



2016 Webinar Series

Pre-Fire Planning for Land Managers

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The Pacific Fire Exchange




The Fire Science Exchange Network



www.firescience.gov

http://www.pacificfireexchange.org/research-publications-1/



PFX
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Pre-fire planning guide for Hawaii and Pacific Islands

Mar 7, 2016 - Pre-fire Management, Wildfire Operations & Management, Fire Mitigation, Fire Behavior & Weather, Fire Communication & Education, Wildland-Urban Interface (WUI)

This guide addresses how to compile and present the information required in a pre-fire plan and lists the people with whom plans should be shared. It also provides a checklist of features that should be included in a good fire plan.

El Niño and Fire Weather on Pacific Islands

Nov 17, 2015 - climate, Climate & Fire, Fire Behavior & Weather, El Niño, Western Pacific, Hawaii, Micronesia, Fire Ecology & Effects

Post-fire vegetation and soil monitoring guide for Hawaii

Jul 9, 2015 - Post-fire Environment & Management, post-fire response, Restoration, Erosion, Fire Ecology & Effects





Wildfire and Land Management

Pre-Fire

Fire Suppression

Post-Fire



Wildfire and Land Management

Fire Preparedness Plans

- Identify fire hazards, values at risk, & mitigation measures
- Provide information to emergency responders



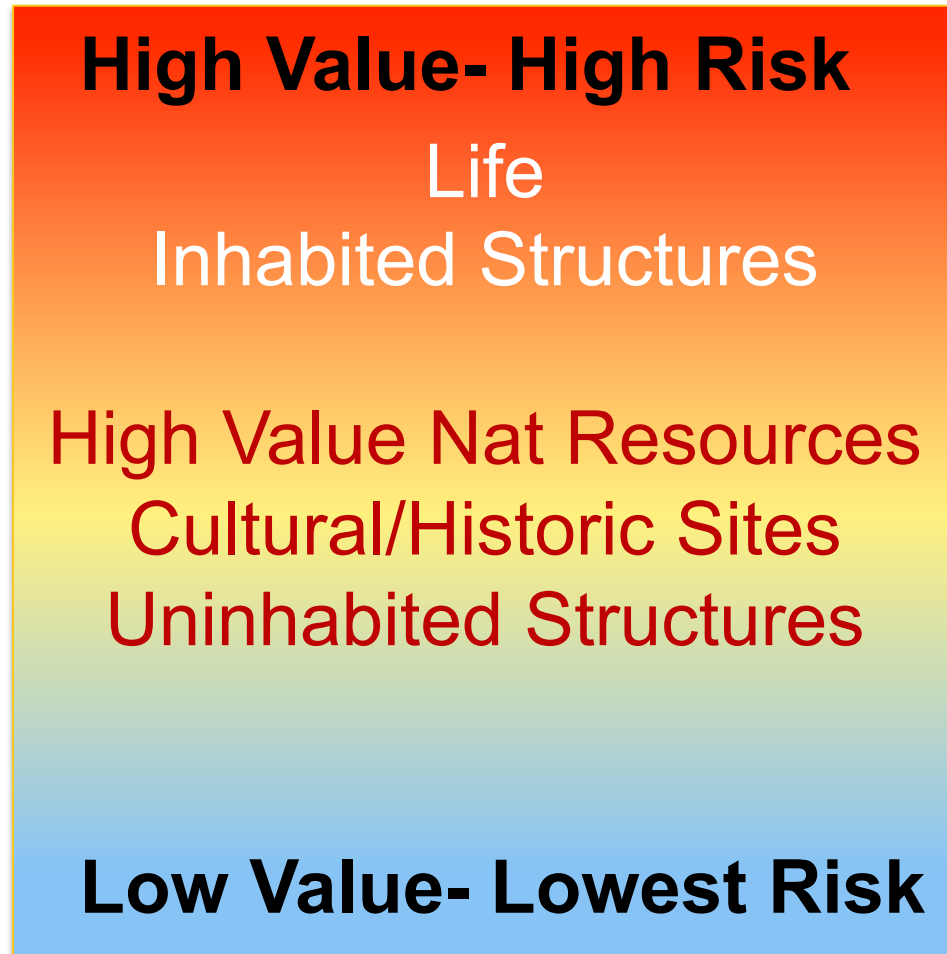
Webinar goals

- Basics of fire risk assessment
- Checklist of pre-fire plan components
- How and who to share information

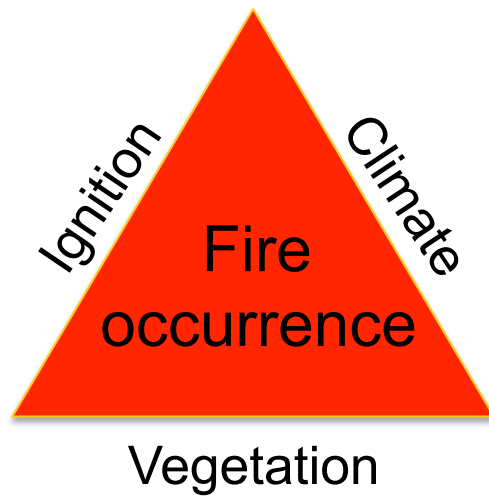


Wildfire Threat

Value of
Assets
+
Exposure to
Risk

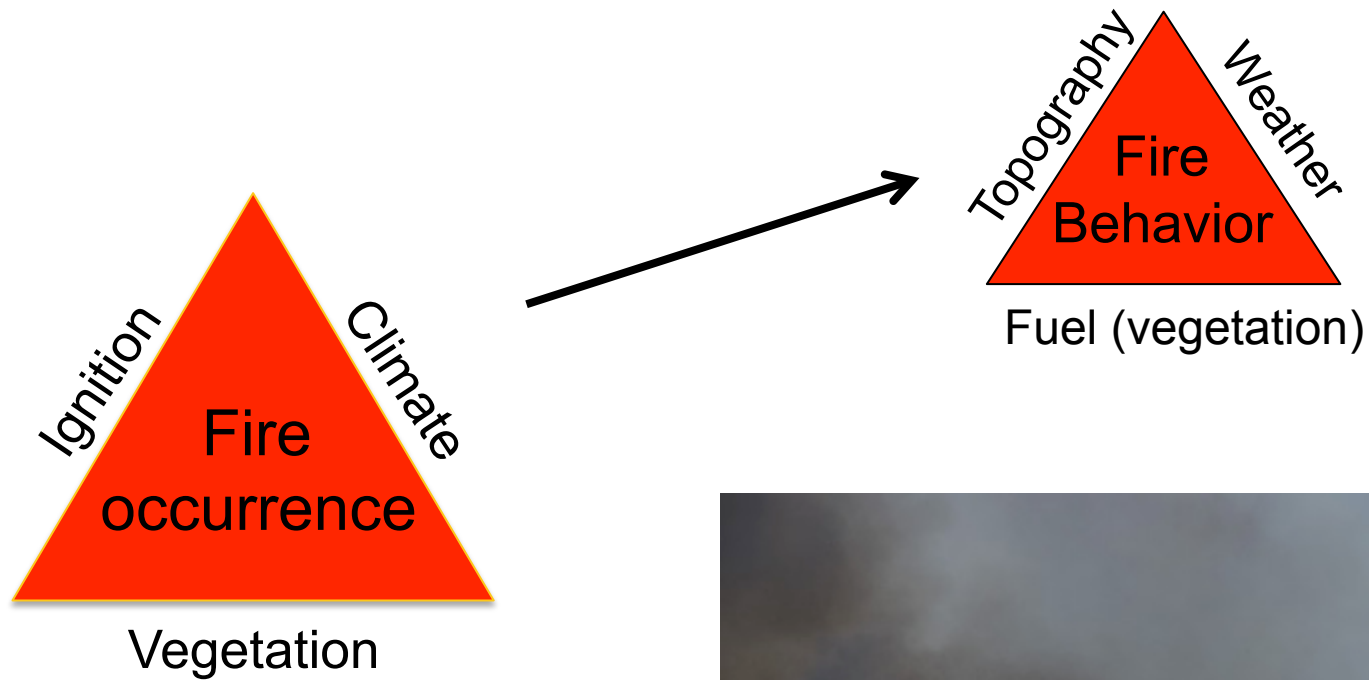


The Fire Environment



(a simple recipe)

The Fire Environment

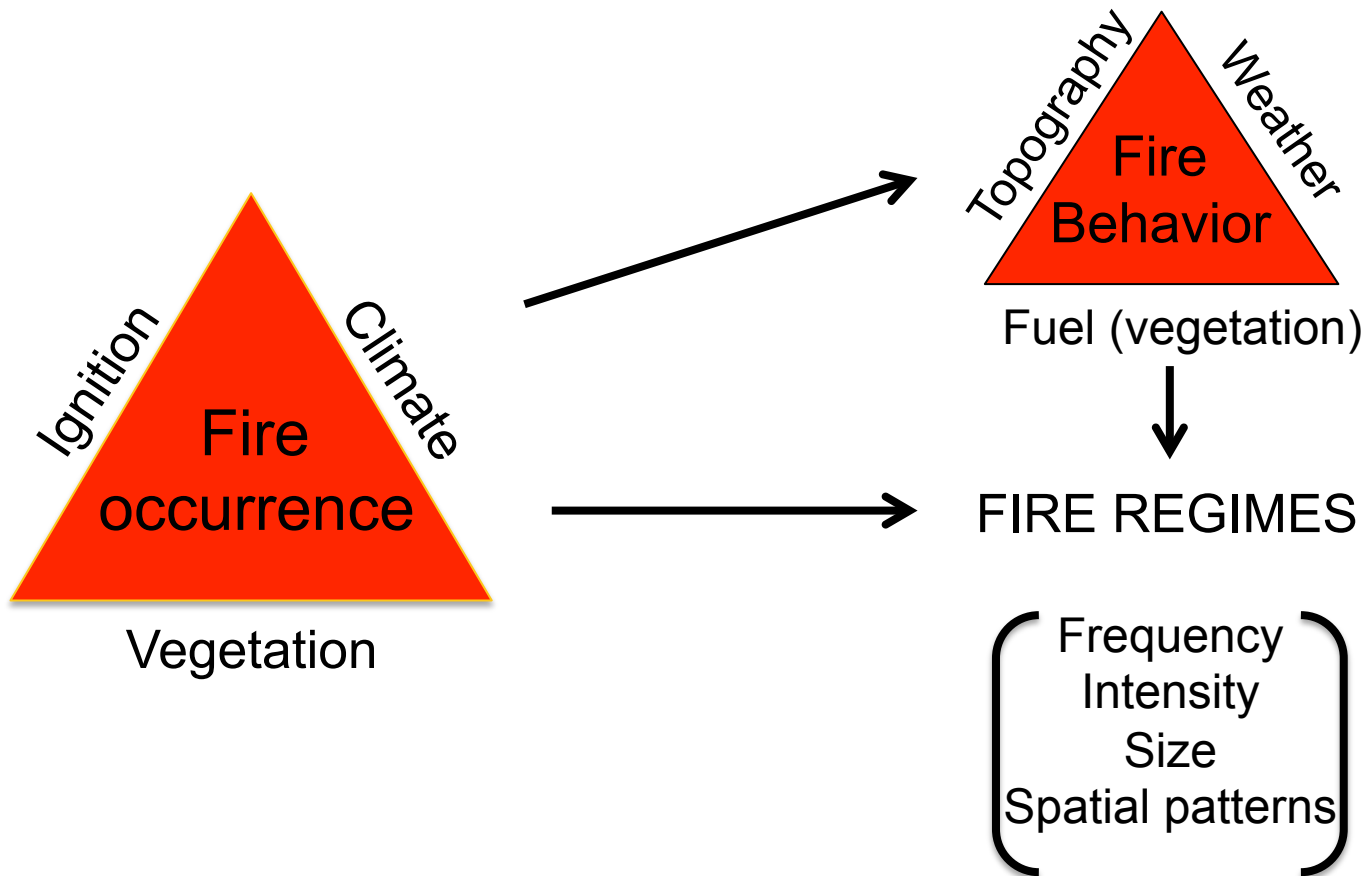


(a simple recipe)



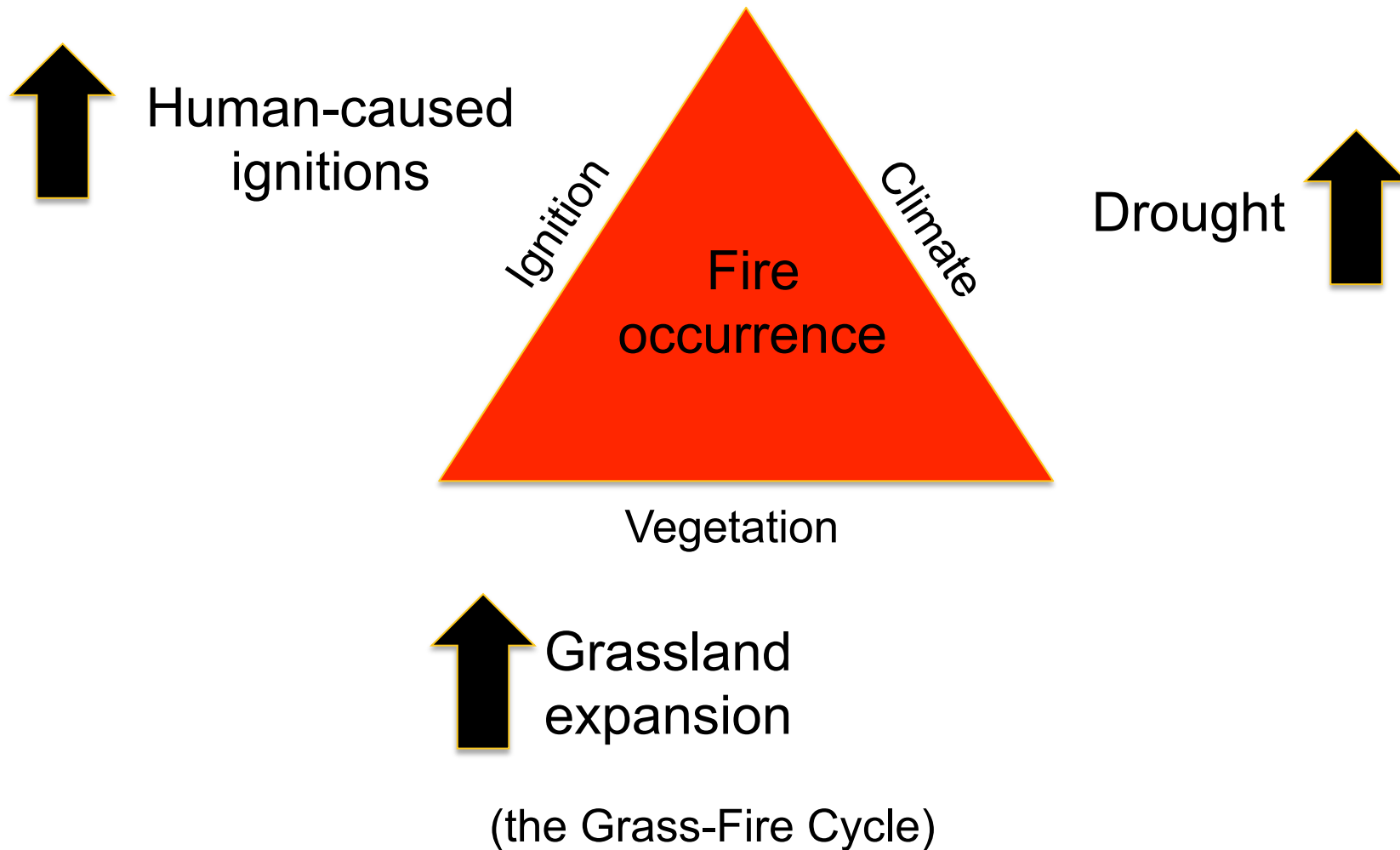
(complex outcomes)

The Fire Environment



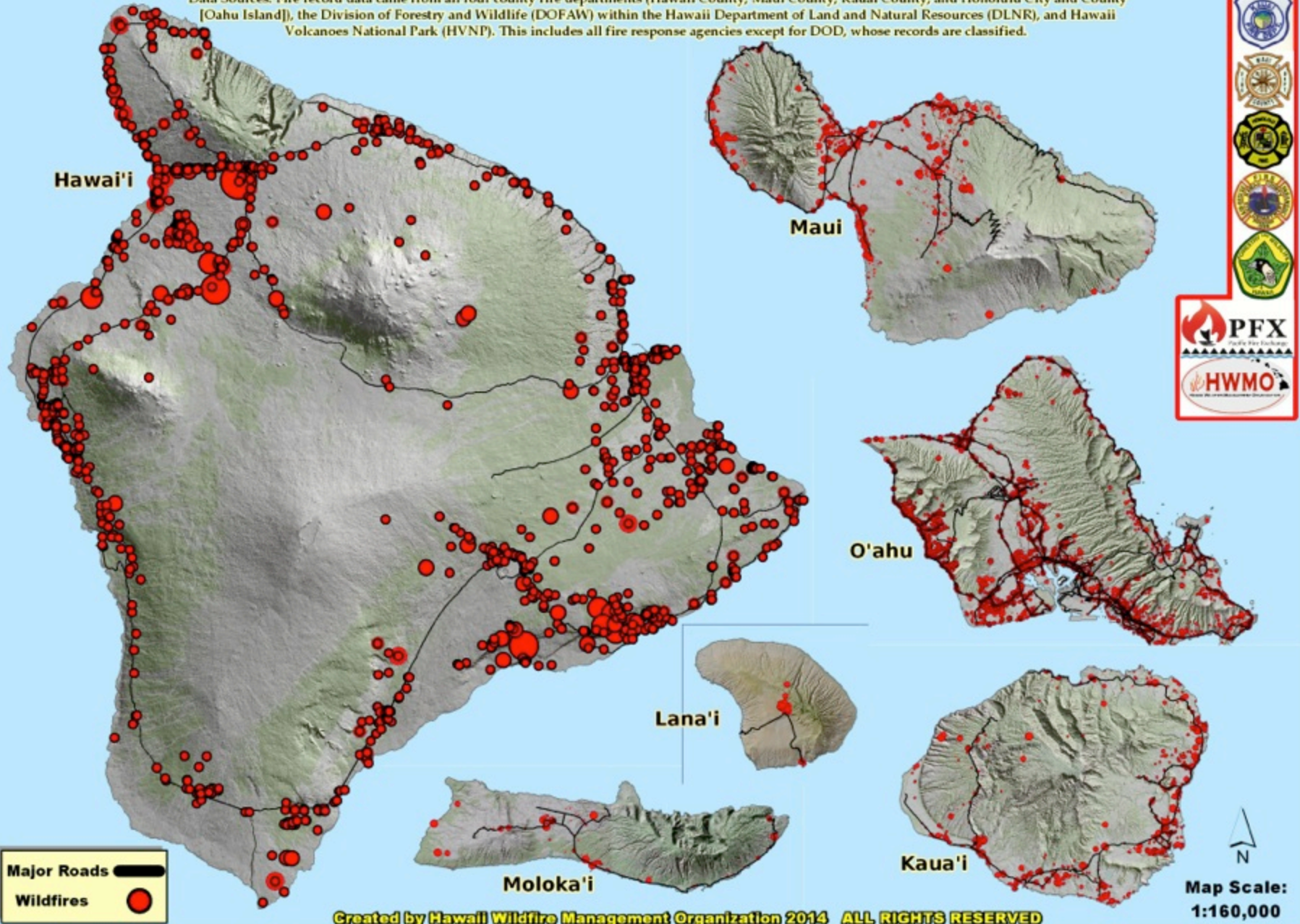
(a simple recipe)

Hawai'i's changing fire regimes



Wildfire Incidents for the 6 Main Hawaiian Islands

Data Sources: Fire record data came from all four county fire departments (Hawaii County, Maui County, Kauai County, and Honolulu City and County [Oahu Island]), the Division of Forestry and Wildlife (DOFAW) within the Hawaii Department of Land and Natural Resources (DLNR), and Hawaii Volcanoes National Park (HVNP). This includes all fire response agencies except for DOD, whose records are classified.

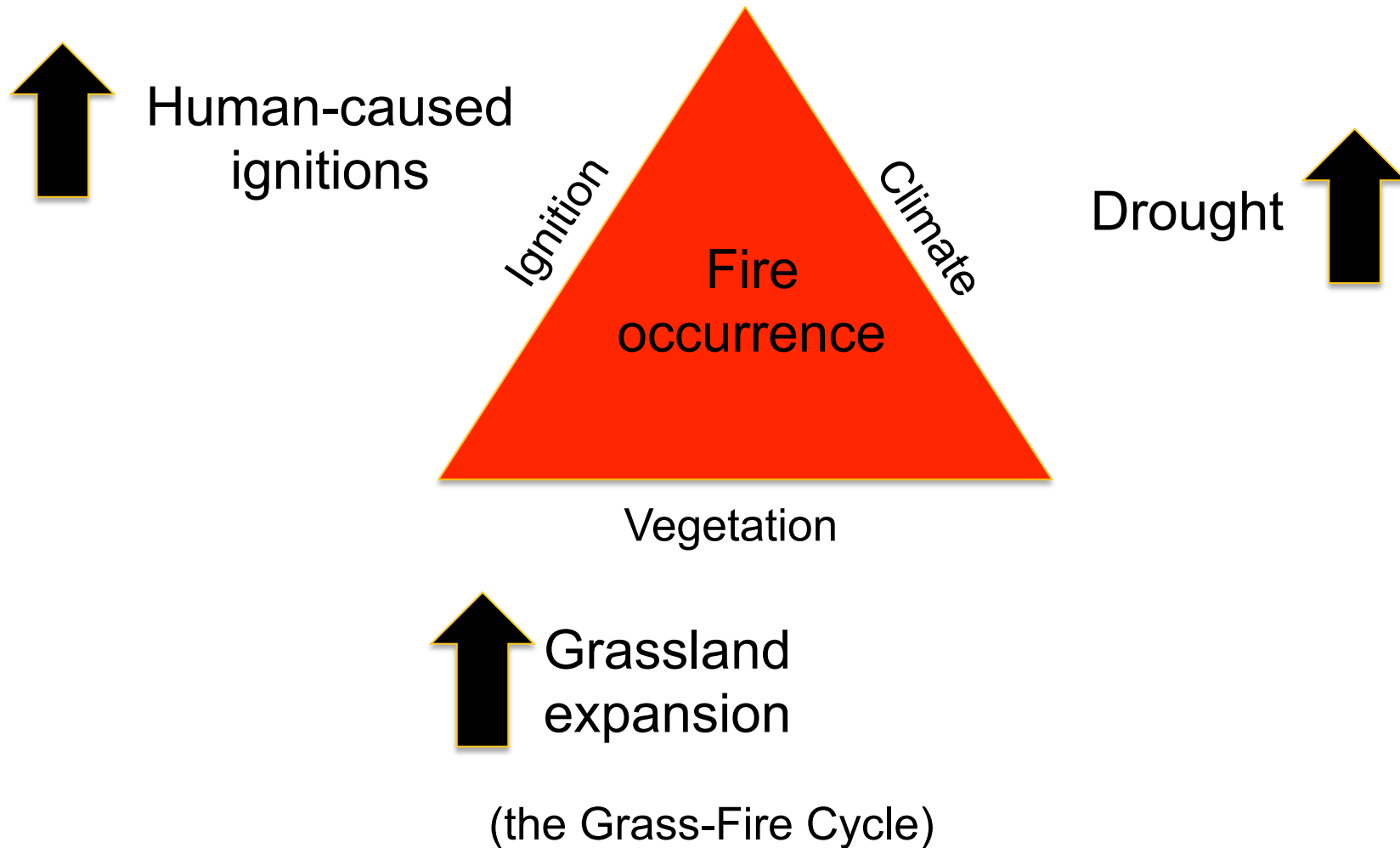


Major Roads 
Wildfires 

Created by Hawaii Wildfire Management Organization 2014 ALL RIGHTS RESERVED

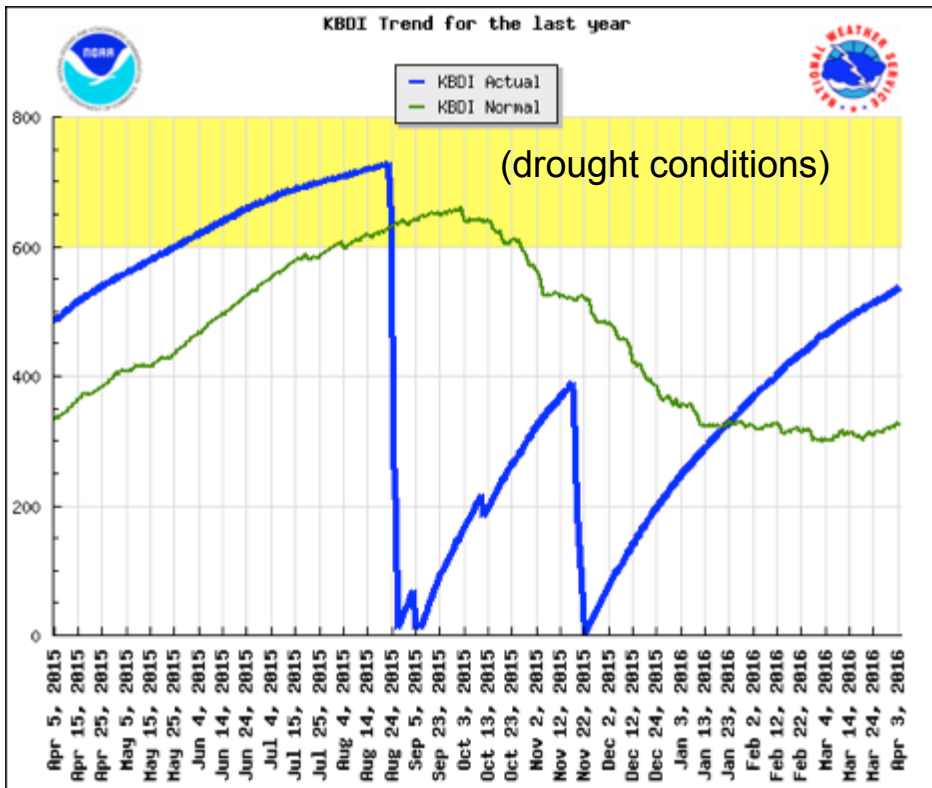
Map Scale:
1:160,000

What can we manage?



Climate and Weather

KBDI - Keetch-Byram Drought Index



STRONG El Niño in effect



Wet summer (2015)

DRY WINTER (2016)

<http://www.prh.noaa.gov/hnl/pages/firewx.php>

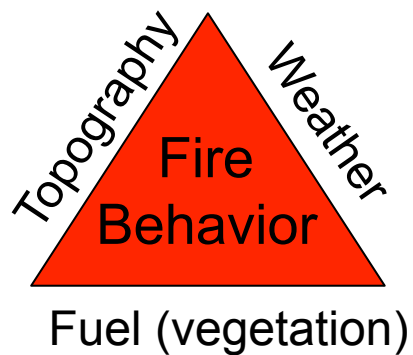
Climate and Weather

RED FLAGS:

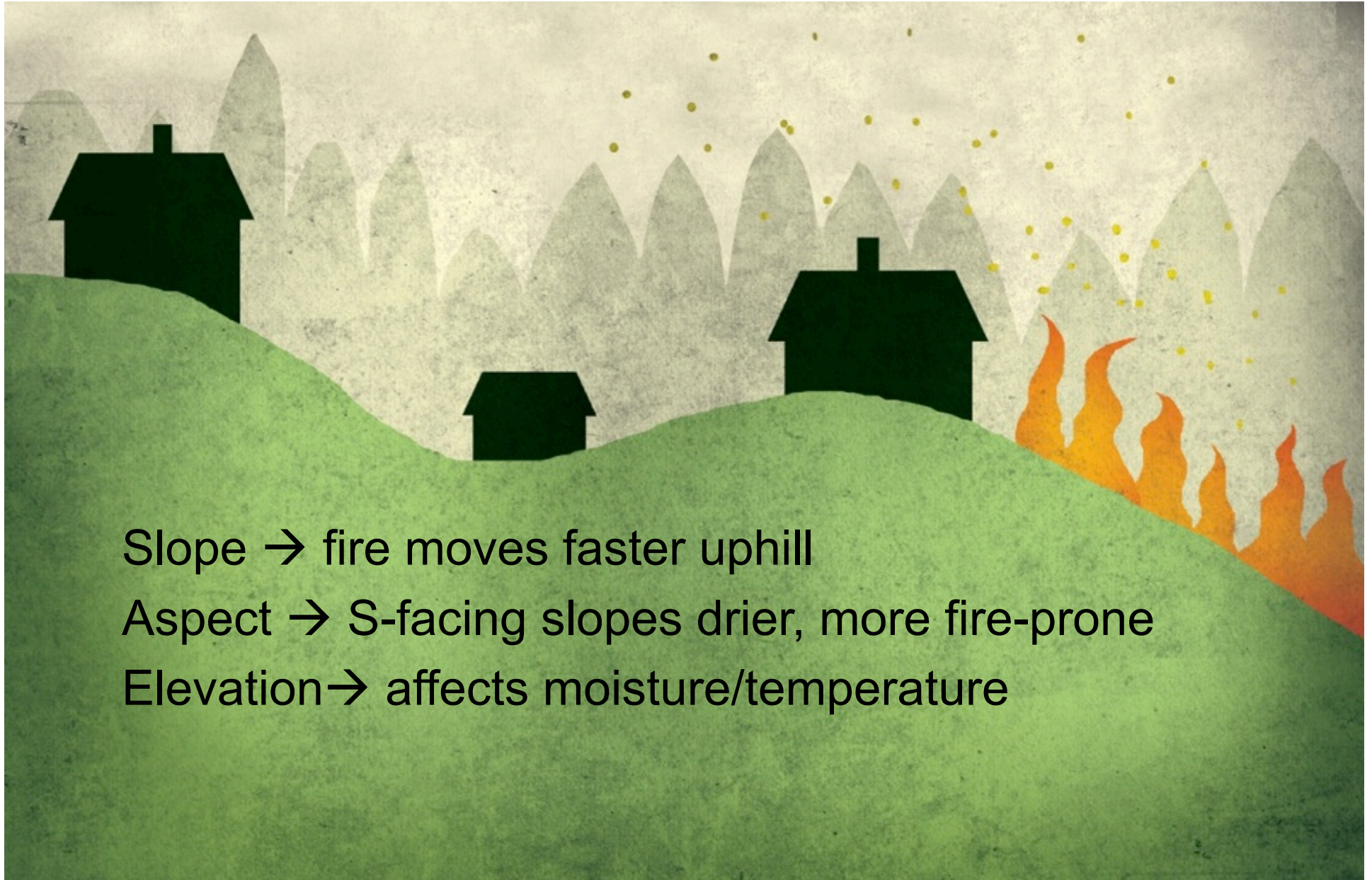
↑ Wind

↑ Temperature

↓ Relative Humidity



Topography



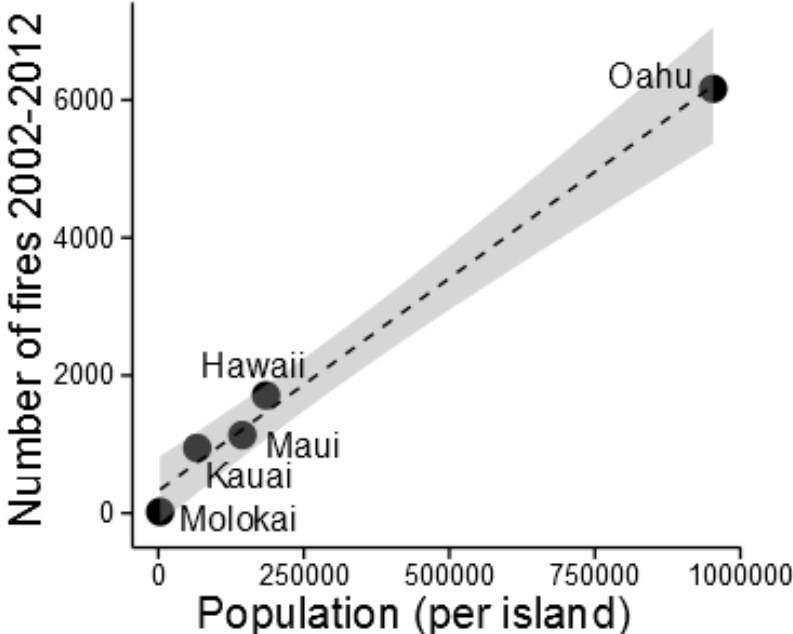
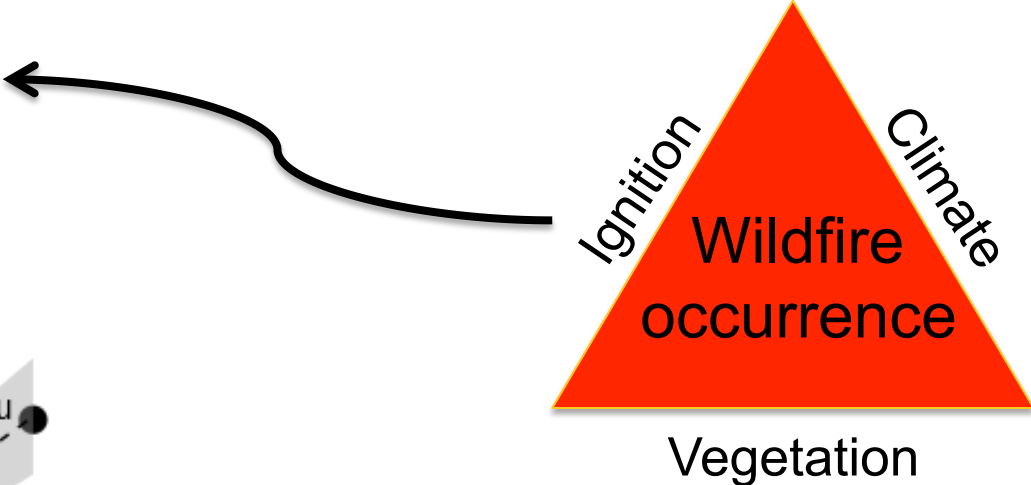
Slope → fire moves faster uphill

Aspect → S-facing slopes drier, more fire-prone

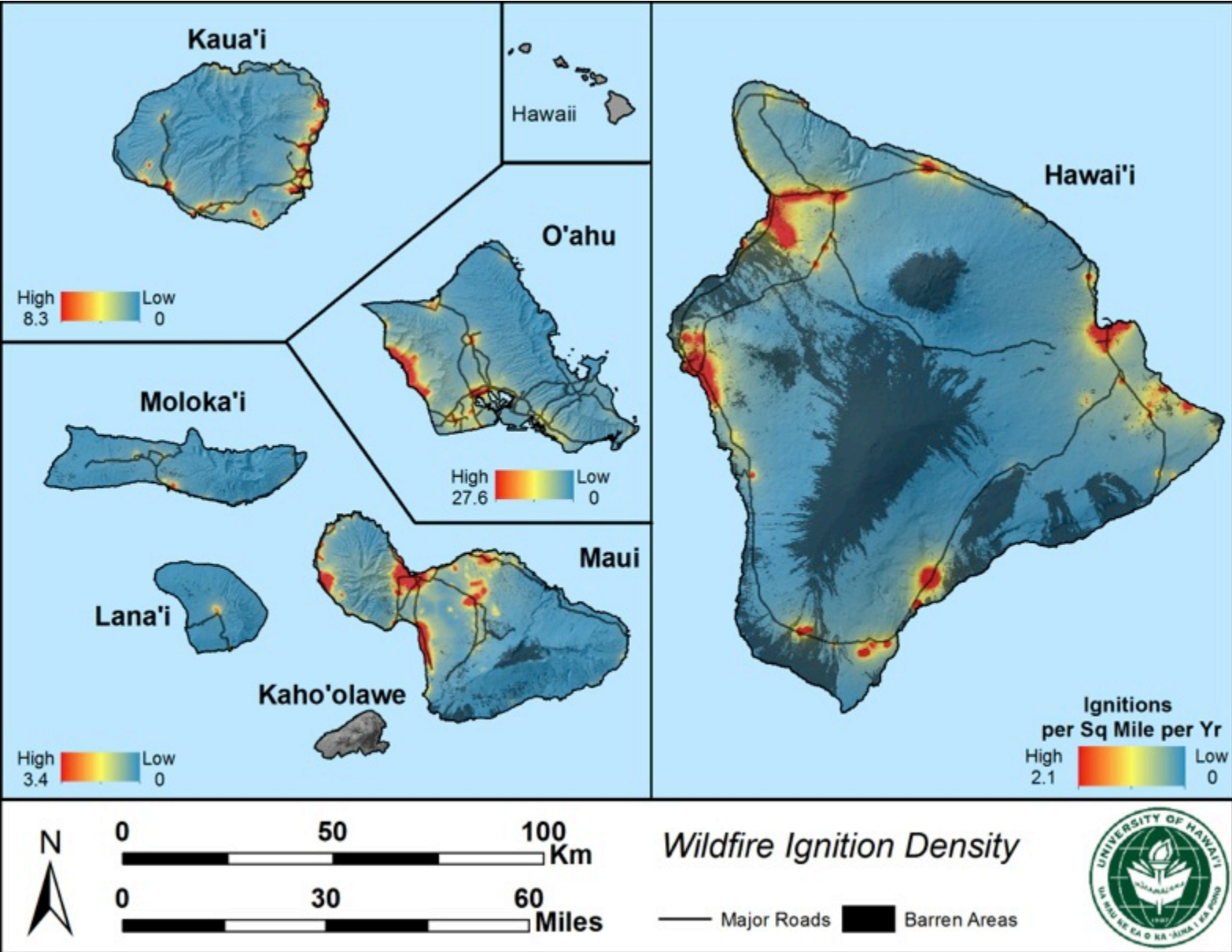
Elevation → affects moisture/temperature

Ignitions

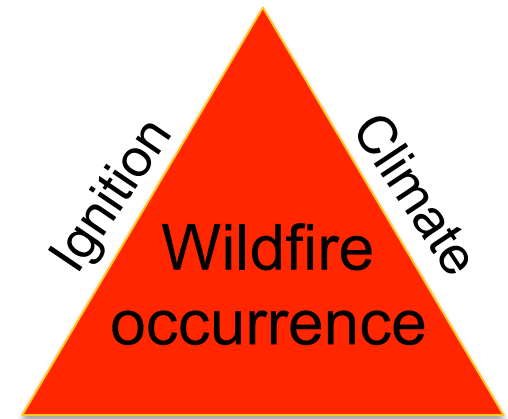
Know the community
neighboring lands
user groups



Ignitions



Vegetation → the only factor we can control

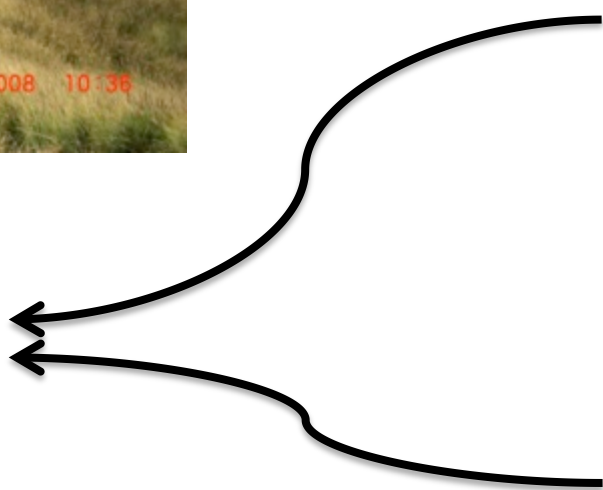


Vegetation

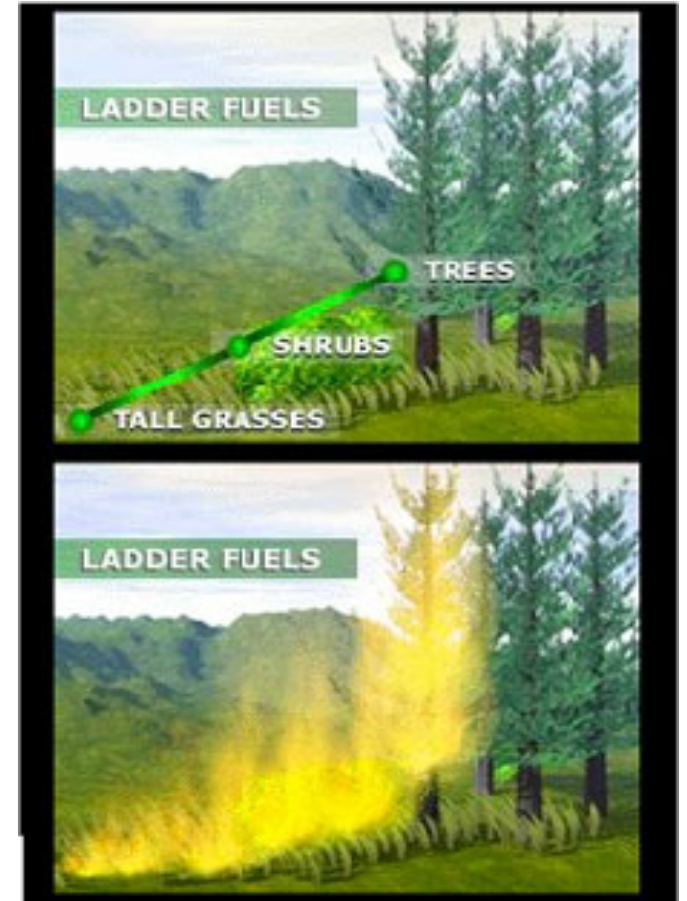


Fuel (vegetation)

Know the landscape



Vegetation



Vegetation



Hawaiian savannas



Hawaiian savannas



Hawaiian savannas

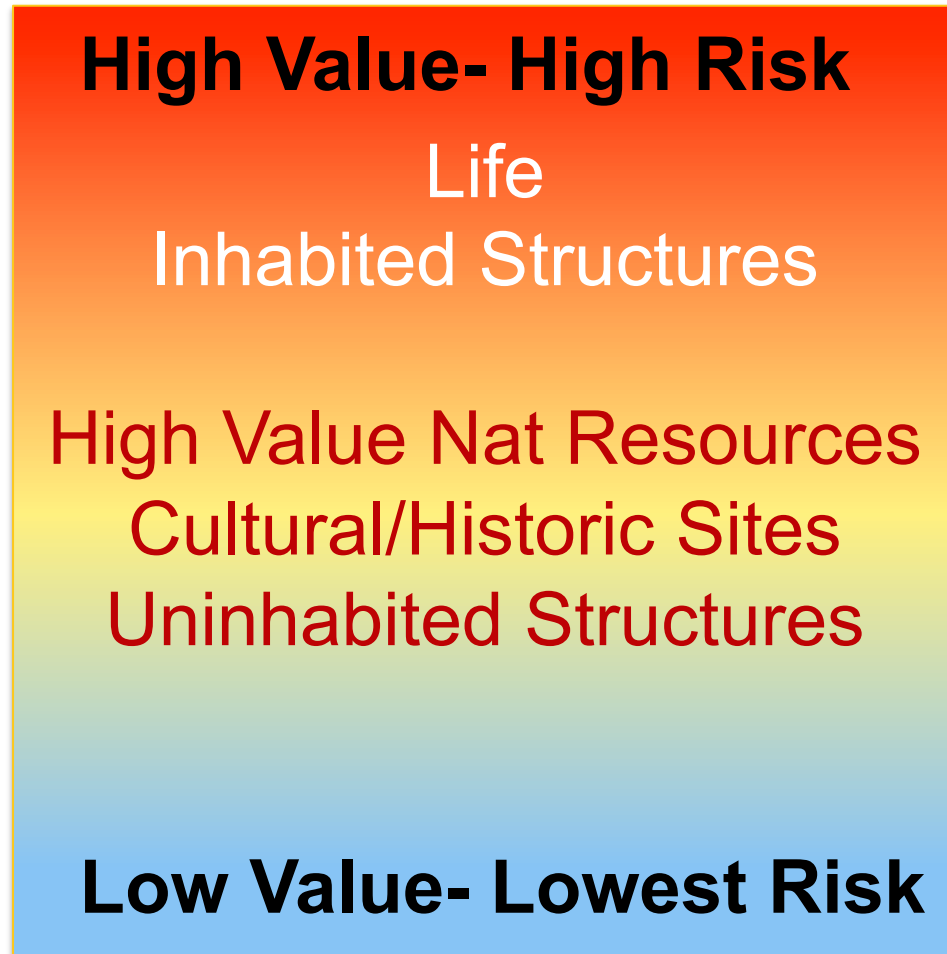


Hawaiian savannas



Wildfire Threat

Value of
Assets
+
Exposure to
Risk



People

- Evacuation routes
- Communication chains
- Livestock and Pets
- Safety zones

Know the plan

Make information accessible

Discuss with fire agencies



Infrastructure

- Fire vehicle access
- 'Defensible space' 50-100 ft around structures
- Harden home
 - Clear litter/debris from roof and siding
 - Screen vents
 - Fire resistant materials
- Move combustible materials: propane, gas tanks
- Utilities – power & gas lines



Other Valued Resources

ENDANGERED SPECIES

CRITICAL HABITAT

CULTURAL SITES

CROPS

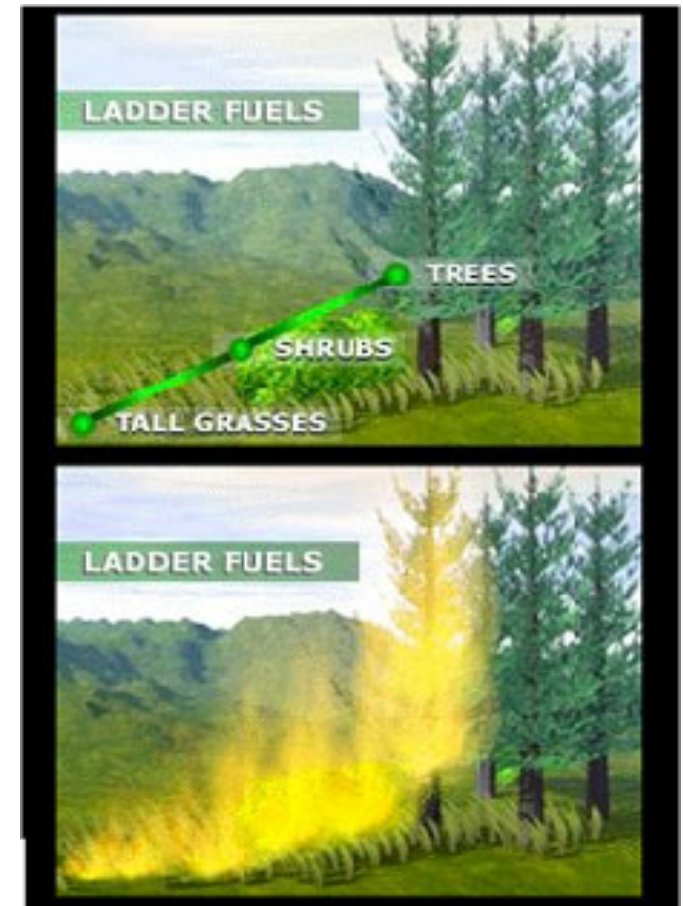
MAPS!

Resource advisor on fire?



Vegetation

- Hazardous fuels
- Existing breaks, reductions



Vegetation

Fuels Management

Reduce quantity
and continuity

- Fire breaks and fuel breaks
- Mechanical removal, herbicide, grazing
- Shaded breaks/Greenstrips
- Prescribed fire



Communication

Response Agencies

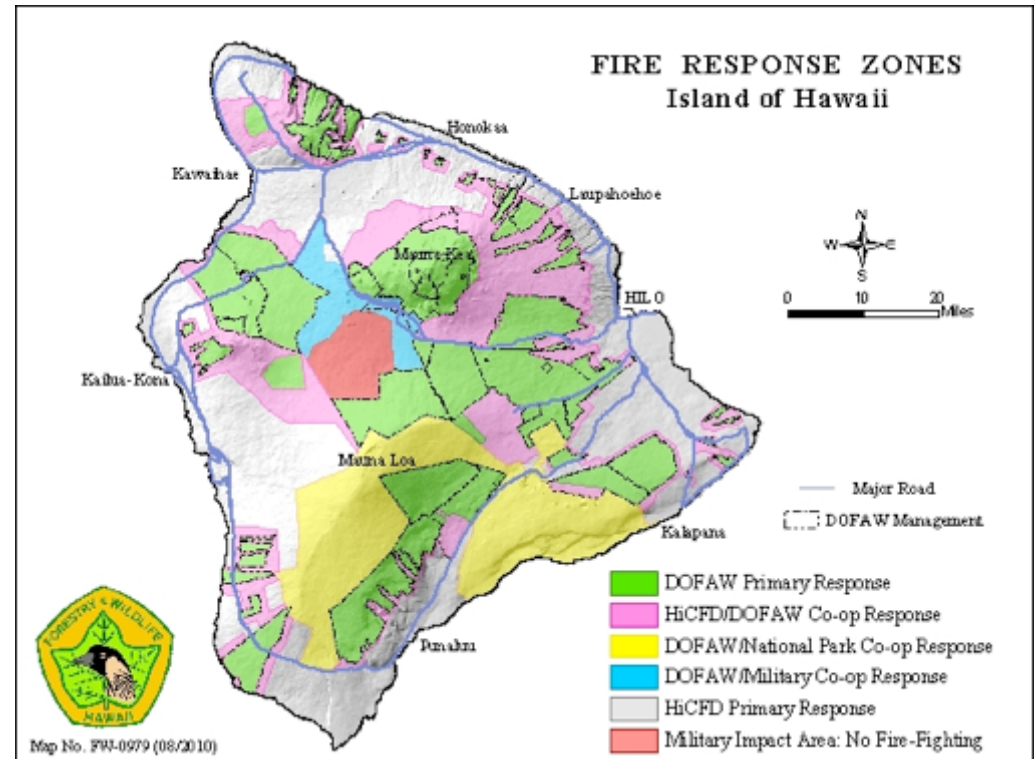
- DOFAW, HFD, Fed Fire

Residents, neighbors,
land users

- Phone/text chains?

Coverage

- Cellular, radio, visual



<http://www6.hawaii.gov/dlnr/dofaw/fmp/firemaps.htm>

Water

- Location
- Quantity
- Access
 - Harden edges of reservoirs
 - Deepen ditches or streams
 - Water treatment
 - Pump and hose availability
 - Compatible fittings for firefighter



Site Access

- Safe ingress/egress
- Road width
- Turn-arounds
- Regular maintenance
- All-season condition
- Roads clearly marked?
- Weight restrictions?
- Fencing, locked gates, or other obstacles?



Anticipate Suppression Impacts

- Staging areas
- Heavy trucks
- Bull dozers
- Helicopter landing zones



The End Product

- Narrative Plan
- MAPS



College of Tropical Agriculture
and Human Resources
University of Hawai'i at Mānoa

Forest and Natural Resource Management
February 2016
RM-20

Pre-Fire Planning Guide for Resource Managers and Landowners in Hawai'i and Pacific Islands

Clay Trauernicht¹ and Elizabeth Pickett²

¹University of Hawai'i Cooperative Extension Service, ²Hawaii Wildfire Management Organization

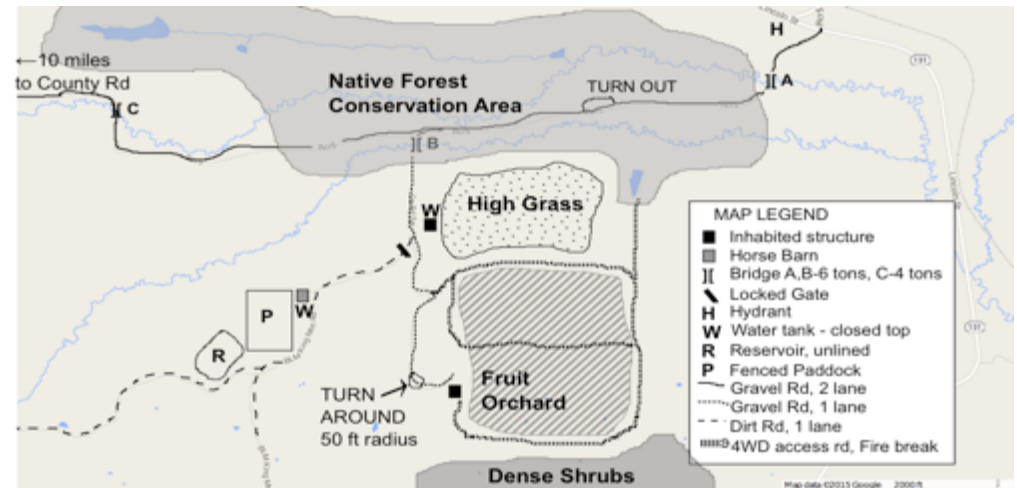
APPENDIX: Pre-Fire Plan Template

Organize the information relevant to the site in both narrative form and, when possible, on maps.

- Site Location:
- Site Access/Directions: Identify and describe all entry/exit points
- Site Description: Land area, topography, vegetation types
- Fire-Sensitive Resources and Property Assets: Locations and details of livestock, homes, infrastructure, natural resources, etc.]
- Procedure: Narrative of the process to be followed in the event of a wildfire, including notification, evacuation, and suppression actions, as follows:
 - Notification:
 - Fire response agency or agencies responsible for suppression in the area, with phone numbers
 - Emergency contacts: list of staff, landowners, residents to be contacted in case of wildfire, with phone numbers
 - Media response plan: specific staff designated to interact with media, basic framework for response/communications with media, site fact sheet to be shared with media contacts
 - Evacuation Plan: escape route and protocol
 - Suppression Action:
 - Sensitive areas to be avoided by suppression vehicles and efforts: archaeological sites, threatened and endangered species, etc.
 - Known hazards: dense vegetation, flammable materials, hazardous materials storage, power/gas lines
 - Access limitations or hazards: wet, low-lying, narrow, steep, or rutted areas where response vehicles may be hindered
 - Safety zones/firebreaks: potential staging areas and existing mitigation efforts
 - Water resources: reservoirs, hydrants, water tanks and fittings
 - Communication: cellular reception issues and/or radio "dead zones" if known, radio frequencies of responding agencies
 - Other resources and contacts: nearby water sources, access from neighboring lands, private resources/equipment on property which may be available to firefighters, with contact info
 - Information concerning any cooperative agreements with multiple landowners or agencies

The End Product

- Narrative Plan
- MAPS
 - Hand drawn
 - Google Earth



Wildfire and Land Management

Local knowledge counts!

- Know the plan
- Make information accessible
- Share with relevant response agencies:

www.dlnr.hawaii.gov/forestry/fire/response-maps/



The banner image shows a wildfire scene with bright orange flames and thick black smoke rising from a forest. Overlaid on the left side is the Pacific Fire Exchange (PFX) logo, which consists of a stylized red flame above the letters 'PFX' and the text 'Pacific Fire Exchange' below it. Underneath the logo is the text 'JFSP FIRE SCIENCE EXCHANGE NETWORK'. On the right side of the banner, there are navigation links for 'Contact' and 'FireScience.gov', a search bar with a magnifying glass icon, and a circular logo for the University of Hawaii.

www.PacificFireExchange.org
@PacificFireSci



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