



# Empowering Resilient and Productive Landscapes

Meeting climate goals by reducing  
wild fire risk and supporting rural  
communities

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September 2022

**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

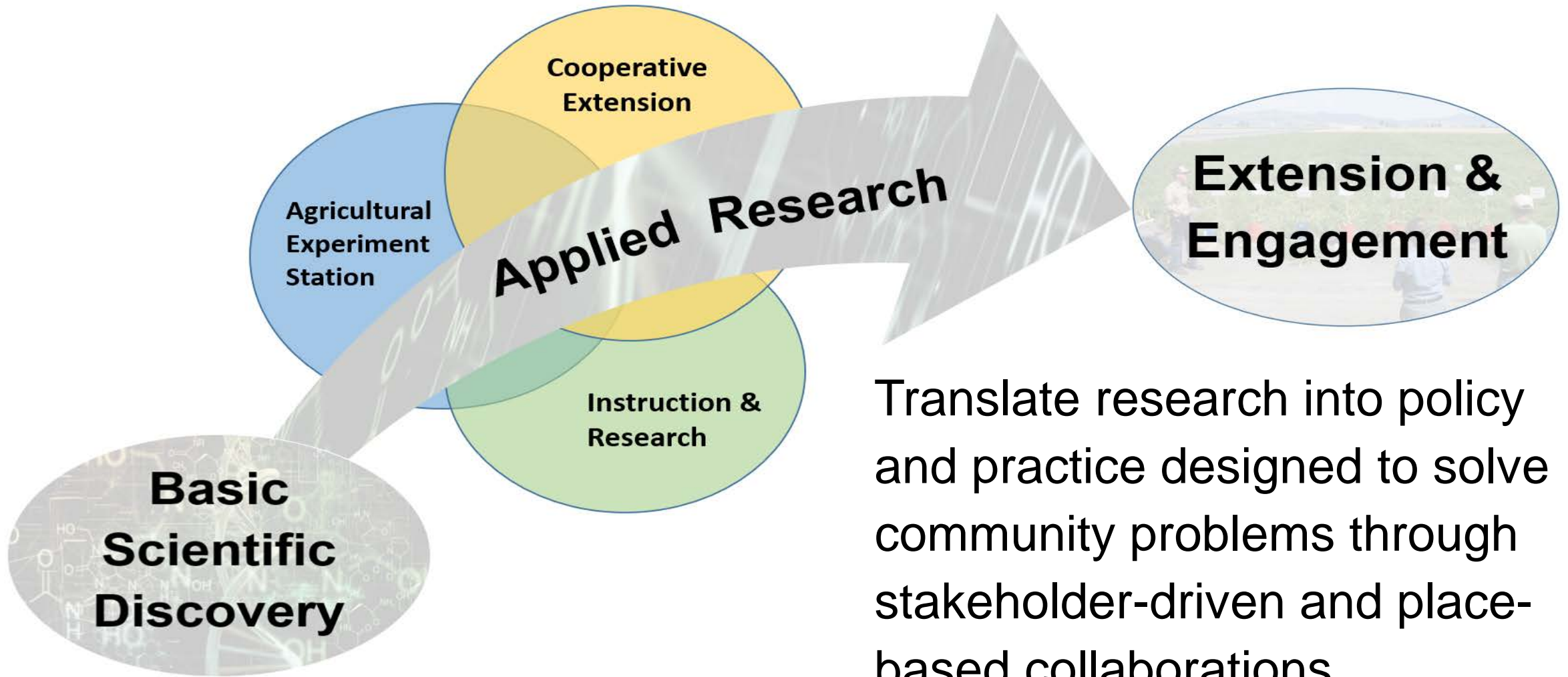
UC ANR delivers the power of UC throughout California by serving all 58 counties with research & education programs that support:

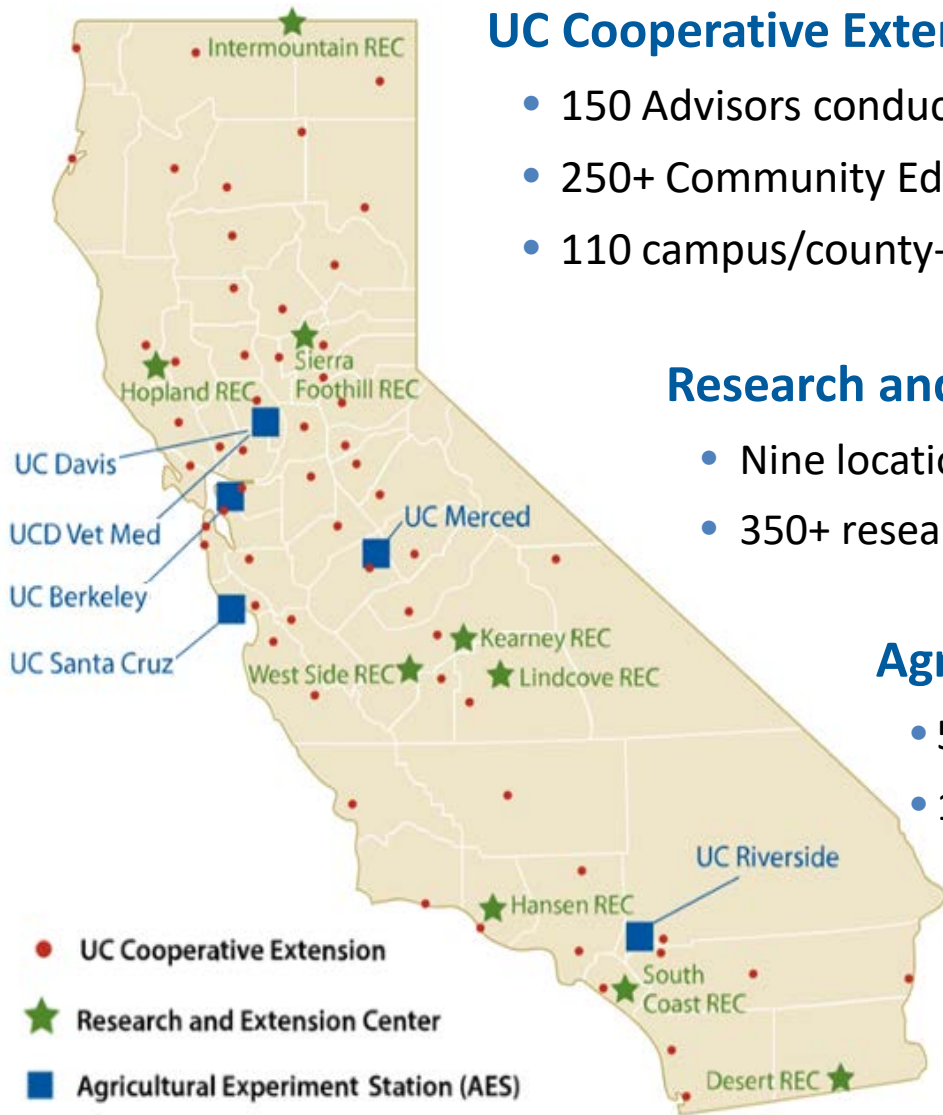
- Sustainable, safe, and nutritious food production and delivery
- Economic success in a global economy
- A sustainable, healthy, and productive environment
- Science literacy and youth development





# Mission-Oriented Research





## UC Cooperative Extension

- 150 Advisors conduct research in local communities
- 250+ Community Educators delivering programs
- 110 campus/county-based Specialists



## Research and Extension Center System

- Nine locations statewide; 13,000 acres
- 350+ research projects annually



## Agricultural Experiment Station

- 540+ researchers on 5 campuses
- 1,300+ research projects annually

## 13 Statewide Programs and Institutes



**Over 20,000 volunteers contribute 1000+ FTE  
— valued at more than \$65 million in  
donated public service each year**

# Collaboration Facilitates Leveraging of Resources, Sharing Knowledge and Development of Solutions





# Catalyzing Ag + Food + Health + Climate Innovation



# Support State Agency Missions through Partnerships and Contracts

- ✓ Joint research projects and subject matter experts
- ✓ Training in pesticide safety, vegetation management, fire suppression, CalNaturalist, and more
- ✓ Developing educational materials and programs
- ✓ Mapping future fire probability under climate change scenarios to address public safety
- ✓ Promoting use of agricultural lands for groundwater recharge and drought management
- ✓ Providing evidence-based programs and teaching for SNAP-Ed and Women, Infants and Children (WIC)







**2018-21 California  
wildfires cost state  
over \$1 Trillion in  
economic losses**



**Healthy forests  
support more and  
diverse wildlife  
ecosystems**



**Healthy forests could  
produce 9–16%  
more water for  
California**



**Outdoor recreation  
adds \$92 billion to  
California's economy  
& 691,000 jobs**

**Healthy  
Forests  
and  
Working  
Lands  
Provide  
Many  
Benefits**





Promote healthy, resilient forests and advanced wood products industries

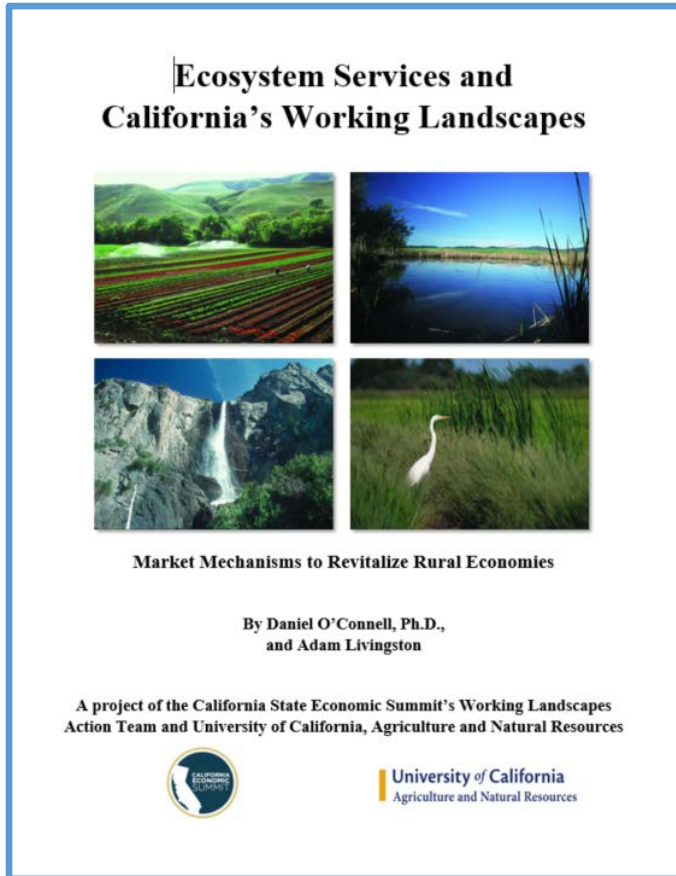


Enhance sustainable water and natural resources management to support ecosystem services

- ✓ Diverse stakeholders develop a shared understanding
- ✓ Share information, innovations, and best practices
- ✓ Build on initiatives from previous Summits
- ✓ Identify policy changes and strategies to drive solutions.
- ✓ Advance communication and coalition building



# Support Ecosystem Services as Vital Natural Capital



- ✓ Use Enhanced Infrastructure Financing Districts to Create Markets for Natural Water Infrastructure
- ✓ Expand Existing Markets for Farmland, Rangeland, Wetland and Habitat Conservation
- ✓ Develop New & Innovative Markets for Carbon Sequestration
- ✓ Provide Regulatory Incentives to Support Market Participation
- ✓ Prioritize Markets for Agricultural Practices that Provide Multiple Ecosystem Services
- ✓ Provide Technical Assistance
- ✓ Enhance Mapping Capabilities



<http://caeconomy.org/reporting/entry/new-report-shares-how-california-can-map-out-invest-in-states-valuable-work>





# CALIFORNIA'S WORKING LANDSCAPE

<http://ucanr.edu/WorkingLandscapes>

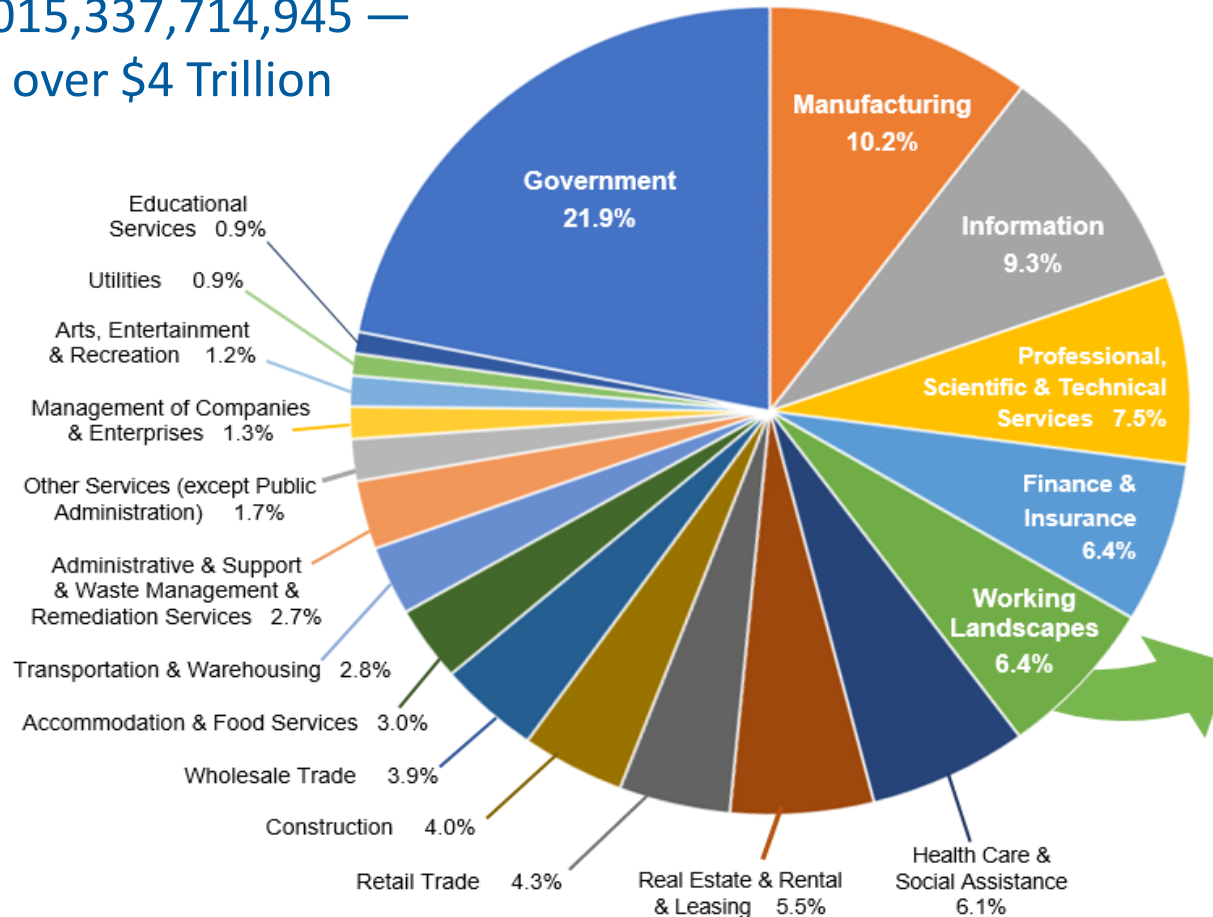
A Key Contributor to the  
State's Economic Vitality

NOVEMBER 2019



## The 2018 California Economy

\$4,015,337,714,945 —  
just over \$4 Trillion



## \$333 Billion Sales

Agriculture \$263.5 B

Mining \$32.2 B

Forestry \$23.2 B

Outdoor Recreation \$6.3 B

Renewable Energy \$5.9 B

Fishing \$1.7 B

## 1.5 Million Jobs

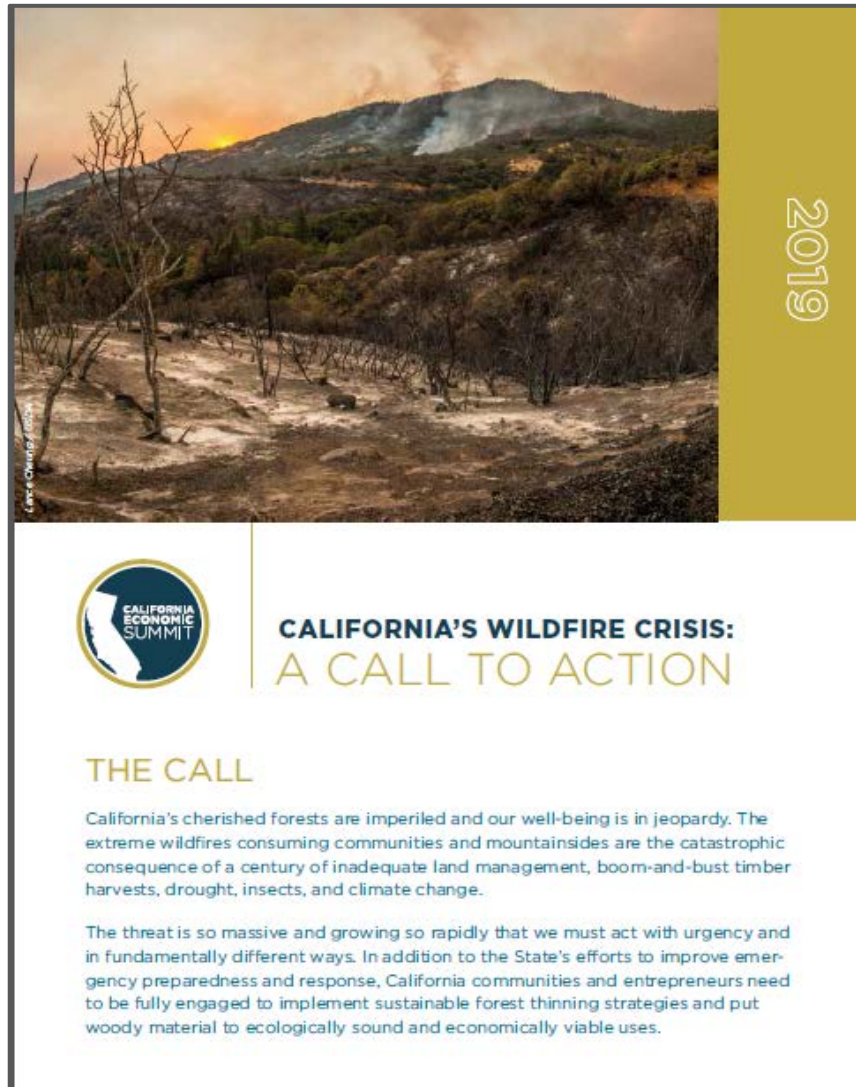
## \$85 Billion Earnings

SOURCE: Report by California Community Colleges Centers of Excellence using 2018 data from the North American Industry Classification System (NAICS)



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# A Call to Action on Wildfire and Advanced Wood Products

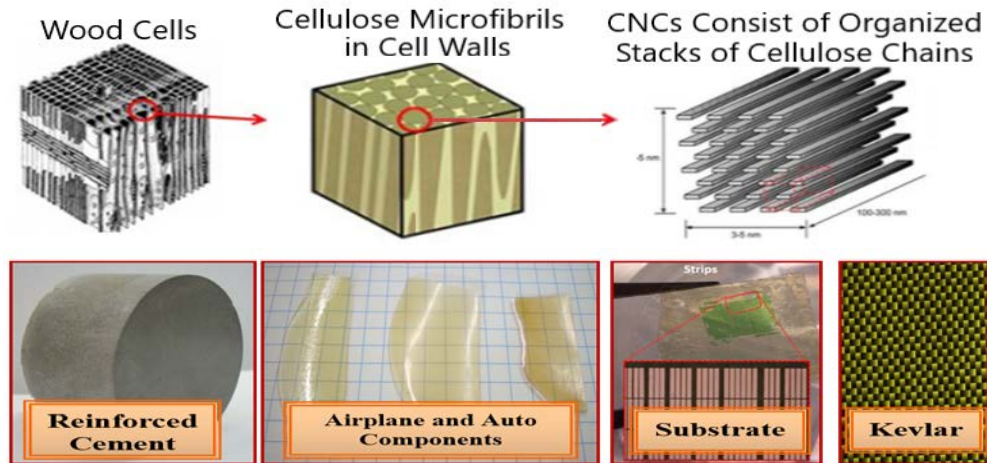


Treat at least 1 million acres a year by linking expanded forest management with a new wood products industry that converts excess woody biomass into biofuels, engineered bioproducts and other innovative uses.

<https://caeconomy.org/resource/californias-wildfire-crisis-a-call-to-action>



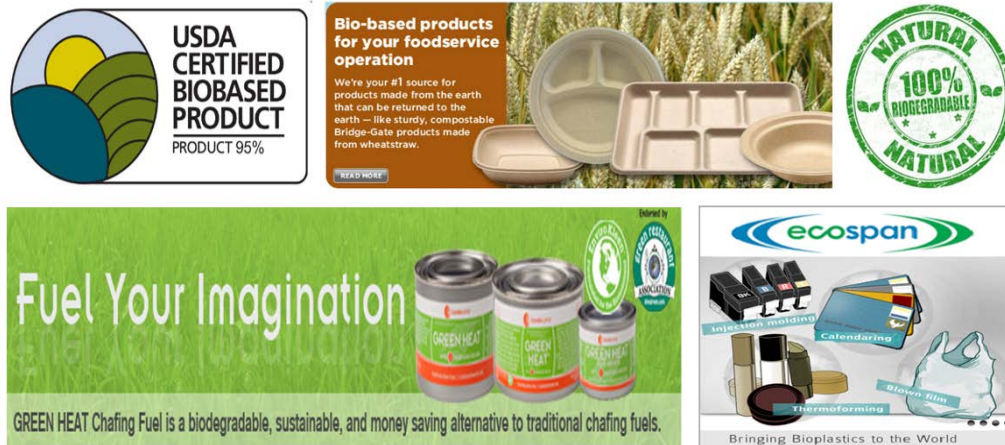
## Cellulosic Nanomaterials (CNC)



## Advanced Wood Products



## Bioplastics & Biobased Products



**Beyond Lumber and Biofuels are Many Biomass Opportunities**



San Jose Mayor Sam Liccardo:  
**“CLT will save the world”**

August 22, 2019

Project savings using CLT  
 $\approx 15\%$  versus conventional  
building materials

Construction is about 30%  
faster than comparable  
steel-&-concrete structures

More Energy Efficient

Comparable Fire Safety

**Sequesters Carbon!**





## Sacramento Railyards project by Katerra & BAR Architects



"California's housing crisis is exactly the type of problem we are trying to solve – everyone deserves to live in a well-designed home delivered at an affordable price point."

Craig Curtis, President of Katerra

<https://archpaper.com/2018/03/can-mass-timber-help-california-build-way-housing-crisis/>



**Brookfield crafts  
West Coast's largest  
mass timber office  
building in 2019**

- ✓ 310,00-square-foot and six-stories
- ✓ \$3.5 billion project
- ✓ Near Pier 70, in San Francisco's southern waterfront

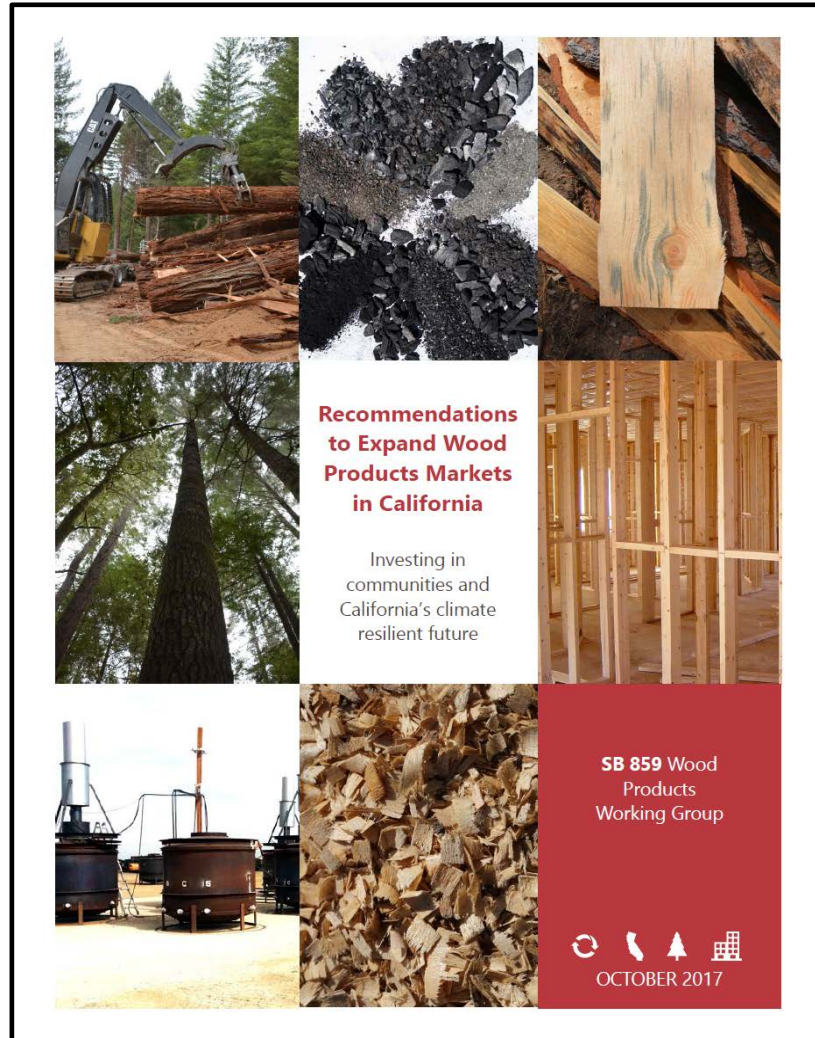


Green Hydrogen is a GHG-free energy source that can be used across sectors, transforming and decarbonizing power, transportation, industry, agriculture, mining, and more.





# California Senate Bill 859



## ✓ STRATEGIES AND ACTIONS

- Remove Barriers to Market
- Promote Innovation and Pathways for Success
- Invest in Human Capital

## ✓ ORGANIZING BODIES

- Rural Economic Development Committee
- Joint Institute for Wood Products Innovation
- Cross Strategy Pilot Projects

## ✓ WOOD PRODUCTS SUMMIT

## ✓ CALIFORNIA MASS TIMBER BUILDING COMPETITION

## ✓ WOOD PRODUCTS TRAINING AND WORKFORCE DEVELOPMENT

<http://resources.ca.gov/wp-content/uploads/2014/07/Wood-Products-Recommendations.pdf>



UC, CSU, and the Board of Forestry & Fire Protection have established a Joint Institute for Wood Products Innovation (JIWPI) to perform and accelerate research, development, testing, and adoption of advanced forest management and wood products manufacturing.

- ✓ Conduct research and provide technical assistance in sustainable forest management and the forest products industry.
- ✓ Engage students and faculty in interdisciplinary research programs combining forestry, engineering, chemistry, materials science, biology, ecology, business administration, economics and more.
- ✓ Create easily accessible publications, white papers, meetings, blogs, and resources.
- ✓ Design much-needed public outreach and education strategies to convey the value of forest health and management to all Californians.





FoundationCCC received \$21.5 million to support its “California Resilient Careers in Forestry” proposal, which will coordinate and expand forestry and fire-safety training programs in the Sierra Nevada and Cascade regions of northeastern California.



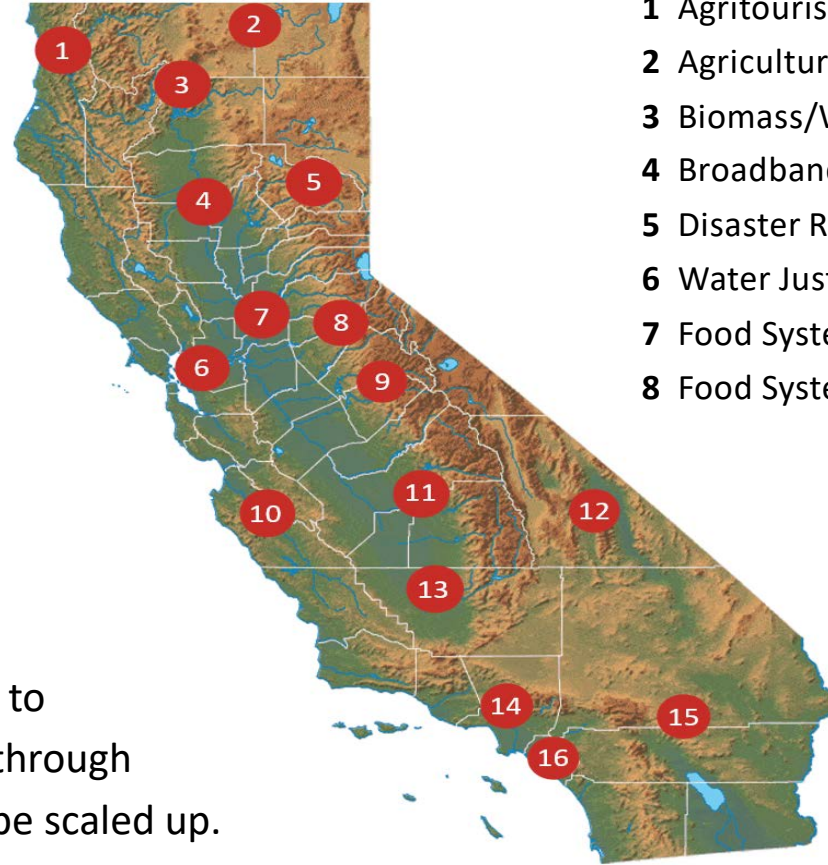
# Enhancing Community and Economic Development by Placing New UC Cooperative Extension Advisors With Regional Partners

## UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources

Statewide network of UC researchers, educators and volunteers who develop and extend knowledge to solve local and global challenges.



Alliance of regional leaders committed to creating inclusive, sustainable growth through innovative regional solutions that can be scaled up.



- 1 Agritourism/Small Business
- 2 Agricultural Technology\*
- 3 Biomass/Wood Products
- 4 Broadband Development
- 5 Disaster Recovery: Housing
- 6 Water Justice Policy/Planning\*
- 7 Food Systems Development
- 8 Food Systems Development\*

- 9 Biomass/Wood Products
- 10 Agricultural Technology
- 11 AgTech & Food Systems
- 12 Broadband Development
- 13 Urban Resiliency: Water
- 14 Urban Resiliency: Capacity
- 15 Biomass: Hydrogen/Biofuels
- 16 Controlled Environment Ag

\* Recruitment began summer 2021

UC Cooperative Extension (UCCE) Advisors conduct applied research & make available to the general public the latest knowledge and practices.

**By creating thriving regions, we can ensure a thriving state.**





*Thriving Regions. Thriving State.*



"On the ground" local projects that promote, develop and amplify the area's social, environmental and economic capital.



Maximize investment in the local economy: how we pool and invest local money creates the financial and social return on investment.



# Examples of Collaboration...

## Redwood Coast Rural Action

Leading Regional Thinking to Action



North Coast Regional Manufacturer's Network

San Luis Obispo Partners – business, industry, education, and community leaders – develop innovative pre-apprentice and apprenticeship programs in the tech industry



Startup, retain and expand local businesses and jobs – strengthen and diversify regional economic activity



**GOLDEN STATE**  
**NATURAL RESOURCES**  
Preserve. Provide. Protect.

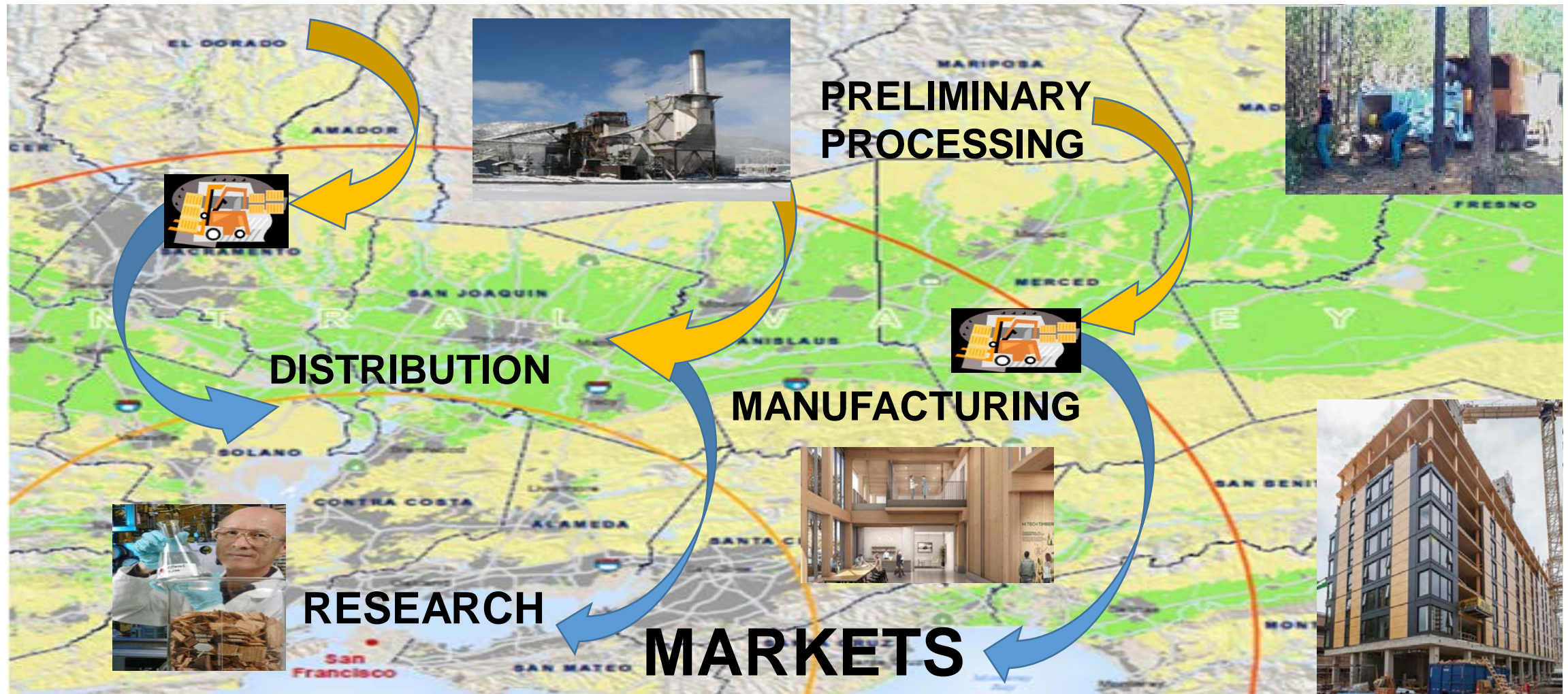
RCRC established Golden State Natural Resources, a public benefit, non-profit corporation that will remove biomass from forest restoration activities in California to create a pelletized fuel product at revitalized processing facilities in RCRC member counties. The pellets will be exported to Asian countries, party to the Paris Agreement.

Making this feasible is signing of one of the first in the nation, twenty-year Master Stewardship Agreement with the US Forest Service for the entirety of USFS Region 5 in California.





# Building a Biomass Manufacturing & Supply Chain



**Public & Private Investment Needed**

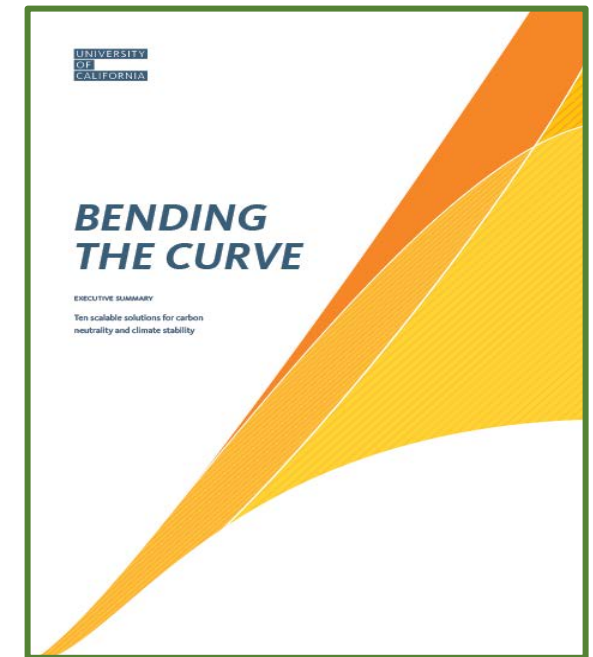
# UC System Can Serve as a Market Driver

Leverage existing resources and experts within the UC system in a strategy for rapidly expanding use of “mass timber” and other new wood products in future campus construction projects

- ✓ “The state could establish guidelines that encourage use of cost-effective building materials with lower lifecycle GHG emissions for new State-owned and/or state-occupied buildings.”

*SB859 Report Recommendation*

- ✓ Aligns with University of California’s climate change goal to be Carbon Neutral by 2025





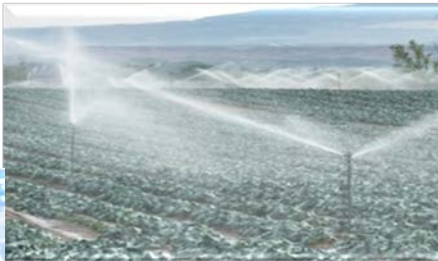


- ✓ Reduce risk from fire
- ✓ Improve wildlife habitat
- ✓ Enhance recreation opportunities
- ✓ Expand water production
- ✓ Support rural communities

- ✓ Create jobs & supports economic development throughout California
- ✓ Advanced wood buildings are more energy efficient, safer in earthquakes and fires and sequester carbon
- ✓ Reduce climate change contributions & impacts

# Research and Extension are Needed More than Ever

- New Technologies, Crops and Tools Required
- Food & Nutrition Systems are Fragile
- Climate Change Impacts
- Economic Disconnects
- Disaster Response



## Need Solutions for:

- Worker & Community Well-being
- Industry Recovery, Resiliency & Compliance
- Market Competitiveness, Growth & Profitability





Take a virtual tour: [http://ucanr.edu/Virtual\\_Tour](http://ucanr.edu/Virtual_Tour)

Check out our website: [UCANR.edu](http://UCANR.edu)

Current job openings:  
<https://ucanr.edu/jobs>

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