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Fire Behavior

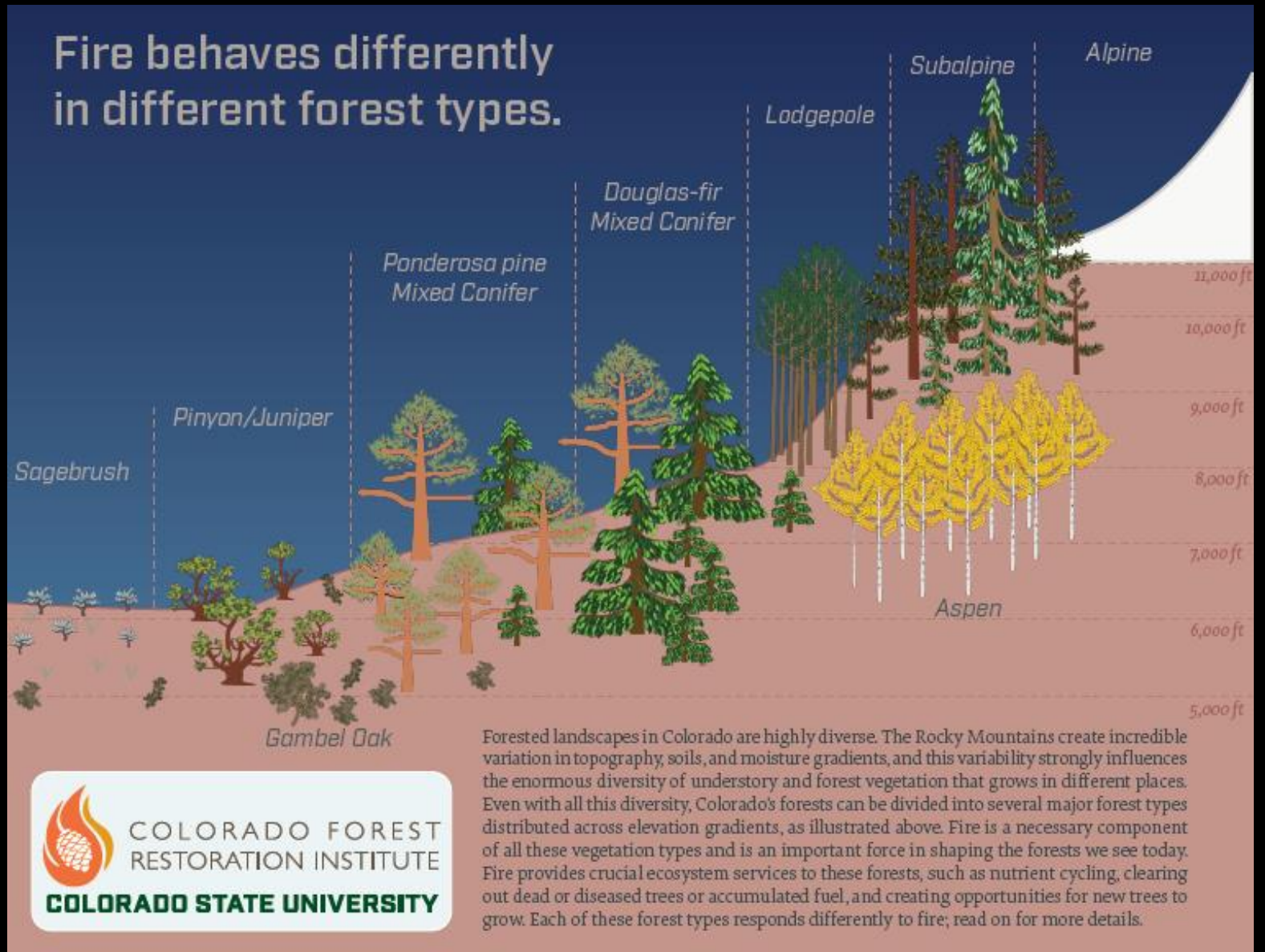
Where is the risk

Best available science

What are we doing in Flagstaff

Call to Action

"Fire is Local"



Photos taken at the same location

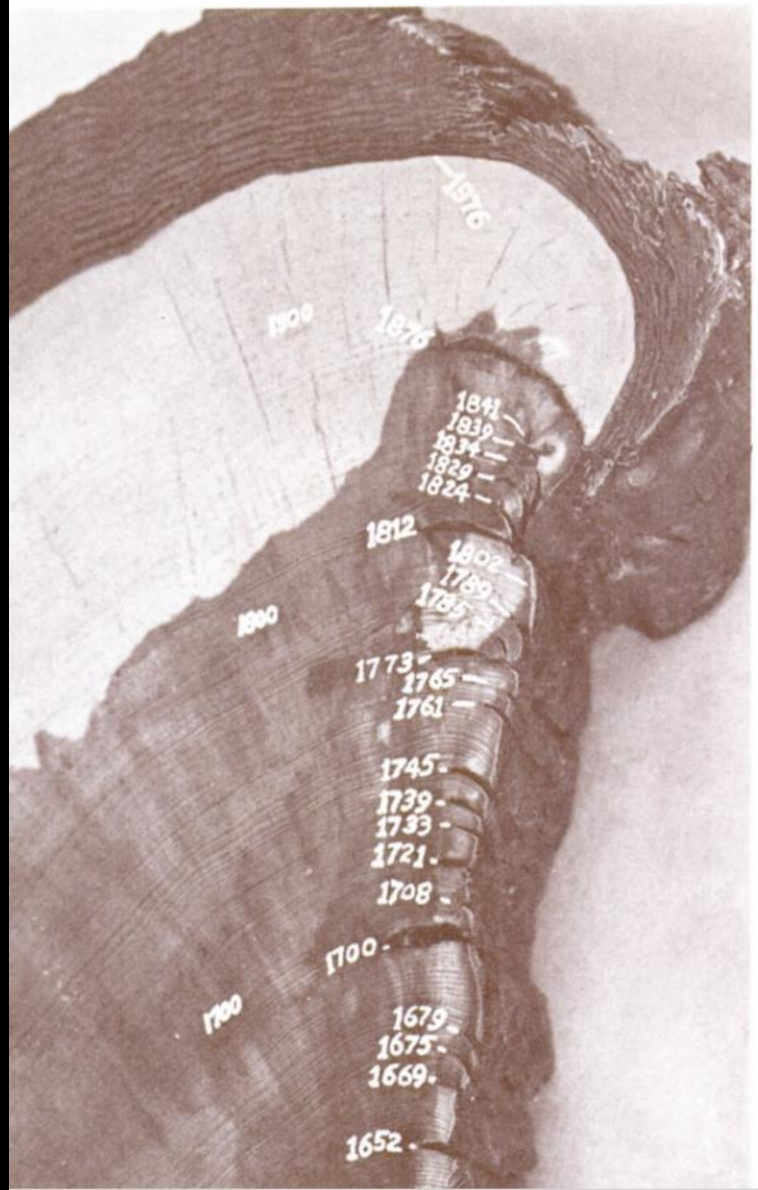


Table 1.—Composite fire intervals, Chimney Spring

Period	Time span[1]	Number of years	Number of recorded fires	Interval
				years
1	1540-1876	336	68	4.9
2	1754-1876	122	50	2.4
3	1800-1876	76	37	2.1
4	1820-1876	56	30	1.9
5	1824-1869	45	26	1.7
6	1850-1865	15	12	1.25

[1]*Dates between first and last fire scar. Includes all material.*

As progressively shorter periods are selected for computing fire frequency, the interval becomes even shorter. For period 6, a 15-year period (1850-1865), fires were occurring on the Chimney Spring area at 1- to 2-year intervals (average 1.25 years).

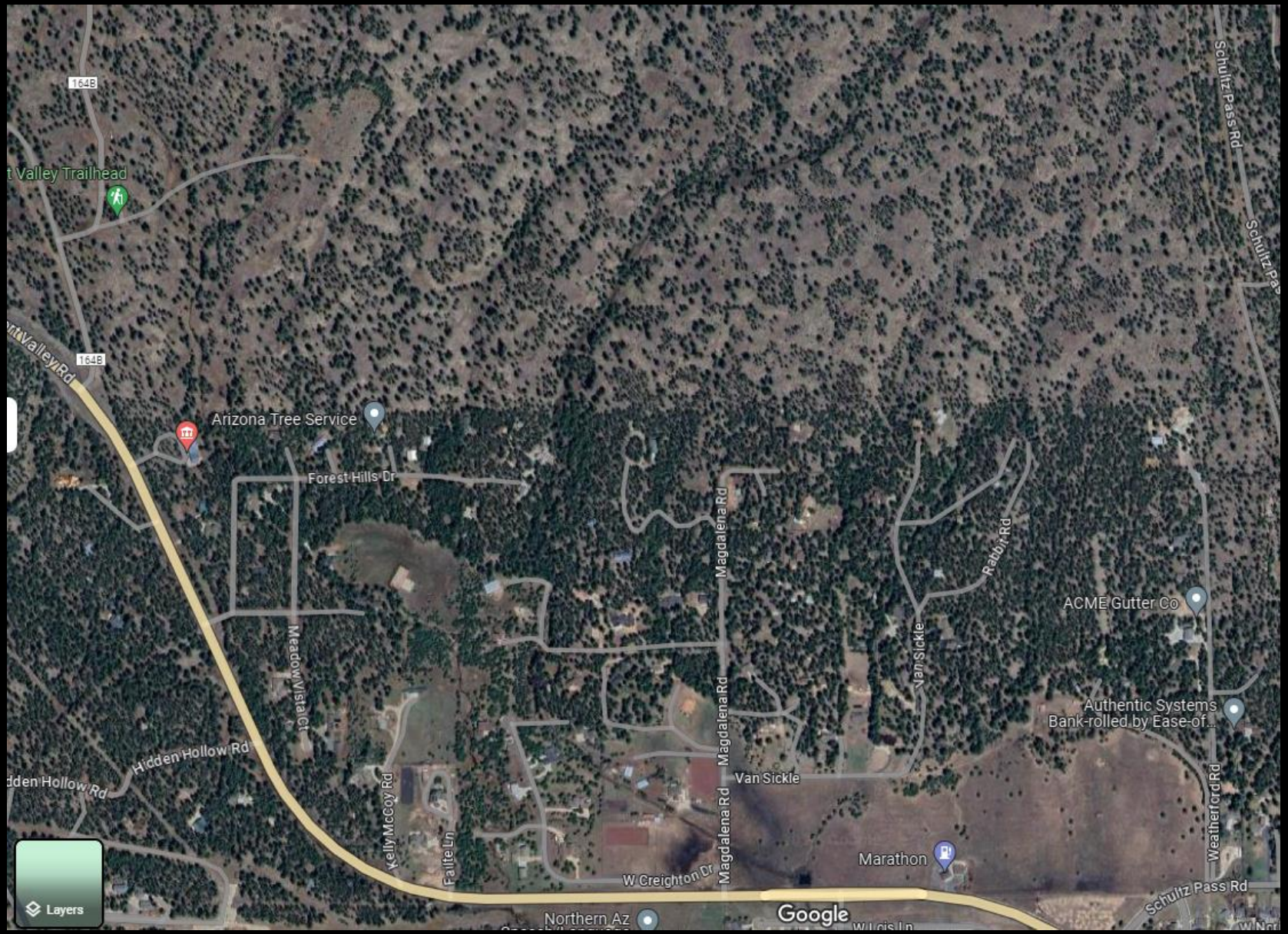
Fire-scar data from specimens 2 and 3, only 20 feet (6 m) apart, show why a single tree does not necessarily reveal the true fire interval for a particular area. Whereas tree 2 had an average interval of 7.6 years for 18 fires, and tree 3 had an interval of 5.9 years for 16 fires, the CFI is 5.3 years based on 11 fires that were common to both trees and 12 fires that affected one specimen and not the other.

Discussion

Two factor
extremely sh
site: (1) the presence of reliable ignition sources (lightning

Where is the uncontrollable wildfire risk?

Where is the uncontrollable wildfire risk?



The key questions

Understanding the relationship between wildfire risk modeling, data, and insurer decisions

- Why is wildfire risk so hard to measure?
- Why is measuring the impact of mitigation even harder?
- What will it take to close the gap between

  effective risk reduction actions by homeowners and communities

  and

  ***information visible to and useable by insurers for pricing and underwriting*?**

Best Available Science Guides Our Mitigation Efforts

Flagstaff City Codes

Building, WUI, Resource Protection Standards, Landscaping

Home Ignition Zone, Home and Business Hardening

National Fire Protection Association Firewise USA

Insurance Institute for Business and Home Safety

National Institute of Standards and Technology

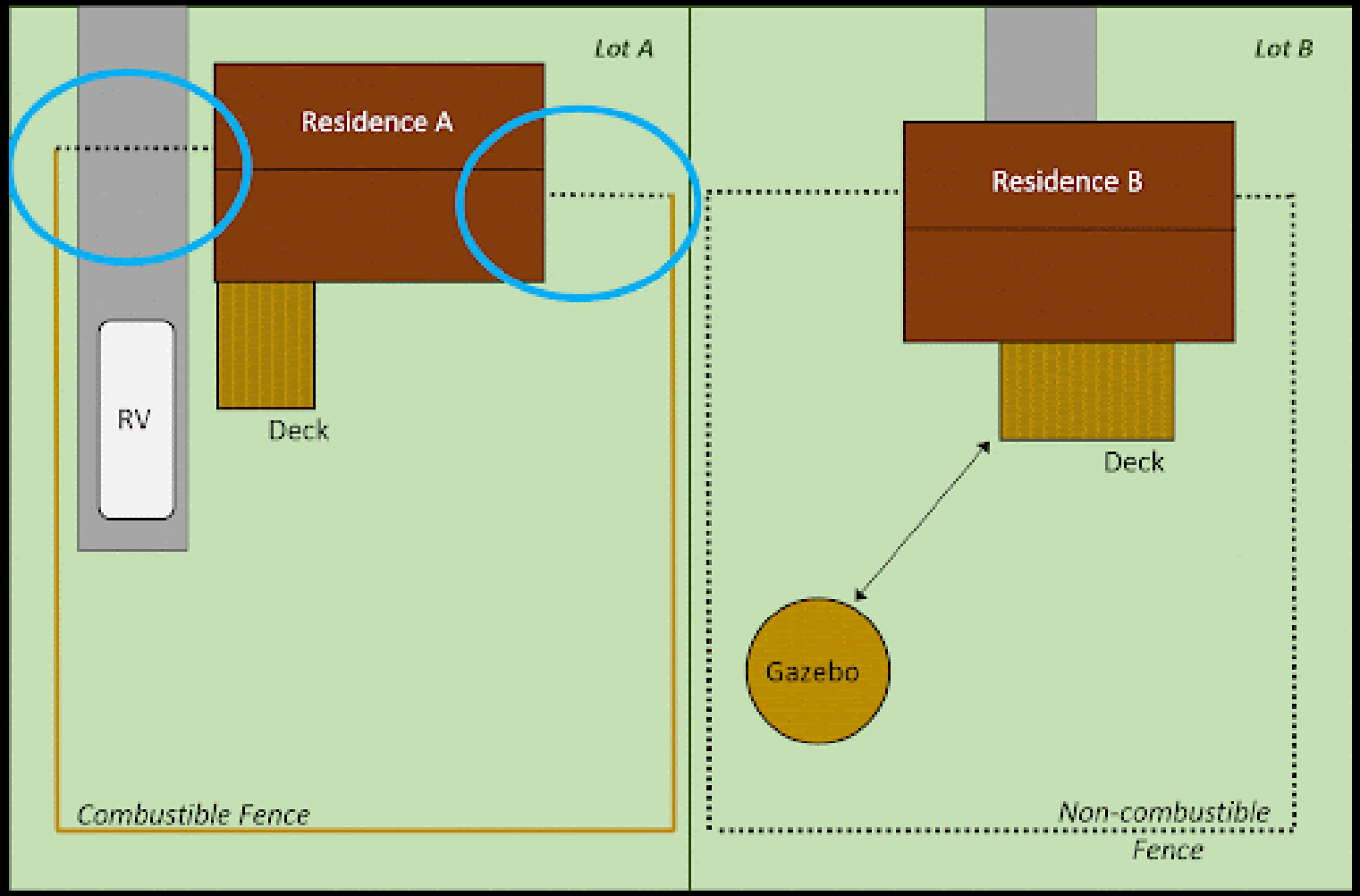
Natural & Built Environment Fire Pathways

Structure Fire Spread & Vulnerability Model

HAZARD MITIGATION METHODOLOGY (HMM)

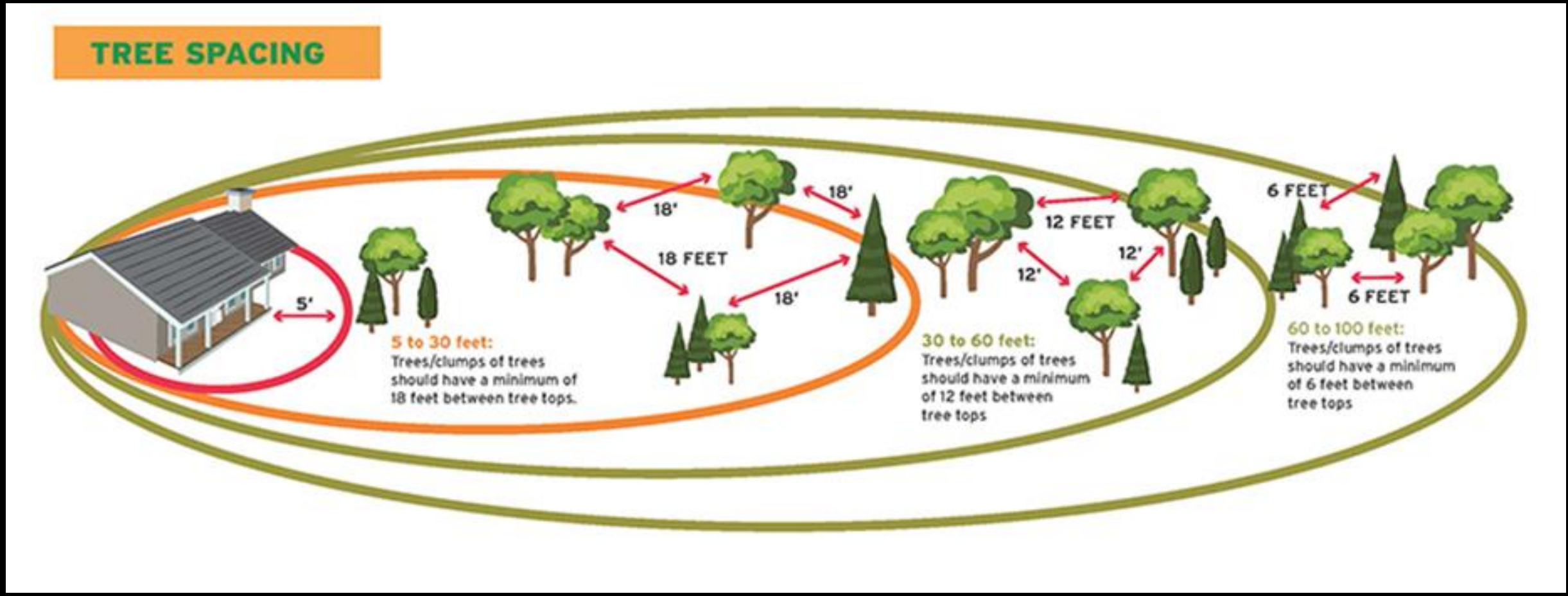
- Exposures During WUI Fires
- HMM vs Traditional Hazard Mitigation
- WUI Definitions
- Structure Survivability in the WUI
- Community Survivability in the WUI
- Paths forward: Implementing HMM
- Communities already implementing HMM
- How Fire Spreads in the WUI
- Community-Wide Structure- and Parcel-Level Hardening Actions
- Hardening Actions: Construction Guidance

NIST NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE



Built Environment Desired Conditions

National Fire Protection Association Firewise USA Standards



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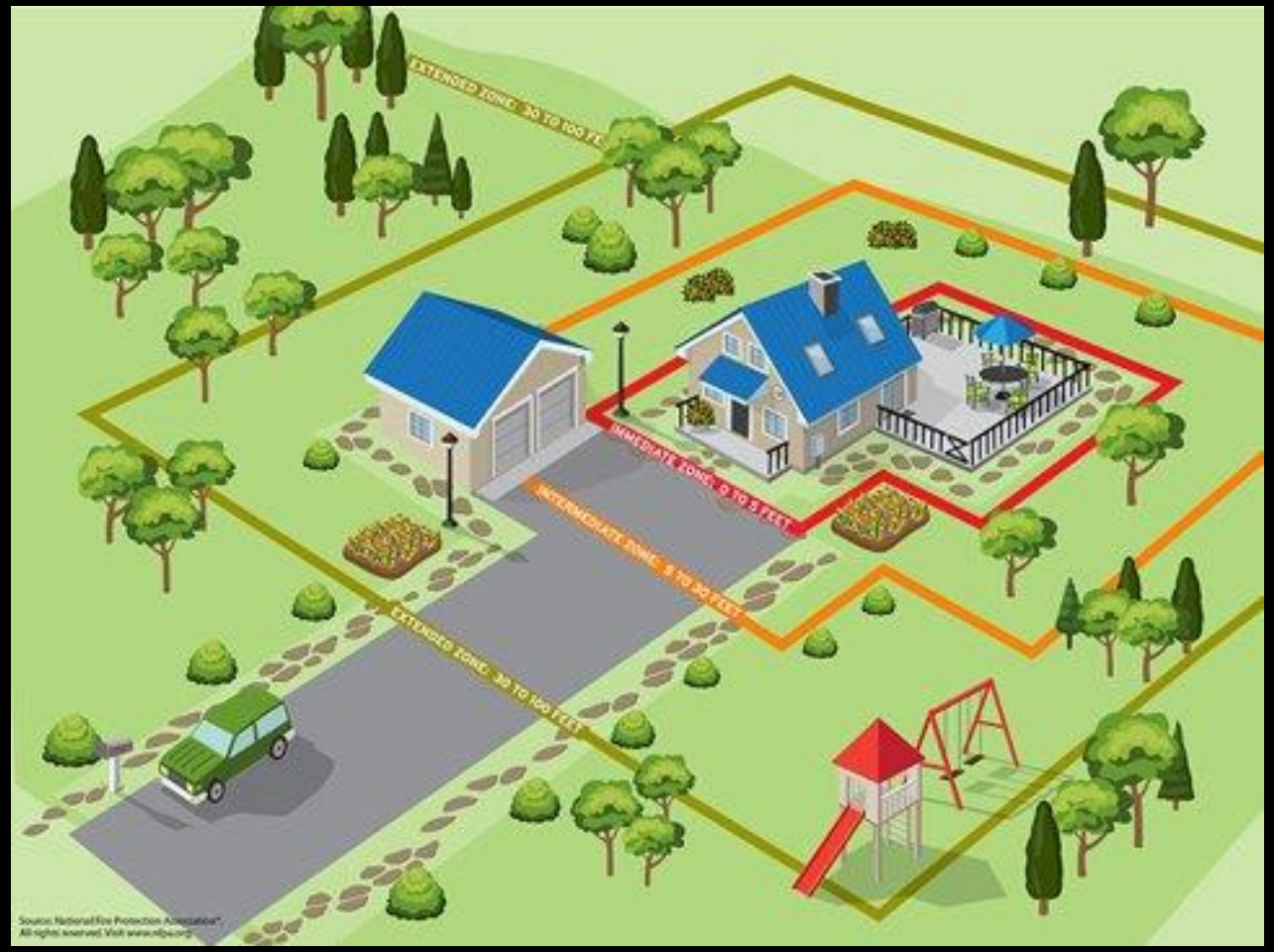
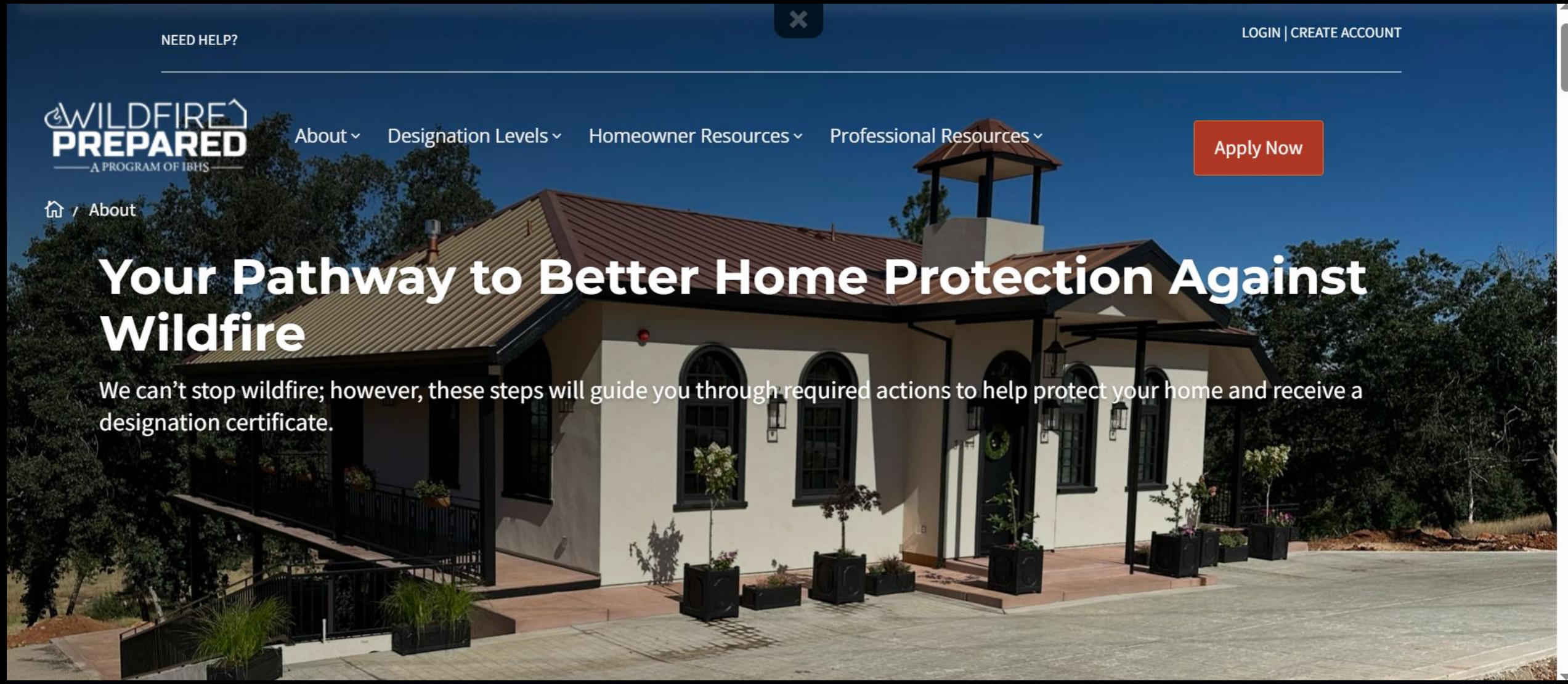
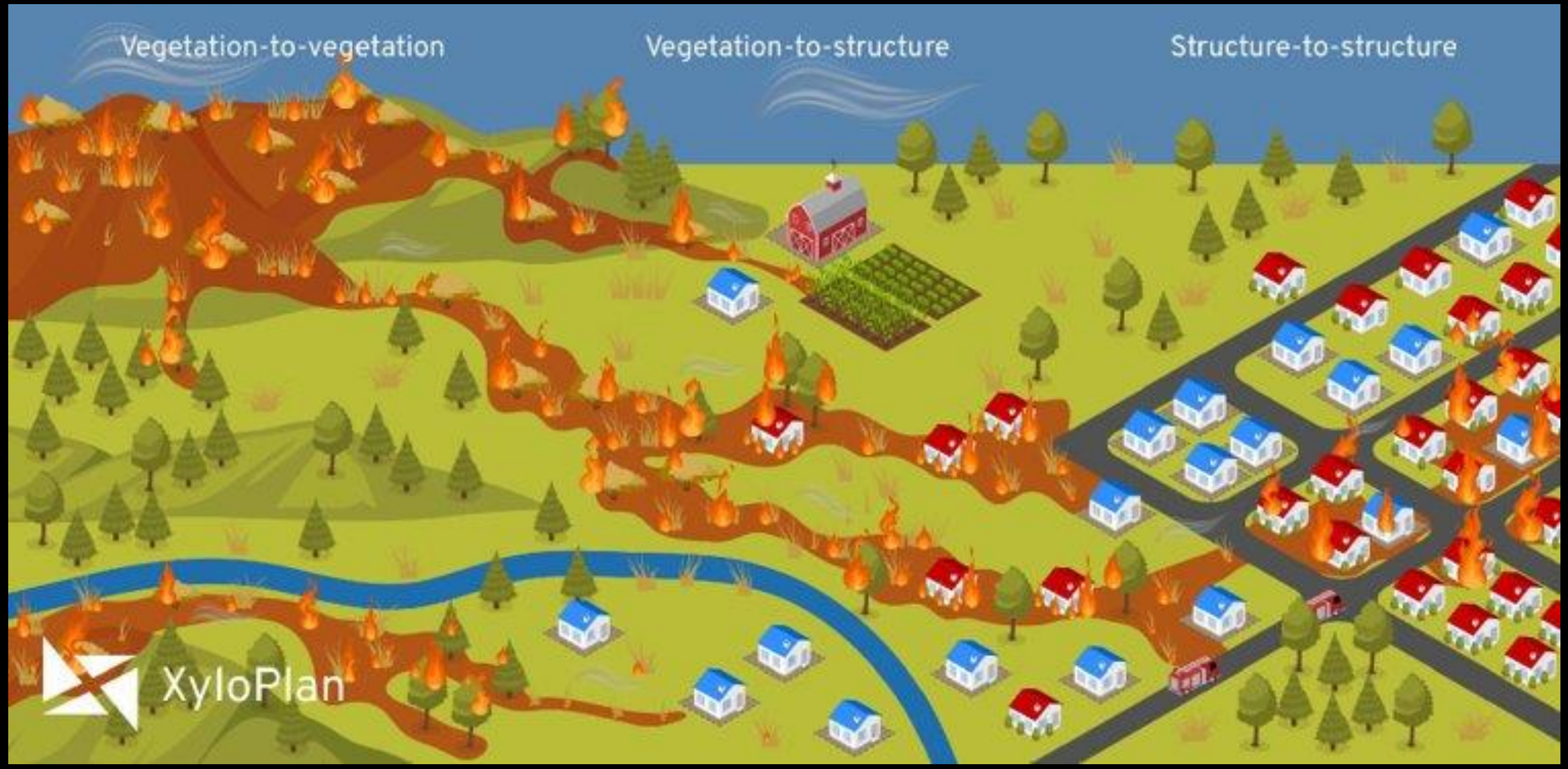


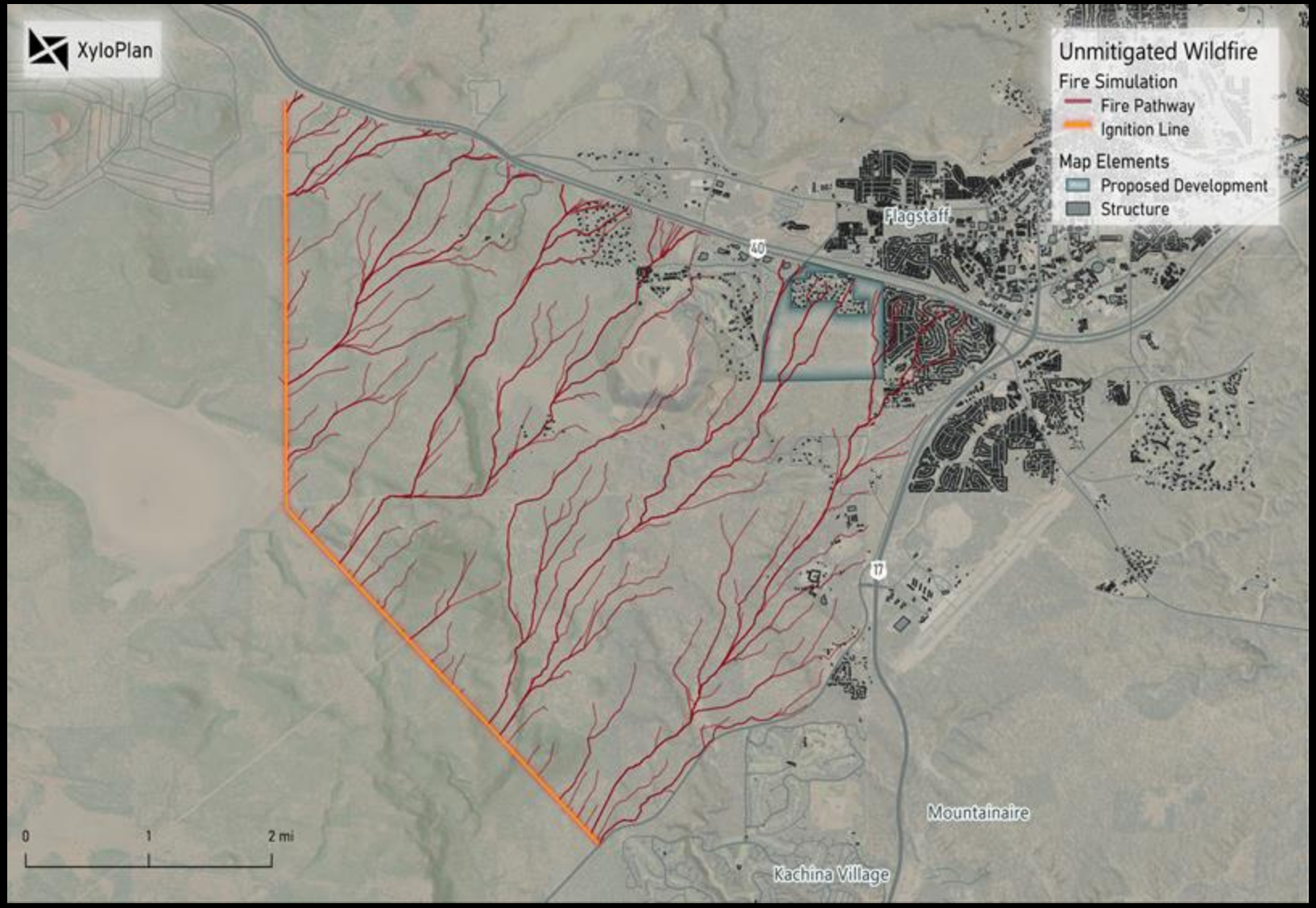
Insurance Institute for Business and Home Safety Wildfire Prepared Home and Neighborhood

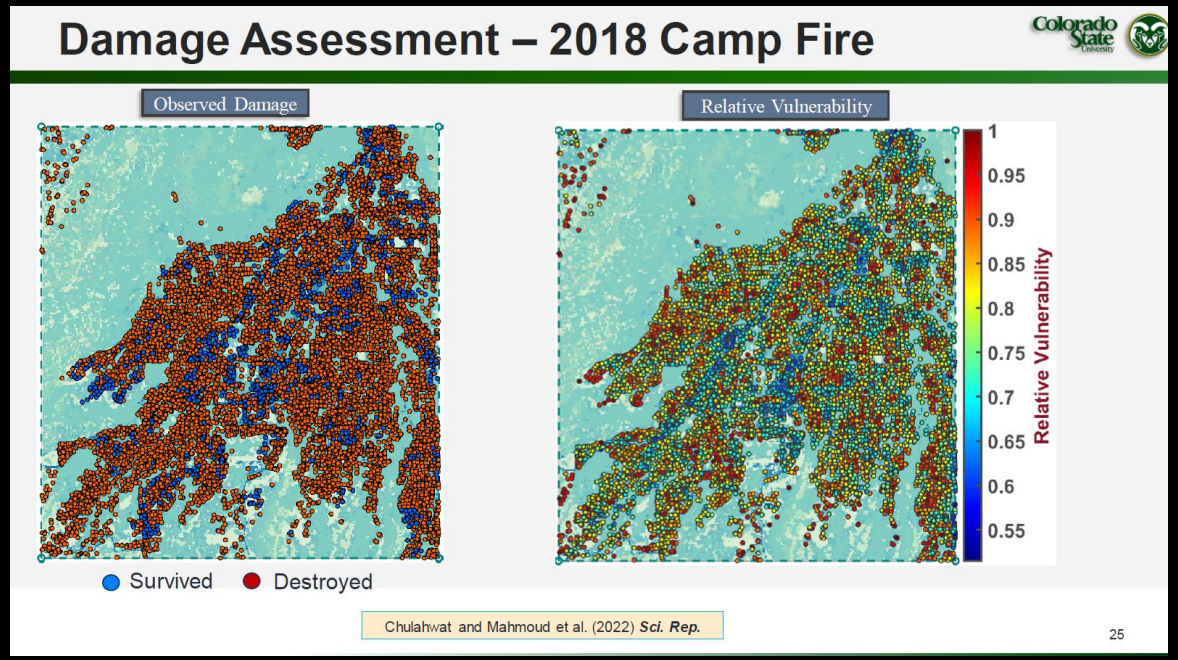


Three types of Fire Spread Pathways



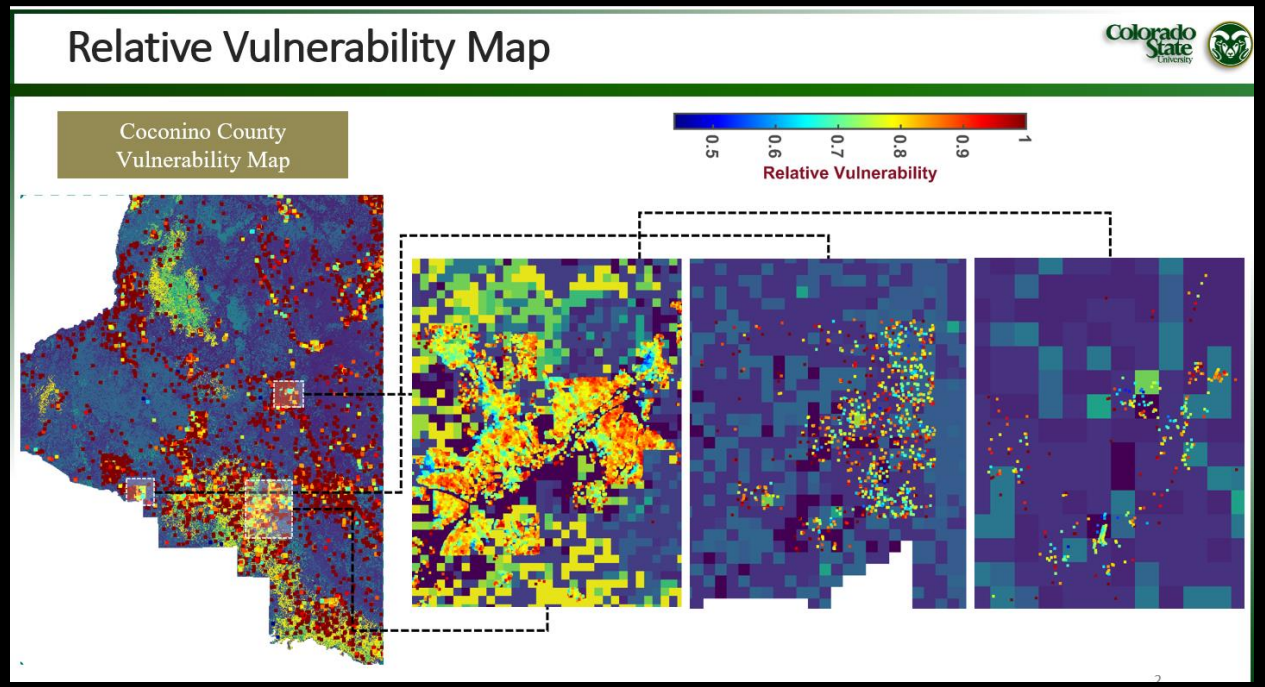
Local Fire Spread Pathways





Structure Vulnerability Models

Avoid Random Acts of Mitigation



FFD Current Efforts

Updates planned for:

- International Code Council Building Code (ICC)
- International Wildland Urban Interface Code (IWUIC)
- Resource Protection Standards
- Landscaping

Inspection Software: WUUII

AZ DIFI

Western Fire Chiefs

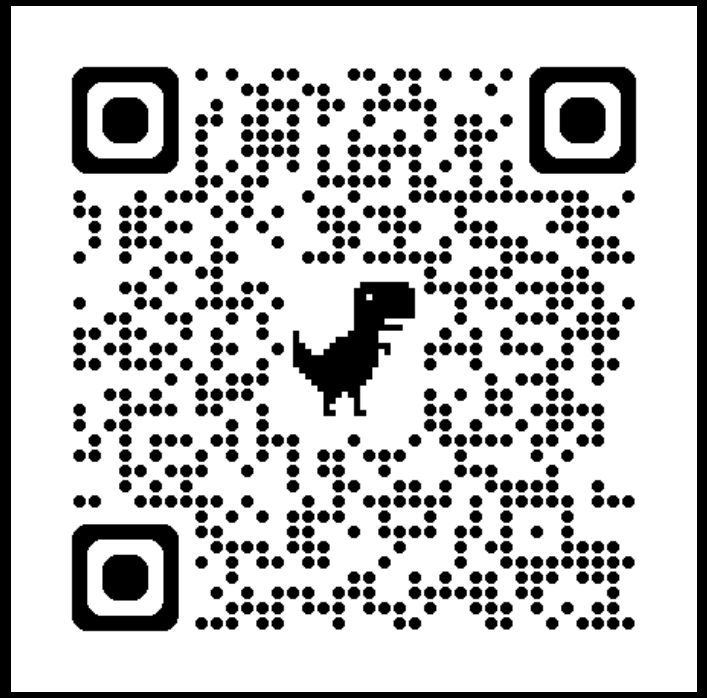
Local, State, and National Policy Collaboratives

AZ Department of Insurance and Financial Institutions Resiliency and Mitigation Council

Investigate the availability and affordability of homeowners insurance in forested areas and wildland-urban interface areas of Arizona

Investigate the impact that natural disasters have on the availability and affordability of homeowners insurance in these areas

Investigate strategies that local communities in these areas may adopt to mitigate the risk of property loss due to natural disasters



Western Fire Chiefs Assocation
Multi-State WUI Mitigation Alignment Project
with Arizona Fire Chiefs Association

Five Enabling Tasks:

- Core set of “mitigations-that-matter”
- Structure to structure spread modeling with structures as a new and distinct fuel type
- WUI Response rating
- WUI data commons
- Barriers to social support for implementation and maintenance of parcel level mitigations

What Action is Needed?

- **National Policy**
  - Unprecedented investments in the Built Environment
    - WFMMC Recommendation #1: Fire Environment Center (FOFA)
    - WFMMC Recommendation #56: US Fire Administration Expansion
  - **<u>Support Beneficial Wildfire across Federal Lands</u>**
    - 700K acres across 4FRI since 2010
    - AZ: 74% of all wildfire 2010 – 2020 = Good Fire (Balch, Jennifer & McIntosh, Tyler & Ilangakoon, Nayani & Cummins, Karen & Varner, J. & Hansen, Winslow & Marquis, Kate & Raymond, Crystal & Harvey, Brian & Platt, Rutherford. (2024). Good fire: quantifying the beneficial ecosystem work of western U.S. wildfires (2010-2020). 10.1101/2024.12.06.627082.)

What Action is Needed?

- **State Policy – ENABLE RISK REDUCTION**
  - Mitigations that Matter
  - Avoid policy that disrupts insurance markets

- **Local action – BE PROACTIVE!!**
  - CWPP's that Matter
  - Codes – WUI, Development, Vegetation, HVAC
  - LOTS more beneficial fire
  - LOTS more smoke mitigation investments (hepa filters for all!)
  - Create opportunities to test "Alternative Risk Transfer Approaches"

Resilient Landscapes
Fire Adapted Communities
Safe & Effective Wildfire Response

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