Prioritizing Vegetation Management Practices on Private Landscapes to Reduce Catastrophic Fire

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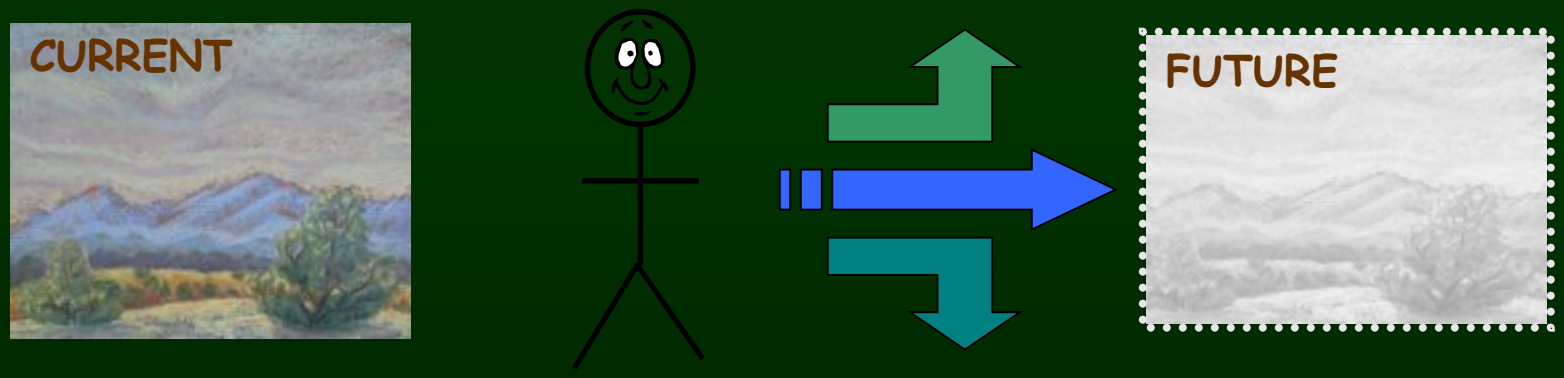
Vegetation Management is:

- The use and stewardship of natural resources to meet goals and desires of humans.



- You cannot make **good** management decisions if you do not know the effect of past management actions.

Past History of Land Management

Disturbance has been part of California's natural landscapes

Past Management:

- *American Indians burned*
- *Grazing occurred for centuries*
- *More open lands, less fragmentation*
- *Larger parcel sizes*

Current Management:

- *Homes in the wildland urban interface (WUI)*
- *Land Policies*
- *No land disturbance*
- *Is no management, management?*

"Smokey Bear" campaign, launched in 1944, to reduce forest fires. So effective in fire prevention

Information for Prioritizing & Risk Assessment

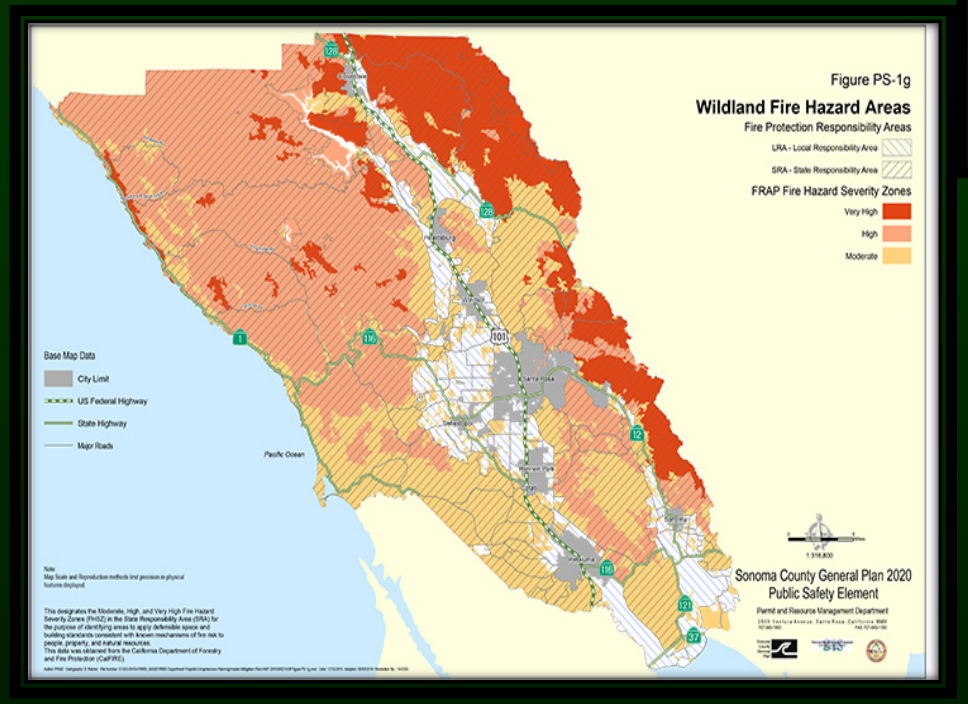
Inventory = record of resources at one point in time:

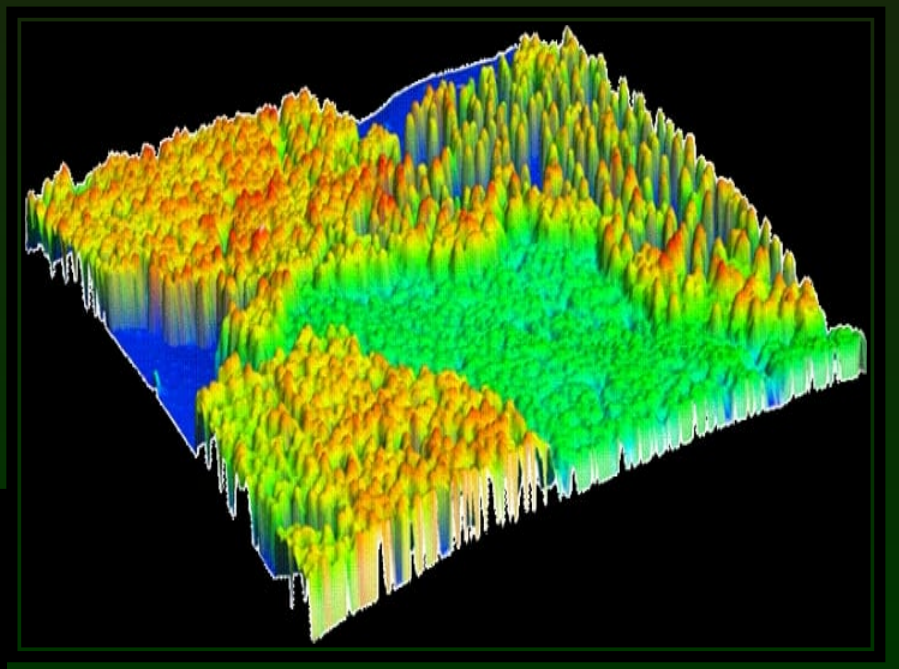
- Land area & parcel sizes
- Roads & trails
- Water
- Vegetation types
- Homes, buildings
- Native & Invasive Species

Tools for Making Assessments

Assessment = evaluation of condition at one point in time:

- Forest Health
- Fire Fuel Potential
- Ecosystem Services





Maps for management

- Topography & Vegetation maps
- Wildland Fire Hazard Areas
- Parcel ownership

Usually involve protocols based on “qualitative” attributes (rather than “quantitative” measures).

Prioritizing Land Management Decisions – as related to fire

Public vs Landscape Needs?

Public Needs

Homes

Open Spaces

Private Property Home Owners Rights

Landscape Needs

Manage Resources using sound science to manage landscapes

Economically viable

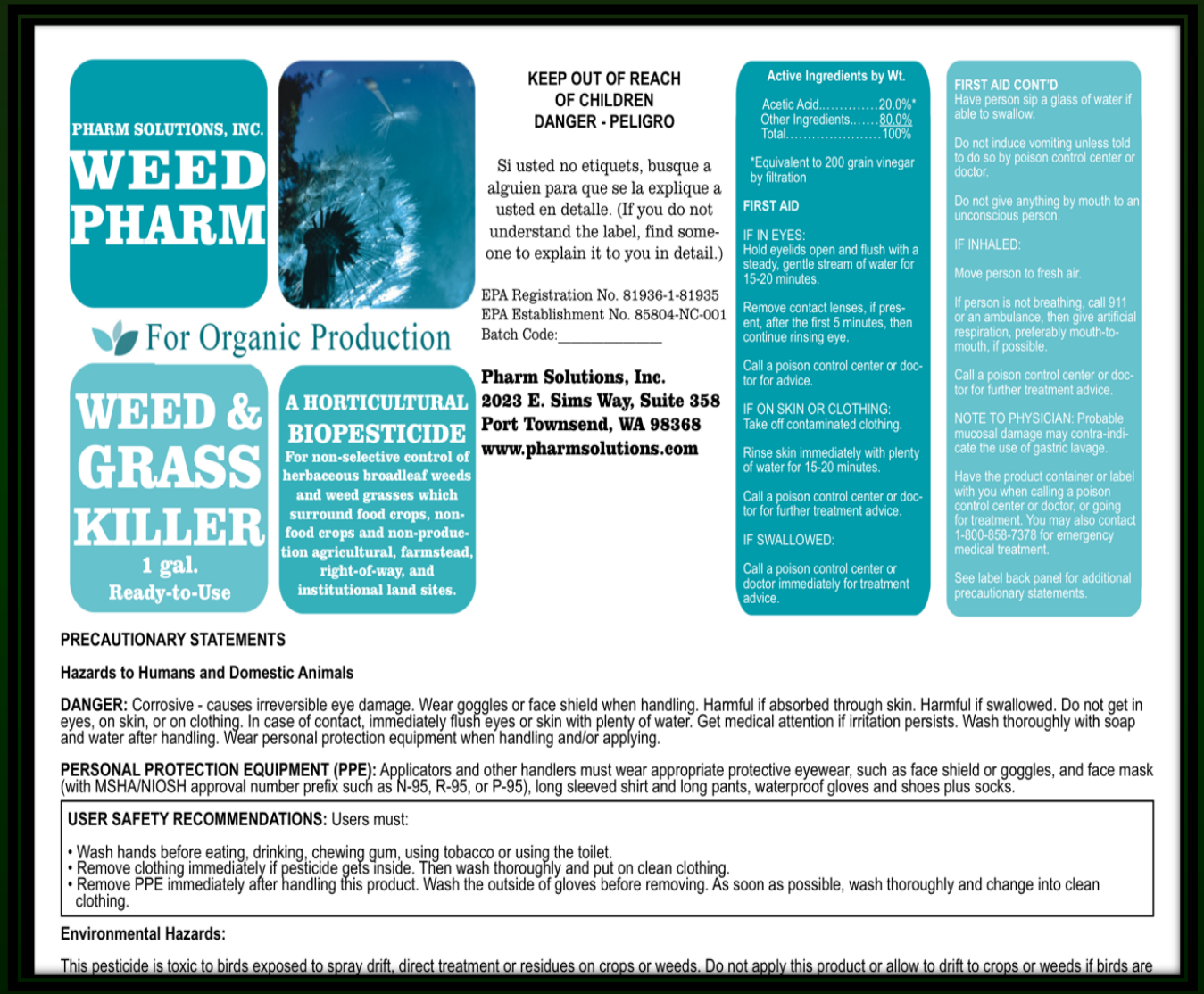
Ecologically sustainable

Tools to Management Fire Fuels

- Chemical
- Mechanical
- Biological (Grazing)
- Prescribed Burning

Chemical Treatments

- Application of chemical agents
- Restricts growth of specific vegetation
- Permits can be required
- Timing is critical



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KEEP OUT OF REACH OF CHILDREN
DANGER - PELIGRO

Si usted no etiquets, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

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Active Ingredients by Wt.

Acetic Acid	20.0%*
Other Ingredients	80.0%
Total	100%

*Equivalent to 200 grain vinegar by filtration

FIRST AID

IF IN EYES:
Hold eyelids open and flush with a steady, gentle stream of water for 15-20 minutes.

Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

Call a poison control center or doctor for advice.

IF ON SKIN OR CLOTHING:
Take off contaminated clothing.

Rinse skin immediately with plenty of water for 15-20 minutes.

Call a poison control center or doctor for further treatment advice.

IF SWALLOWED:

Call a poison control center or doctor immediately for treatment advice.

FIRST AID CONT'D

Have person sip a glass of water if able to swallow.

Do not induce vomiting unless told to do so by poison control center or doctor.

Do not give anything by mouth to an unconscious person.

IF INHALED:

Move person to fresh air.

If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.

Call a poison control center or doctor for further treatment advice.

NOTE TO PHYSICIAN: Probable mucosal damage may contra-indicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-858-7378 for emergency medical treatment.

See label back panel for additional precautionary statements.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

DANGER: Corrosive - causes irreversible eye damage. Wear goggles or face shield when handling. Harmful if absorbed through skin. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. In case of contact, immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists. Wash thoroughly with soap and water after handling. Wear personal protection equipment when handling and/or applying.

PERSONAL PROTECTION EQUIPMENT (PPE): Applicators and other handlers must wear appropriate protective eyewear, such as face shield or goggles, and face mask (with MSHA/NIOSH approval number prefix such as N-95, R-95, or P-95), long sleeved shirt and long pants, waterproof gloves and shoes plus socks.

USER SAFETY RECOMMENDATIONS: Users must:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards:

This pesticide is toxic to birds exposed to spray drift, direct treatment or residues on crops or weeds. Do not apply this product or allow to drift to crops or weeds if birds are

Chemical Fuel Treatments

Pros:

- Cheap
- Relatively easy (1 person)
- Spray resprouting
- Can have residual in soil
- Retains selected vegetation

Cons:

- Woody debris to remove
- Scale dependent
- Drift

Weather dependent
Not a popular method

Manual Fuel Treatments (Small Scale)

Clearing or pruning herbaceous & woody plants

Hand tools

- Hand saw, axes, shovels, rakes, loppers, power tools
- Less impacts to soils, water quality & sensitive vegetation
- Individually selects vegetation

Mechanical Fuel Treatments (Large Scale)

Uses specifically designed vehicles

Removes live & dead fuel using wheeled or tracked equipment

Manual / Mechanical

Pros:

- Removes woody species;
- Clears areas for additional treatments

Cons:

- Must have specialized equipment and/or training;
- Costs

Dependent on access & slope

Biological Fuel Treatments

Use of grazing animals:

- cattle, sheep, goats, horses

Removes herbaceous and woody vegetation

Can increase ecosystem services, such as carbon sequestration & water infiltration

Four Grazing Management Factors:

- Which animal? -**Animal Species & Class**
- How many animals? -**Stocking Rate**
- Where animals graze? – **Grazing Distribution**
- When to grazing or not graze? **-Grazing System**

Grazing Alternative

Pros:

- More environmentally-friendly;
- Eliminate dust, herbicides, gas powered mowers
- Green image

Cons:

- Costs;
- Regulations against livestock grazing;
- Predator risk;
- Theft

Can be labor intensive, goal dependent

Prescribed Fire Fuel Treatments

- Reduce ground & surface fuels
- Dependent on weather, fuel loads, etc.
- Must have trained personnel along with fire fighting agencies
- Burn & Smoke Management Plans

Prescribed Burning Alternative

Pros:

- Form a Prescribed Burning Association (PBA);
- Low cost—volunteer based;
- Equipment/labor pooled through PBA;
- PBA can apply for grants/funding (non profit);
- Every burn is a training opportunity

Cons:

- Liability;
- Permits/air quality issues;
- Costs - Burn Boss

Community Building, & Awareness

Next Steps to Prioritize Vegetation Management Practices

Engage landowners to inventory & assessment their lands through a fire fuel lens

Increase implementation of management practices

Engage the Community & Policy Makers

Incentivize fire policies and/or management practices to local resources.

Summary

- Need to assess the cost of implementing fire fuel management tools vs. losses from fires
- Methodology to prioritize and choose the right tool(s) to reach the resource goals and reduce fire potential
- Determine the appropriate combination of tools to obtain the “best” results
- Move from past policies to implement land management practices and adapt to an ever changing climate