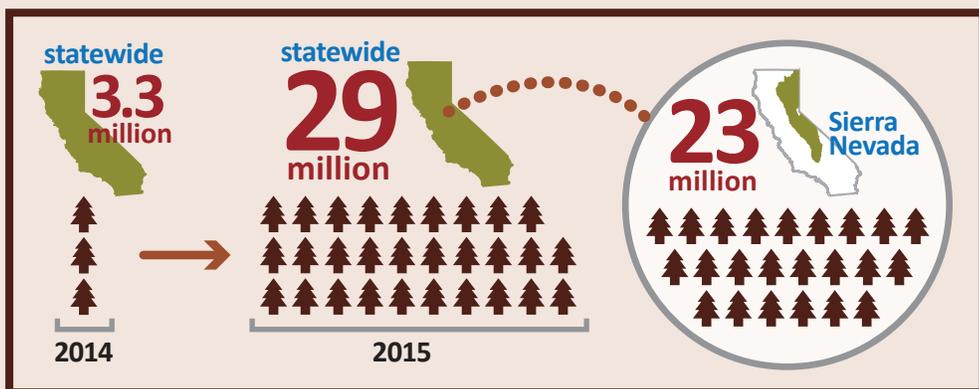


# SIERRA NEVADA TREE MORTALITY



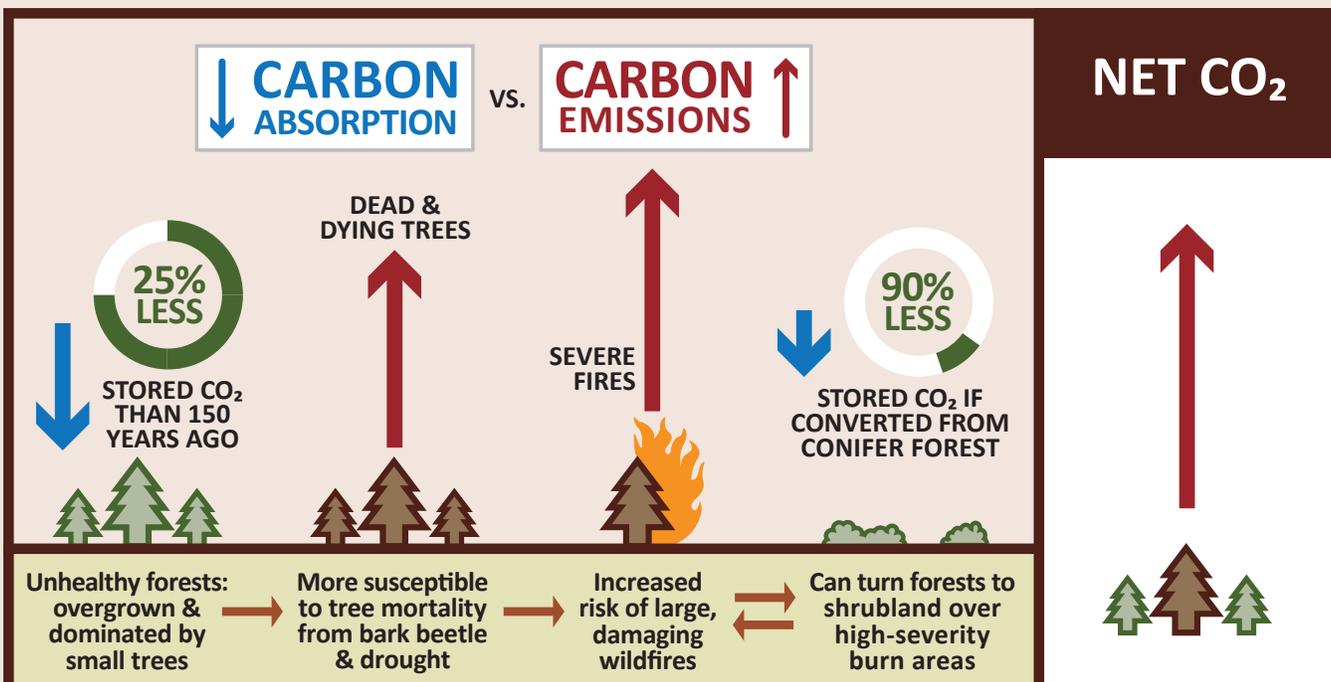
Location in Madera County before and after tree mortality began spreading. Photos: Margarita Gordus, CA Department of Fish and Wildlife



A century of fire suppression and a warming climate have made Sierra Nevada forests **highly vulnerable** to tree mortality from bark beetles and drought. These dead trees can become carbon emission sources, but most importantly, they stop absorbing carbon.

The number of trees killed by bark beetles and drought in California dramatically increased in 2015.

## UNHEALTHY SIERRA FORESTS: A CLIMATE CONCERN



Reduced carbon absorption and storage plus high emissions means many forests are **contributing to climate change** rather than offsetting it.

# WATERSHED IMPROVEMENT PROGRAM



Sierra forests are unhealthy and vulnerable. The Sierra Nevada Watershed Improvement Program (**WIP**) is a broad effort organized by the Sierra Nevada Conservancy and U.S. Forest Service to significantly increase restoration in the Sierra Nevada and promote healthy forests and watersheds that are resilient to drought, insects, wildfire, and climate change.

## FOREST RESTORATION, A LONG-TERM CLIMATE SOLUTION

### PRESCRIBED BURNING & THINNING REDUCES TREE MORTALITY



Thinning and burning

Decreases competition & improves natural defense against bark beetle

### TREATMENTS

Prescribed burning    Mechanical & hand thinning    Managed wildland fire

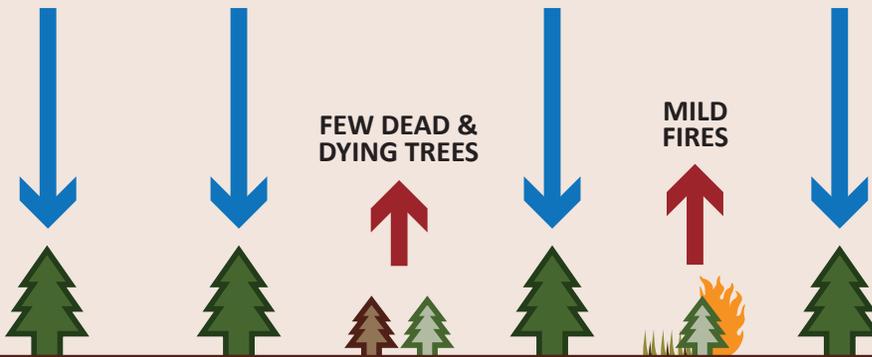
### ACTIONS NEEDED

- ↑ **Funding** for restoration and infrastructure
- ↑ **Biomass utilization** infrastructure in order to process forest waste, a restoration byproduct
- Incorporate restoration into **climate policy**

↓ **CARBON ABSORPTION**

vs.

**CARBON EMISSIONS** ↑

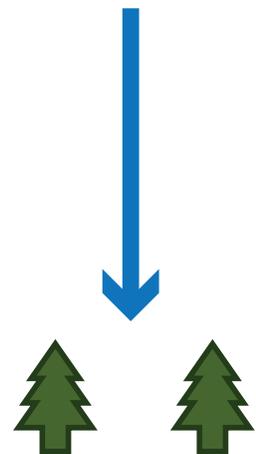


Healthy forests: more sparse, larger trees

Resilient against tree mortality from bark beetle, drought, climate change

Low risk of large, damaging wildfires

**NET CO<sub>2</sub>**



*Forest restoration shifts stored carbon from many small trees to fewer larger, older trees, resulting in more stored carbon overall. These forests are more resilient to drought, wildfire, and insects, which further stabilizes carbon storage. This means treated forests will do what they have historically done: absorb and store carbon, which helps **offset climate change**.*

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