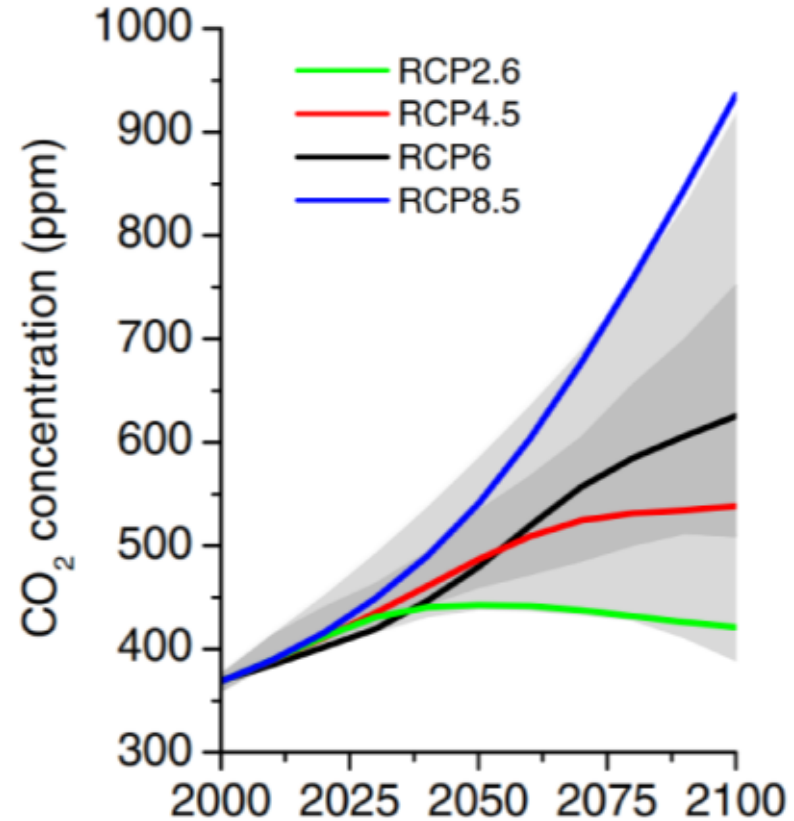
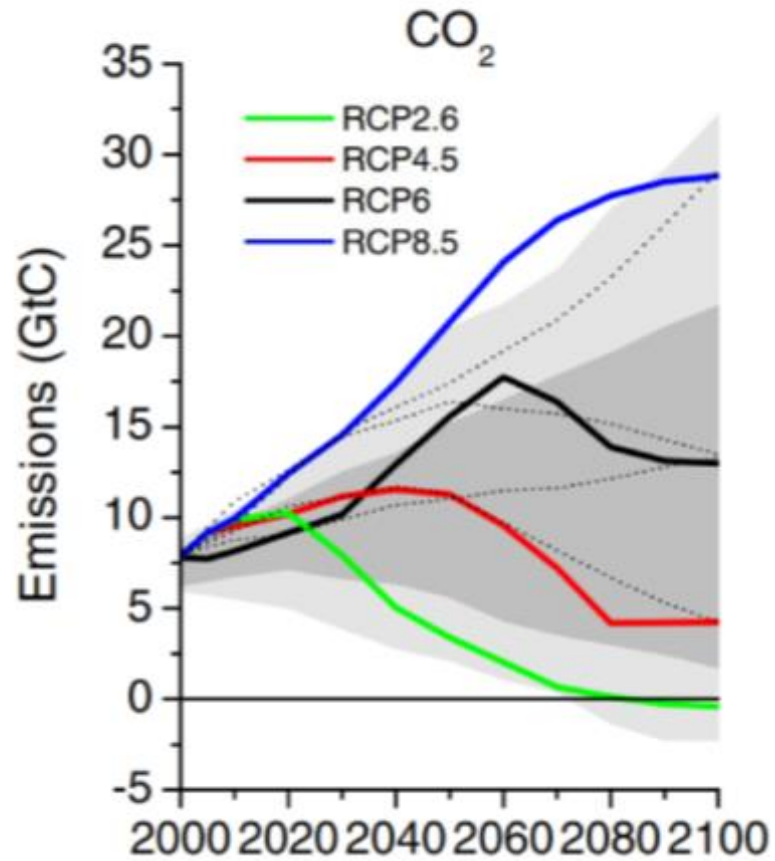




PACIFIC FOREST TRUST

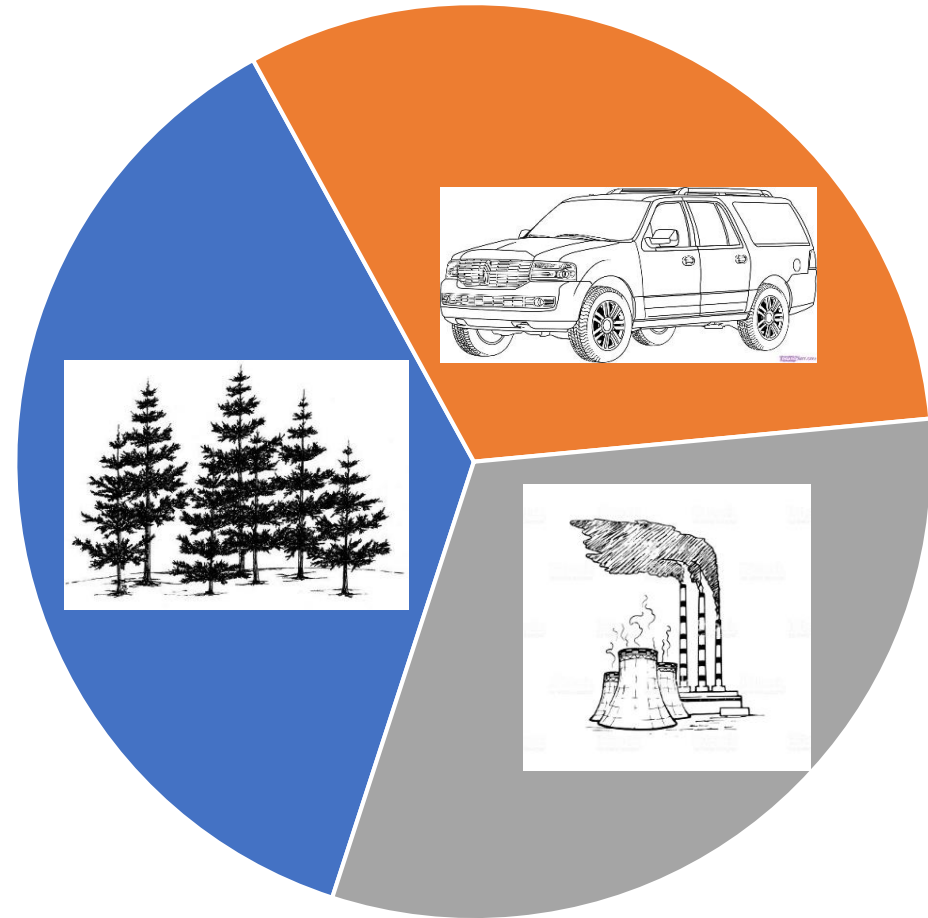
BENDING THE CURVE



NWL Solutions to Reducing CO₂

“Natural climate solutions (conservation, restoration, and improved land management actions) can provide 37% of cost-effective CO₂ mitigation needed through 2030 for a >66% chance of holding warming to below 2° C.”

--Proceedings of the National Academy of Sciences, October 2017



A photograph of a city skyline at sunset. The sky is a mix of orange and blue. In the background, a large mountain with a snow-capped peak is visible. The foreground is filled with various high-rise buildings, some of which are illuminated with warm lights.

URBAN CORE

A photograph of a forest floor. The scene is dominated by lush green ferns and other vegetation. In the lower right corner, a large, white, umbrella-shaped mushroom with a thick stem is prominently displayed.

FOREST FLOOR

A photograph of a coastal landscape at sunset. The sky is a soft orange. The foreground shows a wide, sandy beach that meets the ocean. In the distance, there are rolling hills and a body of water.

OCEAN SHORE





URBAN



ORGANIC



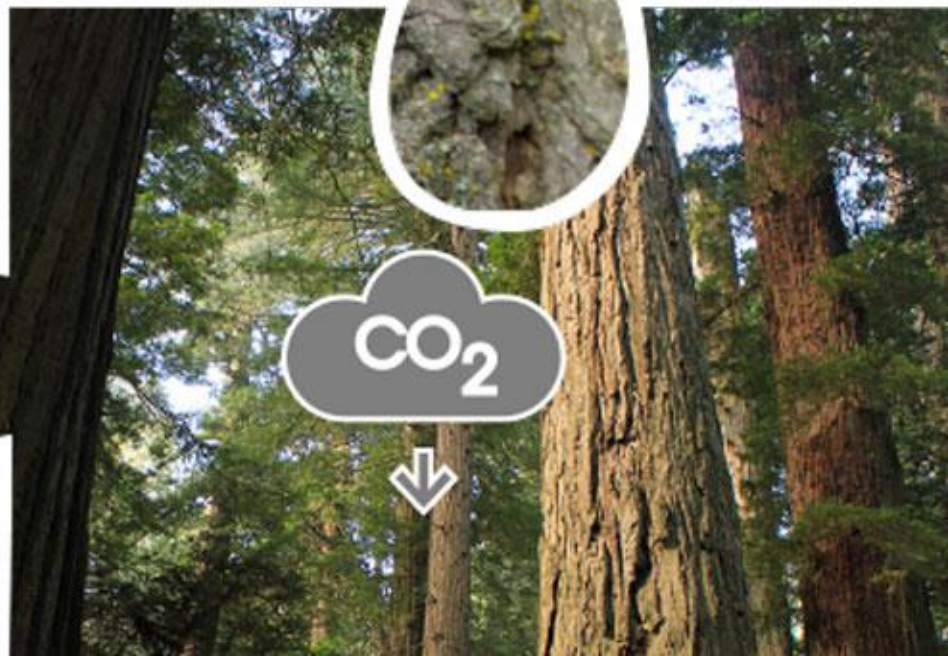
STREAM



NATIVE

A photograph of a dense forest of tall, thick-trunked trees, likely redwoods or sequoias, with a lush green fern forest in the foreground. The trees are very tall and have thick, textured bark. The forest floor is covered in vibrant green ferns. The lighting is soft, suggesting a misty or overcast day.

**LARGEST, SAFEST, MOST
EXPANDABLE CARBON SINK.**

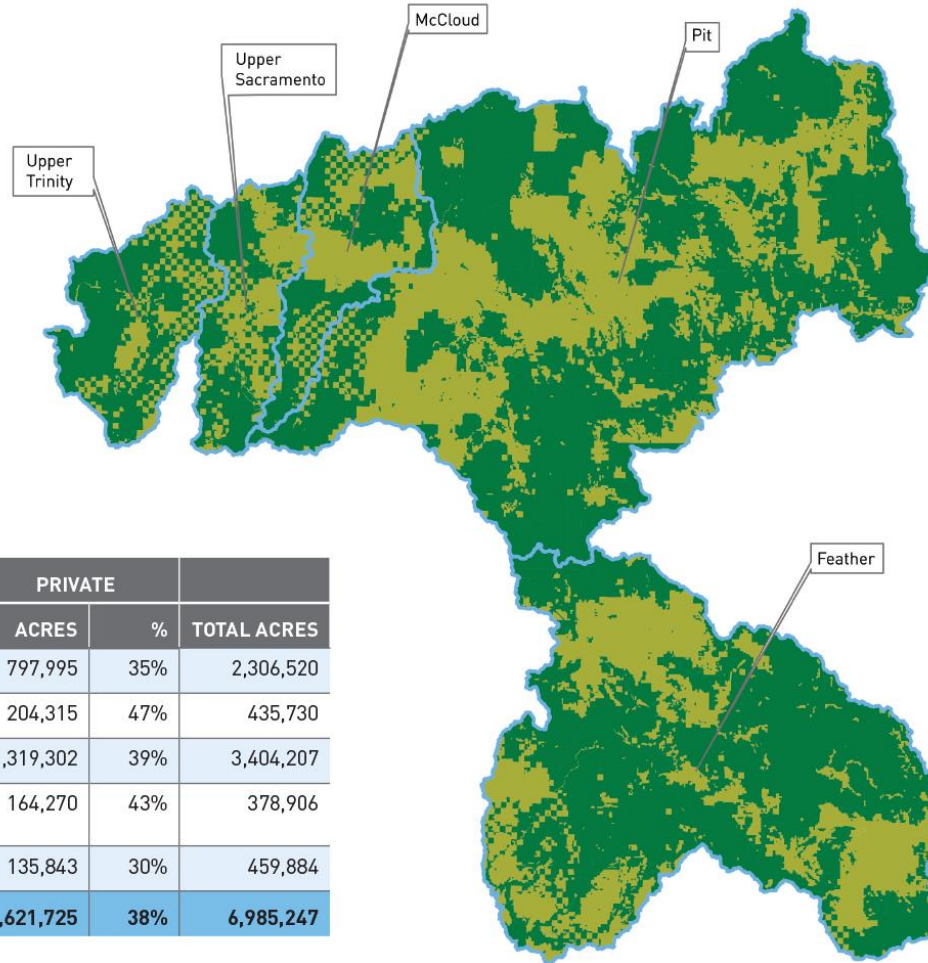
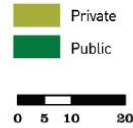


Healthy Watersheds California

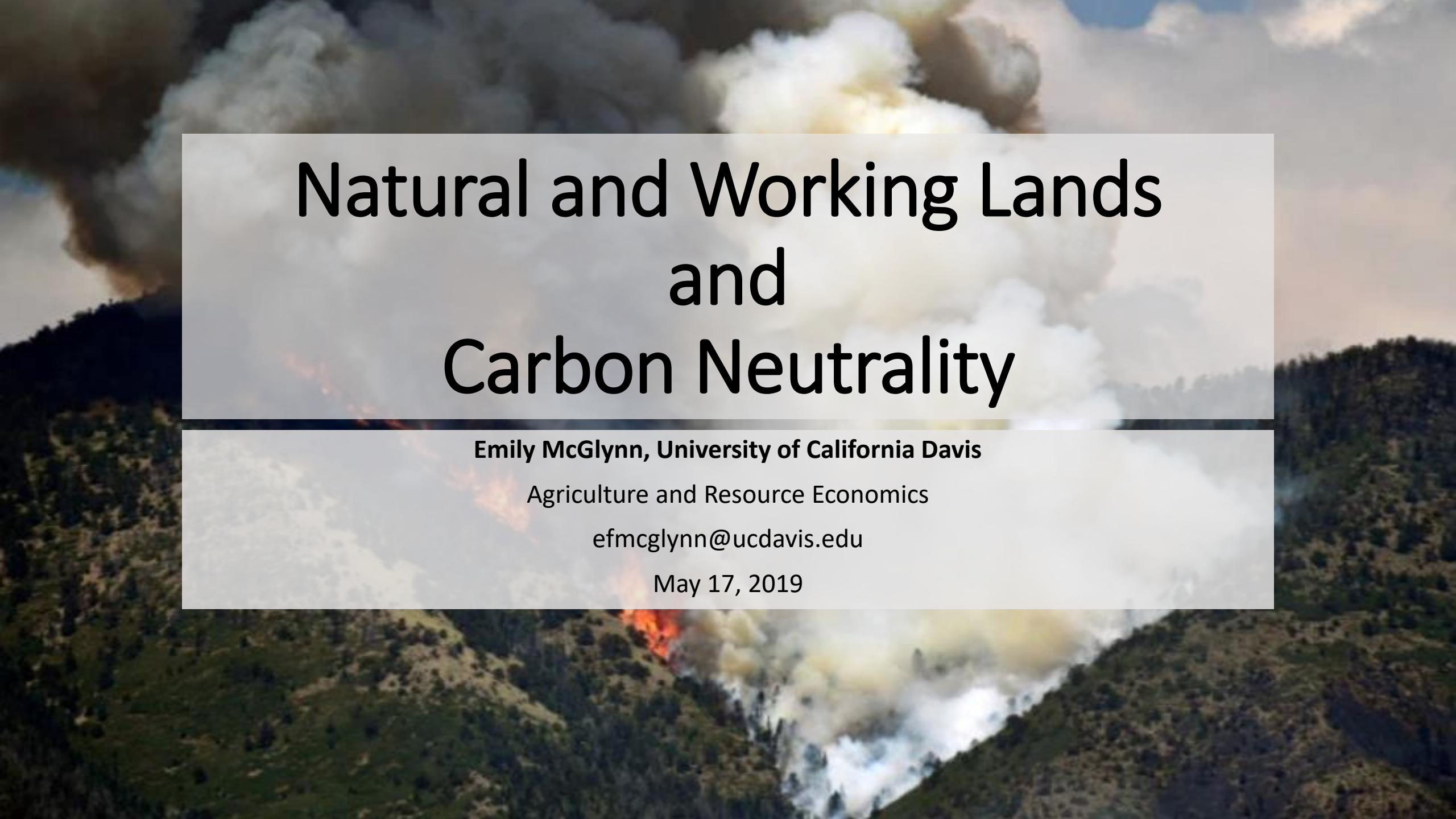


Five Key Watersheds

PUBLIC / PRIVATE OWNERSHIP



WATERSHED	PUBLIC		PRIVATE		TOTAL ACRES
	ACRES	%	ACRES	%	
Feather	1,508,525	65%	797,995	35%	2,306,520
McCloud	231,415	53%	204,315	47%	435,730
Pit	2,084,905	61%	1,319,302	39%	3,404,207
Upper Sacramento	214,636	57%	164,270	43%	378,906
Upper Trinity	324,041	70%	135,843	30%	459,884
Total	4,363,522	62%	2,621,725	38%	6,985,247



Natural and Working Lands and Carbon Neutrality

Emily McGlynn, University of California Davis

Agriculture and Resource Economics

efmcglynn@ucdavis.edu

May 17, 2019

Priorities

- Get the basics right
 - State-level LULUCF GHG inventory
 - Carbon accounting at project level – science-based
 - Predictability, stability, scalability of any policy – Without this, nothing will happen
- Innovation
 - Research, proof of concept – effectiveness of various fire treatments
 - Individual project carbon payments – predictable, long term
 - Price support schemes for agriculture – “loan rate premium”
 - Reverse auctions



**FOREST
RESILIENCE
BOND**

BLUE FOREST
CONSERVATION
Financial Innovation for Sustainable Solutions

Introduction to the Forest Resilience Bond (FRB)

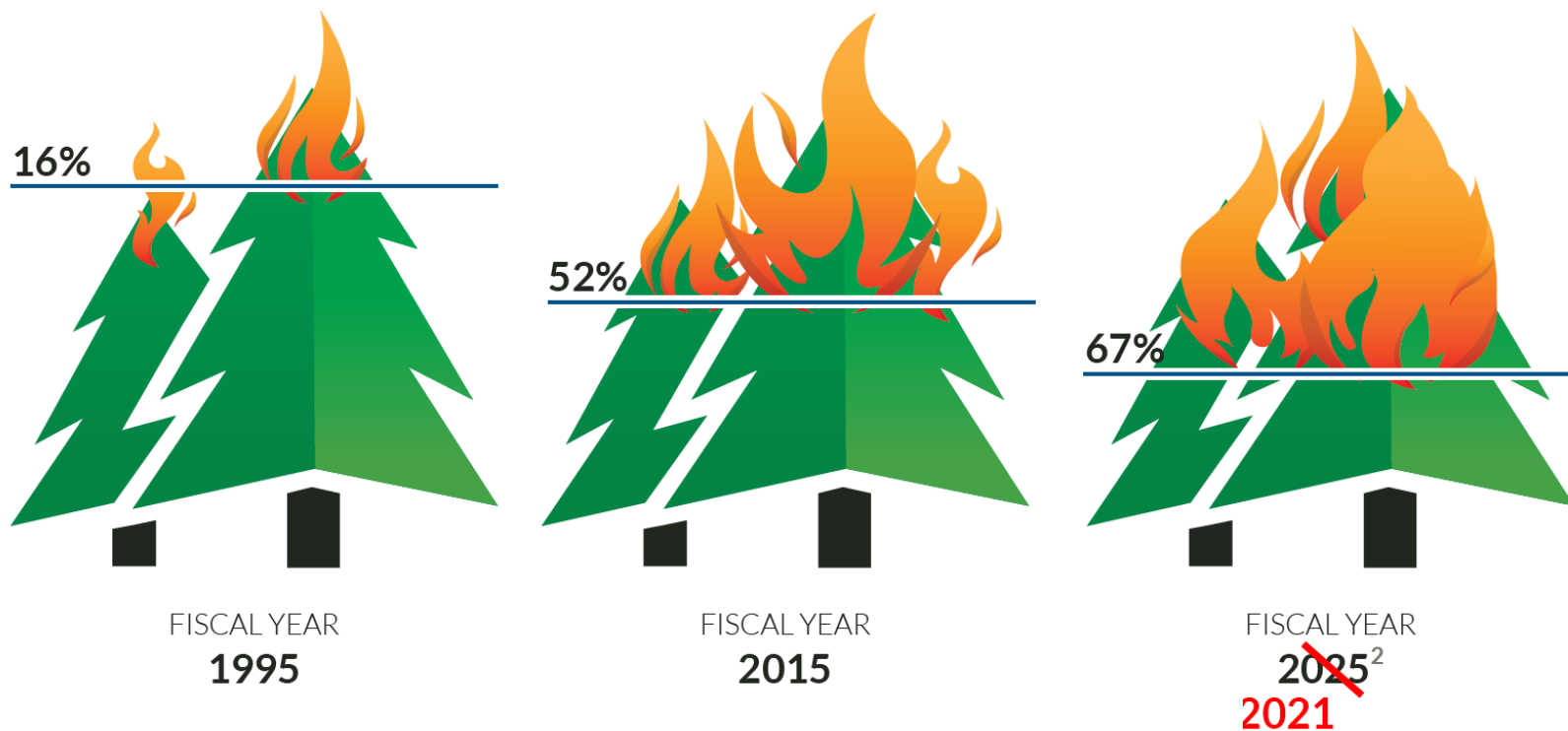
Prepared for CA Air Resources Board

May 17th, 2019

USFS: Rising Cost of Fire Suppression

US Forest Service

Vicious cycle in which USFS is forced to pay for today's fires out of the funds designed to prevent tomorrow's



Source: The Rising Cost of Wildfire Operations, USDA Forest Service

Goals of the Forest Resilience Bond

**Provide
resources to
support
collaboration**

**Accelerate
pace and
scale of
restoration**

**Support
public land
management**

SOCIAL

- Rural job creation & community development
- Community resilience
- Protected lives & homes

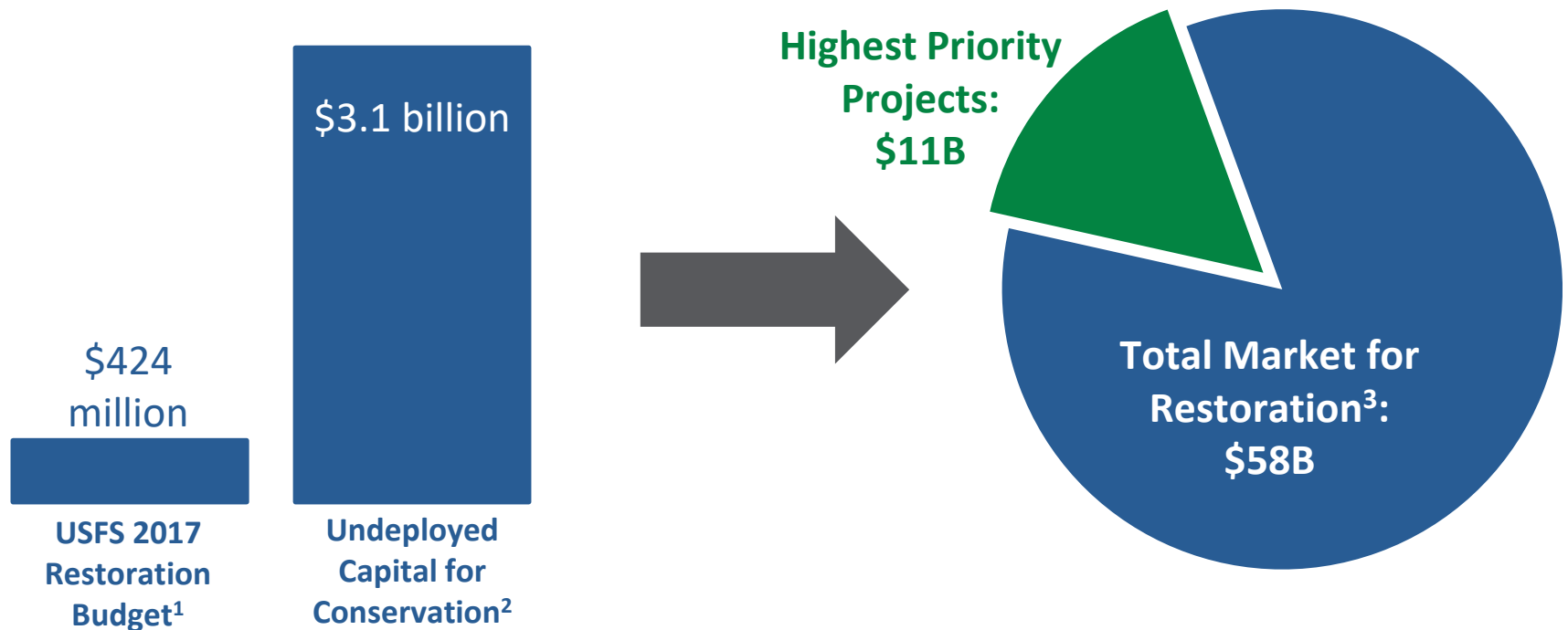
ENVIRONMENTAL

- Reduced fire severity
- Protected water resources
- Carbon storage
- Protected habitat

FINANCIAL

- Value for beneficiaries
- Taxpayer and ratepayer savings
- Investor returns

Opportunity for Private Capital



Advantages of Private Capital

Infusion of capital

Cost sharing

Larger projects

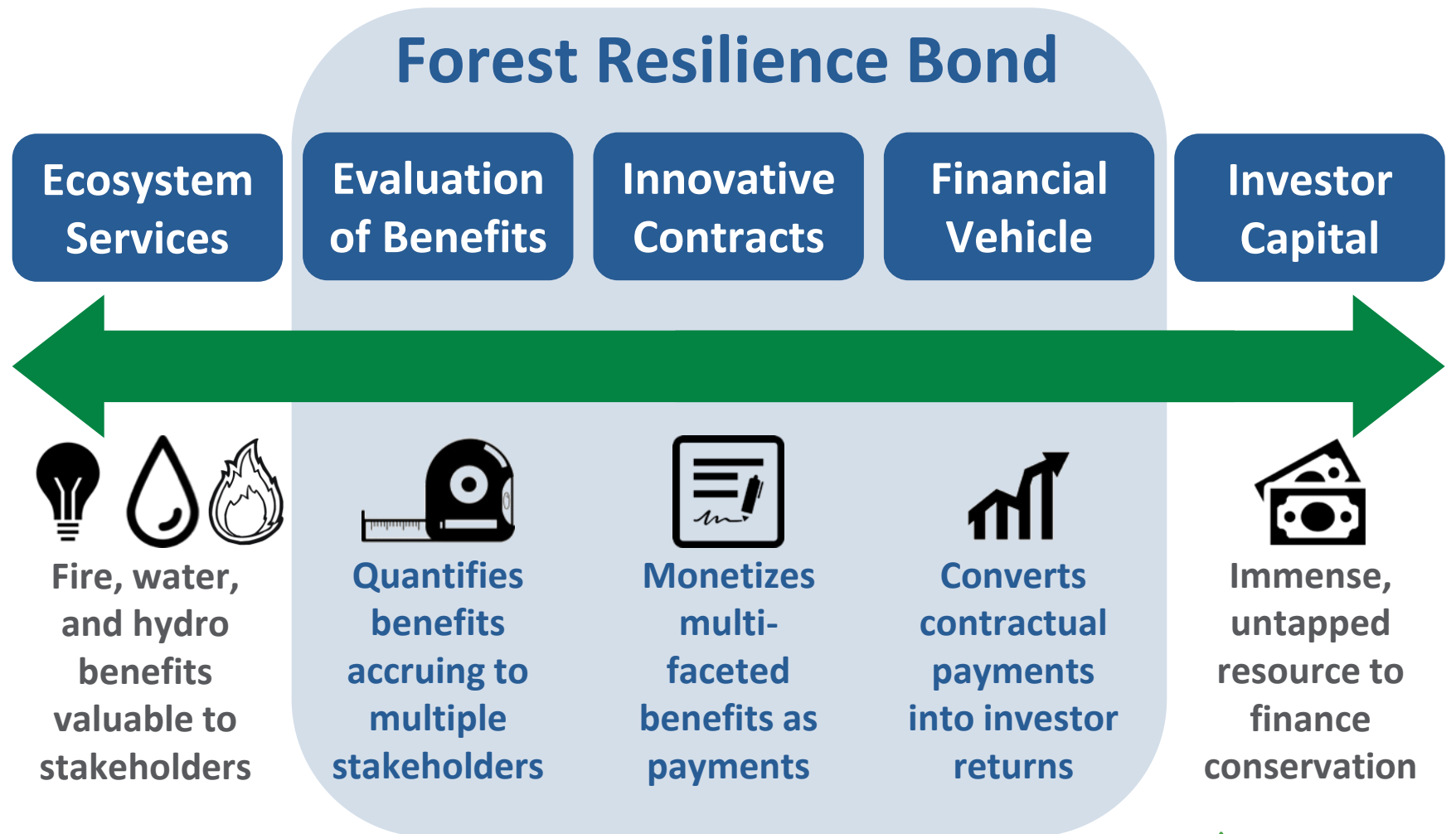
Project catalyst

Ex-post payments

1. [USFS Fiscal Year 2017 Budget Overview](#) (\$40 million for CFLRP and \$384.1 million for hazardous fuel reduction)
2. [State of Private Investment in Conservation 2016](#) (\$3.1 billion of investor capital undeployed at end of 2015)
3. [USFS Fiscal Year 2017 Budget Overview](#) (58 million acres at “high or very high risk of severe fire” @ \$1,000/acre)



Connecting Investor Capital to Conservation



Financial Structuring

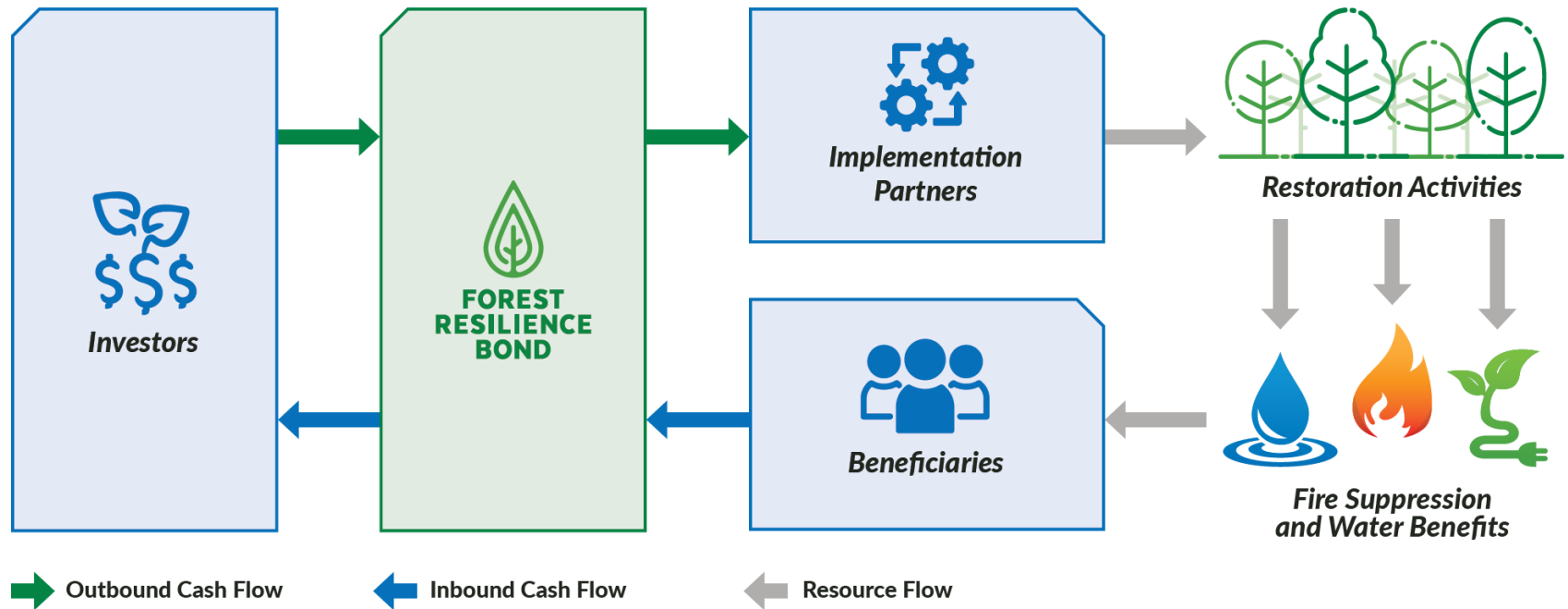
Ecosystem Services

Evaluation of Benefits

Innovative Contracts

Financial Vehicle

Investor Capital



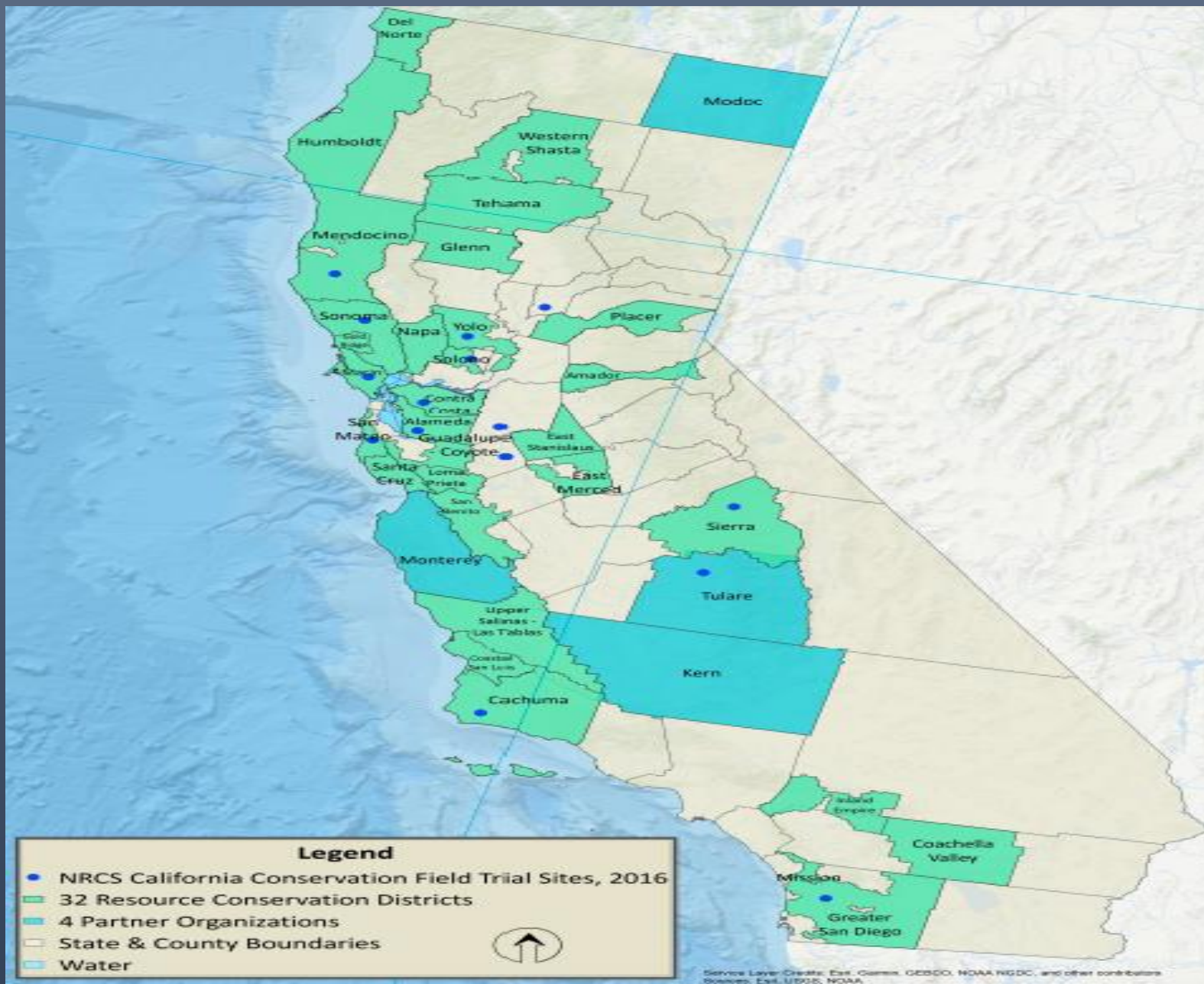
Increasing Carbon Capture on California's Working Lands



Carbon Cycle Institute

Our mission is to stop and reverse climate change by advancing natural, science-based solutions that remove atmospheric carbon while promoting environmental stewardship, social equity and economic sustainability.

Carbon Farming Network





Carbon Farming

Powering
the Good.
ORGANIC VALLEY SUSTAINABILITY



Organic Valley's top 10 farming practices that remove excess carbon dioxide from the air, where it causes harm, and sinks it into plants and soil where it is a benefit.

COVER CROP

Grasses, legumes, forbs and other herbaceous plants established for seasonal cover and conservation (prevent erosion, increase organic matter etc).



REDUCED TILLAGE

Limiting soil disturbance to manage the amount and distribution of crop/plant residue on the soil surface.



RIPARIAN BUFFER

Streamside plantings of trees, shrubs and grasses that prevent erosion, protect water quality and enhance wildlife habitat.



SILVOPASTURE

Combining trees and pasture together. The trees are managed for wood, fruit, or nuts, while providing shade and shelter for livestock.



HEDGEROWS

Establishment of shrubs and tall grasses to reduce wind speed and provide wildlife/pollinator habitat. Hedgerows are at lower plant heights than windbreaks (3-12 ft. tall).



ROTATIONAL GRAZING

Frequent moving livestock between sub-divided pastures (called paddocks) on a planned basis to prevent over-grazing and optimize pasture growth.



WINDBREAKS

One or more rows of trees and/or shrubs planted in a linear configuration that reduce wind speed, thereby protecting crops, livestock and soil.



COMPOST APPLICATION

Compost application to cropland or grazed land.



RANGE PLANTINGS

Establishment of deep-rooted perennials such as grasses, forbs and legumes to improve grazing for livestock.



CROP ROTATION

A planned sequence of crops grown on the same field over a period of time (usually 3-5 years).



CARBON FARM PLANNING & IMPLEMENTATION

Provides seed money for carbon farming



Sequesters carbon on farms and rangeland and increases fertility & water holding capacity in soils

Compost applied to rangelands is one of numerous beneficial Carbon Farming practices



FIBER PLANTS & ANIMALS

Contribute to carbon sequestration via managed grazing

NON-PROFIT CARBON FARM FUND



Generates donations of 3% for regenerative fiber systems

Climate Beneficial

RETAIL SALES



Create climate beneficial textiles & garments.

(These 100% natural fiber clothes can also be composted and returned to the land to regenerate soils.)



FIBER PROCESSING

Climate Beneficial yarns & fabrics



BRANDS, DESIGNERS & MAKERS

“I like to think of the carbon farming and the climate beneficial work that we’re doing now as a change of thought; so instead of doing things normally –obviously, we’re raising sheep the same way that it’s been done for hundreds of years– we also think about the soil and the land when we’re making decisions.”

- Lani Estill, Bare Ranch, CA

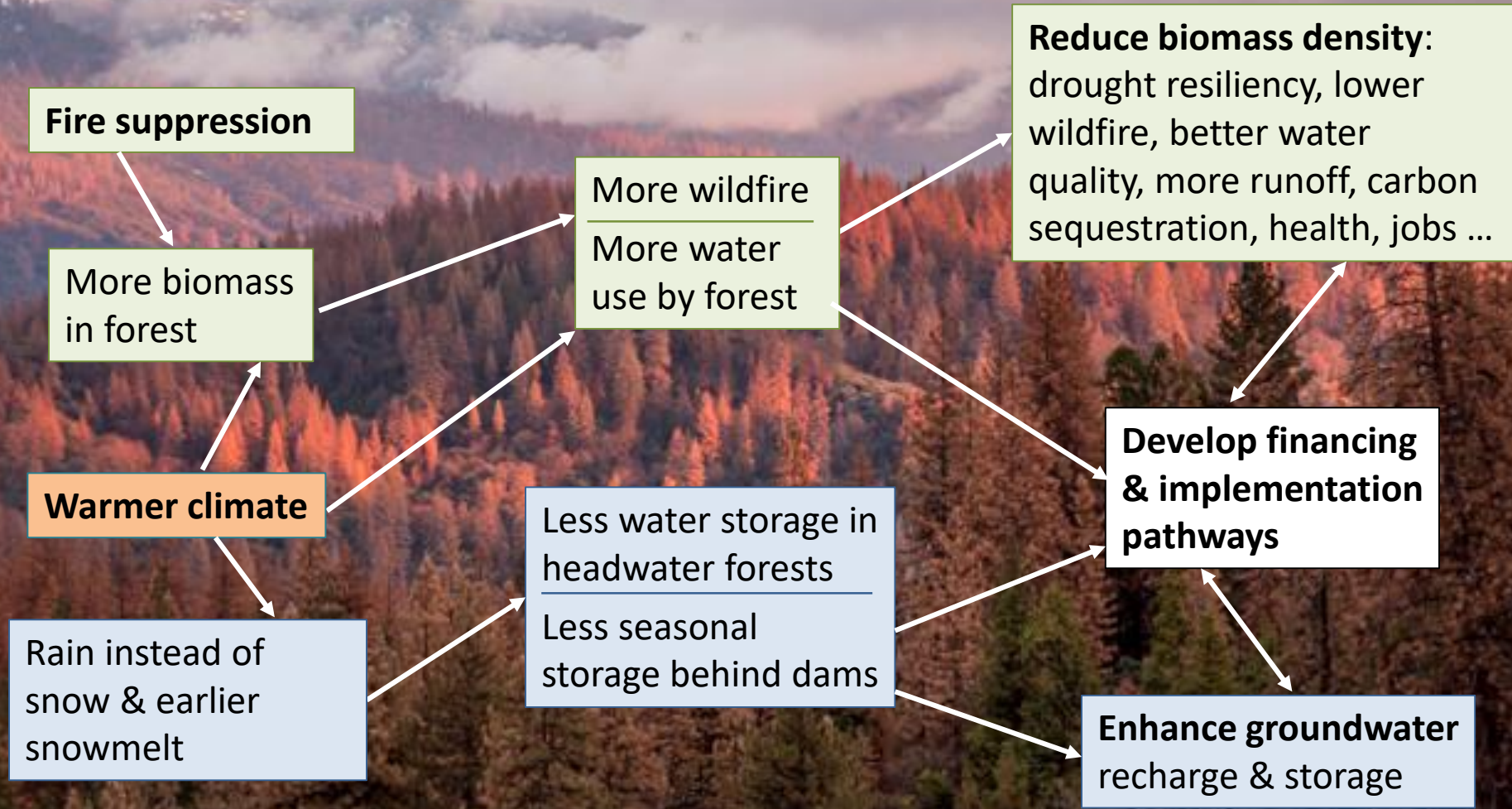


Forest restoration: a water-resources perspective

Framing

Challenge

Solution



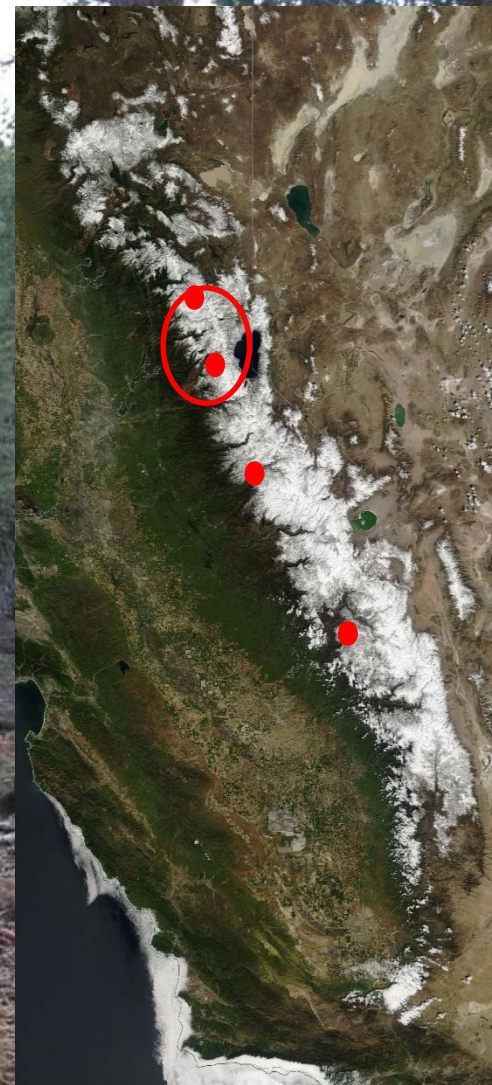
Solution

Reduce biomass density: drought resiliency, lower wildfire, better water quality, more runoff, carbon sequestration, health, jobs ...

Activities

Verify water-balance & carbon-balance outcomes, establish other benefits

Projects



Develop financing & implementation pathways

Communicate & engage, forge partnerships, develop risk-sharing mechanisms

Enhance groundwater recharge & storage

Empower trusted brokers & champions

State (SNC, DWR), NGO (TNC), finance (BFC), local (RCD), UC

Thinned unit w/ control in background

Tying water-fire-carbon together in new multi-campus SGC Innovation Center

Water-sector partners

Association of California Water agencies (2015):

“... managing California’s headwaters is integral to optimizing ... water supplies ... Increasing water yield & quality, reducing the risk & impacts of catastrophic wildfire, enhancing natural features & functions ... Enhancing the resiliency & adaptability of headwaters is overdue.”

Need collaborative financing:
Watershed fees, local bonds, public
goods charges, water bonds ...