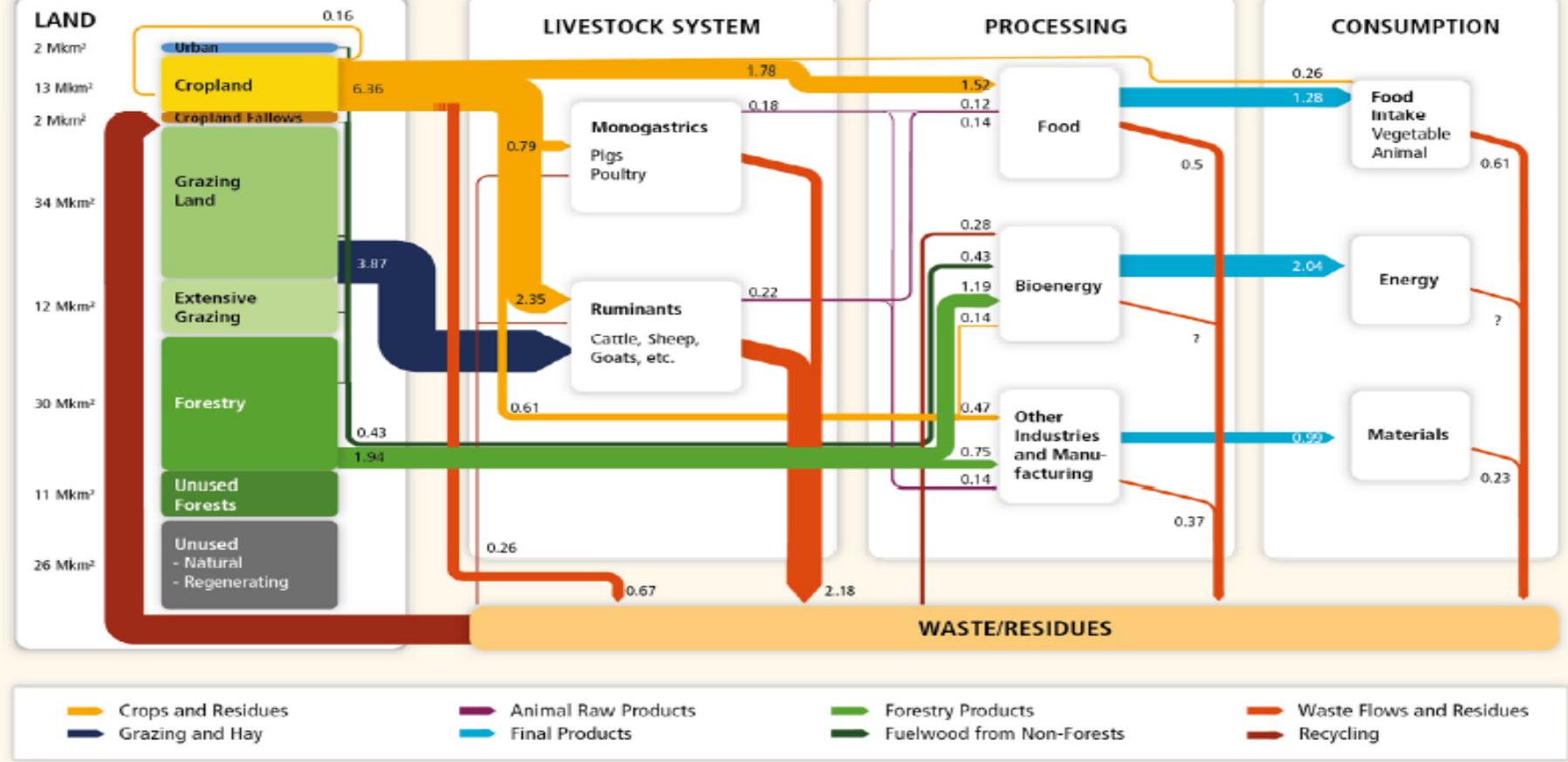


# Climate Change - Global Changes, State Programs, Local Projects: How They Fit Together

- **California's import/export economy and how it affects global, state, and local GHG emissions - *Bill Stewart***
- **Agriculture GHG emissions - animals and fertilizers - *Frank Mitloehner***
- **Agriculture and potential carbon sequestration – healthy soils initiative - *William Horwath***
- **Conversion from Agriculture to Residential Emissions - *Van Butsic, CE Specialist, ESPM, UC Berkeley***

# IPCC AR5: Mitigation (2014)



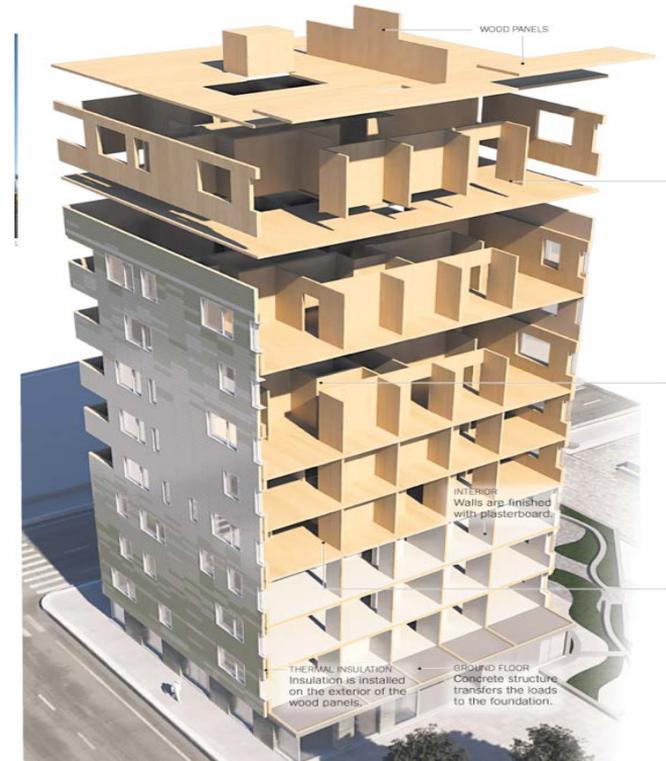
**Figure 11.9.** Global land use and biomass flows arising from human economic activity in 2000 from

# ARB's Forest Offset Protocols (2015)

Can count this

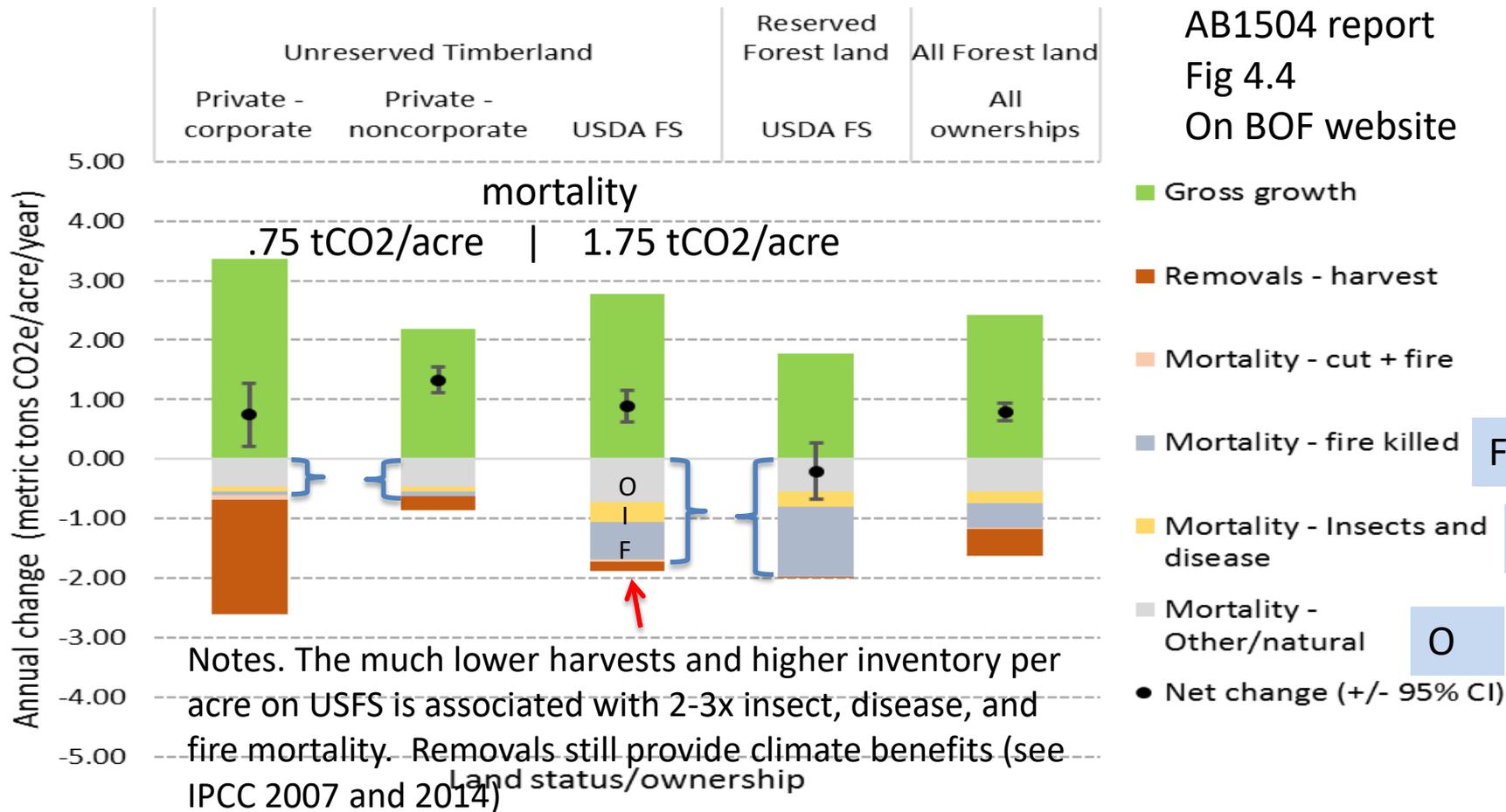


But ignores this

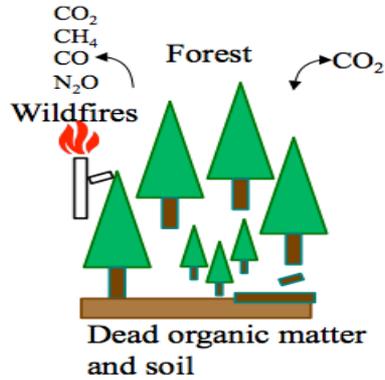


California forest carbon (CO<sub>2</sub>e) - Average annual growth, mortality, harvest, and net change per acre above ground live tree pool: 2001-2005 to 2011-2015

AB1504 report  
Fig 4.4  
On BOF website



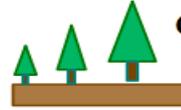
Schematic of the Canadian CBM-CFS3 forest and forest products model (Kurz 2009, Smyth 2014)



# Mitigation Analysis

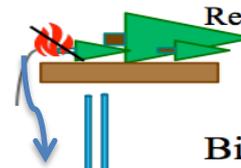
## Seven FM Strategies

1. Better Growth
2. Planting



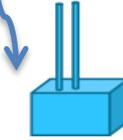
Growth/Regrowth

3. Better Utilization



Residue Management

4. Clear cut harvest
5. Commercial thinning
6. Thin young stands



Bioenergy

Displace alternate fuel sources



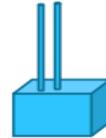
Harvested Wood Products

## Two HWP Strategies

1. Longer-lived products
- Displace alternate products



2. Bioenergy Harvest



Displace alternate fuel sources

## Four Wood Waste Strategies

1. Burn it for energy
2. Engineered Landfill Storage
3. Compost it
4. Biochar it

The Key: Innovation across the whole supply chain is necessary for global gains.