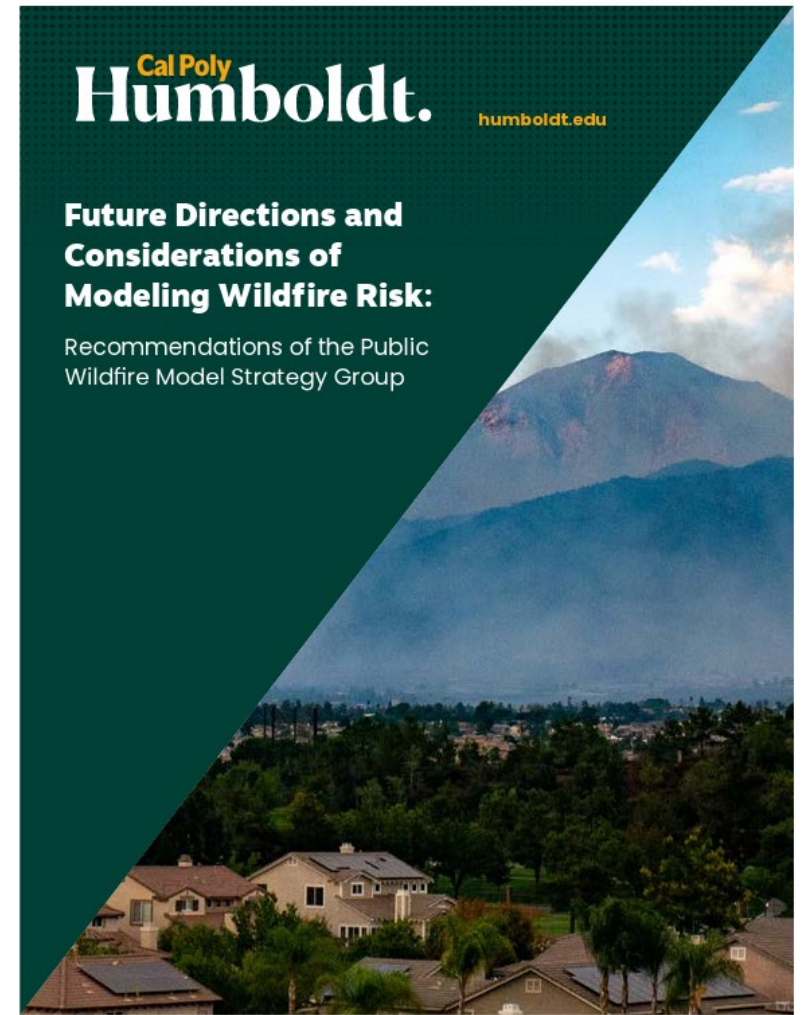
❖ Rigorous Review of Private Models

❖ Mitigation Grants

Public Wildfire Model Strategy Group Recommendations

❖ Convened by Commissioner Lara

❖ Provide recommendations on technical issues, public benefits, and timelines

❖ Multidisciplinary team of experts chaired by Cal Poly Humboldt

❖ Fall 2024 and Spring 2025

Key Recommendations:

❖ Creation of a grant program at the Department of Insurance

❖ Open-source, community data-driven modeling framework

❖ University-based center and/or non-profit consortium

Cal Poly Humboldt.   humboldt.edu

Future Directions and Considerations of Modeling Wildfire Risk:

Recommendations of the Public Wildfire Model Strategy Group
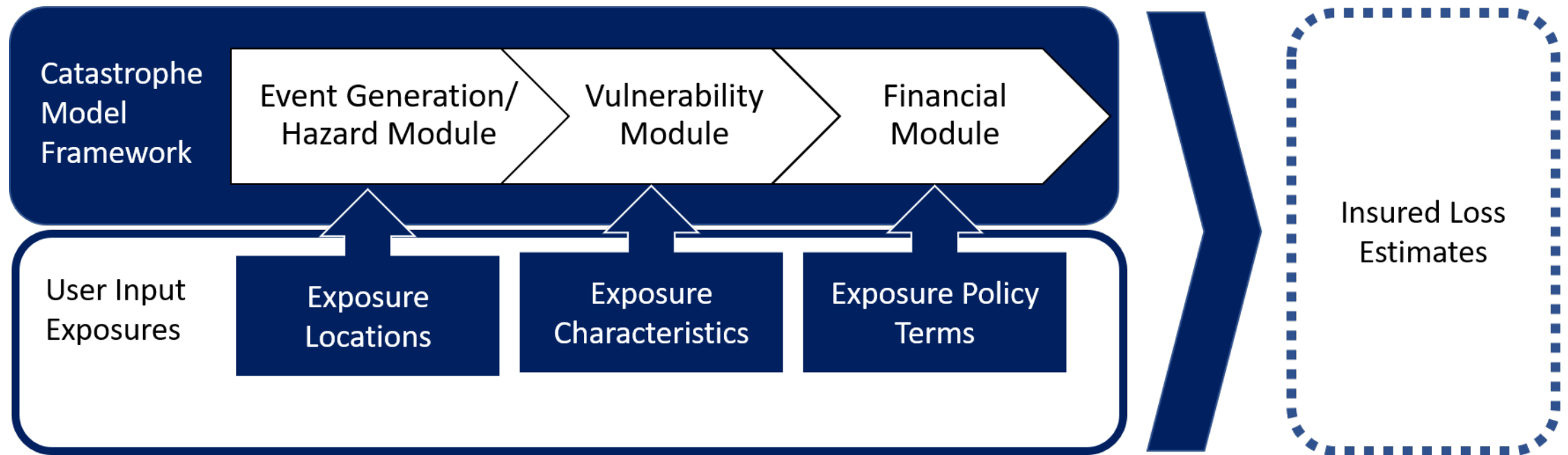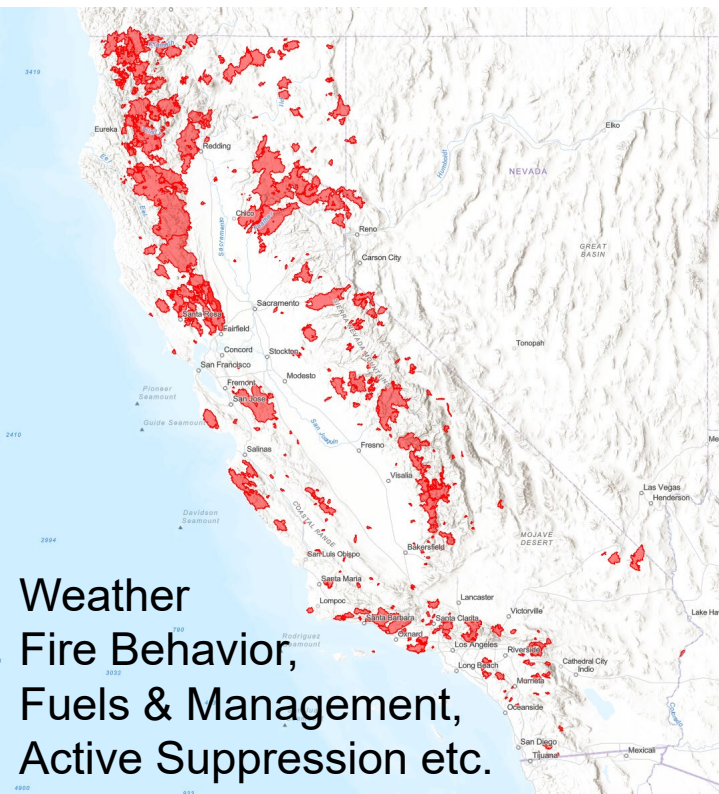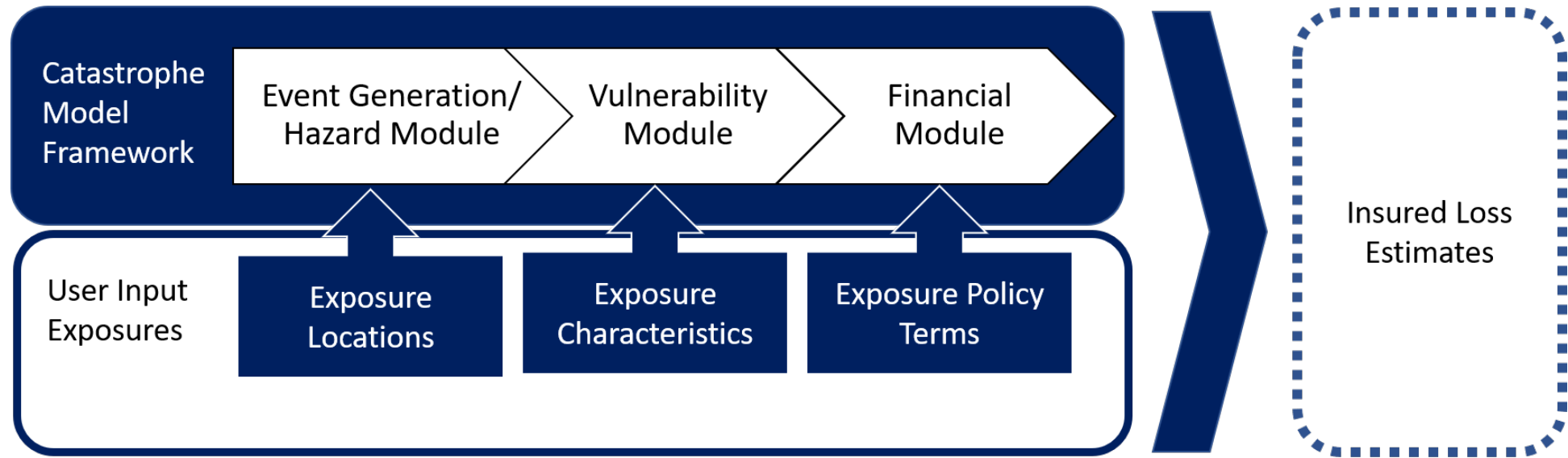
Wildfire Public Catastrophe Model Grant

❖ Develop nation's first public wildfire catastrophe model

❖ SB 429 (Cortese) signed by Governor Newsom on October 10, 2025

❖ Establishes Wildfire Safety and Risk Mitigation Program

❖ Grant funding to create a research and educational center to develop, demonstrate, and deploy a public wildfire cat model and identify user base

CATASTROPHE MODEL BASICS
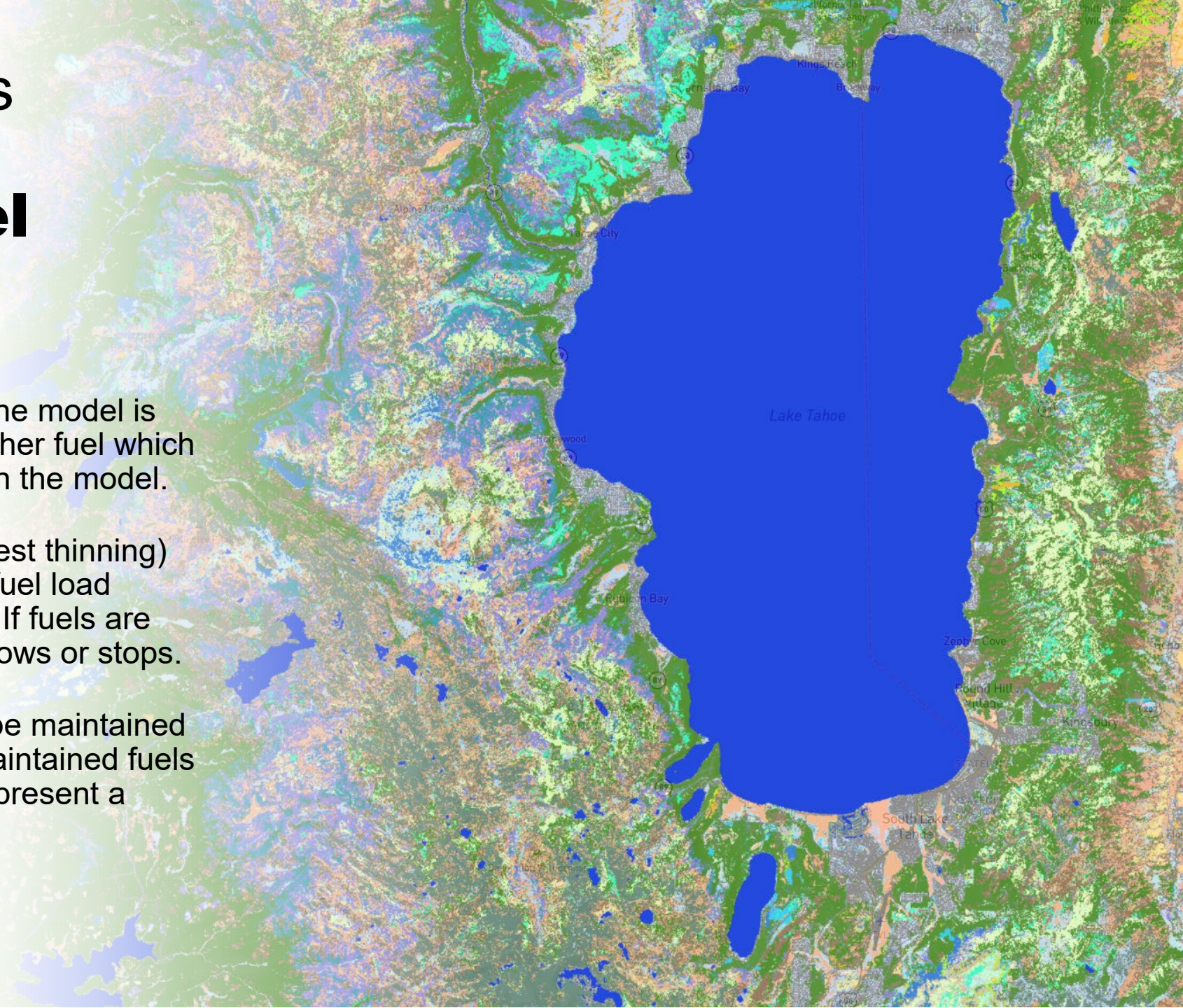
What is a Catastrophe Model?

A **catastrophe model** is a computer-based process that simulates thousands of plausible catastrophic events based upon statistical, financial, economic, physical, engineering, and other scientific concepts and equations, and insurance policy coverage information to derive aggregate estimates of financial loss, including insured loss. Models are commonly used by governments and private industry for disaster planning, risk mitigation, and insurance rate setting.

Catastrophe Model Framework

Event Generation/ Hazard Module → Vulnerability Module → Financial Module

User Input Exposures

Exposure Locations   Exposure Characteristics   Exposure Policy Terms

Insured Loss Estimates

Catastrophe Model Framework

Event Generation/ Hazard Module → Vulnerability Module → Financial Module

User Input Exposures

Exposure Locations | Exposure Characteristics | Exposure Policy Terms

Insured Loss Estimates

Weather
Fire Behavior,
Fuels & Management,
Active Suppression etc.

Occupancy,
Construction Characteristics,
Mitigation Characteristics etc.

Replacement Cost,
Coverage Limits and Deductibles,
Aggregation

Catastrophe models can account for **Landscape Level** mitigation

❖ The way fire spreads in a catastrophe model is partially driven by vegetation and other fuel which is represented as layers, or maps, in the model.

❖ Landscape-level mitigation (e.g. forest thinning) can be reflected in the aggregated fuel load metrics used to create those maps. If fuels are reduced, fire spread in the model slows or stops.

❖ Landscape-level mitigation should be maintained to have the most impact since unmaintained fuels grow back. Models are aiming to represent a multi-year view of risk.

Credit: IBHS

REDUCE EXPOSURE

Roofing

Vents

Eaves

INCREASE RESILIENCE

Windows

Remove leaves/debris from roof and gutter

Siding

Catastrophe models can account for **Property Level** mitigation

❖ Individual property-level actions can affect aggregate measures of insured loss

❖ Employs the user's data on the location, characteristics, and mitigation features of the insured properties to account for:

 ❖ How differences in construction, occupancy, building codes, etc. impact risk

 ❖ How specific mitigation features (e.g. Class A roofs, fire resistant windows etc.) impact risk

❖ If the user is missing some of this information, the models usually assume the missing characteristics are similar to those of other equivalent buildings in the area.

❖ Defensible space is accounted for at the property level if the user has data and/or by the fuels.

Catastrophe models can account for **Community Level** mitigation

❖ Employs the user's data on community wildfire mitigation designations.

❖ Sometimes can be determined without user input.
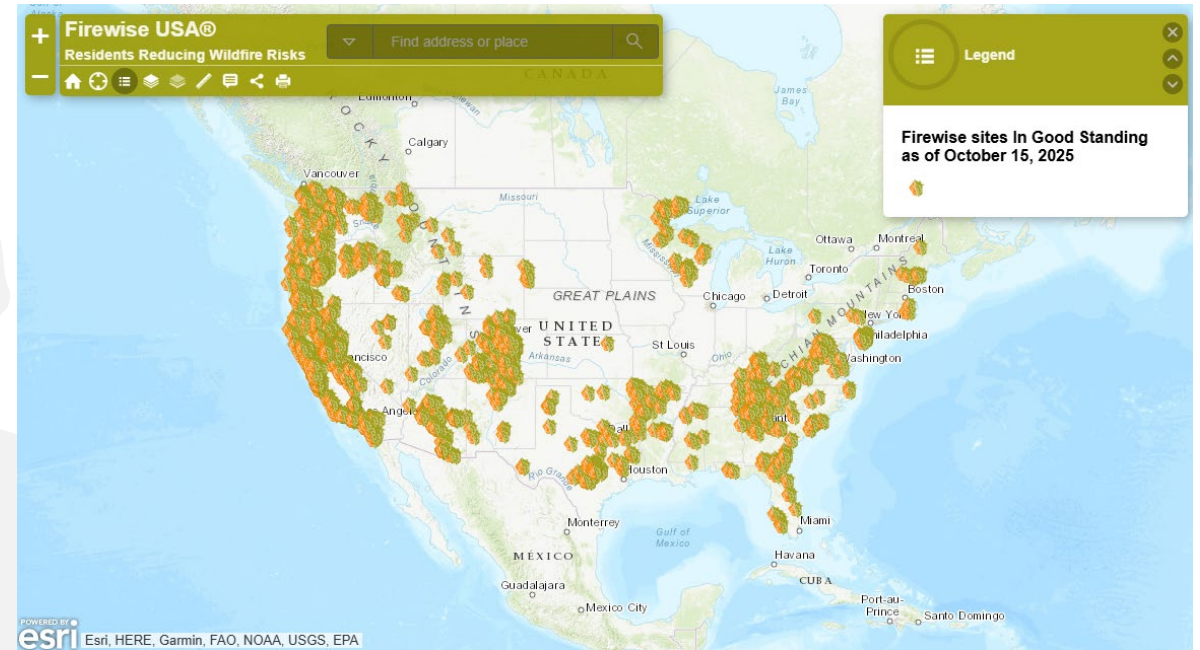
Catastrophe models can account for **Utility Mitigation**

❖ Vegetation management can be incorporated through fuels/vegetation layers.

❖ Expect accounting for utilities mitigation, including decreases in ignition risk, to grow as the science and datasets develop and actions are maintained.
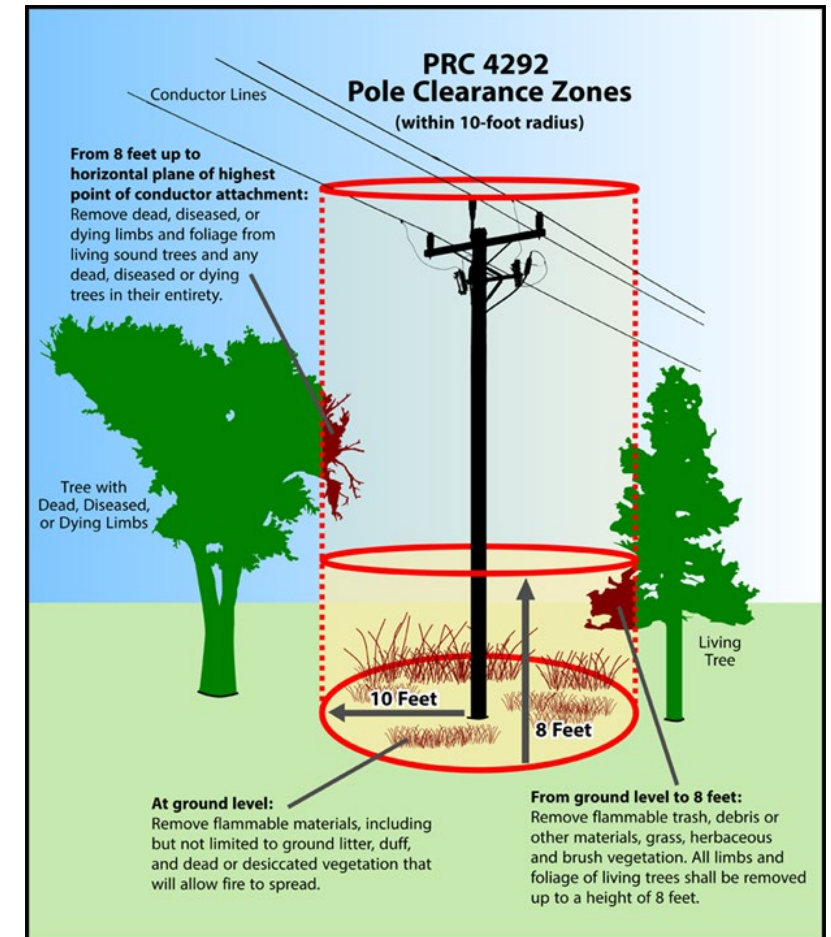
Catastrophe models can account for **changes in land use**

❖ Catastrophe models can incorporate new developments, changes to existing developments, or changes in land use.

2001
- Water
- Snow/Ice
- Wetland
- Barren
- Forest
- Grassland
- Shrubland
- Developed
- Transportation
- Agriculture (Annual)
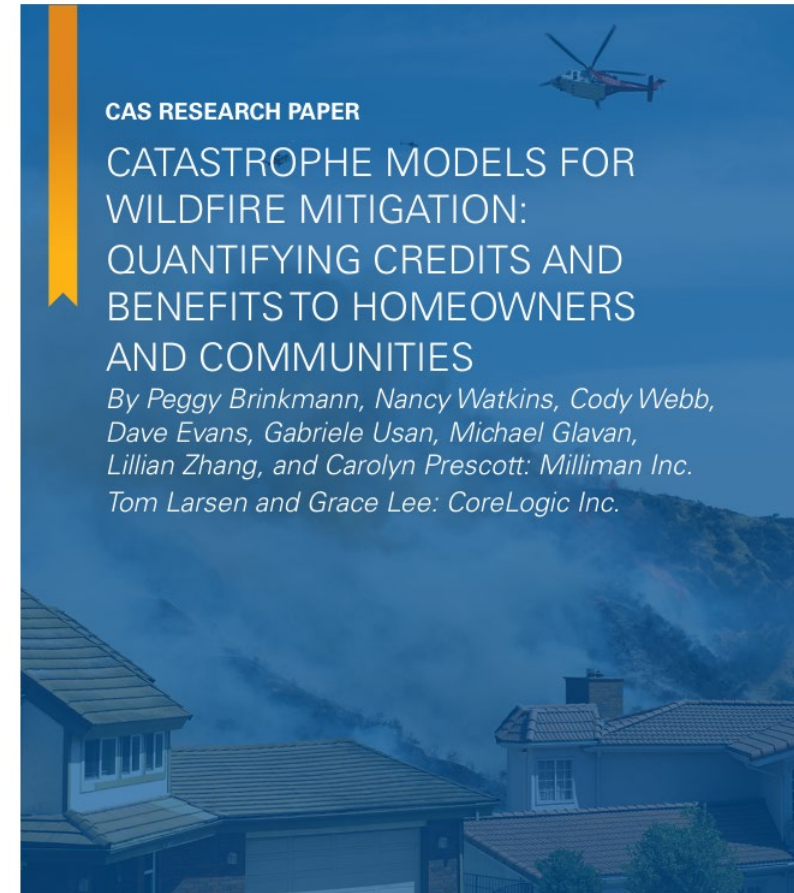- Agriculture (Perennial)

Catastrophe models can account for **how climate change has already affected extreme weather**

Area burnt per year (1975-2018)
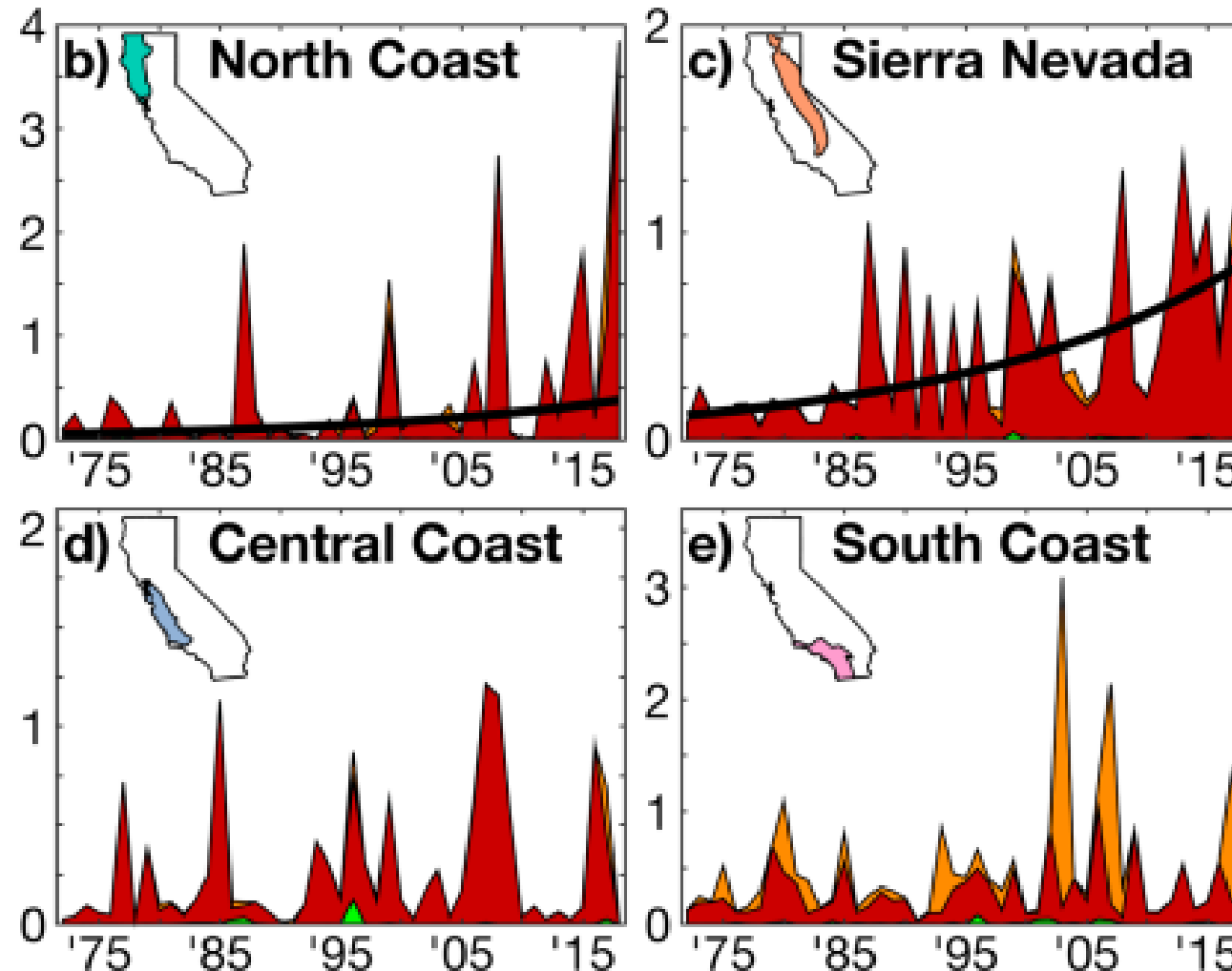
How are catastrophe models used?

❖ Projecting aggregate expected losses for developing insurance rates

❖ Insurer's risk management decisions
- ❖ Reserves
- ❖ Stress testing
- ❖ Underwriting
- ❖ Negotiating reinsurance contracts

❖ Quantifying the potential benefits of resilient building

❖ Disaster planning by governments

CAS RESEARCH PAPER

CATASTROPHE MODELS FOR WILDFIRE MITIGATION: QUANTIFYING CREDITS AND BENEFITS TO HOMEOWNERS AND COMMUNITIES

By Peggy Brinkmann, Nancy Watkins, Cody Webb, Dave Evans, Gabriele Usan, Michael Glavan, Lillian Zhang, and Carolyn Prescott: Milliman Inc.

Tom Larsen and Grace Lee: CoreLogic Inc.

Projected Grant Process Overview

Protecting communities with **action and innovation**

❖ California has experienced 14 of the deadliest and most destructive wildfires in state history since 2017 (source: CAL FIRE)

❖ **Our goal: reducing the destruction to communities from wildfire disasters while supporting a sustainable insurance sector — powered by the innovation engine of California's universities and funded by a startup grant from the Department of Insurance.**

Building a public model with **direct benefits for Californians**

The Program will benefit California communities by:

- ❖ Increasing **research and development** on wildfire risk mitigation strategies

- ❖ Creating **training opportunities** for students and professionals in the growing field of risk modeling

- ❖ Informing actuarial analyses and supporting **effective insurance regulation and financial oversight** of insurance company solvency and risk management

- ❖ Providing insights on the financial benefits of **resilient retrofitting and building**

- ❖ Aiding **wildfire safety efforts** that protect lives and property

Timeline

September 2024
Public Wildfire Catastrophe Model strategy initiated

January 2025
Commissioner Lara sponsored Senate Bill 429 (Cortese)

May 2025
Cal Poly Humboldt-led strategy group made recommendations

October 2025
Senate Bill 429 (Cortese) enacted

November 2025
CDI issued *Fact Sheet* on grant process

January 2026
Anticipated release of *Request for Expressions of Interest*

Q2 2026
Anticipated issue of *Request for Proposals*

By end of 2026
Issue startup funding to selected Consortium

Prepare to apply starting
January 1, 2026

❖ Review Fact Sheet at insurance.ca.gov

❖ Send questions to **sustainableinsurance@insurance.ca.gov**

❖ The Department's Climate & Sustainability Branch is working to create references and other initial resources to help researchers receiving grants to develop the Public Wildfire Catastrophe Model

❖ We are committed to keeping the public informed of the progress

❖ Initial grant award expected by end of 2026

Thank you