



US Forest Service and California Climate Change

Agricultural Air Quality Task Force Meeting

May 10, 2007

Outline

1. AB 32: The Global Warming Solutions Act

Mandate, lead agency, timeline

Progress of California Air Resources Board

2. How is the US Forest Service involved with California Global Warming Act?

CA Climate Action Registry

Forestry protocol development

Research & Development

Voluntary carbon offsets

Global Warming Solutions Act of 2006

- **Passed by legislature, signed into law by Governor Schwarzenegger on September 27, 2006**
- **First law to comprehensively limit greenhouse gas (GHG) emissions at the state level**
- **Establishes annual mandatory reporting of GHG emissions for significant sources**
- **Sets the 1990 level of California GHG emissions as the 2020 statewide cap**

AB32 Lead Agency

California Air Resources Board (ARB):

the state agency responsible for monitoring and regulating GHG emission sources under AB 32

AB 32 Timeline

Set 1990 baseline / 2020
statewide GHG cap

Deadline to
achieve 2020
emissions cap

Emission
reductions plan

2007

2008

2009

2010

2011

2012

2020

Mandatory GHG
emissions reporting

Early actions
effective

Regulations & market
mechanisms take effect, are
legally enforceable

Air Resources Board: To Do List for 2007

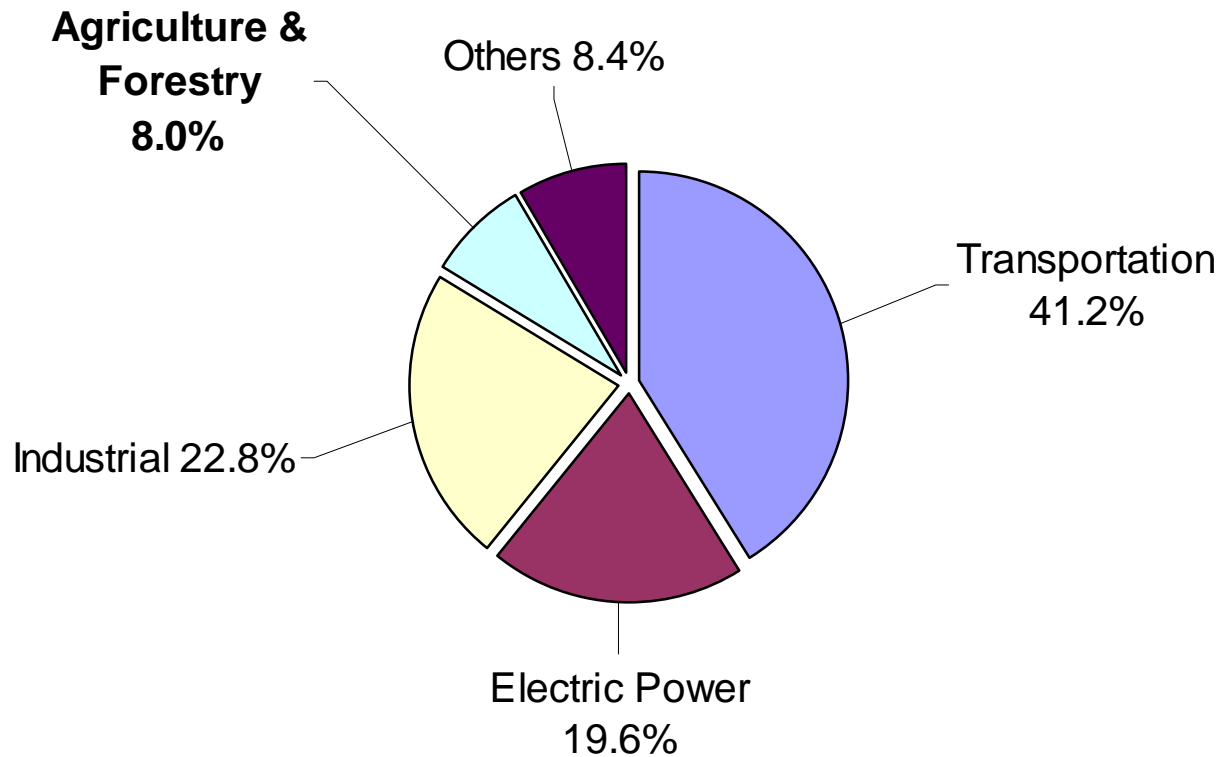
Adopt list of early action measures (by 7/1/07, for 1/1/10)

Adopt regulations for mandatory GHG reporting (1/1/08)

Define 1990 statewide baseline/2020 target (1/1/08)

- **Working from California Energy Commission's 1990 GHG Inventory = 433 MMT CO₂eq**
- **Identified five GHG estimates that could be improved: electric power, agriculture, transportation, forestry, and landfills**

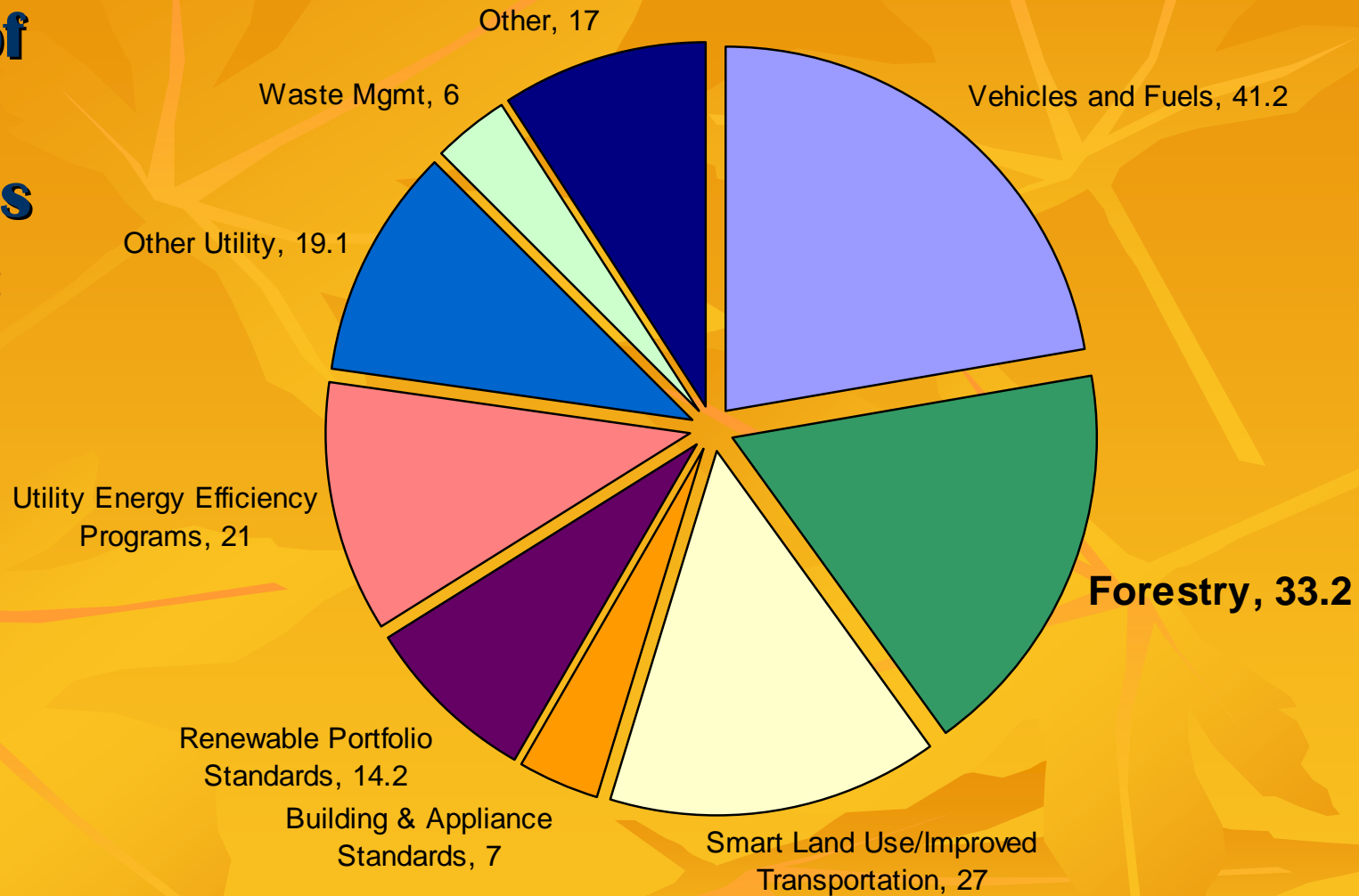
Sources of CA's Greenhouse Gas Emissions, 2002



Expressed in CO₂ Equivalent

Total CA inventory ~ 500 MMTCO₂eq

Sources of Potential Reductions by 2020:



Million Metric Tons CO₂ Equivalent

How the US Forest Service is Involved in California

- *Joining* California Climate Action Registry
- *Advising* Forestry Protocol Development
- *Supporting* Research & Development
- *Tracking* Carbon Offsets and Markets

California Climate Action Registry

A non-profit, voluntary GHG registry that exists to protect, encourage, and promote early reductions in GHG emissions



California Climate Action Registry

US Forest Service will be the first federal agency to register

- Forest Service will report statewide, non-biological emissions
- Data sources: NFC records, fleet manager, field surveys
- *Being Examined:* Biological emissions reporting

Forestry Protocol Development

Air Resources Board must adopt Forestry Protocols for GHG reporting under AB 32.

Status:

- **CCAR adopted forestry protocols in 2005**
- **CCAR Urban forestry protocols are in development (w/CUFR)**
- **ARB is seeking input from California forest sector (e.g. CalFIRE, USFS, land trusts)**

CalFIRE Proposed Early Actions & Forest Service Capabilities

Five Point Plan	Forest Service Potential Reductions
1. Forest Conservation	<i>State & Private: Forest Legacy Program Forest Stewardship Program</i>
2. Forest Management	<i>15,000 acres/year Timber Stand Improvement 30,000 acres/year Commercial Thinning</i>
3. Afforestation and Reforestation Projects	<i>8,000 acres/year Reforested</i>
4. Urban Forestry	<i>State & Private: Urban Community Forestry Program</i>
5. Fuels Management / Biomass Energy	<i>65,000 acres/year Thinning, removing, & treating</i>

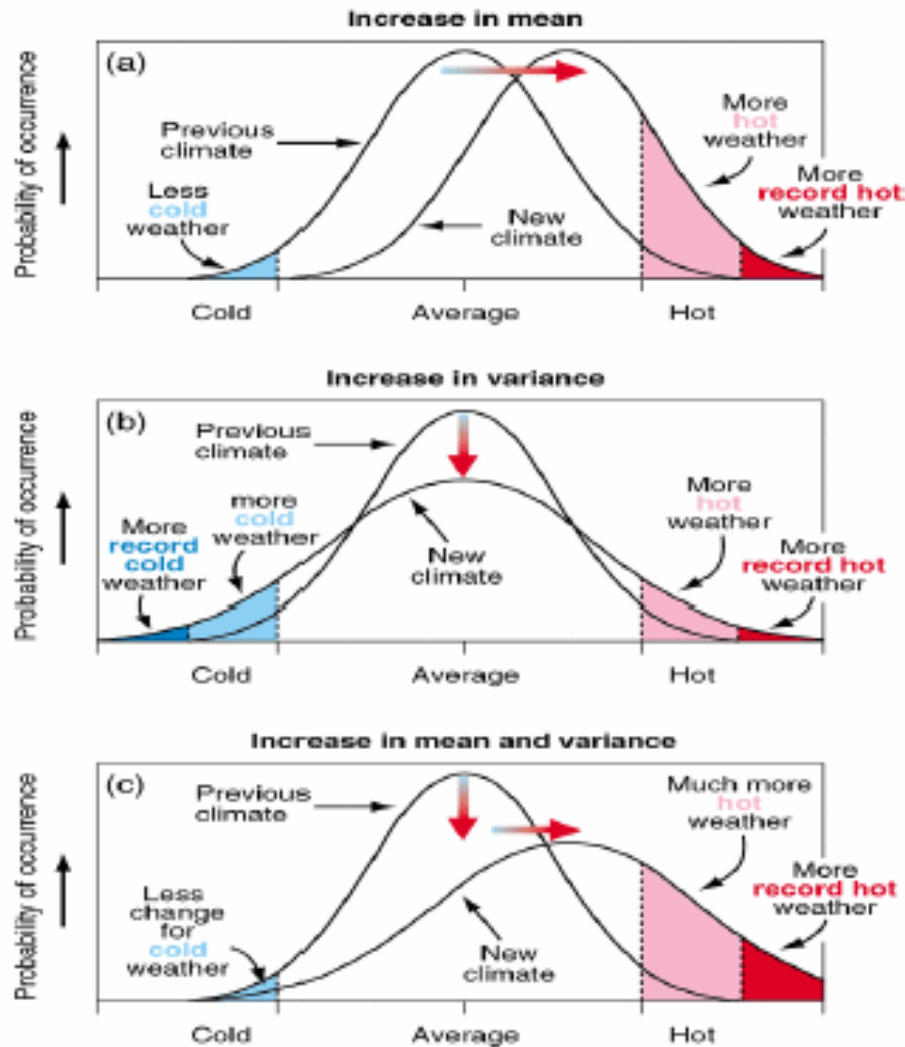
Research and Development

FS scientists are to understand climate change, and develop adaptation and mitigation strategies.

Examples:

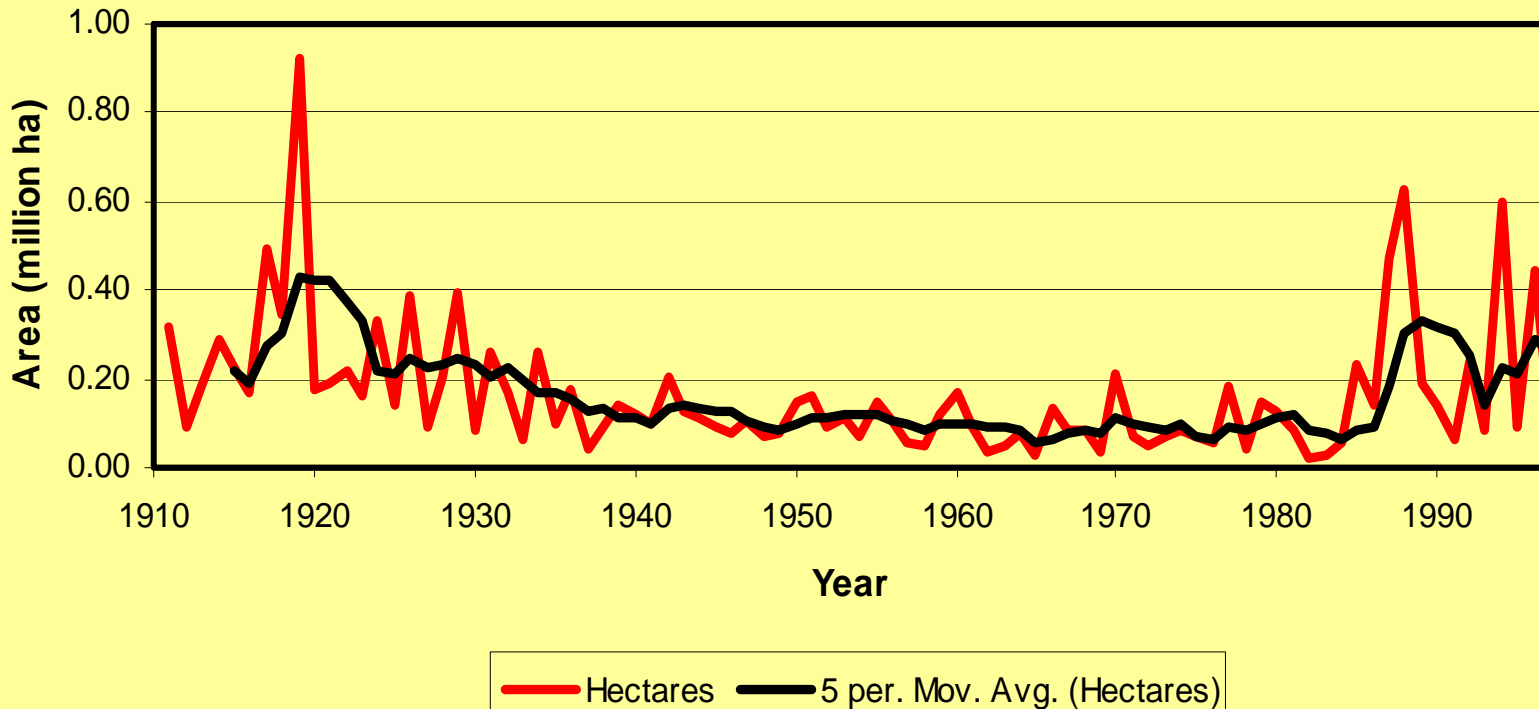
- Understanding impacts of climate change on mortality, forest composition changes and wildland fires.
- Economic value of urban trees (as high as \$1400/tree)
- Forest Management, reforestation/afforestation strategies
- Economic value of forest biomass (>11¢/kwh)
- Understanding long-term forest changes

Figure 4: Change in mean and variance of extreme weather events (Houghton et al, 2001⁴)



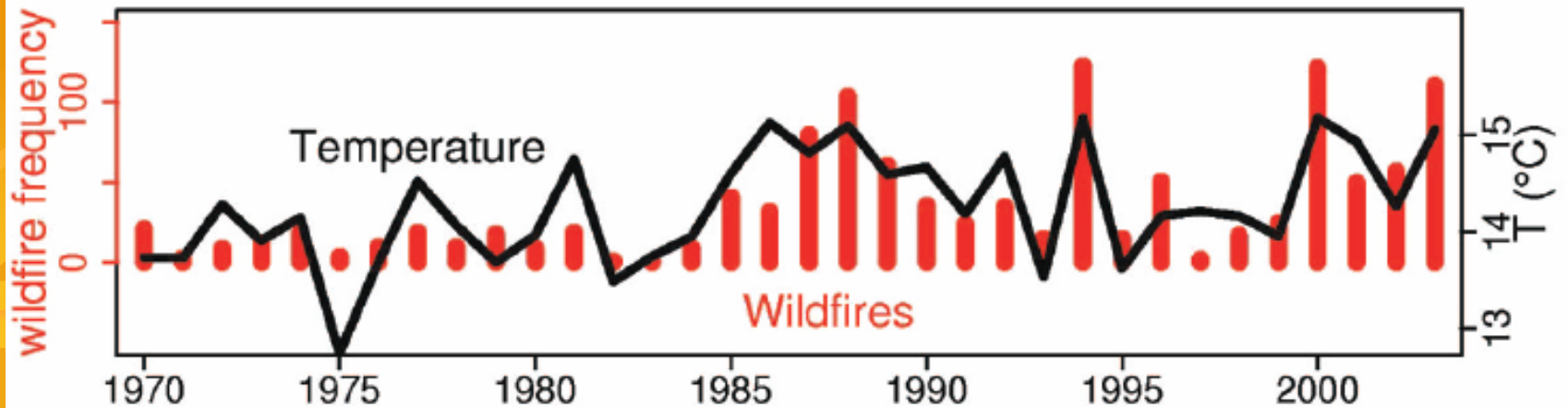
It is not only climate change we should worry about, it is a significant and rapid increase in climate variability leading to extreme events

Annual Area Burned--USFS Land

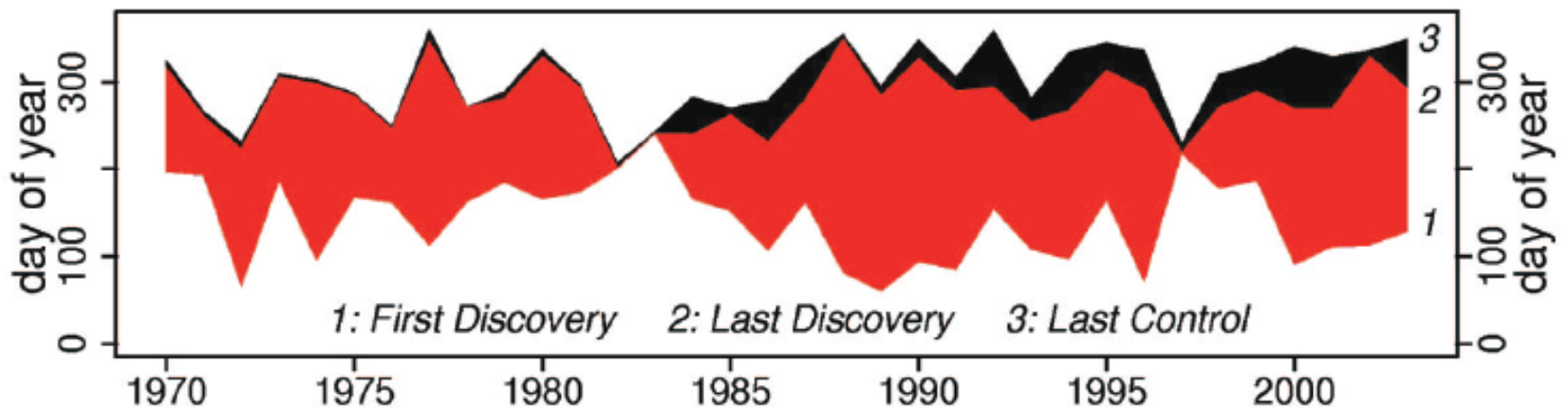


The number of fires has been increasing along with the area burned...

Western US Forest Wildfires and Spring–Summer Temperature



Fire Season Length



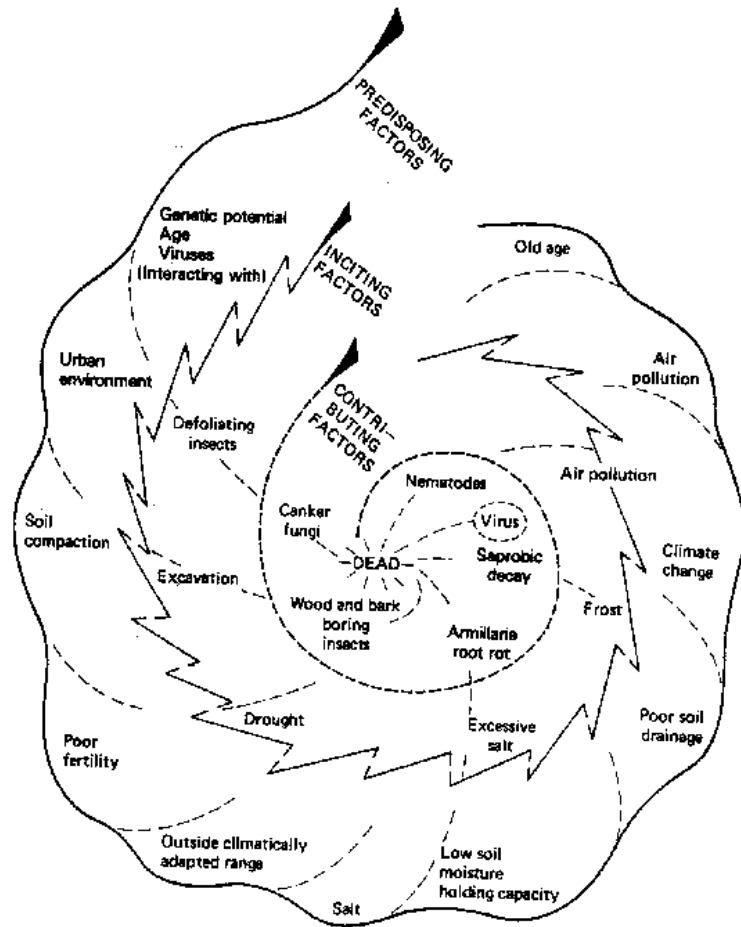


Fig. 1. Decline disease spiral (Reprinted with permission from Tree Disease Concepts by Paul D. Manion c 1991, Prentice-Hall, Inc., Englewood Cliffs, NJ).

Fuel Changes due to Climate Change

Disease Spiral: Air Pollution, Climate Change, Insects and Disease

In Summary

California's climate change policy is viewed as an opportunity for the Forest Service:

To provide federal agency cooperation to State climate change policy

To provide research support to help develop protocols, strategies and knowledge for forest adaptation and mitigation (SB 660)

To increase Forest Service collaboration and integration with other climate change science programs

To enhance US Forest Lands' relevance in the 21st Century