RESOURCE GUIDE #1

Wildfire – Research, Science & Key Organizations

A number of organizations provide key wildfire information for local governments to use to support their wildfire planning and programs. This guide is organized as a directory of key wildfire organizations, with links to specific materials that may be helpful for planning efforts. The guide includes four sections: (1) national wildfire organizations, (2) California wildfire organizations, (3) community-based wildfire organizations and (4) current key research documents.

SECTION 1: NATIONAL WILDFIRE ORGANIZATIONS

National Fire Protection Association (NFPA)

800.344.3555; www.nfpa.org

The National Fire Protection Association (NFPA) is a global self-funded nonprofit organization, established in 1896, devoted to eliminating death, injury, property and economic loss due to fire and related hazards. NFPA delivers information and knowledge through consensus codes and standards, research, training, education, outreach and advocacy. NFPA also is the sponsor and manager of the Firewise Communities Program (see *Community Wildfire Preparedness* later in this Guide).

- ✓ Virtual Workshops provide conference quality, free learning opportunities for wildfire stakeholders, by connecting them with leading researchers and practitioners in a live interactive format. Each session is an hour-long and features a wildfire related topic that closes with questions from participants.

Insurance Institute for Business & Home Safety

803.789.8000; www.ibhs.org/

IBHS is a team of scientists and risk communicators who deliver strategies to build safer and stronger homes and businesses. IBHS is an independent, nonprofit, scientific research and communications organization supported solely by property and casualty insurers and reinsurers that conduct business in the U.S. IBHS has a state-of-the-art research facility and is the only lab in the world that can test full-scale residential and commercial buildings in a controlled, repeatable fashion for highly realistic windstorms, hailstorms and wildfire ember storms. IBHS has extensive practical risk research on their site regarding wildfires and sponsors, DisasterSafety.org, which features projects to help home and business owners protect their property from damage caused by wildfire and other hazards.

IBHS Research Center

Headwaters Economics

406.599.7841; www.headwaterseconomics.org

Headwaters Economics (HE) is an independent, nonprofit research group that works to improve community development and land management decisions. Headwaters Economics informs community decision-making and identifies practical solutions by making complex data understandable, beautiful, and interactive, helping develop solutions to some of the most urgent and important issues that communities face. The organization works in partnership with USDA Forest Service, ISHS, and others.

- ✓ Wildfire Risk to Communities: *Wildfire Risk to Communities* is a free, easy-to-use website with interactive maps, charts, and resources to help communities explore and reduce wildfire risk.

- ✓ Reduce Risk with one-stop shopping tools, resource, and national programs. Information on home ignition zone, home hardening, land use planning, wildfire preparedness, community health, wildfire prevention, wildfire response, fuel treatments and post-fire recovery.

Community Planning Assistance for Wildfire

406.224.1837; https://cpaw.headwaterseconomics.org

Sponsored by Headwaters Economics, Community Planning Assistance for Wildfire (CPAW) works with communities to reduce wildfire risk. CPAW's team of professional planners, foresters, economists, and risk modelers help communities integrate wildfire mitigation into the development planning process. CPAW services are provided at no cost to the community, and include land use planning recommendations, hazard assessments, capacity building, custom research, and training. Their website includes case studies, explanatory wildfire videos, and research reports.

Fire Adapted Communities Learning Network

www.fireadaptednetwork.org

The Fire Adapted Communities Learning Network connects and supports people and communities who are striving to live more safely with wildfire. The purpose of FAC Net is to be a peer network to exchange information, collaborate to enhance the practice of fire adaptation, and work together and at multiple scales to help communities live safely with fire. They offer a Fire Adapted Communities Self-Assessment Tool (FAC SAT) to help communities assess their level of fire adaptation and track their capacity to live safely with fire over time.

Other National Organizations:

- *National Interagency Fire Center* – Home to the national fire management programs of each federal fire agency, along with partners including the National Association of State Foresters, the U.S. Fire Administration, the National Weather Service and a Department of Defense liaison. Working together, these partners provide leadership, policy oversight and coordination to manage the nation's wildland fire programs, including to coordinate fire incident information and research. [www.nifc.gov]
- *International Association of Wildland Firefighters (IAWF)* – Provide lessons learned with wildland firefighters and share research and after action information. [www.iawfonline.org]

SECTION 2: STATE WILDFIRE ORGANIZATIONS

CAL FIRE

www.readyforwildfire.org

CAL FIRE, the Department of Forestry and Fire Protection, is responsible for the fire protection and stewardship of over 31 million acres of California's privately-owned wildlands. In addition, the Department provides varied emergency services in 36 of the State's 58 counties via contracts with local governments. CAL FIRE has excellent public information available on its web site.

CAL FIRE is required to classify the severity of fire hazards in areas of California. The Fire Hazard Severity Zones are developed using a science-based and field-tested model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather.

CAL FIRE designates all State Responsibility Areas (SRA) as moderate, high or very high hazard. CAL FIRE maps only very high hazard in Local Responsible Areas (LRAs). Federal Responsible Areas are not mapped by CAL

FIRE. Urban and wildland areas are treated differently in the model, but the model does recognize the influence of burning embers traveling into urban areas, which is a major cause of fire spread.

Determine the fire hazard in my area? You can enter your address to locate your property on a Fire Hazard Severity Zone map. An existing statewide map and maps of each county with FHSZ are also posted.

California Fire Science Consortium (CFSC)

www.cafiresci.org

The California Fire Science Consortium is a network of scientists and managers that accelerates the awareness, understanding, and adoption of wildland fire science information by federal, tribal, state, local, and private stakeholders within ecologically similar regions. Their mission is to be an inclusive, neutral, customer-driven collaborative group that facilitates the flow of fire science information and dialogue. The CFSC is divided into 4 regional teams and one statewide wildland-urban interface team. Statewide coordination is through UC Berkeley. Visit the Northern California pages for regional fire science resources.

Other State Organizations:

- In California, the UCCE - University of California Cooperative Extension, in each county, is an important resource with many participating in local wildfire initiatives. [www.ucanr.edu/sites/fire]

SECTION 3: COMMUNITY WILDFIRE PREPAREDNESS ORGANIZATIONS

Community grass roots and neighborhood preparation is a foundational element of wildfire preparedness. There are two primary types of community-based organizations in California focused on residents working together to strengthen the resiliency of their neighborhoods and to create fire adapted communities – Firewise Communities and Fire Safe Councils. These organizations work together routinely.

FIREWISE COMMUNITIES

- National organization
- Tend to be informal neighborhood groups; some may be formal non-profits
- Typically focus on defensible space and home hardening
- Provide a national certification program and recognition but have no direct funding or grants

FIRE SAFE COUNCILS

- California based organization
- Tend to be formal local non-profits; may be neighborhood based, larger or county-wide
- Focus on defensible space, home hardening, emergency planning, education and evacuations
- California Fire Safe Council provides access to grants from state and federal agencies -- works as a coordinating organization.

FIREWISE COMMUNITIES

www.firewise.org

A national program managed by the National Fire Protection Association that provides a collaborative easy framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.

CALIFORNIA FIRE SAFE COUNCIL

www.cafiresafecouncil.org

The California Fire Safe Council (CFSC), a California non-profit corporation, was first formed as a project of CAL FIRE in 1993. Today, CFSC maintains an online, "one-stop shop," grant clearinghouse mainly for the four primary federal agencies: the USDA, Forest Service and the Department of the Interior agencies the Bureau of Land Management, National Park Service, and Fish & Wildlife Service. These agencies provide large master grants to CFSC to conduct, select, manage and monitor subgrants to local community groups such as Fire Safe Councils, homeowner associations, local government, fire departments, and other entities working on wildfire prevention activities such as defensible space, community fire planning, and education. See map of existing Councils and Fire Safe Council Handbook on how to start a local Fire Safe Council.

SECTION 4: CURRENT KEY RESEARCH

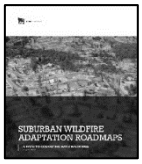
Reducing the Vulnerability of Buildings to Wildfire: Vegetation and Landscaping Guidance (UC 2021)

https://anrcatalog.ucanr.edu/pdf/8695.pdf

Research shows that a home's odds of surviving a wildfire can be substantially improved through careful attention to three principles: (1) thoughtful landscape design aimed at reducing and separating combustibles within the defensible space on a property, (2) retrofitting homes to resist wildfire, and (3) implementing ongoing maintenance of the home and landscaping to reduce combustible materials and to address the wear and tear. This publication explains how buildings burn during a wildfire and what actions homeowners can take in advance to increase their home's odds of survival. *(Authors: Yana Valachovic, Stephen Quarles, Steven Swain)*

Suburban Wildfire Adaptation Roadmaps (IBHS 2020)

https://ibhs.org/wp-content/uploads/wpmembers/files/ibhs-suburban-wildfire-adaptation-roadmaps.pdf



IBHS has identified key vulnerabilities for suburban neighborhoods; these insights build on findings published by the fire protection community and the best experimental and field research to date. The Suburban Wildfire Adaptation Roadmaps provide decision trees that show the range of possibilities and what to avoid. When put into action by homeowners, and ultimately whole communities, the risk curve can be bent downward and limit the catastrophic reach of wildfires. The Suburban Wildfire Adaptation Roadmaps informed the Wildfire Ready guide. The guide provides details about projects homeowners can perform that will reduce their wildfire risk.

Community Destruction During Extreme Fires is a Home Ignition Problem (2020)

https://wildfiretoday.com/2020/09/21/community-destruction-during-extreme-wildfires-is-a-home-ignition-problem/

Focus is on how high intensity flames aren't igniting homes, but embers and low intensity surface fires are. Outlines how we need to shift our mind-set to focusing on "home ignition" solutions versus full fire suppression. *(Authors: Jack Cohen, Dave Strohmaier; Article, Wildfire News & Opinion, 9/21/20)*

Planning the Wildland-Urban Interface - APA (2019)

https://www.planning.org/publications/report/9174069/

The report offers planners an in-depth introduction to the WUI and wildfire basics, covering challenges, trends, and historical context along with the latest wildfire science. It then moves to solutions, providing a holistic planning framework and practical guidance on how to address WUI and wildfire challenges in plans, policies, and regulations. And it highlights opportunities for collaboration and case study examples. *(Authors: Molly Mowery, AICP, Anna Read, AICP, Kelly Johnston, Tareq Wafaie, AICP)*

An Analysis of Wildland-Urban Fire with Implications for Preventing Structure Ignitions (2018)

https://legacy-assets.eenews.net/open_files/assets/2019/01/08/document_gw_02.pdf

Research shows that the characteristics of a structure and its immediate surroundings within 30 meters principally determine structure ignitions – the home ignition zone. The research shifts the focus of the wildland-urban interface (WUI) from controlling inevitable wildfires to a structure ignition problem. *(Author: Jack Cohen, PhD, US Forest Service, retired)*

Land Use Planning to Reduce Wildfire Risk (2016)

https://headwaterseconomics.org/wp-content/uploads/Planning_Lessons_Full_Report_Web.pdf

This report profiles how five cities and counties in the region—including Austin, Texas, Boulder, Colorado, Flagstaff, Arizona, San Diego, California, and Santa Fe, New Mexico —are adapting to the increasing risks of wildfires through improved land use planning. While each case study demonstrates a unique approach toward wildfire mitigation, together they represent a suite of land use planning strategies (Summary Table) that can be selectively applied elsewhere. *(Author: Headwaters Economics, Ray Rasker, Kimiko Barrett)*

Home Survival in Wildfire-Prone Areas: Building Materials and Design Considerations (2010)

https://anrcatalog.ucanr.edu/pdf/8393.pdf

A wildfire-safe home must be ember ignition-resistance. A combination of near-home vegetation management, appropriate building materials, and related design features must all be used as a system to help a home survive a wildfire. Practical science-based recommendations on roof covering and roof edge, eaves and overhangs, windows, decks, exterior siding, plus fire-retardant treatments and coatings. *(Authors: Stephen Quarles, Yana Yalachovic, Gary Nakamura, Glenn Nader, Michael de Lasaux)*

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