

Planning for Wildfires

Using Firewise to Adapt to Future Climate Conditions



Hot Topics Briefing – Congressional Hazards Caucus Alliance

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National Fire Protection Association



The big idea



We **CAN** live compatibly with nature
(wildfire)...

...**IF** we understand and **adapt** to the
conditions that put our homes and values at
risk.





National Firewise Communities® Program



- **VISION:** Wildland fires can occur in areas of residential development without the occurrence of disastrous loss.
- **MISSION:** To promote community-wide responsibility in the use of technology, policy and practices that minimize the loss of life and property to wildland fire independent of fire fighting efforts.



Firewise is a program of the National Fire Protection Association, supported by:



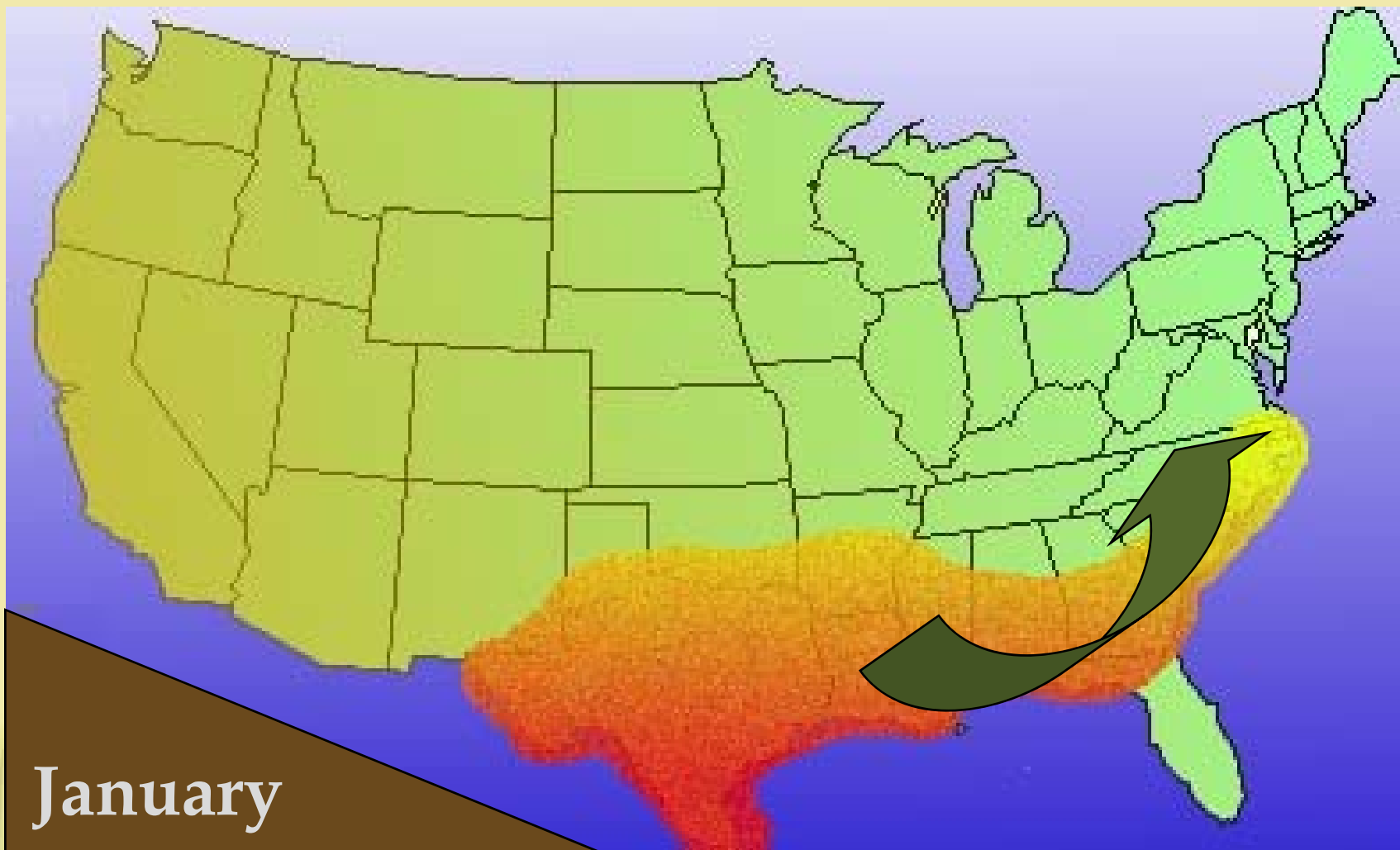
- USDA-Forest Service
- U.S. Department of the Interior
- National Association of State Foresters



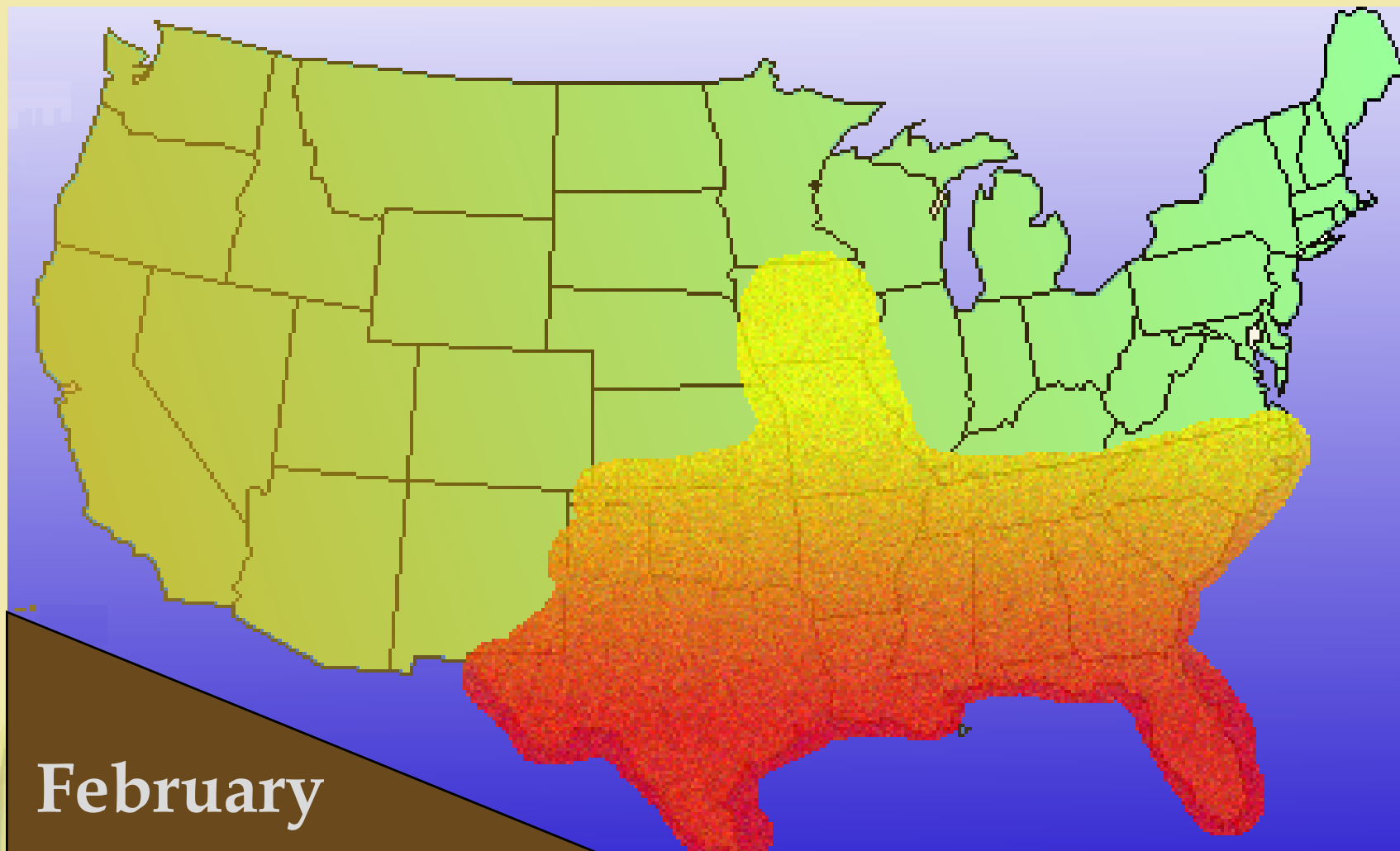
Wildfire – it's natural!



Normal Peak Fire Seasons



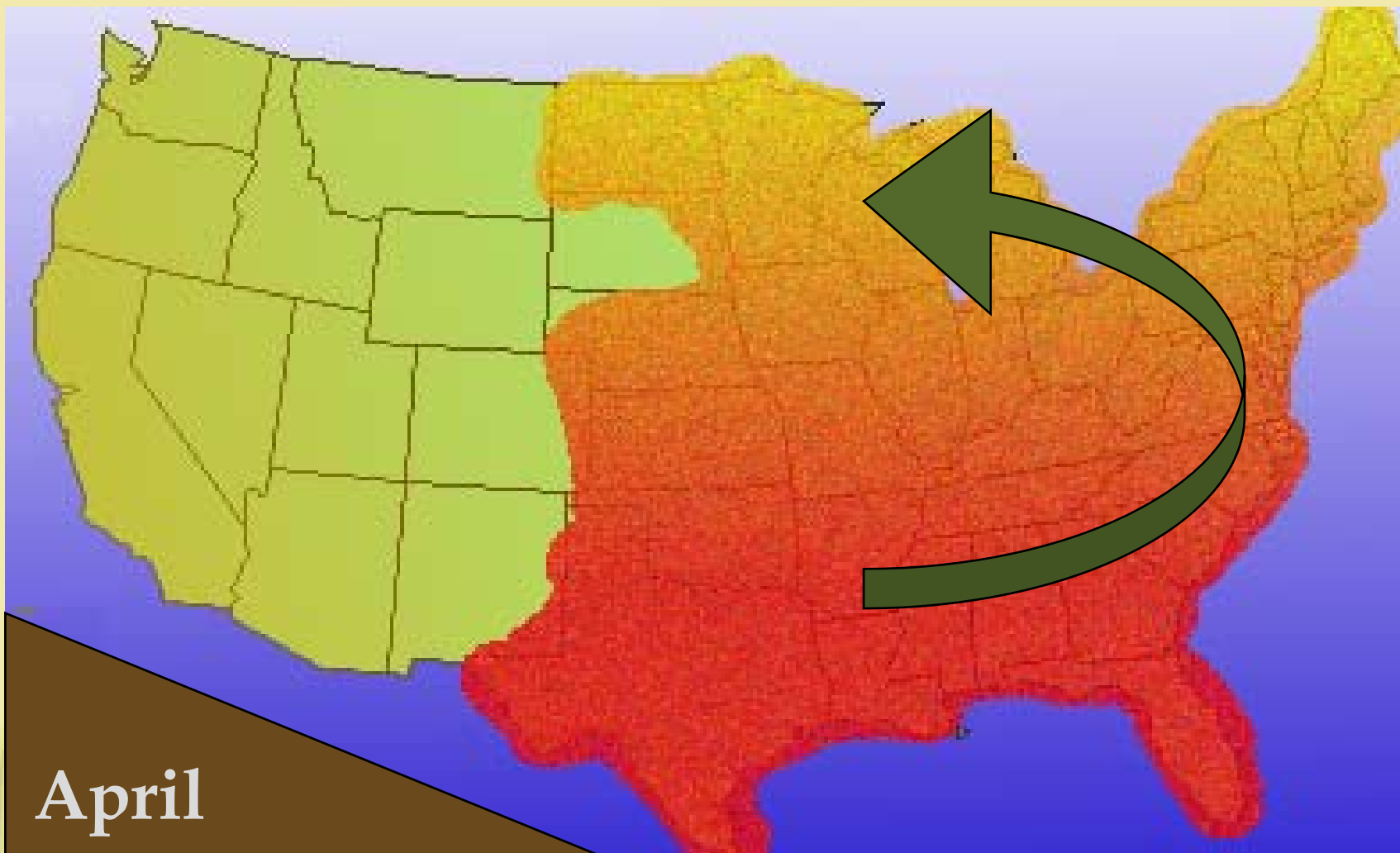
Normal Peak Fire Seasons



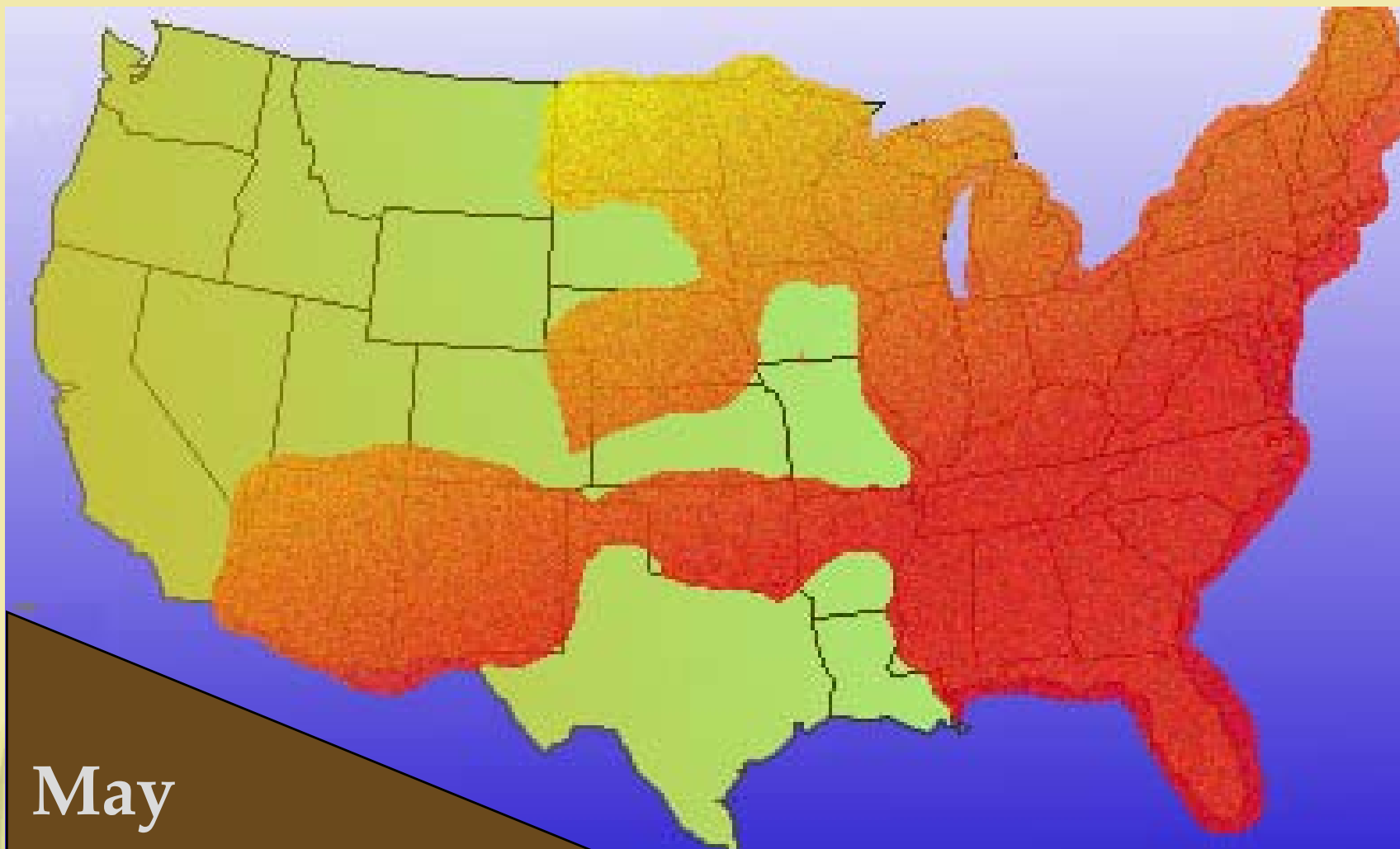
Normal Peak Fire Seasons



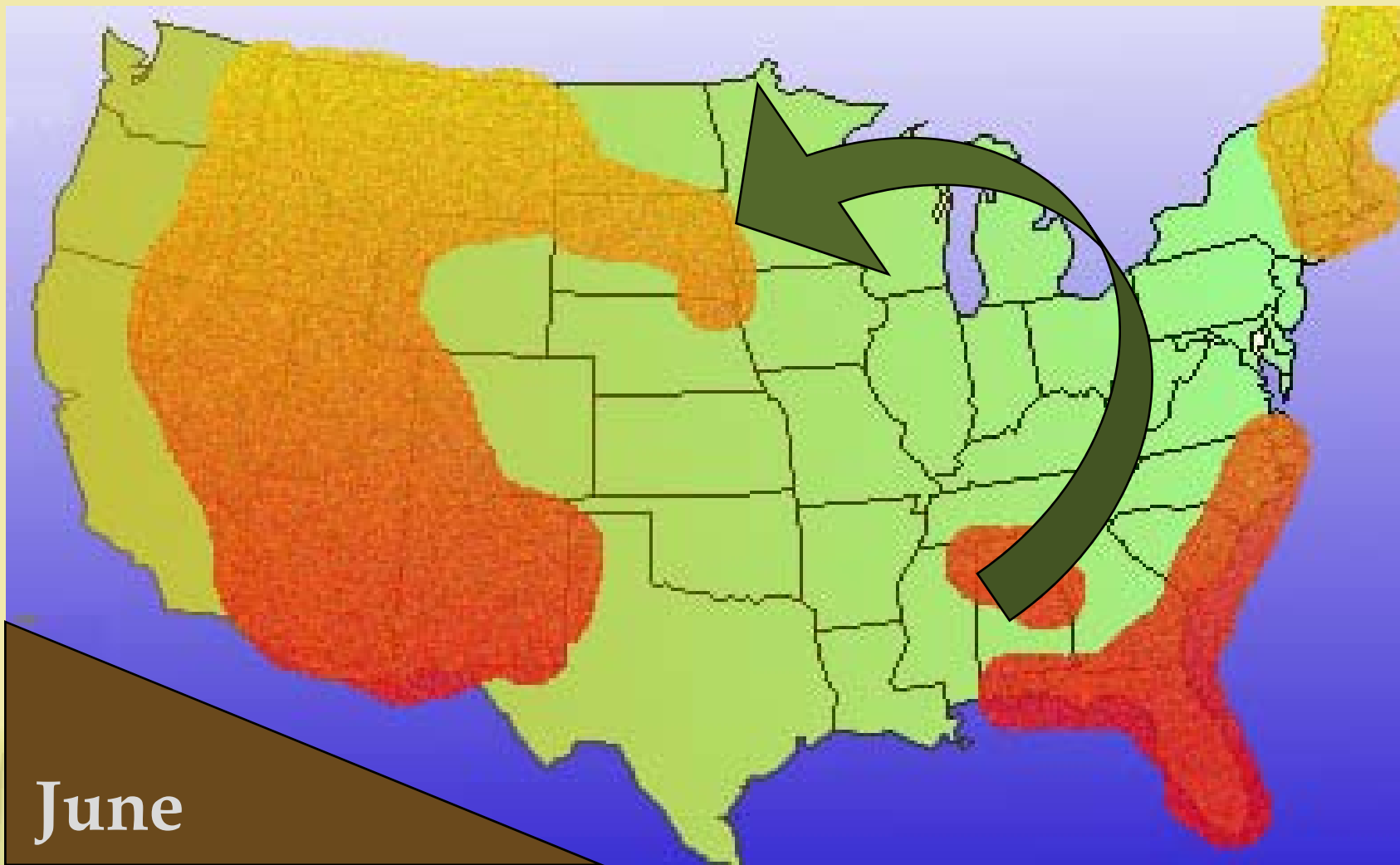
Normal Peak Fire Seasons



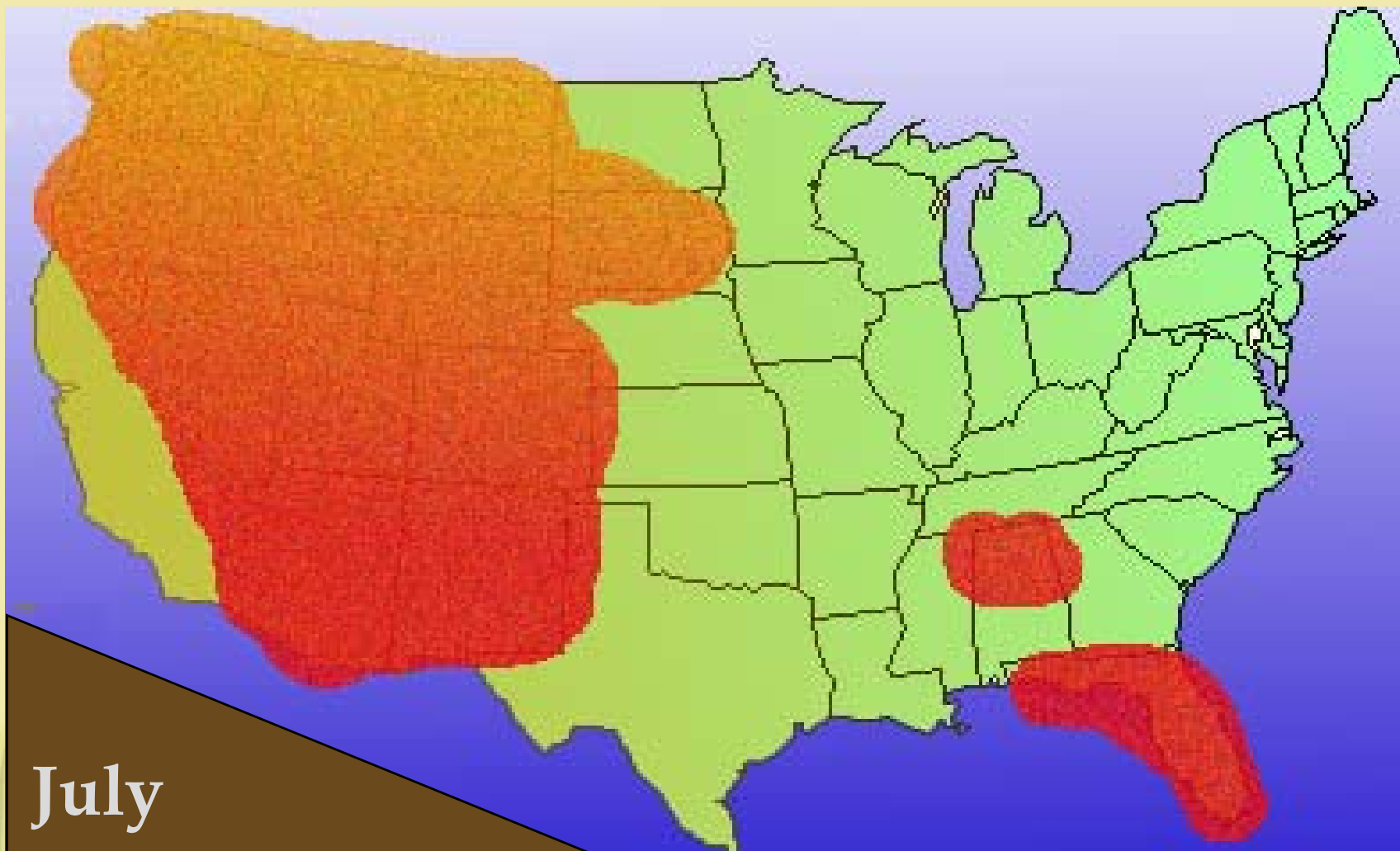
Normal Peak Fire Seasons



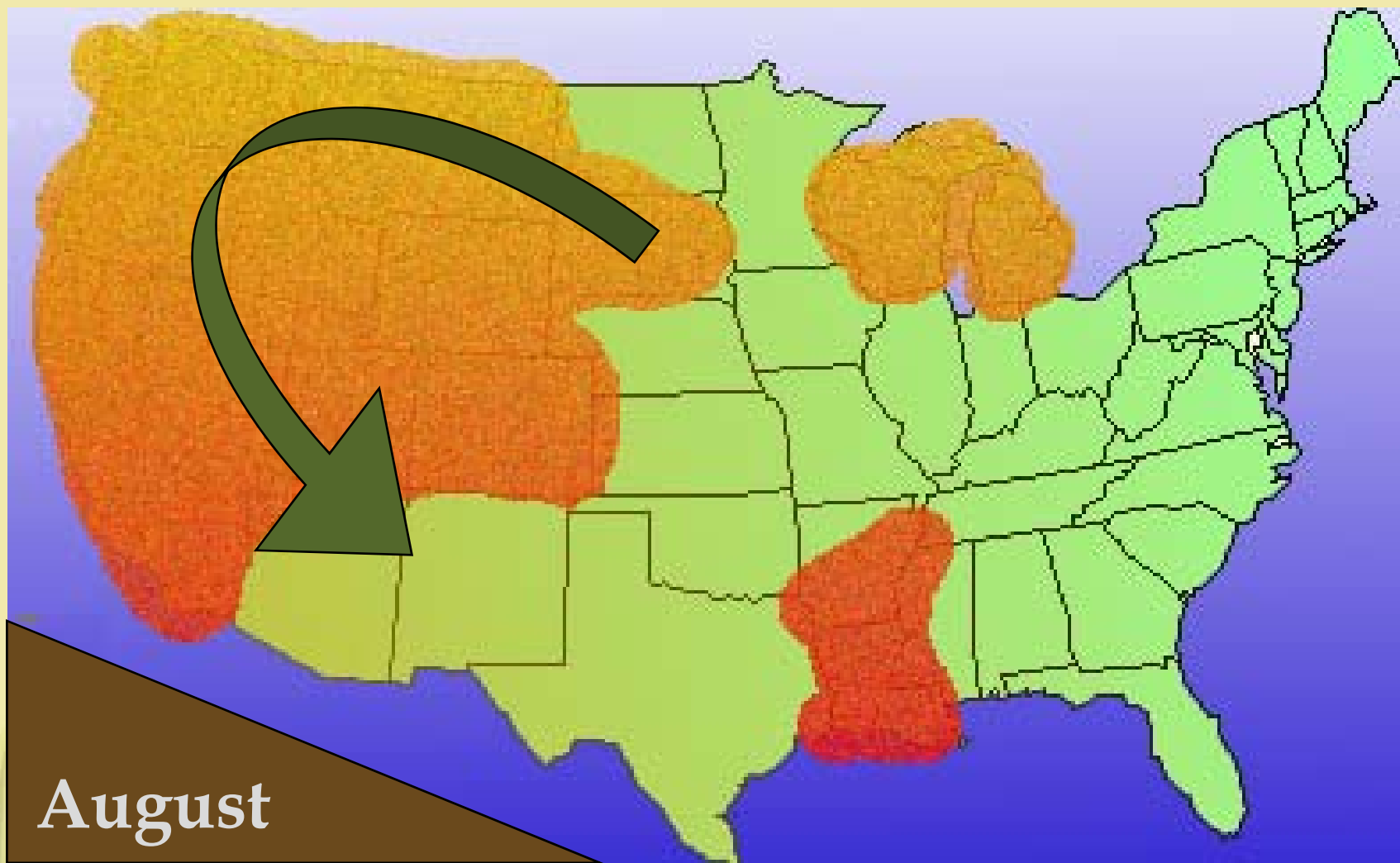
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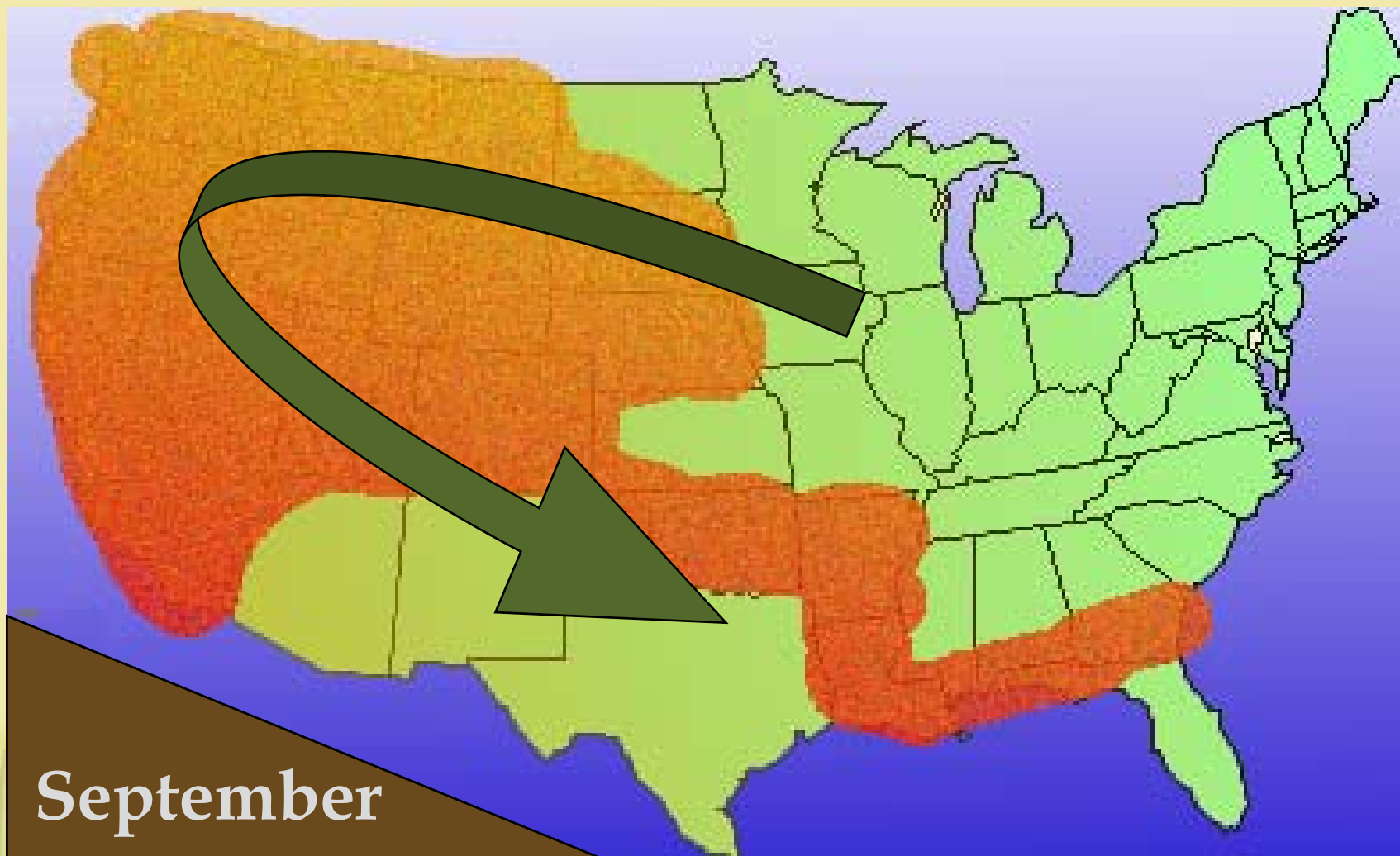
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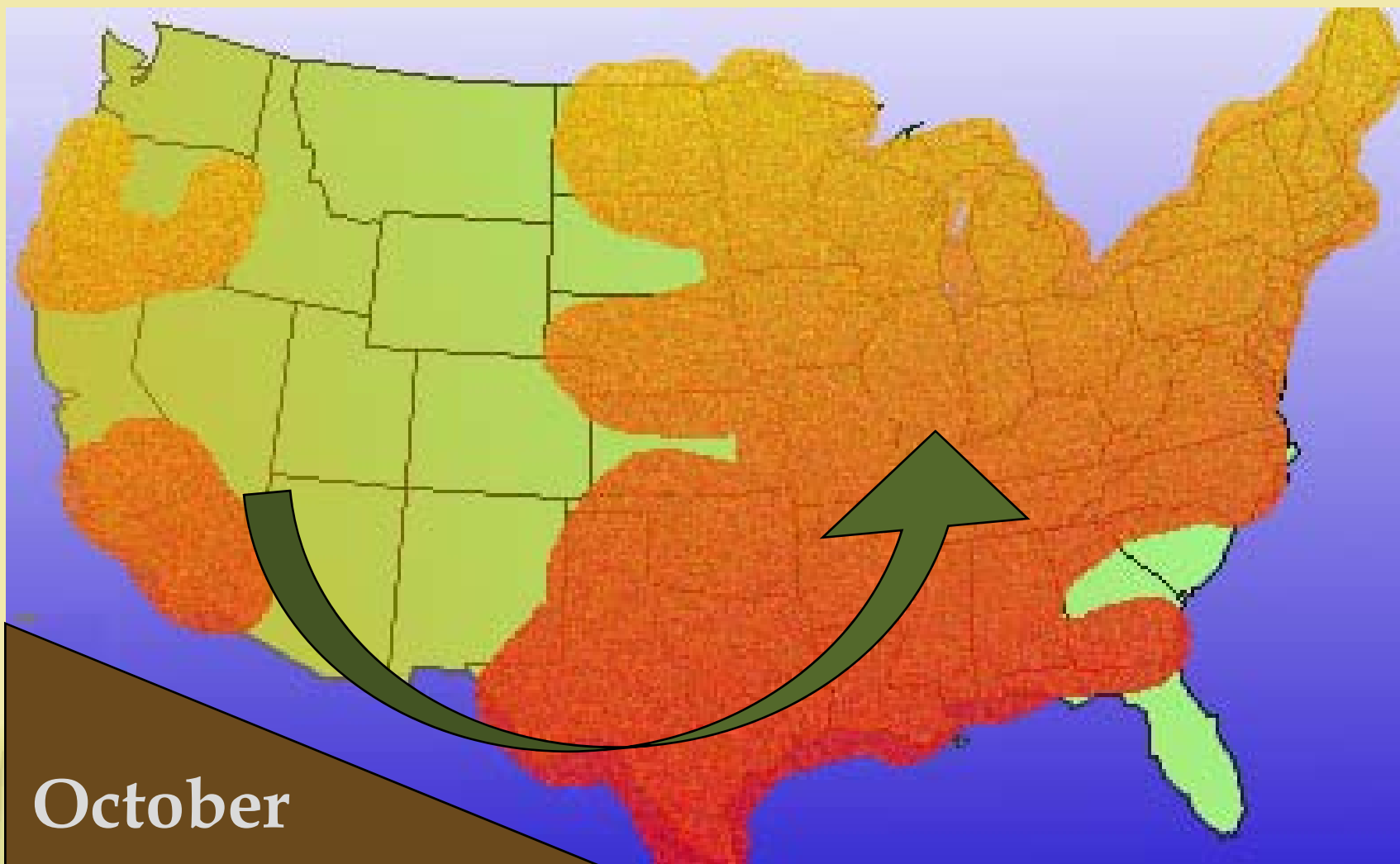
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Normal Peak Fire Seasons

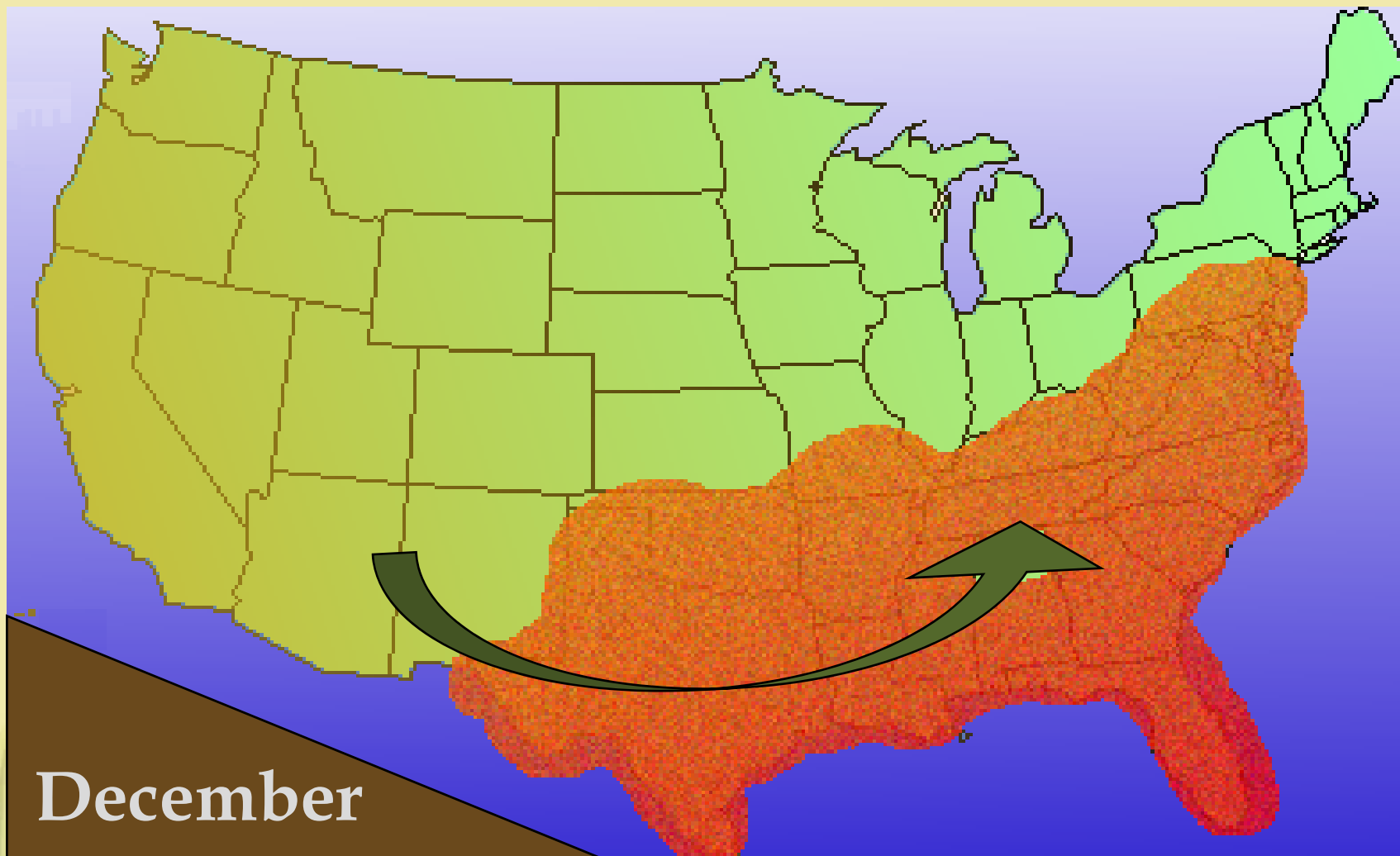


Normal Peak Fire Seasons



October

Normal Peak Fire Seasons





Understanding Wildfire

- Fire is an essential, natural process:
 - Replenishes soil nutrients
 - Removes dead and dying vegetation
 - Creates conditions for healthy re-growth





WILDFIRE: THE ENEMY



- Public opinion has historically categorized home loss to wildfire as an unavoidable disaster
- Until the early 1990s, the concept of mitigation was not part of the wildfire management conversation



Today's Situation

- History of fire prevention and suppression threatens our ecosystems



Today's Situation

- Risk of larger fires results from fire exclusion policy



Today's Situation

- Effects on plant and animal life during a catastrophic wildfire can be severe



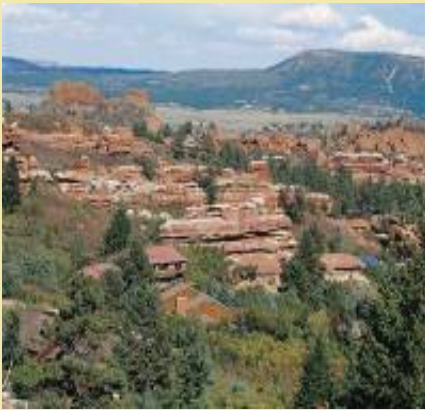
Wildland/Urban Interface – what is it?





Wildland/Urban Interface

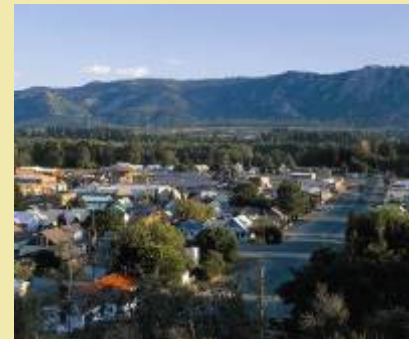
- We may not recognize it, but many of us live in it!





Wildland/Urban Interface

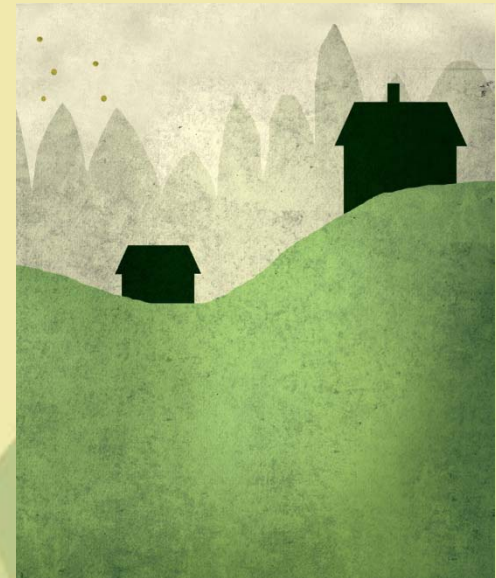
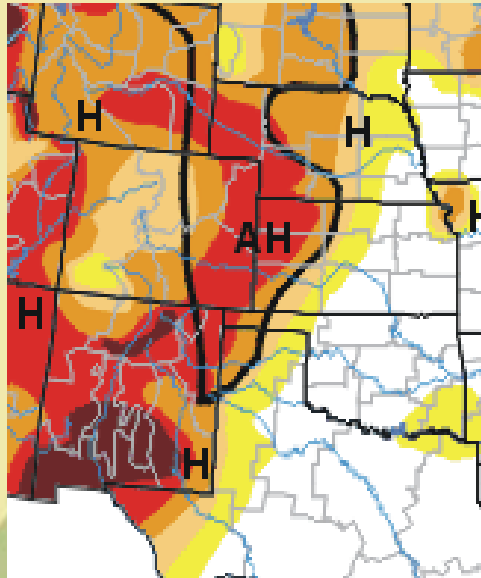
- Not a place or a zone
- A set of conditions under which a wildland fire reaches beyond trees, brush, and other natural fuels to ignite homes and their immediate surroundings.





Wildfire Behavior and How Homes Ignite

- Fuels
- Weather
- Terrain





**How do interface
losses occur?**



Severe Fire Conditions

Fuel, Weather,
and Topography

Wildland Fire

Rapid fire spread
and/or
High intensity

Urban Fire

Multiple,
simultaneous
ignitions

Overwhelmed Fire Suppression

Too much fire and
too few resources

Reduced Fire Protection

Lack of resources
leads to
reduced
effectiveness

DISASTER!

Many homes
totally
destroyed





Severe Fire Conditions

Fuel, Weather,
and Topography

Wildland Fire

Rapid fire spread
and/or
High intensity

~~Urban Fire~~

~~Multiple,
simultaneous
ignitions~~

Stop the transition from the Wildland fire to an Urban fire and the likelihood of a Disaster is significantly reduced



What Have We Learned?



- Wildfires are inevitable in fire-adapted ecosystems
- During large interface fires, hundreds of structures an hour may be ignited
- No fire suppression system in the world can stop losses from these large conflagrations



Climate Change and Wildfire Impacts



- Wet-dry cycles are more extreme
 - Wet – more vegetation
 - Dry – more fire to burn the extra fuel
- Temperature Increases
 - Species changes; fire regime alterations
- Ecosystem alterations/stresses
 - Create conditions ripe for wildfire



Adaptation to Changing Conditions



- We live here now. What can we do?
- How do we influence the future?





Refocusing our efforts



- Focus on mitigation/preventive actions that reduce losses **before the event**
 - Reduce potential fire intensity that the vegetation will influence
 - Reduce the structure's ignitability
 - Take wildfire into account in our long-range development plans



A look at wildfire behavior

No Wildfire Preparation = No Win



San Diego, California - 2003

Wildfire Preparation = Big Win



- Fires burned past these New Mexico homes

Wildfire Preparation = Big Win



- In January 2006, fire burned up to all four sides of this Oklahoma home. The house survived; the pickup did not



Research Gives us Clues

- Two studies of California wildfire survival. Qualifier: Homes did *not* have shake/shingle roofs
 - Belair-Brentwood Fire (1961) - 95% home survival with 30-60 feet of clearance
 - Painted Cave Fire (1990) - 86% home survival with at least 30 feet of clearance



Research on home ignition

- International Crown Fire Modeling Experiment (1998) - Northwest Territories
 - Crown fire must be less than 100 feet to ignite a wood wall
 - 33 feet - heavy char; few ignitions
 - 66 feet - no char or scorch



It's the little things – that take homes down



Home Ignition Zone

- This suggests property owners play a role in protecting their homes
- We can modify our “home ignition zones”



The Home Ignition Zone



- Home ignition zone
 - A house burns because of its interrelationship with everything in its immediate surroundings (100 -200 feet)
 - What happens within this zone is critical to structure survival
 - A wildfire's potential relationship with a house can be interrupted here

Homes can survive



- Homes can survive wildfires by judicious use of standard residential building materials and landscape design



Look at Firewise construction

- The **Home Ignition Zone** includes the home, in addition to its immediate surroundings up to 200 feet.

If it's attached to the house, it's part of the house.





If it's attached, it's part of the house!



Firewise Recommends...



- Rated roofs (A, B or C)
 - Levels refer to the size of a burning firebrand placed on the roof assembly
- Fire-resistant building materials
- Fire-resistant plant materials



Community Action and Recognition – an adaptation model

Firewise Communities/USA®



Why Firewise recognition?



- Firewise Communities/USA offers communities the information to change this situation
- The program requires sustained *community* action in order for recognition status to be achieved and maintained



Firewise Communities/USA Criteria



- Complete an assessment of community wildfire risk
- Form a board or committee and create an action plan
- Conduct a Firewise Day annually
- Document local activity of at least \$2/capita in value
- Submit an application for recognition
- Renew status annually

Why do we want renewal?



- Steps 3-5 – Firewise Day, \$2/capita investment, and report (renewal form) must be repeated annually
 - Sustained community action needed to improve fire safety
 - Vegetation grows back – emphasis on maintenance
 - “One-shot” recognition has little to no long-term impact on a community’s ignition resistance

The Big Idea

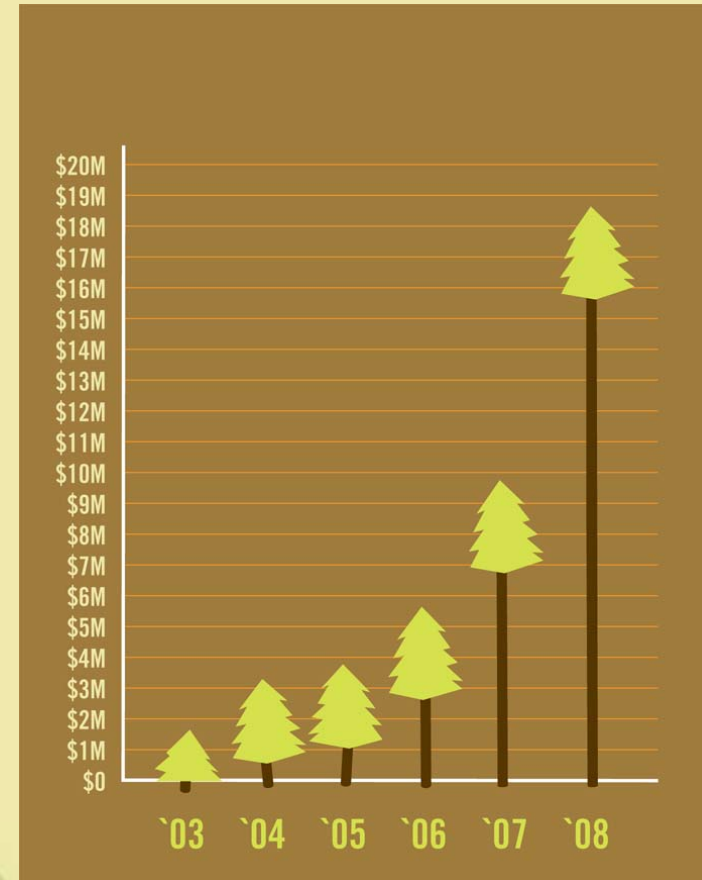


- Firewise concepts become ingrained and “normal” because we do them every day
 - Behavior change models include recycling and seat belt use
- Firewise concepts can be supported by regulation and codes, but ultimately must be embraced by residents
- Participation is **VOLUNTARY**. The recognition program has retained 85% of more than 500 communities that have ever initiated the process.

Firewise Communities/USA - Facts



- 1999 pilot; 2002 official launch with 12 sites
- Now 472 sites in 38 states -- and growing!
- Residents are accepting their role in mitigating wildfire hazards
- Communities have invested more than \$42 million since 2003
- 70 sites involved 5+ years





Crystal Lake Club, Wisconsin
A Recognized Community Since 2004

Products for Communities



- Recognition signs, plaque
- Story on the Firewise website
- Using “MyFirewise” network to connect/share
- Media Kit
- Quarterly “How To” Newsletter
- Firewise plant lists
- Firewise Alert (monthly email)



Community Benefits

- Recognition ceremonies offer opportunities to showcase success and spread the word about Firewise, including media coverage.
- Improved rankings for FEMA Pre-Disaster Mitigation Planning and Project Grants
- Generation of a “me-too” attitude in surrounding areas



CALIFORNIA - FIREWISE

More community benefits

- Residents gain increased sense of safety
- Fire staff forges a bond with the community
- Neighbor-to-neighbor communication is enhanced
- Landscape, greenbelt and common area beautification often results



Big Bear City, California

Future Development Adaptations



- Planning, Zoning, Construction
- Firewise “from the ground up”
- Infrastructure and engineering



Firewise from the ground up



- Firewise in design
 - Lots/common areas mitigated
 - Access, egress and water supply addressed
 - Firewise construction and landscaping for new homes



Firewise from the ground up



- Firewise in the fine print
 - Firewise concepts in the covenants (CC&Rs)
 - Firewise design guidelines in the architectural design rules
 - Firewise roofing/siding/decking/windows
 - Firewise landscaping or defensible space
 - Maintenance requirements

New Guide: “Safer from the Start”



- A guide for Firewise-friendly development
- Aimed at developers AND residents of community associations
- Recommendations based on Firewise research and NFPA standards
 - NFPA 1144, Reducing Structure Ignition Hazards from Wildland Fire
 - NFPA 1141, Fire Protection Infrastructure for Land Development in Suburban and Rural Areas
 - NFPA 1142, Water Supplies for Suburban and Rural Fire Fighting



Two Major Considerations in Planning



- Level of Planning
 - Single home
 - Subdivision Level
 - City/County Complex
- Focus (purpose) of Planning
 - Home Ignition Zone assessment
 - Neighborhood action plan (Firewise Communities/USA)
 - Community Wildfire Protection Plan



Focus

Community Wildfire Protection Planning (CWPP)

Firewise Communities Planning

Home Ignition Zone ↔ Firewise/USA Recognition

Planning Level

Fuels

Fire Weather & Frequency

Topography

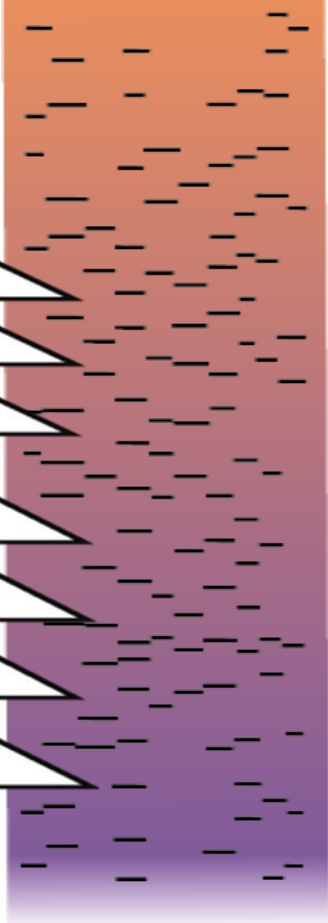
City/County Complex
Subdivisions
Single Structure

- Ordinances
- Land Use Planning
- Fire Suppression Capabilities
- Building Codes
- Infrastructure
- Fire Safety Education
- Codes, Covenants, Restrictions
- Common Areas & Shared Hazards
- Hazards 30' - 200'
- Hazards 0' - 30'
- Roof
- Eaves & Overhangs
- Walls & Siding
- Decks & Fences



Vegetation

Structural



Communities Compatible with Nature



- Firewise development can be:
 - Beautiful
 - Aesthetically pleasing
 - Environmentally friendly
 - Affordable
 - And...successful in saving homes from wildfire!



Questions? Discussion?



Thank You!

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