



Empowering Resilient and Productive Landscapes

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

Dr. Glenda Humiston
September 2022

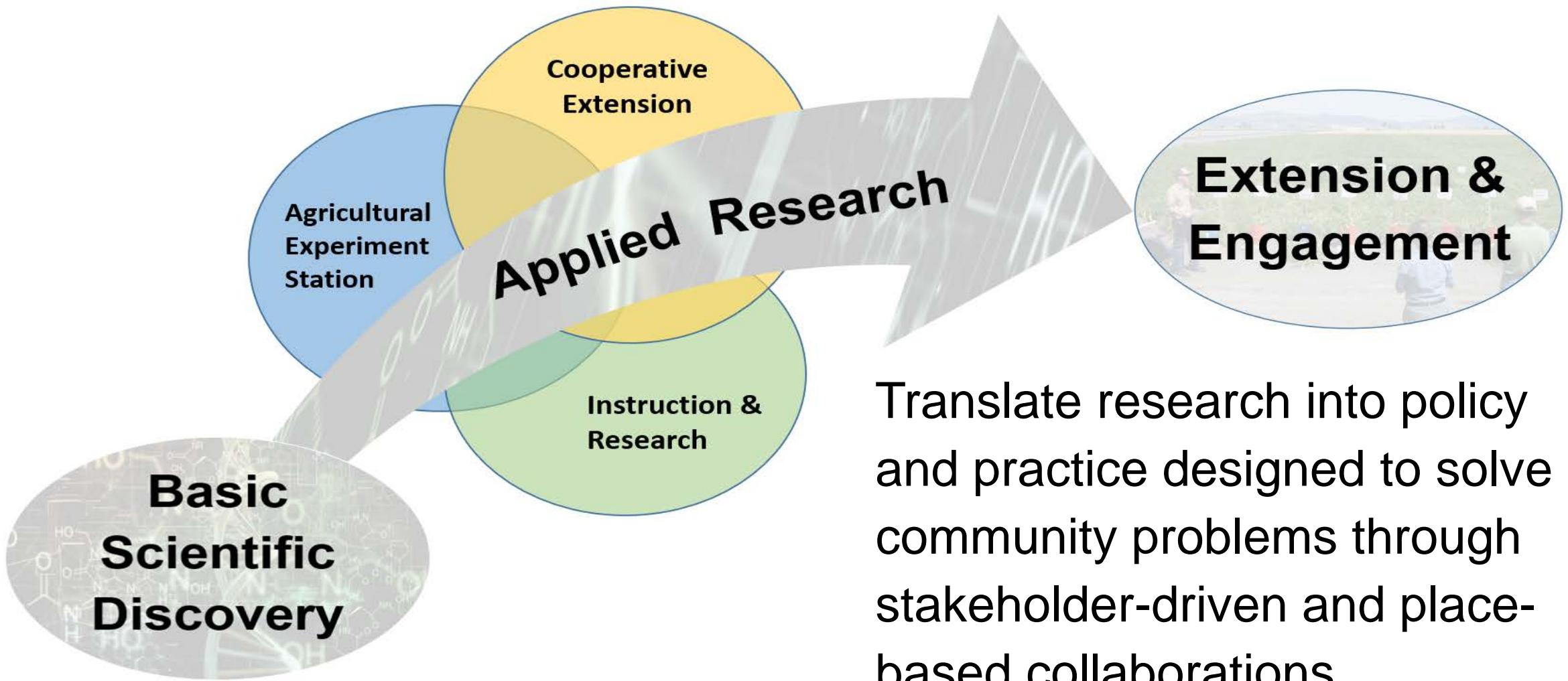
UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

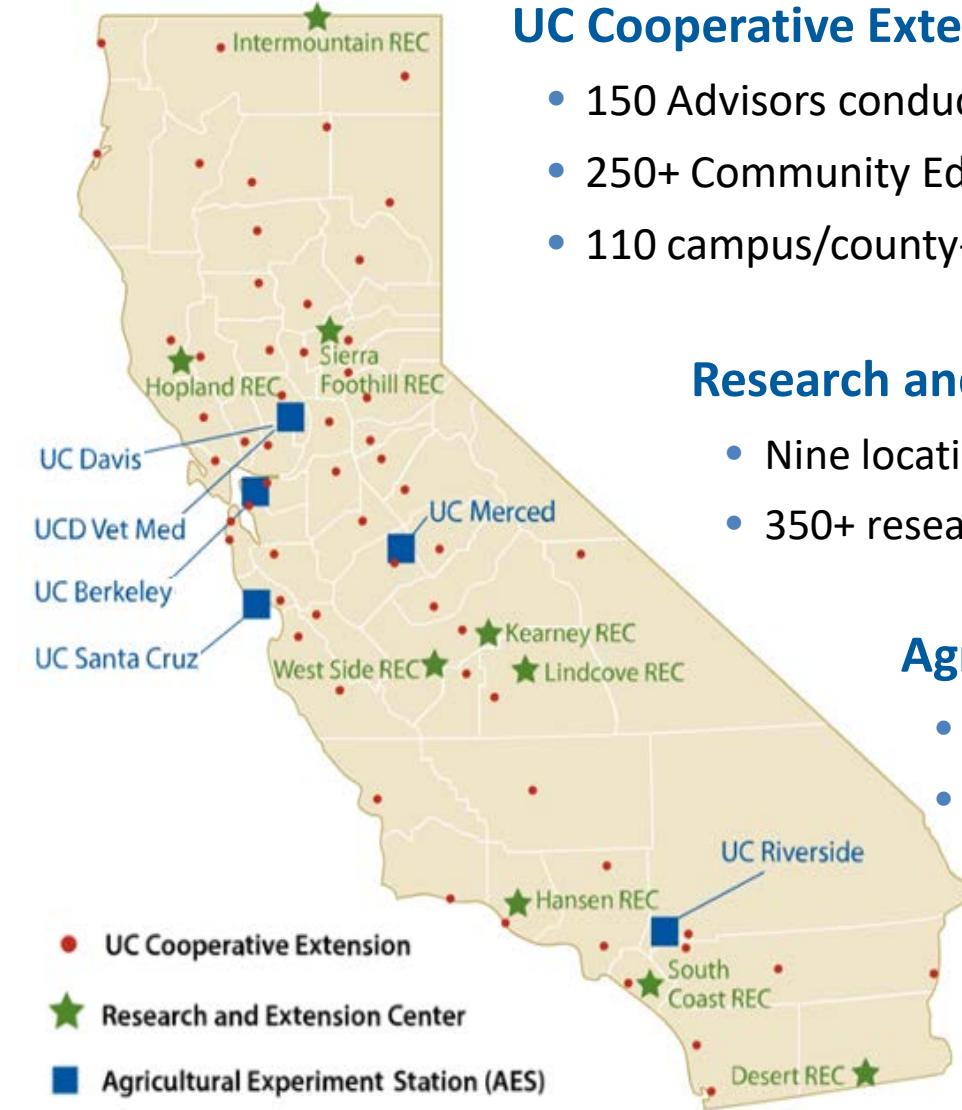
UC ANR delivers the power of UC throughout California by serving all 58 counties with research & education programs that support:

- 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

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

13 Statewide Programs and Institutes



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)

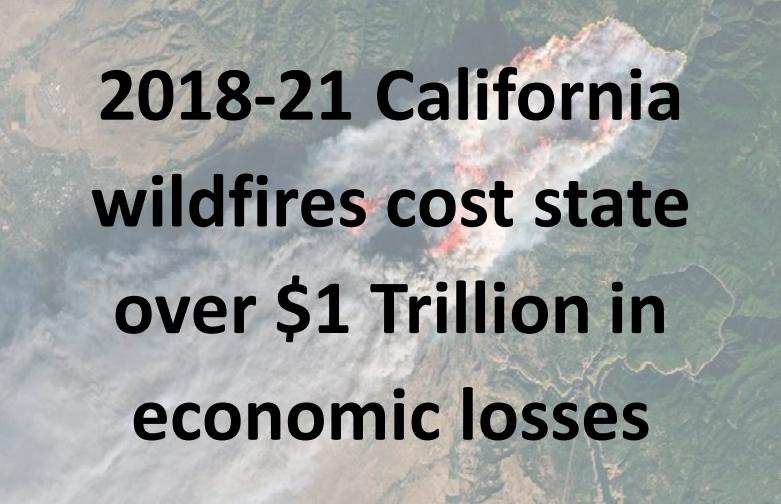


CALIFORNIA DEPARTMENT OF
FOOD AND AGRICULTURE



California
Department of Conservation





**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**



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Promote healthy, resilient forests and advanced wood products industries

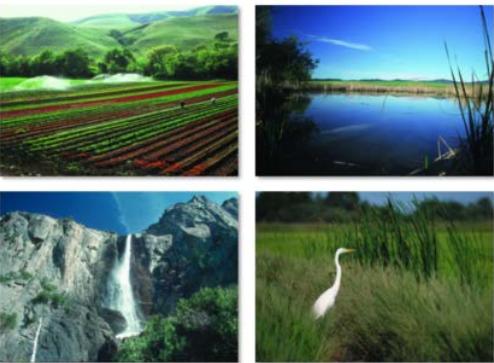
Enhance sustainable water and natural resources management to support ecosystem services

- ✓ 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

UC ANR and SBC Co-chair this Initiative

Support Ecosystem Services as Vital Natural Capital

Ecosystem Services and California's Working Landscapes



Market Mechanisms to Revitalize Rural Economies

By Daniel O'Connell, Ph.D.,
and Adam Livingston

A project of the California State Economic Summit's Working Landscapes Action Team and University of California, Agriculture and Natural Resources



University of California
Agriculture and Natural Resources

- ✓ 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>



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CALIFORNIA'S WORKING LANDSCAPE

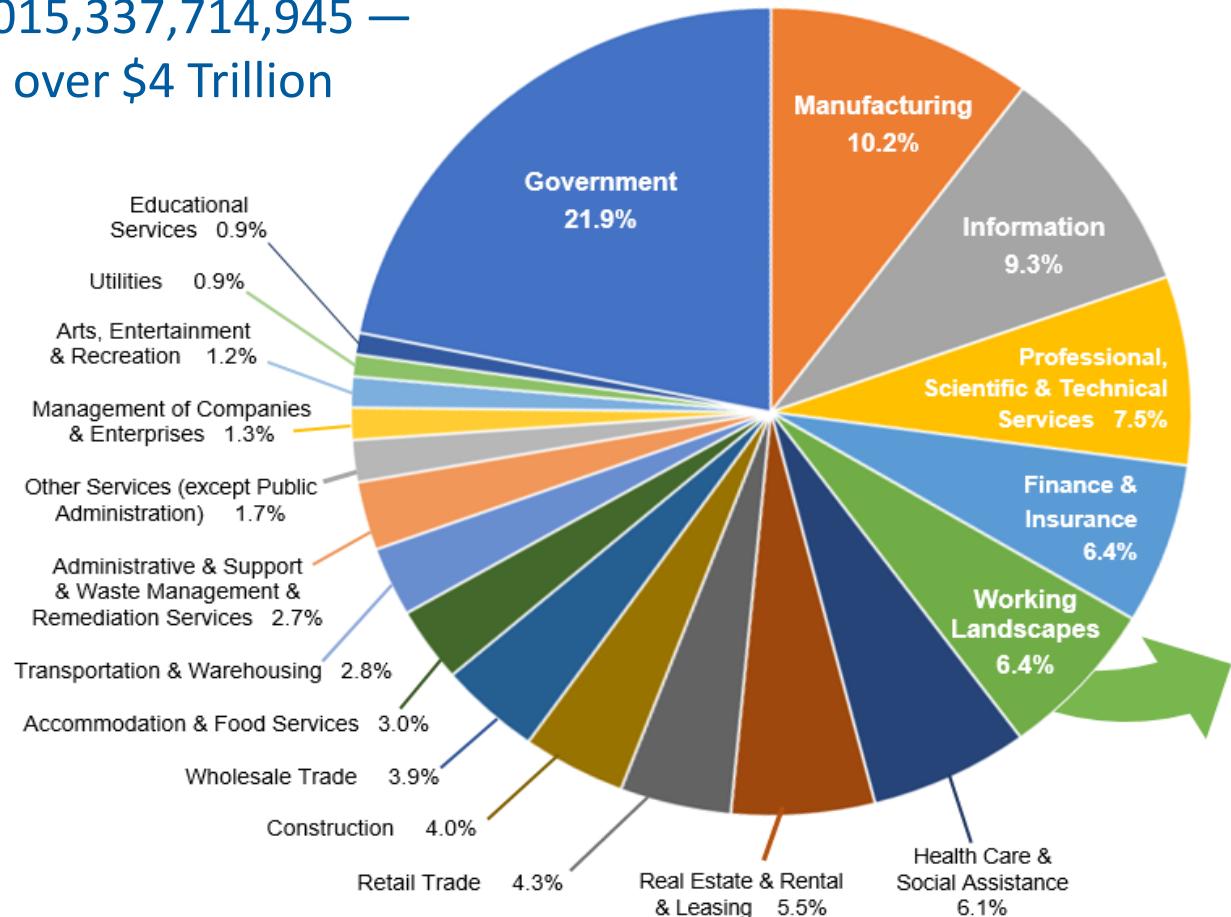
<http://ucanr.edu/WorkingLandscapes>

A Key Contributor to the
State's Economic Vitality
NOVEMBER 2019



The 2018 California Economy

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



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

\$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



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A Call to Action on Wildfire and Advanced Wood Products



Lake County, CA

 CALIFORNIA'S WILDFIRE CRISIS:
A CALL TO ACTION

THE CALL

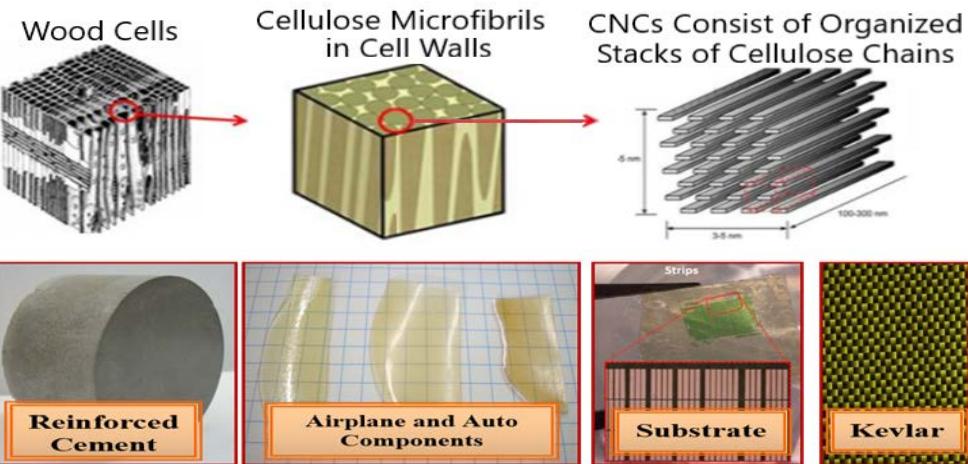
California's cherished forests are imperiled and our well-being is in jeopardy. The extreme wildfires consuming communities and mountainsides are the catastrophic consequence of a century of inadequate land management, boom-and-bust timber harvests, drought, insects, and climate change.

The threat is so massive and growing so rapidly that we must act with urgency and in fundamentally different ways. In addition to the State's efforts to improve emergency preparedness and response, California communities and entrepreneurs need to be fully engaged to implement sustainable forest thinning strategies and put woody material to ecologically sound and economically viable uses.

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)



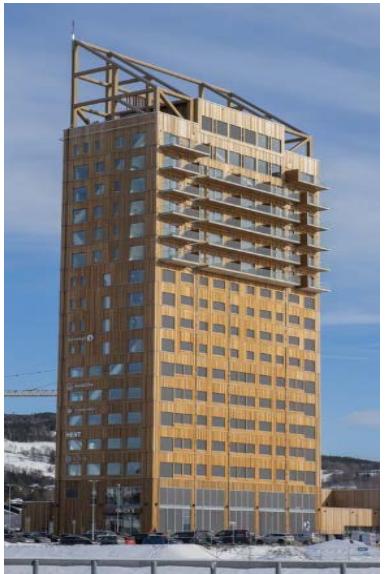
Advanced Wood Products



Bioplastics & Biobased Products



Beyond Lumber and
Biofuels are Many
Biomass Opportunities



San Jose Mayor Sam Liccardo:

“CLT will save the world”

August 22, 2019

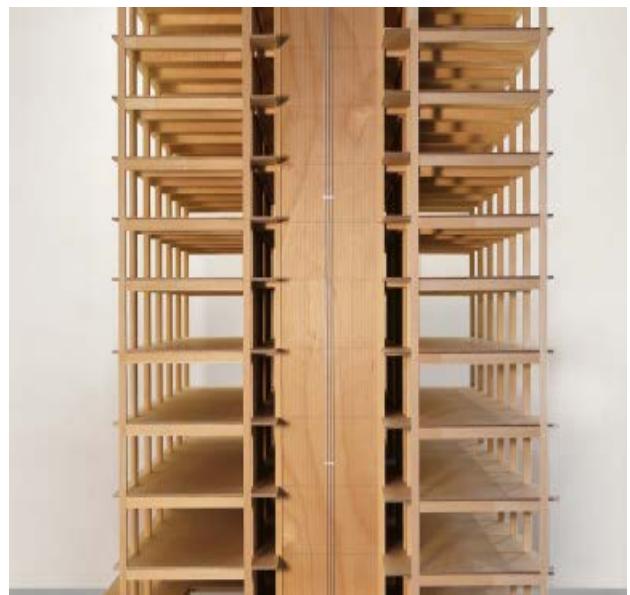
Project savings using CLT
≈ 15% versus conventional
building materials

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.



GREEN HYDROGEN:
A game changer in the
fight for our climate.

ABOUT OUR WORK INITIATIVES EDUCATION EVENTS NEWS & UPDATES
CONTACT FUND

The Green Hydrogen Coalition logo, featuring a stylized 'H' icon composed of a green flame and a blue flame.



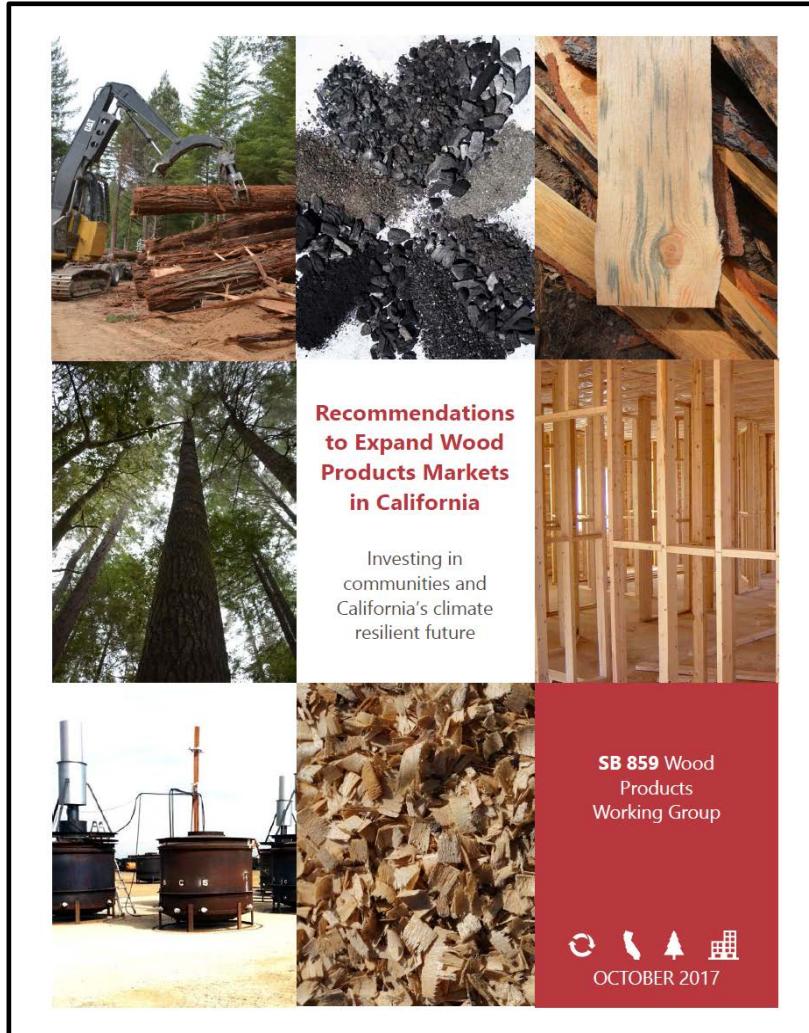
 SoCalGas 
[@socalgas · Follow](#)

How could Angeles Link support environmental goals?

1. Displace 3 million gallons of diesel fuel per day
2. Eliminate up to 14.3 million metric tons of CO₂ from the air each year
3. Convert four natural gas power plants to [#greenhydrogen](#)

socalgas.com/sustainability...

California Senate Bill 859



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

✓ 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



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.



Feather River College



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 | 9 Biomass/Wood Products |
| 2 Agricultural Technology* | 10 Agricultural Technology |
| 3 Biomass/Wood Products | 11 AgTech & Food Systems |
| 4 Broadband Development | 12 Broadband Development |
| 5 Disaster Recovery: Housing | 13 Urban Resiliency: Water |
| 6 Water Justice Policy/Planning* | 14 Urban Resiliency: Capacity |
| 7 Food Systems Development | 15 Biomass: Hydrogen/Biofuels |
| 8 Food Systems Development* | 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.

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CALIFORNIA STEWARDSHIP NETWORK

Thriving Regions. Thriving State.



SIERRA
BUSINESS COUNCIL

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

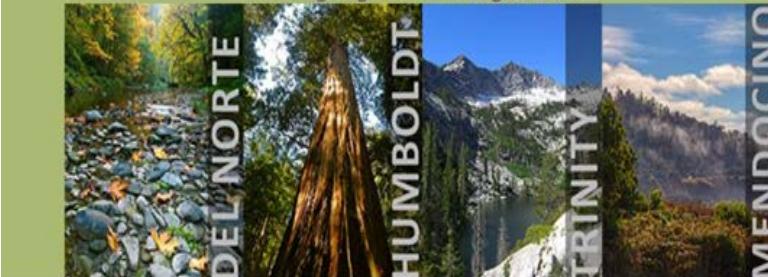


Maximize investment in the local economy: how we pool and invest local money creates the financial and social return on investment.

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

EVC
ECONOMIC VITALITY CORP.

SONOMA COUNTY
EDB
ECONOMIC DEVELOPMENT BOARD

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

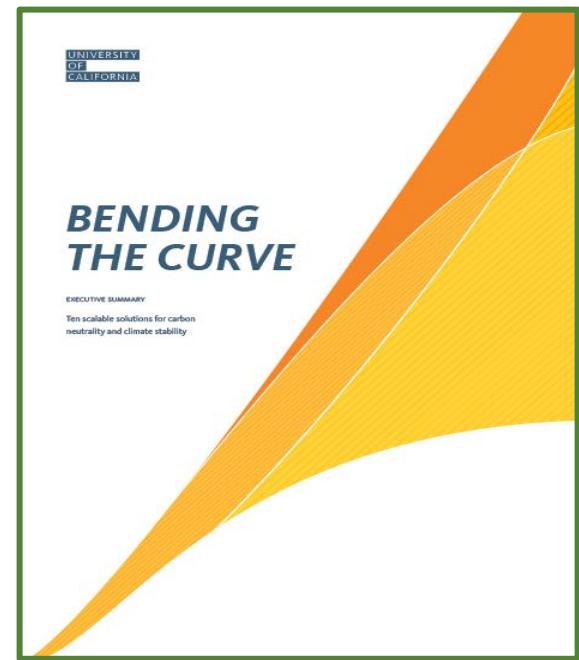
UC System Can Serve as a Market Driver

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



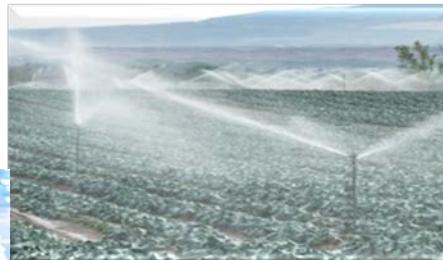


- ✓ Reduce risk from fire
- ✓ Improve wildlife habitat
- ✓ Enhance recreation opportunities
- ✓ Expand water production
- ✓ Support rural communities

- ✓ 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

Check out our website: UCANR.edu

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

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