

An empirical machine learning method for predicting potential fire control locations for pre-fire planning and operational fire management

www.nrfirescience.org/resource/15490

During active fire incidents, decisions regarding where and how to safely and effectively deploy resources to meet management objectives are often made under rapidly evolving conditions, with limited time to assess management strategies or for development of backup plans if initial efforts prove unsuccessful. Under all but the most...

Author(s): Christopher D. O'Connor, David E. Calkin, Matthew P. Thompson

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Whither the paradigm shift? Large wildland fires and the wildfire paradox offer opportunities for a new paradigm of ecological fire management

www.nrfirescience.org/resource/15487

The growing frequency of large wildland fires has raised awareness of the 'wildfire paradox' and the 'firefighting trap' that are both rooted in the fire exclusion paradigm. However, a paradigm shift has been unfolding in the wildland fire community that seeks to restore fire ecology processes across broad landscapes. This...

Author(s): Timothy Ingalsbee

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Mapping the future: U.S. exposure to multiple landscape stressors

www.nrfirescience.org/resource/15285

Landscape exposure to multiple stressors can pose risks to human health, biodiversity, and ecosystem services. Attempts to study, control, or mitigate these stressors can strain public and private budgets. An interdisciplinary team of Pacific Northwest Research Station and Oregon State University scientists created maps of the...

Author(s): Marie Oliver, Becky K. Kerns, John Kim, Jeffrey D. Kline

Year Published: 2017

Type: Document

Technical Report or White Paper

Uncertainty and probability in wildfire management decision support: An example from the United States [Chapter 4]

www.nrfirescience.org/resource/14998

Wildfire risk assessment is increasingly being adopted to support federal wildfire management decisions in the United States. Existing decision support systems, specifically the Wildland Fire Decision Support System (WFDSS), provide a rich set of probabilistic and risk-based information to support the management of active wildfire...

Author(s): Matthew P. Thompson, David E. Calkin, Joe H. Scott, Michael S. Hand

Year Published: 2017

Type: Document

Technical Report or White Paper

A review of the challenges to determining and demonstrating efficiency of large fire management

www.nrfirescience.org/resource/15488

Characterising the impacts of wildland fire and fire suppression is critical information for fire

management decision-making. Here, we focus on decisions related to the rare larger and longer-duration fire events, where the scope and scale of decision-making can be far broader than initial response efforts, and where determining and...

Author(s): Matthew P. Thompson, Francisco Rodriguez y Silva, David E. Calkin, Michael S. Hand

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Towards enhanced risk management: planning, decision making and monitoring of US wildfire response

www.nrfirescience.org/resource/15485

This paper is the preface to a special issue focused on US wildfire response. The nine papers included build from a 2016 conference special session on monitoring, modelling and accountability of fire management policies and practices. Here we provide the unifying theme for these papers, summarise each from this perspective, and...

Author(s): Christopher J. Dunn, David E. Calkin, Matthew P. Thompson

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Policy scenarios for fire-adapted communities: understanding stakeholder risk-perceptions with Fuzzy Cognitive Maps

www.nrfirescience.org/resource/15209

Collaborative groups are most effective when the varied stakeholder groups within them understand the risks of wildfire and take proactive steps to manage these risks. Implementing policies for fire risk mitigation and adaptation, however, remains difficult because risks and policy alternatives are not understood or supported...

Author(s): Antonie Jetter, Steven A. Gray, Lisa M. Ellsworth

Year Published: 2017

Type: Document

Technical Report or White Paper

Uncertainty and probability in wildfire management decision support: An example from the United States [Chapter 4]

www.nrfirescience.org/resource/14969

Wildfire risk assessment is increasingly being adopted to support federal wildfire management decisions in the United States. Existing decision support systems, specifically the Wildland Fire Decision Support System (WFDSS), provide a rich set of probabilistic and risk-based information to support the management of active wildfire...

Author(s): Matthew P. Thompson, David E. Calkin, Joe H. Scott, Michael S. Hand

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Risk terminology primer: basic principles and a glossary for the wildland fire management community

www.nrfirescience.org/resource/14409

Risk management is being increasingly promoted as an appropriate method for addressing wildland fire management challenges. However, a lack of a common understanding of risk concepts and terminology is hindering effective application. In response, this General Technical Report provides a set of clear, consistent, understandable, and...

Author(s): Matthew P. Thompson, Tom Zimmerman, Dan Mindar, Mary A. Taber
Year Published: 2016
Type: Document
Technical Report or White Paper

Application of wildfire risk assessment results to wildfire response planning in the southern Sierra Nevada, California, USA

www.nrfirescience.org/resource/14351

How wildfires are managed is a key determinant of long-term socioecological resiliency and the ability to live with fire. Safe and effective response to fire requires effective pre-fire planning, which is the main focus of this paper. We review general principles of effective federal fire management planning in the U.S., and...

Author(s): Matthew P. Thompson, Phil Bowden, April Brough, Julie W. Gilbertson-Day, Alan H. Taylor, Jessica R. Haas
Year Published: 2016
Type: Document
Book or Chapter or Journal Article

Resolving future fire management conflicts using multicriteria decision making

www.nrfirescience.org/resource/13893

Management strategies to reduce the risks to human life and property from wildfire commonly involve burning native vegetation. However, planned burning can conflict with other societal objectives such as human health and biodiversity conservation. These conflicts are likely to intensify as fire regimes change under future climates...

Author(s): Don A. Driscoll, Michael Bode, Ross A. Bradstock, David A. Keith, Trent D. Penman, Owen F. Price
Year Published: 2016
Type: Document
Book or Chapter or Journal Article

Evaluating the characteristics of social vulnerability to wildfire: demographics, perceptions, and parcel characteristics

www.nrfirescience.org/resource/14804

A large body of research focuses on identifying patterns of human populations most at risk from hazards and the factors that help explain performance of mitigations that can help reduce that risk. One common concept in such studies is social vulnerability-human populations' potential exposure to, sensitivity from and ability to...

Author(s): Travis B. Paveglio, Tony Prato, Catrin Edgeley, Derek J. Nalle
Year Published: 2016
Type: Document
Book or Chapter or Journal Article

Getting ahead of the wildfire problem: quantifying and mapping management challenges and opportunities

www.nrfirescience.org/resource/14688

Wildfire is a global phenomenon that plays a vital role in regulating and maintaining many natural and human-influenced ecosystems but that also poses considerable risks to human populations and infrastructure. Fire managers are charged with balancing the short-term protection of human assets sensitive to fire exposure against the...

Author(s): Christopher D. O'Connor, Matthew P. Thompson, Francisco Rodriguez y Silva
Year Published: 2016

Type: Document
Book or Chapter or Journal Article

Risk management: core principles and practices, and their relevance to wildland fire

www.nrfirescience.org/resource/14411

The Forest Service, U.S. Department of Agriculture faces a future of increasing complexity and risk, pressing financial issues, and the inescapable possibility of loss of human life. These issues are perhaps most acute for wildland fire management, the highest risk activity in which the Forest Service engages. Risk management (RM)...

Author(s): Matthew P. Thompson, Donald G. MacGregor, David E. Calkin

Year Published: 2016

Type: Document

Technical Report or White Paper

Examining alternative fuel management strategies and the relative contribution of National Forest System land to wildfire risk to adjacent homes - a pilot assessment on the Sierra National Forest, California, USA

www.nrfirescience.org/resource/14352

Determining the degree of risk that wildfires pose to homes, where across the landscape the risk originates, and who can best mitigate risk are integral elements of effective co-management of wildfire risk. Developing assessments and tools to help provide this information is a high priority for federal land management agencies such...

Author(s): Joe H. Scott, Matthew P. Thompson, Julie W. Gilbertson-Day

Year Published: 2016

Type: Document

Book or Chapter or Journal Article

Is seeing believing? Perceptions of wildfire risk over time

www.nrfirescience.org/resource/14317

Ongoing challenges to understanding how hazard exposure and disaster experiences influence perceived risk lead us to ask: Is seeing believing? We approach risk perception by attending to two components of overall risk perception: perceived probability of an event occurring and perceived consequences if an event occurs. Using a two-...

Author(s): Patricia A. Champ, Hannah Brenkert-Smith

Year Published: 2016

Type: Document

Book or Chapter or Journal Article

Achievable future conditions as a framework for guiding forest conservation and management

www.nrfirescience.org/resource/13788

We contend that traditional approaches to forest conservation and management will be inadequate given the predicted scale of social-economic and biophysical changes in the 21st century. New approaches, focused on anticipating and guiding ecological responses to change, are urgently needed to ensure the full value of forest ecosystem...

Author(s): Stephen W. Golladay, Katherine L. Martin, James M. Vose, David N. Wear, Alan P. Covich, Richard J. Hobbs, Kier D. Klepzig, Gene E. Likens, Robert J. Naiman, Allan W. Shearer

Year Published: 2016

Type: Document

Book or Chapter or Journal Article, Synthesis

Wildfire risk to residential structures in the Island Park Sustainable Fire Community: Caribou-Targhee National Forest

www.nrfirescience.org/resource/14695

The Island Park Sustainable Fire Community (IPSFC) Project is a collaborative working group of citizens, businesses, non-profit organizations, and local, state, and federal government agencies (www.islandparkfirecommunity.com) working to create fire-resilient ecosystems in and around the human communities of West Yellowstone,...

Author(s): Don Helmbrecht, Julie W. Gilbertson-Day, Joe H. Scott, LaWen Hollingsworth

Year Published: 2016

Type: Document

Technical Report or White Paper

Wildfire risk as a socioecological pathology

www.nrfirescience.org/resource/14461

Wildfire risk in temperate forests has become a nearly intractable problem that can be characterized as a socioecological 'pathology': that is, a set of complex and problematic interactions among social and ecological systems across multiple spatial and temporal scales. Assessments of wildfire risk could benefit from recognizing and...

Author(s): A. Paige Fischer, Thomas A. Spies, Toddi A. Steelman, Cassandra Moseley, Bart R. Johnson, John D. Bailey, Alan A. Ager, Patrick S. Bourgeron, Susan Charnley, Brandon M. Collins, Jeffrey D. Kline, Jessica E. Leahy, Jeremy S. Littell, James D.A. Millington, Max W. Nielsen-Pincus, Christine Olsen, Travis B. Paveglio, Christopher I. Roos, David M. J. S. Bowman

Year Published: 2016

Type: Document

Book or Chapter or Journal Article

Indicators of climate impacts for forests: recommendations for the US National Climate Assessment indicators system

www.nrfirescience.org/resource/13969

The Third National Climate Assessment (NCA) process for the United States focused in part on developing a system of indicators to communicate key aspects of the physical climate, climate impacts, vulnerabilities, and preparedness to inform decisionmakers and the public. Initially, 13 active teams were formed to recommend indicators...

Author(s): Linda S. Heath, Sarah M. Anderson, Marla R. Emery, Jeffrey A. Hicke, Jeremy S. Littell, Alan Lucier, Jeffrey G. Masek, David L. Peterson, Richard Pouyat, Kevin M. Potter, Guy Robertson, Jinelle Sperry, Andrzej Bytnerowicz, Sarah Jovan, Miranda H. Mockrin, Robert Musselman, Bethany K. Shulz, Robert J. Smith, Susan I. Stewart

Year Published: 2015

Type: Document

Technical Report or White Paper

Emerging concepts in wildfire risk assessment and management

www.nrfirescience.org/resource/13948

A quantitative measure of wildfire risk across a landscape-expected net change in value of resources and assets exposed to wildfire-was established nearly a decade ago. Assessments made using that measure have been completed at spatial extents ranging from an individual county to the continental United States. The science of...

Author(s): Joe H. Scott, Matthew P. Thompson

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Regional likelihood of very large wildfires over the 21st century across the western United States: motivation to study individual events like the Rim Fire, a unique opportunity with unprecedented remote sensing data

www.nrfirescience.org/resource/13681

Studies project that a warming climate will likely increase wildfire activity in many areas (Westerling and others 2002; Flannigan and others 2005, 2009; Littell and others 2009). These analyses are often of aggregate statistics like annual area burned, which are insufficient for analyzing changes in seasonality of fire events, the...

Author(s): E. Natasha Stavros, John T. Abatzoglou, Zachary Tane, Van R. Kane, Sander Veraverbeke, Bob McGaughey, James A. Lutz, Narasimhan K. Larkin, Donald McKenzie, E. Ashley Steel, Carlos Ramirez, David S. Schimel

Year Published: 2015

Type: Document

Conference Proceedings

Understanding gaps between the risk perceptions of wildland-urban interface (WUI) residents and wildfire professionals

www.nrfirescience.org/resource/13447

Research across a variety of risk domains finds that the risk perceptions of professionals and the public differ. Such risk perception gaps occur if professionals and the public understand individual risk factors differently or if they aggregate risk factors into overall risk differently. The nature of such divergences, whether...

Author(s): James R. Meldrum, Patricia A. Champ, Hannah Brenkert-Smith, Travis Warziniack, Christopher M. Barth, Lilia C. Falk

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Optimizing fuel treatments to reduce wildland fire risk

www.nrfirescience.org/resource/13273

Fuel treatments have been widely used as an effective fire management tool to mitigate catastrophic wildland fire risk in forested landscapes. Fire research efforts of the last two decades have significantly advanced fire behavior modeling and fuel treatment effects analysis, but integrated fuel treatment planning and optimization...

Author(s): Woodam Chung

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Development and application of a geospatial wildfire exposure and risk calculation tool

www.nrfirescience.org/resource/13271

Applying wildfire risk assessment models can inform investments in loss mitigation and landscape restoration, and can be used to monitor spatiotemporal trends in risk. Assessing wildfire risk entails the integration of fire modeling outputs, maps of highly valued resources and assets (HVRAs), characterization of fire effects, and...

Author(s): Matthew P. Thompson, Jessica R. Haas, Julie W. Gilbertson-Day, Joe H. Scott, Paul G. Langowski, Elise M. Bowne, David E. Calkin

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Development and application of a probabilistic method for wildfire suppression cost modeling

www.nrfirescience.org/resource/12762

Wildfire activity and escalating suppression costs continue to threaten the financial health of federal land management agencies. In order to minimize and effectively manage the cost of financial risk, agencies need the ability to quantify that risk. A fundamental aim of this research effort, therefore, is to develop a process for...

Author(s): Matthew P. Thompson, Jessica R. Haas, Mark A. Finney, David E. Calkin, Michael S. Hand, Mark J. Browne, Martin Halek, Karen C. Short, Isaac C. Grenfell

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Quantifying and predicting fuels and the effects of reduction treatments along successional and invasion gradients in sagebrush habitats - JFSP final report

www.nrfirescience.org/resource/15504

Sagebrush shrubland ecosystems in the Great Basin are prime examples of how altered successional trajectories can create dynamic fuel conditions and, thus, increase uncertainty about fire risk and behavior. Although fire is a natural disturbance in sagebrush, post-fire environments are highly susceptible to conversion to an invasive...

Author(s): Douglas J. Shinneman, David S. Pilliod, Robert S. Arkle, Nancy F. Glenn

Year Published: 2015

Type: Document

Technical Report or White Paper

Exploring how alternative mapping approaches influence firehatched assessment and human community exposure to wildfire

www.nrfirescience.org/resource/13949

Attaining fire-adapted human communities has become a key focus of collaborative planning on landscapes across the western United States and elsewhere. The coupling of fire simulation with GIS has expanded the analytical base to support such planning efforts, particularly through the "fireside" concept that identifies areas where...

Author(s): Joe H. Scott, Matthew P. Thompson, Julie W. Gilbertson-Day

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Decision making under uncertainty: recommendations for the Wildland Fire Decision Support System (WFDSS)

www.nrfirescience.org/resource/13947

The management of wildfire is a dynamic, complex, and fundamentally uncertain enterprise. Fire managers face uncertainties regarding fire weather and subsequent influence on fire behavior, the effects of fire on socioeconomic and ecological resources, and the efficacy of alternative suppression actions on fire outcomes. In these...

Author(s): Matthew P. Thompson

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Catching fire? Social interactions, beliefs, and wildfire risk mitigation behaviors

www.nrfirescience.org/resource/13419

Social interactions are widely recognized as a potential influence on risk-related behaviors. We present a mediation model in which social interactions (classified as formal/informal and generic/fire-specific) are associated with beliefs about wildfire risk and mitigation options, which in turn shape wildfire mitigation behaviors....

Author(s): Patricia A. Champ, Katherine L. Dickinson, Hannah Brenkert-Smith, Nicholas Flores

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

A mixed integer program to model spatial wildfire behavior and suppression placement decisions

www.nrfirescience.org/resource/13272

Wildfire suppression combines multiple objectives and dynamic fire behavior to form a complex problem for decision makers. This paper presents a mixed integer program designed to explore integrating spatial fire behavior and suppression placement decisions into a mathematical programming framework. Fire behavior and suppression...

Author(s): Erin J. Belval, Yu Wei, Michael Bevers

Year Published: 2015

Type: Document

Book or Chapter or Journal Article

Understanding evacuation preferences and wildfire mitigations among northwest Montana residents

www.nrfirescience.org/resource/12955

There is currently insufficient information in the United States about residents' planned evacuation actions during wildfire events, including any intent to remain at or near home during fire events. This is incompatible with growing evidence that select populations at risk from wildfire are considering alternatives to evacuation....

Author(s): Travis B. Paveglio, Tony Prato, Douglas Dalenberg, Tyron J. Venn

Year Published: 2014

Type: Document

Book or Chapter or Journal Article

Assessing the expected effects of wildfire on vegetation condition on the Bridger-Teton National Forest, Wyoming, USA

www.nrfirescience.org/resource/12759

Characterizing wildfire risk to a fire-adapted ecosystem presents particular challenges due to its broad spatial extent, inherent complexity, and the difficulty in defining wildfire-induced losses and benefits. Our approach couples stochastic wildfire simulation with a vegetation condition assessment framework to estimate the...

Author(s): Joe H. Scott, Don Helmbrecht, Matthew P. Thompson

Year Published: 2014

Type: Document

Technical Report or White Paper

Understanding stochastic wildfire simulation results

www.nrfirescience.org/resource/12758

Stochastic simulations of wildfire occurrence and growth have become an integral part of both wildfire incident management and land management planning applications. The FSPro simulation system, implemented in the online Wildland Fire Decision Support System (WFDSS), acknowledges that weather inputs to wildfire growth...

Author(s): Joe H. Scott
Year Published: 2014
Type: Document
Technical Report or White Paper

Predicting wildfire ignitions, escapes, and large fire activity using Predictive Service's 7-Day Fire Potential Outlook in the western USA

www.nrfirescience.org/resource/13615

Can fire potential forecasts assist with pre-positioning of fire suppression resources, which could result in a cost savings to the United States government? Here, we present a preliminary assessment of the 7-Day Fire Potential Outlook forecasts made by the Predictive Services program. We utilized historical fire occurrence data and...

Author(s): Karen L. Riley, Crystal S. Stonesifer, Haiganoush K. Preisler, David E. Calkin
Year Published: 2014
Type: Document
Conference Proceedings

A wildfire risk assessment framework for land and resource management

www.nrfirescience.org/resource/12445

Wildfires can result in significant, long-lasting impacts to ecological, social, and economic systems. It is necessary, therefore, to identify and understand the risks posed by wildland fire, and to develop cost-effective mitigation strategies accordingly. This report presents a general framework with which to assess wildfire risk...

Author(s): Joe H. Scott, Matthew P. Thompson, David E. Calkin
Year Published: 2013
Type: Document
Technical Report or White Paper

How risk management can prevent future wildfire disasters in the wildland-urban interface

www.nrfirescience.org/resource/12757

Recent fire seasons in the western United States are some of the most damaging and costly on record. Wildfires in the wildland-urban interface on the Colorado Front Range, resulting in thousands of homes burned and civilian fatalities, although devastating, are not without historical reference. These fires are consistent with the...

Author(s): David E. Calkin, Jack D. Cohen, Mark A. Finney, Matthew P. Thompson
Year Published: 2013
Type: Document
Book or Chapter or Journal Article

Best practices in risk and crisis communication: implications for natural hazards management

www.nrfirescience.org/resource/8359

As societies evolve, often the most appropriate response to the hazard must also evolve. However, such shifts in appropriate response to a hazard, whether at the individual or at the societal level, are rarely straightforward: Closing the gap between desired practice and current practice requires effective communication. Although...

Author(s): Toddi A. Steelman, Sarah M. McCaffrey
Year Published: 2013
Type: Document
Book or Chapter or Journal Article, Synthesis

Analyzing the transmission of wildfire exposure on a fire-prone landscape in Oregon, USA

www.nrfirescience.org/resource/12755

We develop the idea of risk transmission from large wildfires and apply network analyses to understand its importance on a 0.75 million ha US national forest. Wildfires in the western US frequently burn over long distances (e.g., 20-50 km) through highly fragmented landscapes with respect to ownership, fuels, management intensity,...

Author(s): Alan A. Ager, Michelle A. Day, Mark A. Finney, Ken W. Vance-Borland, Nicole M. Vaillant

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Simulating effects of land use policies on extent of the wildland urban interface and wildfire risk in Flathead County, Montana

www.nrfirescience.org/resource/12036

This study used a wildfire loss simulation model to evaluate how different land use policies are likely to influence wildfire risk in the wildland urban interface (WUI) for Flathead County, Montana. The model accounts for the complex socio-ecological interactions among climate change, economic growth, land use change and policy,...

Author(s): Travis B. Paveglio, Tony Prato, Michael Hardy

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Integrated wildfire risk assessment: framework development and application on the Lewis and Clark National Forest in Montana, USA

www.nrfirescience.org/resource/12751

The financial, socioeconomic, and ecological impacts of wildfire continue to challenge federal land management agencies in the United States. In recent years, policymakers and managers have increasingly turned to the field of risk analysis to better manage wildfires and to mitigate losses to highly valued resources and...

Author(s): Matthew P. Thompson, Joe H. Scott, Don Helmbrecht, David E. Calkin

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Decision making for wildfires: a guide for applying a risk management process at the incident level

www.nrfirescience.org/resource/12748

This publication focuses on the thought processes and considerations surrounding a risk management process for decision making on wildfires. The publication introduces a six element risk management cycle designed to encourage sound risk-informed decision making in accordance with Federal wildland fire policy, although the process is...

Author(s): Mary A. Taber, Lisa M. Elenz, Paul G. Langowski

Year Published: 2013

Type: Document

Technical Report or White Paper

Research and development supporting risk-based wildfire effects prediction for fuels and fire management: status and needs

www.nrfirescience.org/resource/12743

Wildland fire management has moved beyond a singular focus on suppression, calling for wildfire

management for ecological benefit where no critical human assets are at risk. Processes causing direct effects and indirect, long-term ecosystem changes are complex and multidimensional. Robust risk-assessment tools are required that...

Author(s): Kevin D. Hyde, Matthew B. Dickinson, Gil Bohrer, David E. Calkin, Louisa Evers, Julie W. Gilbertson-Day, Tessa Nicolet, Kevin C. Ryan, Christina Tague

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Wildfire exposure and fuel management on western US national forests

www.nrfirescience.org/resource/12756

Substantial investments in fuel management activities on national forests in the western US are part of a national strategy to reduce human and ecological losses from catastrophic wildfire and create fire resilient landscapes. Prioritizing these investments within and among national forests remains a challenge, partly because a...

Author(s): Alan A. Ager, Michelle A. Day, Charles W. McHugh, Karen C. Short, Julie W. Gilbertson-Day, Mark A. Finney, David E. Calkin

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

A polygon-based modeling approach to assess exposure of resources and assets to wildfire

www.nrfirescience.org/resource/12048

Spatially explicit burn probability modeling is increasingly applied to assess wildfire risk and inform mitigation strategy development. Burn probabilities are typically expressed on a per-pixel basis, calculated as the number of times a pixel burns divided by the number of simulation iterations. Spatial intersection of highly...

Author(s): Matthew P. Thompson, Joe H. Scott, Jeffrey D. Kaiden, Julie W. Gilbertson-Day

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Risk preferences in strategic wildfire decision making: a choice experiment with U.S. wildfire managers

www.nrfirescience.org/resource/12752

Federal policy has embraced risk management as an appropriate paradigm for wildfire management. Economic theory suggests that over repeated wildfire events, potential economic costs and risks of ecological damage are optimally balanced when management decisions are free from biases, risk aversion, and risk seeking. Of primary...

Author(s): Matthew J. Wibbenmeyer, Michael S. Hand, David E. Calkin, Tyron J. Venn, Matthew P. Thompson

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Appendix 2: Risk-based framework and risk case studies. Risk assessment for wildfire in the Western United States

www.nrfirescience.org/resource/11903

Wildfire is one of the two most significant disturbance agents (the other being insects) in forest ecosystems of the Western United States, and in a warmer climate, will drive changes in forest composition, structure, and function (Dale et al. 2001, McKenzie et al. 2004). Although wildfire is highly

stochastic in space and time,...

Author(s): David L. Peterson, Jeremy S. Littell

Year Published: 2013

Type: Document

Synthesis, Technical Report or White Paper

Assessing watershed-wildfire risks on national forest system lands in the Rocky Mountain region of the United States

www.nrfirescience.org/resource/12750

Wildfires can cause significant negative impacts to water quality with resultant consequences for the environment and human health and safety, as well as incurring substantial rehabilitation and water treatment costs. In this paper we will illustrate how state-of-the-art wildfire simulation modeling and geospatial risk assessment...

Author(s): Matthew P. Thompson, Joe H. Scott, Paul G. Langowski, Julie W. Gilbertson-Day, Jessica R. Haas, Elise M. Bowne

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Response of highly valued resources and assets to wildfire within Grand Teton National Park and Bridger-Teton National Forest

www.nrfirescience.org/resource/12744

Grand Teton National Park (GTNP) and the Bridger-Teton National Forest (BTNF) cover approximately 3.7 million acres within the Greater Yellowstone Ecosystem. The majority of this land base is fairly remote, much of it either designated Wilderness or roadless, and composed of fire-adapted ecosystems. To add complexity to the fire...

Author(s): Joe H. Scott, Don Helmbrecht, Martha A. Williamson

Year Published: 2013

Type: Document

Technical Report or White Paper

A national approach for integrating wildfire simulation modeling into wildland urban interface risk assessments within the United States

www.nrfirescience.org/resource/12739

Ongoing human development into fire-prone areas contributes to increasing wildfire risk to human life. It is critically important, therefore, to have the ability to characterize wildfire risk to populated places, and to identify geographic areas with relatively high risk. A fundamental component of wildfire risk analysis is...

Author(s): Jessica R. Haas, David E. Calkin, Matthew P. Thompson

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Probabilistic assessment of wildfire hazard and municipal watershed exposure

www.nrfirescience.org/resource/12737

The occurrence of wildfires within municipal watersheds can result in significant impacts to water quality and ultimately human health and safety. In this paper, we illustrate the application of geospatial analysis and burn probability modeling to assess the exposure of municipal watersheds to wildfire. Our assessment of wildfire...

Author(s): Joe H. Scott, Don Helmbrecht, Matthew P. Thompson, David E. Calkin, Kate Marcille

Year Published: 2012

Type: Document
Book or Chapter or Journal Article

Quantifying the threat of unsuppressed wildfires reaching the adjacent wildland-urban interface on the Bridger-Teton National Forest, Wyoming, USA

www.nrfirescience.org/resource/8349

An important objective for many federal land management agencies is to restore fire to ecosystems that have experienced fire suppression or exclusion over the last century. Managing wildfires for resource objectives (i.e., allowing wildfires to burn in the absence of suppression) is an important tool for restoring such fire-adapted...

Author(s): Joe H. Scott, Don Helmbrecht, Sean A. Parks, Carol L. Miller

Year Published: 2012

Type: Document

Book or Chapter or Journal Article

Analyzing wildfire exposure and source-sink relationships on a fire prone forest landscape

www.nrfirescience.org/resource/12736

We used simulation modeling to analyze wildfire exposure to social and ecological values on a 0.6 million ha national forest in central Oregon, USA. We simulated 50,000 wildfires that replicated recent fire events in the area and generated detailed maps of burn probability (BP) and fire intensity distributions. We also recorded the...

Author(s): Alan A. Ager, Nicole M. Vaillant, Mark A. Finney, Haiganoush K. Preisler

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

A simulation of probabilistic wildfire risk components for the continental United States

www.nrfirescience.org/resource/12734

This simulation research was conducted in order to develop a large-fire risk assessment system for the contiguous land area of the United States. The modeling system was applied to each of 134 Fire Planning Units (FPU) to estimate burn probabilities and fire size distributions. To obtain stable estimates of these quantities, fire...

Author(s): Mark A. Finney, Charles W. McHugh, Isaac C. Grenfell, Karen L. Riley, Karen C. Short

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

Advancing effects analysis for integrated, large-scale wildfire risk assessment

www.nrfirescience.org/resource/12729

In this article, we describe the design and development of a quantitative, geospatial risk assessment tool intended to facilitate monitoring trends in wildfire risk over time and to provide information useful in prioritizing fuels treatments and mitigation measures. The research effort is designed to develop, from a strategic view,...

Author(s): Matthew P. Thompson, David E. Calkin, Julie W. Gilbertson-Day, Alan A. Ager

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

A real-time risk assessment tool supporting wildland fire decisionmaking

www.nrfirescience.org/resource/12727

Development of appropriate management strategies for escaped wildland fires is complex. Fire managers need the ability to identify, in real time, the likelihood that wildfire will affect valuable developed and natural resources (e.g., private structures, public infrastructure, and natural and cultural resources). These...

Author(s): David E. Calkin, Matthew P. Thompson, Mark A. Finney, Kevin D. Hyde

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

A regional experiment to evaluate effects of fire and fire surrogate treatments in the sagebrush biome - Final Report to the Joint Fire Science Program

www.nrfirescience.org/resource/11225

SageSTEP is a comprehensive regional experiment that provides critical information to managers faced with a sagebrush steppe ecosystem that is increasingly at risk from wildfire, invasive plants, and climate change. The experiment provides managers with information that can be used to restore ecological communities across the 100+...

Author(s): James D. Mclver, Hugh Barrett, Mark W. Brunson, Stephen C. Bunting, Jeanne C. Chambers, Carla M. D'Antonio, Paul S. Doescher, Dale Johnson, Sherm Karl, Steve Knick, Richard F. Miller, Michael L. Pellant, Frederick B. Pierson, David A. Pyke, Kimberly Rollins, Bruce A. Roundy, Eugene Schupp, Robin J. Tausch, David Turner, Michael J. Wisdom

Year Published: 2011

Type: Document

Technical Report or White Paper

Integrated national-scale assessment of wildfire risk to human and ecological values

www.nrfirescience.org/resource/12735

The spatial, temporal, and social dimensions of wildfire risk are challenging U.S. federal land management agencies to meet societal needs while maintaining the health of the lands they manage. In this paper we present a quantitative, geospatial wildfire risk assessment tool, developed in response to demands for improved risk-based...

Author(s): Matthew P. Thompson, David E. Calkin, Mark A. Finney, Alan A. Ager, Julie W. Gilbertson-Day

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

A method for ensemble wildland fire simulation

www.nrfirescience.org/resource/12732

An ensemble simulation system that accounts for uncertainty in long-range weather conditions and two-dimensional wildland fire spread is described. Fuel moisture is expressed based on the energy release component, a US fire danger rating index, and its variation throughout the fire season is modeled using time series analysis of...

Author(s): Mark A. Finney, Isaac C. Grenfell, Charles W. McHugh, Robert C. Seli, D. Trethewey, Richard D. Stratton, Stuart Brittain

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

Uncertainty and risk in wildland fire management: a review

www.nrfirescience.org/resource/12431

Wildland fire management is subject to manifold sources of uncertainty. Beyond the unpredictability of

wildfire behavior, uncertainty stems from inaccurate/missing data, limited resource value measures to guide prioritization across fires and resources at risk, and an incomplete scientific understanding of ecological response to...

Author(s): Matthew P. Thompson, David E. Calkin

Year Published: 2011

Type: Document

Book or Chapter or Journal Article, Synthesis

A comparative risk assessment framework for wildland fire management: the 2010 cohesive strategy science report

www.nrfirescience.org/resource/12728

The FLAME Act of 2009 requires the U.S. Department of Agriculture Forest Service and the U.S. Department of Interior to submit to Congress a Cohesive Wildfire Management Strategy. In this report, we explore the general science available for a risk-based approach to fire and fuels management and suggest analyses that may be applied...

Year Published: 2011

Type: Document

Technical Report or White Paper

A comparison of landscape fuel treatment strategies to mitigate wildland fire risk in the urban interface and preserve old forest structure

www.nrfirescience.org/resource/12725

We simulated fuel reduction treatments on a 16,000 ha study area in Oregon, US, to examine tradeoffs between placing fuel treatments near residential structures within an urban interface, versus treating stands in the adjacent wildlands to meet forest health and ecological restoration goals. The treatment strategies were evaluated...

Author(s): Alan A. Ager, Nicole M. Vaillant, Mark A. Finney

Year Published: 2010

Type: Document

Book or Chapter or Journal Article

Wildfire risk and hazard: procedures for the first approximation

www.nrfirescience.org/resource/12726

This report was designed to meet three broad goals: (1) evaluate wildfire hazard on Federal lands; (2) develop information useful in prioritizing where fuels treatments and mitigation measures might be proposed to address significant fire hazard and risk; and (3) develop risk-based performance measures to document the effectiveness...

Author(s): David E. Calkin, Alan A. Ager, Julie W. Gilbertson-Day

Year Published: 2010

Type: Document

Technical Report or White Paper

Evaluating wildland fire danger and prioritizing vegetation and fuels treatments

www.nrfirescience.org/resource/11465

We present a prototype decision support system for evaluating wild-land fire danger and prioritizing subwatersheds for vegetation and fuels treatment. We demonstrate the use of the system with an example from the Rocky Mountain region in the State of Utah, which represents a planning area of about 4.8 million ha and encompasses 575...

Author(s): Paul F. Hessburg, Keith M. Reynolds, Robert E. Keane, Kevin M. James, R. Brion Salter

Year Published: 2010

Type: Document

A new process for organizing assessments of social, economic, and environmental outcomes: case study of wildland fire management in the USA

www.nrfirescience.org/resource/12416

Ecological risk assessments typically are organized using the processes of planning (a discussion among managers, stakeholders, and analysts to clarify ecosystem management goals and assessment scope) and problem formulation (evaluation of existing information to generate hypotheses about adverse ecological effects, select...

Author(s): Randall J. F. Bruins, Wayne R. Munns, Stephen J. Botti, Steve Brink, David Cleland, Larry Kapustka, Danny C. Lee, Valerie Luzadis, Laura Falk McCarthy, Naureen Rana, Douglas B. Rideout, Matthew G. Rollins, Peter Woodbury, Mike Zupko

Year Published: 2009

Type: Document

Book or Chapter or Journal Article, Management or Planning Document

Forest harvest can increase subsequent forest fire severity

www.nrfirescience.org/resource/11054

The USDA Forest Service is progressing from a land management strategy oriented around timber extraction towards one oriented around maintaining healthy forested lands. The healthy Forest Initiative promotes the idea of broadscale forest thinning and fuel treatments as an effective means for mitigating hazardous fuel conditions and...

Author(s): Carter Stone, Andrew T. Hudak, Penelope Morgan

Year Published: 2008

Type: Document

Conference Proceedings, Technical Report or White Paper

Spatial-endogenous fire risk and efficient fuel management and timber harvest

www.nrfirescience.org/resource/8277

This paper integrates a spatial fire-behavior model and a stochastic dynamic-optimization model to determine the optimal spatial pattern of fuel management and timber harvest. Each year's fire season causes the loss of forest values and lives in the western United States. We use a multi-plot analysis and incorporate uncertainty...

Author(s): Masashi Konoshima, Claire A. Montgomery, Heidi J. Albers, Jeffrey L. Arthur

Year Published: 2008

Type: Document

Book or Chapter or Journal Article

Forests at risk: integrating risk science into fuel management strategies

www.nrfirescience.org/resource/11089

The threat from wildland fire continues to grow across many regions of the Western United States. Drought, urbanization, and a buildup of fuels over the last century have contributed to increasing wildfire risk to property and highly valued natural resources. Fuel treatments, including thinning overly dense forests to reduce fuel...

Author(s): Jonathan Thompson

Year Published: 2008

Type: Document

Research Brief or Fact Sheet

Managing fire risk in the forests of the U.S. inland Northwest: a classic "wicked problem" in

public land policy

www.nrfirescience.org/resource/11066

In their classic article published in the Journal of Forestry in 1986, Gerald Allen and Ernest Gould stated that the most daunting problems associated with public forest management have a "wicked" element: "Wicked problems share characteristics. Each can be considered as simply a symptom of some higher order problem-The definition..."

Author(s): Matthew S. Carroll, Keith A. Blatner, Patricia J. Cohn, Charles E. Keegan, Todd A. Morgan

Year Published: 2008

Type: Document

Conference Proceedings, Synthesis, Technical Report or White Paper

Fire probability, fuel treatment effectiveness and ecological tradeoffs in Western U.S. public forests

www.nrfirescience.org/resource/12724

Fuel treatment effectiveness and non-treatment risks can be estimated from the probability of fire occurrence. Using extensive fire records for western US Forest Service lands, we estimate fuel treatments have a mean probability of 2.0-7.9% of encountering moderate- or high-severity fire during an assumed 20-year period of...

Author(s): Jonathan J. Rhodes, William L. Baker

Year Published: 2008

Type: Document

Book or Chapter or Journal Article

Modeling wildfire risk to northern spotted owl (*Strix occidentalis caurina*) habitat in Central Oregon, USA

www.nrfirescience.org/resource/12723

Natural disturbances including wildfire, insects and disease are a growing threat to the remaining late successional forests in the Pacific Northwest, USA. These forests are a cornerstone of the region's ecological diversity and provide essential habitat to a number of rare terrestrial and aquatic species including the endangered...

Author(s): Alan A. Ager, Mark A. Finney, Becky K. Kerns, Helen Maffei

Year Published: 2007

Type: Document

Book or Chapter or Journal Article

Assessing post-fire values-at-risk with a new calculation tool

www.nrfirescience.org/resource/11127

Wildfire effects include loss of vegetative cover and changes to soil properties that may lead to secondary effects of increased runoff, erosion, flooding, sedimentation, and vulnerability to invasive weeds. These secondary effects may threaten human life and safety, cultural and ecological resources, land use, and existing...

Author(s): David E. Calkin, Kevin D. Hyde, Peter R. Robichaud, J. Greg Jones, Louise E. Ashmun, Dan R. Loeffler

Year Published: 2007

Type: Document

Technical Report or White Paper

Improving wildfire preparedness: lessons from communities across the US

www.nrfirescience.org/resource/7947

Communities across the U.S. have been taking action to adapt to the wildfire risk they face. In a series of case studies conducted in 15 communities, researchers identified and described four elements that

form the foundation for community wildfire preparedness: landscape, government, citizens, and community.

Author(s): Pamela J. Jakes, Linda E. Kruger, Martha C. Monroe, Kristen C. Nelson, Victoria Sturtevant
Year Published: 2007

Type: Document

Book or Chapter or Journal Article

An analytical framework for quantifying wildland fire risk and fuel treatment benefit

www.nrfirescience.org/resource/12720

Federal wildland fire management programs have readily embraced the practice of fuel treatment. Wildland fire risk is quantified as expected annual loss (\$ yr⁻¹ or \$ yr⁻¹ ac⁻¹). Fire risk at a point on the landscape is a function of the probability of burning at that point, the relative frequency of fire behaviors expected if the...

Author(s): Joe H. Scott

Year Published: 2006

Type: Document

Conference Proceedings

Can behavioral decision theory explain risk-averse fire management decisions?

www.nrfirescience.org/resource/12719

Organizations managing forest land often make fire management decisions that seem overly risk-averse in relation to their stated goals for ecosystem restoration, protection of sensitive species and habitats, and protection of water and timber resources. Research in behavioral decision theory has shown that people faced with...

Author(s): Lynn A. Maguire, Elizabeth A. Albright

Year Published: 2005

Type: Document

Book or Chapter or Journal Article

The challenge of quantitative risk analysis for wildland fire

www.nrfirescience.org/resource/12715

Quantitative fire risk analysis depends on characterizing and combining fire behavior probabilities and effects. Fire behavior probabilities are different from fire occurrence statistics (historic numbers or probabilities of discovered ignitions) because they depend on spatial and temporal factors controlling fire growth. That is,...

Author(s): Mark A. Finney

Year Published: 2005

Type: Document

Book or Chapter or Journal Article

Accepting uncertainty, assessing risk: decision quality in managing wildfire, forest resource values, and new technology

www.nrfirescience.org/resource/12711

The risks, uncertainties, and social conflicts surrounding uncharacteristic wildfire and forest resource values have defied conventional approaches to planning and decision-making. Paradoxically, the adoption of technological innovations such as risk assessment, decision analysis, and landscape simulation models by land management...

Author(s): Jeffrey G. Borchers

Year Published: 2005

Type: Document

Book or Chapter or Journal Article

Wildland fire hazard and risk: problems, definitions and context

www.nrfirescience.org/resource/12716

The risks, hazards, and relative severity of wildland fires are presented here within the ecological context of historical natural fire regimes, time, space, and process. As the public dialogue on the role and impacts of wildland fire increases, it is imperative for all partners to converge on clear and concise terminology that...

Author(s): Colin C. Hardy

Year Published: 2005

Type: Document

Book or Chapter or Journal Article

Predicting risks of uncharacteristic wildfires: application of the risk assessment process

www.nrfirescience.org/resource/12714

The National Environmental Policy Act (NEPA) mandates that the U.S. Forest Service (USFS) conduct an Environmental Impact Assessment (EIA) as its fire management policy evolves to cope with a legacy of over 100 years of fire suppression on national forest lands and an increasing occurrence of uncharacteristically large, intense...

Author(s): Anne Fairbrother, Jessica G. Turnley

Year Published: 2005

Type: Document

Book or Chapter or Journal Article

Probability based models for estimation of wildfire risk

www.nrfirescience.org/resource/12709

We present a probability-based model for estimating fire risk. Risk is defined using three probabilities: the probability of fire occurrence; the conditional probability of a large fire given ignition; and the unconditional probability of a large fire. The model is based on grouped data at the 1 km²-day cell level. We fit a...

Author(s): Haiganoush K. Preisler, David R. Brillinger, Robert E. Burgan, John W. Benoit

Year Published: 2004

Type: Document

Book or Chapter or Journal Article

Western forest, fire risk, and climate change

www.nrfirescience.org/resource/11114

Climate warming may first show up in forests as increased growth, which occurs as warmer temperatures, increased carbon dioxide, and more precipitation encourage higher rates of photosynthesis. The second way that climate change may show up in forests is through changes in disturbance regimes-the long-term patterns of fire, drought...

Author(s): Valerie A. Rapp

Year Published: 2004

Type: Document

Research Brief or Fact Sheet

Training ecologists to think with uncertainty in mind

www.nrfirescience.org/resource/12642

Predictive capacity is needed to anticipate the consequences of global change. Along with the computational challenges inherent in accounting for uncertainty in models of ecological and physical processes related to global change, we face educational challenges related to developing the

intellectual capital for thinking with...

Author(s): Carol A. Brewer, Louis J. Gross

Year Published: 2003

Type: Document

Book or Chapter or Journal Article, Synthesis

The spatial context of fire: a new approach for predicting fire occurrence

www.nrfirescience.org/resource/10993

Across North America, decades of fire suppression and recent patterns of human settlement have combined to increase the risks that wildland fires pose to human life, property, and natural resource values. Various methods can be used to reduce fuel hazards and mitigate these risks, but funding and other constraints require that these...

Author(s): Carol L. Miller

Year Published: 2003

Type: Document

Conference Proceedings, Technical Report or White Paper

An overview of the fire and fuels extension to the forest vegetation simulator

www.nrfirescience.org/resource/11037

The Fire and Fuels Extension (FFE) to the Forest Vegetation Simulator (FVS) has been developed to assess the risk, behavior, and impact of fire in forest ecosystems. This extension to the widely-used stand-dynamics model FVS simulates the dynamics of snags and surface fuels as they are affected by stand management (of trees or fuels...

Author(s): Sarah J. Beukema, Elizabeth D. Reinhardt, Werner A. Kurz, Nicholas L. Crookston

Year Published: 2000

Type: Document

Conference Proceedings

Preventing disaster: home ignitability in the wildland-urban interface

www.nrfirescience.org/resource/159

Wildland-urban interface (W-UI) fires are a significant concern for federal, state, and local land management and fire agencies. Research using modeling, experiments, and W-UI case studies indicates that home ignitability during wildland fires depends on the characteristics of the home and its immediate surroundings. These findings...

Author(s): Jack D. Cohen

Year Published: 2000

Type: Document

Book or Chapter or Journal Article

Sequential use of simulation and optimization in analysis and planning

www.nrfirescience.org/resource/11045

Management activities are analyzed at landscape scales employing both simulation and optimization. SIMPPLLE, a stochastic simulation modeling system, is initially applied to assess the risks associated with a specific natural process occurring on the current landscape without management treatments, but with fire suppression. These...

Author(s): Hans R. Zuuring, Jimmie D. Chew, J. Greg Jones

Year Published: 2000

Type: Document

Conference Proceedings

Applying simulation and optimization to plan fuel treatments at landscape scales

www.nrfirescience.org/resource/11067

Fuel treatment activities are analyzed at the landscape scale by using both simulation and optimization. Simulating vegetative patterns and processes at landscape scales (SIMPPLLE), a stochastic simulation modeling system, is initially applied to assess wildfire risks on the current landscape without management treatments but with...

Author(s): J. Greg Jones, Jimmie D. Chew, Hans R. Zuuring

Year Published: 1999

Type: Document

Conference Proceedings, Technical Report or White Paper

Economic efficiency and risk character of fire management programs, northern rocky mountains

www.nrfirescience.org/resource/11218

Economic efficiency and risk have long been considered during the selection of fire management programs and the design of fire management polices. The risk considerations was largely subjective, however, and efficiency has only recently been calculated for selected portions of the fire management program. The highly stochastic...

Author(s): Thomas J. Mills, Frederick W. Bratten

Year Published: 1988

Type: Document

Technical Report or White Paper

The Great Basin: wildland fire management in the year 2000

www.nrfirescience.org/resource/11487

The future of wildland fire management depends on the course chosen by fire managers today. Our responsiveness to issues will determine how much we influence where we go. Economics in concert with a better appreciation of fire's role in ecosystem dynamics will significantly alter fire management as we know it today. Public subsidies...

Author(s): James B. Webb

Year Published: 1987

Type: Document

Conference Proceedings, Technical Report or White Paper

LANDFIRE #2: Assessing needs - Grand Teton NP & Bridger-Teton NF risk assessment findings

www.nrfirescience.org/resource/12804

This is the second webinar in a series of three, developed by LANDFIRE, the Northern Rockies and Southern Rockies Fire Science Networks, and the Joint Fire Science Program. The webinar series is designed to introduce LANDFIRE data and tools, examine an on-the-ground application project in the Rockies region, and look at ways to...

Type: Media

Webinar

Wildland Fire Decision Support System (WFDSS)

www.nrfirescience.org/resource/60

This system is intended to assist fire managers and analysts in making strategic and tactical decisions for fire incidents. It is designed to replace the WFSA (Wildland Fire Situation Analysis), Wildland Fire Implementation Plan (WFIP), and Long-Term Implementation Plan (LTIP) processes with a single process that is easier to use,...

Type: Tool

Model or System

Integrating community wildfire protection plans and natural hazard mitigation plans

www.nrfirescience.org/resource/15290

Natural Hazard Mitigation Plans (NHMP) and Community Wildfire Protection Plans (CWPP) both benefit communities striving to reduce risk to natural hazards. Though one plan is focused on the wildfire hazard and other is focused on multi-natural hazards, the requirements of what needs to be in the plans have a lot of similarities. As a...

Type: Media

Webinar

Rethinking performance measurement in US federal wildland fire management: putting initial attack success in its place

www.nrfirescience.org/resource/14868

Initial attack (IA) success has long been one of the primary performance measures used by agencies with wildland firefighting responsibility in the United States (US) and elsewhere. The US federal agencies currently state that (1) they credit an IA success when an 'unwanted' wildfire is suppressed before it...

Type: Media

Webinar

Wildfire risk assessment

www.nrfirescience.org/resource/13805

Large incident risk assessments: the roles of the agency administrator and the resource specialist.

Type: Media

Webinar

Landscape science solutions for resource managers

www.nrfirescience.org/resource/13217

Jerry Tagestad, Sr. Research Scientist with the Pacific Northwest National Laboratory, will discuss deriving information from geospatial data, and a recently developed fire risk model and how it might be adapted for the Great Basin. The ability to make informed decisions about landscape condition and fire risk usually isn't limited...

Type: Media

Webinar

ArcFuels: an ArcGIS interface for fuel treatment planning and wildfire risk assessment

www.nrfirescience.org/resource/12853

Potential fire behavior metrics, including fire spread, intensity, likelihood, and ecological risk need to be analyzed for proposed fuel treatment alternatives. We built ArcFuels to streamline the fuel management planning process, and provide tools for quantitative wildfire risk assessment. ArcFuels integrated a number of fire...

Type: Media

Webinar

FIREHouse: The Northwest and Alaska Fire Research Clearinghouse

www.nrfirescience.org/resource/144

FIREHouse provides user-friendly, web-based information about fire science and technology relevant to Washington, Oregon, Idaho and Alaska. For each project posted, the goal is to provide, as applicable, online, searchable access to: (1) project and tool descriptions, contact information and links; (2) on-line publications; (3)...

Type: Website

Website

Making National Spatial Data Work on Your NW Landscape

www.nrfirescience.org/resource/15509

The principles of data modification are demonstrated through an example in Oregon's Rogue River Basin where LANDFIRE data were calibrated for use in a wildfire hazard analysis.

Type: Media

Webinar

Risk, resilience, and the fire management system

www.nrfirescience.org/resource/15104

The future of wildland fire management in the US entails increasing complexity, risk, and scrutiny, and it is clear that business-as-usual is unsustainable. New paradigms recognize a need to deemphasize fire exclusion, expand application of prescribed and managed natural fire, and foster resilience and adaptation to fire....

Type: Media

Webinar

Have definitions and standards for fire severity, hazard, and risk improved since 1999?

www.nrfirescience.org/resource/14269

In 1998 the General Accounting Office presented to Congress a comprehensive assessment of the wildfire threat to western national forests. The GAO report stated 'In 1995, the [Forest Service] agency estimated that 39 million acres are now at risk of large, uncontrollable, catastrophic fires.' The national assessment and mapping...

Type: Media

Video

Risk assessment to achieve fire-adapted communities

www.nrfirescience.org/resource/13218

The outline for this webinar is as follows - Trends and background in risk assessment
Wildfire risk trajectory - system model
Structured risk assessment
Risk sharing in the WUI
Risk transmission from FS lands to private lands

Type: Media

Webinar

Using climate information for risk mitigation and objective achievement in managed fire

www.nrfirescience.org/resource/12874

Considerable evidence exists that climate impacts wildfires and that climate change will continue to provide challenges for fire management. For fire managers, a key step in meeting those challenges is to identify ways to utilize climate information in order to both mitigate risks associated with wildfires and achieve objectives for...

Type: Media

Webinar