

Wildfire Resilience Resources

Thank you for joining us in the Deep Dive Session entitled *Resilience Planning and Implementation – Adaptation Measures for Wildfire Hazards*. We hope the introductory information and concepts related to Wildfire Hazard/Risk Assessments, Planning, Risk Mitigation, Response, and Recovery was insightful and thought-provoking. We knew our time would be too limited to deliver the level of detail we desired in discussing the abundance of tools and resources that are available to decision-makers, installation and community planners, and land managers. Please use the links, references, resources, and tools provided here to learn more, identify potential partners, and pursue informed wildfire resilience actions at your installation. This list is by no means exhaustive and if you have any additional questions or requests, please contact us: DoD Wildland Fire Management

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Wildfire Hazard and Risk Assessment		
Resource	Description	
Defense Climate Adaptation Tool	A CAC-enabled collection of scientific climate data to support research, analysis, and decision making about exposure to historical extreme weather and reasonably foreseeable climate effects.	
DoD Legacy Resource Management Program: DoD Wildfire Hazard Assessment (March 2021)	DoD-wide wildfire hazard assessment methodology and results for High, Moderate, or Low wildfire hazard based on fire history and other modeled values.	
Firesheds and the Fireshed Registry US Forest Service Research and Development (usda.gov)	Firesheds are a way to delineate where fires ignite and are likely to, or not to spread to communities and expose buildings. The fireshed map shows the source of exposure to fire.	
USFS Wildfire Risk to Communities	Wildfire Risk to Communities is a free, easy-to-use website with interactive maps, charts, and resources to help communities understand, explore, and reduce wildfire risk.	
The Wildfire Hazard and Risk Assessment Inventory U.S. Geological Survey (usgs.gov)	DOI-USGS Wildfire Hazard and Risk Assessment provides and inventory of key national, regional, and state wildfire risk and fire hazard assessments useful for understanding different characterizations of fire risk.	
Northeast-Midwest Wildfire Risk Assessment Portal (northeastmidwestwildfirerisk.com)	The Northeast-Midwest Wildfire Risk Assessment Portal consists of a variety of data, user-friendly applications and planning tools that can be used to help prioritize areas in a federal, state, tribal, community, local jurisdiction or landscape where tactical analyses, community interaction and education, or mitigation treatments that might be necessary to reduce risk from wildfires.	





Wildland Fire Planning	
Resource	Description
Interagency Standards for Fire and Fire Aviation Operations National Interagency Fire Center (nifc.gov)	Also known as the "Red Book" this document provides direction for DOI and USDA fire and fire aviation managers. Chapter 1 provides a policy and guidance overview of federal fire programs, and chapter 9 provides guidance and direction related to fire management planning.
NFPA 1140: Standard for Wildland Fire Protection	The National Fire Protection Association (NFPA) 1140, Standard for Wildland Fire Protection, is a consolidation of four previous NFPA standards: NFPA 1051, Standard for Wildland Firefighting Personnel Professional Qualifications; NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas; NFPA 1143, Standard for Wildland Fire Management; and NFPA 1144, Standard for Reducing Structure Ignition Hazards from Wildland Fire.
The Path to Strategic Wildland Fire Management Planning - International Association of Wildland Fire (iawfonline.org)	An emerging concept is strategic wildland fire management planning (SWFMP), focusing on preseason, fire season, and postseason planning and implementation to aid fire managers, decision makers, and operations to be more successful and safer.
Community Wildfire Protection Plan (CWPP) - Leaders Guide (iafc.org)	This is a guide to help develop and implement a Community Wildfire Preparedness Plan in communities and across the country. It has a local, community-level approach to code, development review, ordinances and local authority, and is used by leaders in the fire service, including SMEs and local, state and federal officials. With this guide, fire service leaders will be able take the steps to create a CWPP that addresses community risk of wildfire with respect to other resource values.
National Cohesive Wildland Fire Management Strategy (forestsandrangelands.gov)	The National Cohesive Wildland Fire Management Strategy is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress towards the three goals: Resilient Landscapes; Fire Adapted Communities; Safe and Effective Wildfire Response.
Development and Implementation of Targeted Training Resources for Wildland Fire Operations on Military Lands (osd.mil)	Installation fire management programs face unique challenges and complexities for both wildfire suppression and prescribed fire operations in the planning and response phases, standardization of training and equipment, and integration with the greater fire management community and surrounding landowners.



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Wildland Fire Planning (continued)	
Resource	Description
LANDFIRE Program: Home	LANDFIRE (LF), Landscape Fire and Resource Management Planning Tools, is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior, providing landscape scale geo- spatial products to support cross-boundary planning, management, and operations.
Models SO Fire Exchange (southernfireexchange.org)	The Southern Fire Exchange is a regional wildland fire science communication program and a member of the national Fire Science Exchange Network, funded by the Joint Fire Science Program.
NWCG Standards for Prescribed Fire Planning and Implementation NWCG	The NWCG Standards for Prescribed Fire Planning and Implementation establishes national interagency standards for the planning and implementation of prescribed fire. NWCG operations standards are interagency by design; they are developed with the intent of universal adoption by the member agencies.
NWCG Smoke Management Guide for Prescribed Fire NWCG	The NWCG Smoke Management Guide for Prescribed Fire contains information on prescribed fire smoke management techniques, air quality regulations, smoke monitoring, modeling, communication, public perception of prescribed fire and smoke, climate change, practical meteorological approaches, and smoke tools.
Wildfires Landing Page AirNow.gov	AirNow is your one-stop source for air quality data. AirNow reports air quality using the official U.S. Air Quality Index (AQI), a color-coded index designed to communicate whether air quality is healthy or unhealthy for you. When you know the AQI in your area, you can take steps to protect your health.
Reviewing National Ambient Air Quality Standards (NAAQS): Scientific and Technical Information US EPA	The Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants that are common in outdoor air, considered harmful to public health and the environment, and that come from numerous and diverse sources This website provides scientific and technical information about the current or prior review of the NAAQS for each of the six criteria pollutants.
Wildland Fire Resources – Natural Resources (osd.mil)	Visit this site for examples of Integrated Wildland Fire Management plans, and wildfire risk assessments conducted for DoD installations and components.





Mitigating Wildfire Risk	
Resource	Description
Ready, Set, Go! Program (iafc.org)	The Ready, Set, Go! (RSG) Program seeks to empower fire departments to engage the residents they serve in wildland fire community risk reduction. The RSG! Program provides tools and resources for fire departments to use as they help residents gain an understanding of their wildland fire risk and actions individuals can take to reduce that risk.
National Fire Protection Association (NFPA) - Firewise USA®	A growing number of people are living where wildfires are a real risk. While these fires will continue to happen, there are things you can do to protect your home and neighborhood as well as your family's safety. NFPA® has found that in many cases of home destruction during wildfires, the homes were more flammable than the surrounding brush and trees. Firewise USA is a public outreach and education program geared toward structure risk mitigation.
Wildfire Evacuation Outreach Materials (fema.gov)	Fire departments across the country are increasingly being called upon to respond to Wildland Urban Interface (WUI) fires., You may believe that you don't have a WUI problem, and that WUI fires only occur in western states, but more than 60,000 communities in the United States are at risk for WUI fires.
Fire Adapted Communities Learning Network FACNET (fireadaptednetwork.org)	People learning and working together are the foundation of fire adaptation. FAC Net invests in people and in place-based efforts to change relationships with fire. Together, we empower leaders, resource strategic action, develop tools, and create and share approaches to increase wildfire resilience. Improving fire management requires changing our culture, and FAC Net members are leading that change.
NWCG Standards for Mitigation in the Wildland Urban Interface NWCG	The NWCG Standards for Mitigation in the Wildland Urban Interface establishes the standards for understanding and implementation of concepts, issues, and best practices to increase community fire adaptation.





Mitigating Wildfire Risk (continued)	
Resource	Description
2021 International Wildland-Urban Interface Code (IWUIC) (iccsafe.org)	Contains provisions addressing fire spread, accessibility, defensible space, water supply and more for buildings constructed near wildland areas.
Community Mitigation Assistance Team US Forest Service (usda.gov)	CMAT is a national interagency resource designed to help communities build sustainable local capacity for community wildfire mitigation during high-risk times before, during and after a wildfire when awareness for risk reduction and the likelihood of action is highest.
Hazardous Fuel Management - Wildfire Risk to Communities	This website provides a list of resources related to hazardous fuels management. Fuel treatments are most effective when multiple strategies are combined to disrupt the potential for a wildfire to spread and intensify. Fuel management complements other wildfire mitigation strategies, such as managing vegetation around homes to reduce risks to people and homes.
Living With Fire (LWF)	LWF is a collaborative effort among federal, state, local firefighting agencies, and resource management agencies. LWF is managed by University of Nevada Reno, Extension. LWF provides resources to homeowners, educators, community groups and firefighting professionals to improve defensible space, ensure homes have proper building materials, manage native and nonnative vegetation, and prepare for evacuation.
Community Wildfire Mitigation Best Practices Toolbox – Coalitions & Collaboratives, Inc. (co-co.org)	The Community Wildfire Mitigation Best Practices toolbox is a collection of resources, research papers, templates, forms, articles, and examples that highlight Community Wildfire Mitigation Best Practices (CWMBPs).
Suburban Wildfire Adaptation Roadmaps – Insurance Institute for Business & Home Safety (ibhs.org)	The Suburban Wildfire Adaptation Roadmaps provide decision trees for homes and businesses that show the range of possibilities and what to avoid. When put into action by homeowners, business owners, and ultimately whole communities, the risk curve can be bent downward and limit the catastrophic reach of wildfires.
Roadway Vegetation Management: A CRR tool for the WUI (iafc.org)	This article explains the importance of road corridor management, based on a National Institute of Standards and Technology (NIST) study of the Camp Fire.



Mitigating Wildfire Risk (continued)	
Resource	Description
2021 International Wildland-Urban Interface Code (IWUIC) (iccsafe.org)	Contains provisions addressing fire spread, accessibility, defensible space, water supply and more for buildings constructed near wildland areas.





Wildfire Response	
Resource	Description
Welcome to the Nation's Logistical Support Center National Interagency Fire Center (NIFC) (nifc.gov)	The National Interagency Fire Center (NIFC), located in Boise, Idaho, is the nation's support center for wildland firefighting. Eight different agencies and organizations are part of NIFC. Decisions are made using the interagency cooperation concept because NIFC has no single director or manager. NIFC's website covers many interagency coordination efforts related to wildland fire management and wildfire response.
Interagency Standards for Fire and Fire Aviation Operations National Interagency Fire Center (nifc.gov)	Also known as the "Red Book" this document provides direction for DOI and USDA fire and fire aviation managers. Chapter 1 provides a policy and guidance overview of federal fire programs, chapters 2-6 are agency specific, with chapters 7-19 focused on standards for interagency operations.
InciWeb the Incident Information System (nwcg.gov)	InciWeb is an interagency all-risk incident information management system. The system was developed with two primary missions: 1.) Provide the public a single source of incident related information; 2.) Provide a standardized reporting tool for the Public Affairs community.
National Interagency Coordination Center (NICC) (nifc.gov)	The National Interagency Coordination Center (NICC) serves as the focal point for coordinating the mobilization of resources to wildland fires and other incidents throughout the United States. The NICC also provides Predictive Services related products designed to be used by the internal wildland fire community for critical decision-making surrounding incident management and resource allocation.
Geographic Areas National Interagency Coordination Center (nifc.gov)	The United States are divided into 10 Geographic Areas to allow for cost effective and timely mobilization of wildland firefighting resources to incidents nationwide. Each Geographic Area has multiple local dispatch centers that fall under their sphere of influence. The primary mission for each Geographic Area is to coordinate the movement of resources within the Geographic Area and export resource to other Geographic Areas as needed.





Wildfire Response (continued)	
Resource	Description
Predictive Services National Interagency Coordination Center (nifc.gov)	Predictive Services was developed to provide decision support to fire management, offering detailed information on anticipated significant fire activity and potential resource needs. Predictive Services consists of three functional areas: fire weather, fire danger/fuels, and fire intelligence.
National Multi-Agency Coordinating Group (NMAC) National Interagency Coordination Center (NICC) (nifc.gov)	The National Multi-Agency Coordinating Group (NMAC) is comprised of members who have been delegated authority to provide an essential management mechanism for national level strategic coordination to ensure that firefighting resources are efficiently and appropriately managed in a cost-effective manner. Their mission is to provide national wildland fire operations management, priority setting, and resource allocation through multiagency coordination.
Fire Weather_(weather.gov)	NOAA's National Weather Service (WS) mission is to provide weather, water and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy. The NWS works in conjunction with federal and state wildland managers to protect lives and property in and around America's wildlands.
The National Wildfire Coordinating Group (NWCG) (NWCG.gov)	The National Wildfire Coordinating Group provides national leadership to enable interoperable wildland fire operations among federal, state, local, Tribal, and territorial partners. The NWCG establishes wildland fire position standards, qualifications requirements, and performance support capabilities (e.g. training courses, job aids) that enable implementation of NWCG standards.





Post Fire Recovery		
Resource	Description	
Post Fire Recovery National Interagency Fire Center (nifc.gov)	The NIFC post fire recovery website provides an overview of post fire programs across various federal agencies and stages of the wildfire recovery process.	
Post Wildfire Recovery Project Resources NWCG	The NWCG post wildfire recovery project resources page provides links for post fire recovery efforts and projects. These include safety messages research, field guides, links to interagency support tools, and related remote sensing and geospatial support websites.	
Resources – After The Flames (Co-Co)	After a catastrophic wildfire, quick action must be taken to minimize social, environmental, and economic devastation. Responsive action requires navigating a complex maze of diverse landowners, community organizations, and numerous local and federal requirements.	
WO Staff Program - Burned Area Emergency Response BAER (usda.gov)	The Burned Area Emergency Response (BAER) program is designed to address post fire emergency situations through its key goals of protecting life, property, and critical natural and cultural resources. The objective of the BAER program is to determine the need for and to prescribe and implement emergency treatments on Federal Lands.	
Home BAER (usgs.gov)	Within 7 days of fire containment, the BAER Imagery Support Program provides satellite images, burn area severity classifications, and other critical data to BAER teams. One of the team's first tasks in the field is to create a soil burn severity map using BARC data provided by the BAER Imagery Support Program.	
BAER Treatments Catalog (usda.gov)	The Burned Area Emergency Response (BAER) treatments catalog presents, instructions, monitoring tools, and references that BAER assessment and implementation teams use to identify appropriate treatments in a BAER emergency. The target audience for this publication is any Federal land management agency BAER assessment and implementation team.	





Post Fire Recovery (continued)	
Resource	Description
Silver Jackets (army.mil)	Silver Jackets teams are interagency teams that facilitate collaborative solutions to state flood risk priorities. The state-led teams bring together multiple state, federal, and sometimes tribal and local agencies to learn from one another and work together to reduce risk from floods and sometimes other natural disasters.
Home MTBS	Monitoring Trends in Burn Severity (MTBS) is an interagency program whose goal is to consistently map the burn severity and extent of large fires across all lands of the United States from 1984 to present. This includes all fires 1000 acres or greater in the western United States and 500 acres or greater in the eastern Unites States.
Mendocino Complex Burned Area Emergency Response (arcgis.com)	The Bureau of Land Management Ukiah Field Office is providing a story map explaining how the Department of the Interior's Interagency Burned Area Emergency Response (BAER) team works to assess the damage on BLM and trust lands from the Ranch and River fires that formed the Mendocino Complex.
Hermit's Peak and Calf Canyon Fire (arcgis.com)	As over 340,000 acres of forest burned during the Hermit's Peak/Calf Canyon fire, huge spans of the landscape in this region have completely changed. While wildfires are a natural and necessary part of many forest ecosystems, the scale of damage from this fire will likely leave its mark on the area for decades.
2020 Oregon Fires Recovery (arcgis.com)	On September 7th of 2020, unusually high winds and continued dry weather caused the rapid expansion of multiple wildfires throughout the State of Oregon. Over 1 million acres were burned, and about 40,000 people were evacuated. The U.S. Environmental Protection Agency (EPA) was tasked with surveying, removing, and disposing of household hazardous wastes (HHW) remaining at burned or damaged properties and structures.
5 Wildfire Recovery Strategies Sierra Nevada Conservancy (ca.gov)	Following several years of uncharacteristically large and severe wildfires, the Sierra Nevada region is in uncharted territory. Informed by our strong relationships with community partners, Sierra Nevada Conservancy has identified five strategies that respond to the region's recovery needs while also building resilience for the future.





Funding and Partnership Opportunities	
Resource	Description
Readiness and Environmental Protection Integration, U.S. Department of Defense (repi.mil)	The REPI Program preserves military missions by supporting cost-sharing agreements between the Military Services, other federal agencies, state and local governments, and private conservation organizations to avoid land use conflicts near military installations, address environmental restrictions that limit military activities, and increase resilience to climate change.
Wildland (iafc.org)	Through wildland programs, guidance, education and platforms, the IAFC supports your department or organization's prevention, mitigation and response efforts to the threat of wildland fire in your community. Working to raise awareness about wildland fire risks.
Community Wildfire Defense Grant Program US Forest Service (usda.gov)	The Community Wildfire Defense Program, or CWDG, is intended to help at-risk local communities and Tribes; plan for and reduce the risk of wildfire. This program prioritizes at-risk communities in an area identified as having high or very high wildfire hazard potential, are low-income, or have been impacted by a severe disaster that affects the risk of wildfire.
Home Office of Local Defense Community Cooperation (oldcc.gov)	The U.S. Department of Defense Office of Local Defense Community Cooperation furthers the priorities of the National Defense Strategy by supporting the readiness and resiliency of military installations and defense communities across the country.
Building Resilient Infrastructure and Communities FEMA.gov	Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.





Science and Technology	
Resource	Description
SERDP ESTCP Wildland Fires (serdp-estcp.org)	Recognizing the threats posed by climate change and wildfires, DoD, through its environmental research programs, SERDP and ESTCP, has become a national leader in wildland fire research through the establishment and funding of the "DoD Wildland Fire Science Initiative."
Joint Fire Science Program	The Joint Fire Science Program (JFSP) provides leadership to the fire science community by identifying high-priority fire science research needs that will enhance the decision-making ability of fire and fuels managers, nature resource managers, and others to meet their management objectives.
Wildland Fire Science U.S. Geological Survey (usgs.gov)	USGS scientists possess diverse technical capabilities that are used to address a variety of problems posed by wildland fires. Outcomes of USGS science can be used by fire and land managers to respond to fire-related issues when they arise.
Fire Research US Forest Service (usda.gov)	Recognizing the scale and complexity of wildland fires, which affect millions of acres each year, the Forest Service has a network of fire labs and research stations across the country. Forest Service fire scientists develop knowledge and tools that help reduce the negative impacts of fire while enhancing its beneficial effects.
Wildland Fires NASA Applied Sciences	The Wildfires program area uses Earth observations to help communities manage the impacts of fires. Wildfire management extends beyond putting out flames and includes mitigating risks pre-fire and managing effects post-fire.
Wildfire – Insurance Institute for Business & Home Safety (ibhs.org)	The Insurance Institute for Business & Home Safety (IBHS) is an <i>independent</i> , 501 (C) nonprofit scientific research and communications organization supported by property insurers, reinsurers, and affiliated companies. IBHS's building safety research leads to real-world solutions for home and business owners, helping to create more resilient communities.
WiRē – Wildfire Research (wildfireresearchcenter.org)	The mission of the WiRē Center is to support evidence-based community wildfire education efforts so that communities can live with wildfire. Specifically, the WiRē Center provides personalized expertise and support to collect, interpret, and use paired parcellevel wildfire risk and social data.