

Adaptive silviculture for climate change: a national experiment in manager-scientist partnerships to apply an adaptation framework

www.nrfirescience.org/resource/15232

Forest managers in the United States must respond to the need for climate-adaptive strategies in the face of observed and projected climatic changes. However, there is a lack of on-the-ground forest adaptation research to indicate what adaptation measures or tactics might be effective in preparing forest ecosystems to deal with...

Author(s): Linda Nagel, Brian J. Palik, Michael A. Battaglia, Anthony W. D'Amato, James M. Guldin, Christopher W. Swanston, Maria K. Janowiak, Matthew P. Powers, Linda A. Joyce, Constance I. Millar, David L. Peterson, Lisa Ganio, Chad Kirschbaum, Molly R. Roske

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Adapt to more wildfire in western North American forests as climate changes

www.nrfirescience.org/resource/15327

Wildfires across western North America have increased in number and size over the past three decades, and this trend will continue in response to further warming. As a consequence, the wildland–urban interface is projected to experience substantially higher risk of climate-driven fires in the coming decades. Although many plants,...

Author(s): Tania L. Schoennagel, Jennifer Balch, Hannah Brenkert-Smith, Philip E. Dennison, Brian J. Harvey, Meg A. Krawchuk, Nathan Mietkiewicz, Penelope Morgan, Max A. Moritz, Ray Rasker, Monica G. Turner, Cathy L. Whitlock

Year Published: 2017

Type: Document

Book or Chapter or Journal Article

Where you stand depends on where you sit: Qualitative inquiry into notions of fire adaptation

www.nrfirescience.org/resource/16190

Wildfire and the threat it poses to society represents an example of the complex, dynamic relationship between social and ecological systems. Increasingly, wildfire adaptation is posited as a pathway to shift the approach to fire from a suppression paradigm that seeks to control fire to a paradigm that focuses on “living with”...

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

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

Opportunities to utilize traditional phenological knowledge to support adaptive management of

social-ecological systems vulnerable to changes in climate and fire regimes

www.nrfirescience.org/resource/13956

The field of adaptive management has been embraced by researchers and managers in the United States as an approach to improve natural resource stewardship in the face of uncertainty and complex environmental problems. Integrating multiple knowledge sources and feedback mechanisms is an important step in this approach. Our objective...

Author(s): Christopher A. Armatas, Tyron J. Venn, Brooke Baldauf McBride, Alan E. Watson, Stephen J. Carver

Year Published: 2016

Type: Document

Book or Chapter or Journal Article

Managing ungulate browsing for sustainable aspen

www.nrfirescience.org/resource/16376

In montane forests of the Intermountain West composition and function are often defined by what happens with quaking aspen. Aspen is a pioneer species that regenerates quickly following disturbance and then establishes ecological conditions under which the rest of the biological community develops. Quaking aspen forests have high...

Quaking aspen forests have high...

Author(s): Samuel B. St. Clair, Paul C. Rogers, Michael R. Kuhns

Year Published: 2015

Type: Document

Research Brief or Fact Sheet

The role of fire in aspen ecology and restoration

www.nrfirescience.org/resource/16377

Quaking aspen is generally considered to be a fire-adapted species because it regenerates prolifically after fire, and it can be replaced by more shade-tolerant tree species in the absence of fire. As early-successional aspen stands transition to greater conifer-dominance, they become increasingly fire prone, until fire returns, and...

Author(s): Douglas J. Shinneman, Kevin Krasnow, Susan K. McIlroy

Year Published: 2015

Type: Document

Research Brief or Fact Sheet

Learning to coexist with wildfire

www.nrfirescience.org/resource/15326

The impacts of escalating wildfire in many regions — the lives and homes lost, the expense of suppression and the damage to ecosystem services — necessitate a more sustainable coexistence with wildfire. Climate change and continued development on fire-prone landscapes will only compound current problems. Emerging strategies for...

Author(s): Max A. Moritz, E. Batllori, Ross A. Bradstock, A. Malcolm Gill, J. Handmer, Paul F. Hessburg, J. Leonard, Sarah M. McCaffrey, Dennis C. Odion, Tania L. Schoennagel, Alexandra D. Syphard

Year Published: 2014

Type: Document

Book or Chapter or Journal Article

Challenges and opportunities for large landscape-scale management in a shifting climate: the importance of nested adaptation responses across geospatial and temporal scales

www.nrfirescience.org/resource/12994

The Yellowstone to Yukon Conservation Initiative (Y2Y) was established over 20 years ago as an

experiment in large landscape conservation. Initially, Y2Y emerged as a response to large scale habitat fragmentation by advancing ecological connectivity. It also laid the foundation for large scale multi-stakeholder conservation...

Author(s): Gary M. Tabor, Anne Carlson, R. Travis Belote

Year Published: 2014

Type: Document

Technical Report or White Paper

Making monitoring count: project design for active adaptive management

www.nrfirescience.org/resource/12768

Ongoing environmental change requires that managers develop strategies capable of achieving multiple objectives in an uncertain future. Active adaptive management (AAM) offers a robust approach to reducing uncertainty while also considering diverse stakeholder perspectives. Important features of AAM include recognition of learning...

Author(s): Andrew J. Larson, R. Travis Belote, Matthew A. Williamson, Gregory H. Aplet

Year Published: 2013

Type: Document

Book or Chapter or Journal Article

Summary of science, activities, programs, and policies that influence the rangewide conservation of greater sage-grouse (*Centrocercus urophasianus*)

www.nrfirescience.org/resource/15420

Because of their broad range, variations in population traits and characteristics across this range, and the variability in habitat conditions and threats within this range, conservation of sage-grouse is a unique challenge compared to isolated or range-restricted species, primarily due to the scale of the effort. This complexity is...

Author(s): D.J. Manier, D.J.A. Wood, Z.H. Bowen, R.M. Donovan, M.J. Holloran, L.M. Juliusson, K.S. Mayne, S.J. Oyler-McCance, F.R. Quamen, D.J. Saher, A.J. Titolo

Year Published: 2013

Type: Document

Technical Report or White Paper

Effects of climatic variability and change on forest ecosystems: a comprehensive science synthesis for the U.S. forest sector

www.nrfirescience.org/resource/12567

This report is a scientific assessment of the current condition and likely future condition of forest resources in the United States relative to climatic variability and change. It serves as the U.S. Forest Service forest sector technical report for the National Climate Assessment and includes descriptions of key regional issues and...

Year Published: 2012

Type: Document

Synthesis, Technical Report or White Paper

Adaptation: planning for climate change and its effects on federal lands

www.nrfirescience.org/resource/12449

National forest managers are charged with tackling the effects of climate change on the natural resources under their care. The Forest Service National Roadmap for Responding to Climate Change and the Climate Change Performance Scorecard require managers to make significant progress in addressing climate change by 2015. To help land...

Author(s): Marie Oliver

Year Published: 2012

Type: Document
Research Brief or Fact Sheet

Can we manage for resilience? The integration of resilience thinking into natural resource management in the United States

www.nrfirescience.org/resource/12693

The concept of resilience is now frequently invoked by natural resource agencies in the US. This reflects growing trends within ecology, conservation biology, and other disciplines acknowledging that social–ecological systems require management approaches recognizing their complexity. In this paper, we examine the concept of...

Author(s): Melinda Harm Benson, Ahjond S. Garmestani

Year Published: 2011

Type: Document

Book or Chapter or Journal Article

Dry forests and wildland fires of the inland Northwest USA: contrasting the landscape ecology of the pre-settlement and modern eras

www.nrfirescience.org/resource/7941

Prior to Euro-American settlement, dry ponderosa pine and mixed conifer forests (hereafter, the 'dry forests') of the Inland Northwest were burned by frequent low- or mixed-severity fires. These mostly surface fires maintained low and variable tree densities, light and patchy ground fuels, simplified forest structure, and favored...

Author(s): Paul F. Hessburg, James K. Agee, Jerry F. Franklin

Year Published: 2005

Type: Document

Book or Chapter or Journal Article, Synthesis

Status of native fishes in the western United States and issues for fire and fuels management

www.nrfirescience.org/resource/8131

Conservation of native fishes and changing patterns in wildfire and fuels are defining challenges for managers of forested landscapes in the western United States. Many species and populations of native fishes have declined in recorded history and some now occur as isolated remnants of what once were larger more complex systems....

Author(s): Bruce E. Rieman, Danny C. Lee, Denver P. Burns, Robert E. Gresswell, Michael K. Young, Rick Stowell, John N. Rinne, Phil Howell

Year Published: 2003

Type: Document

Book or Chapter or Journal Article, Synthesis

Birds in a sagebrush sea: Managing sagebrush habitat for bird communities

www.nrfirescience.org/resource/15329

This booklet presents land management recommendations to help bird communities in sagebrush habitats. It was prepared for the Western Working Group of Partners in Flight, a partnership of private citizens, industry groups, government agencies, universities, nongovernment organizations, and others interested in bird conservation. Why...

Author(s): Christine Paige, Sharon Ritter

Year Published: 1999

Type: Document

Management or Planning Document

Wildfire and native fish: issues of forest health and conservation of sensitive species

www.nrfirescience.org/resource/8129

Issues related to forest health and the threat of larger, more destructive wildfires have led to major new initiatives to restructure and recompose forest communities in the western United States. Proposed solutions will depend, in part, on silvicultural treatments and prescribed burning. Large fires can produce dramatic changes in...

Author(s): Bruce E. Rieman, Jim Clayton

Year Published: 1997

Type: Document

Book or Chapter or Journal Article

Ecological implications of sagebrush manipulation: A literature review

www.nrfirescience.org/resource/15427

The Montana Department of Fish, Wildlife & Parks (FWP) has long recognized the importance of sagebrush/grassland vegetative communities as wildlife habitat. Efforts to manipulate these communities concern FWP because of the potential implications to wildlife. Some groups believe sagebrush control generally will have beneficial...

Author(s): Joel G. Peterson

Year Published: 1995

Type: Document

Management or Planning Document

Germination and establishment ecology of big sagebrush: Implications for community restoration

www.nrfirescience.org/resource/15421

Big sagebrush (*Artemisia tridentata*) seedling recruitment is limited by seed production and dispersal in space and time, by genetic constraints of specific ecotypes, and by environmental factors that include weather, microsite attributes, soil microbiota, herbivory, and inter- and intraspecific competition.

Establishing this species...

Author(s): Susan E. Meyer

Year Published: 1994

Type: Document

Conference Proceedings

Adaptive fire policy

www.nrfirescience.org/resource/12424

Adaptive resource management is a continuous learning process in which current knowledge always leads to further experimentation and discovery. Adaptive management evolves by learning from mistakes. Designing adaptive management strategies involves four tasks. First, the problem must be defined and bounded. There is growing...

Author(s): James M. Saveland

Year Published: 1991

Type: Document

Conference Proceedings, Technical Report or White Paper

Climate change and the 2012 Planning Rule

www.nrfirescience.org/resource/14731

This presentation was recorded at the Adaptive Silviculture for Climate Change (ASCC) Northern Rockies Workshop was held June 28, 2016 at the Supervisor's Office of the Flathead National Forest in Kalispell, Montana, bringing together natural resource managers, collaborators and stakeholders from across the region.

Type: Media

Webinar

Sagebrush Ecosystems in a Changing Climate: Opportunities for Adaptive Management

www.nrfirescience.org/resource/15940

Sagebrush steppe rangelands comprise a large fraction of North America, but they are in decline due to increases in wildfire and invasive plants, factors that relate strongly to climate and weather variability. When intact, plant communities in sagebrush steppe appear well adapted to cold wet winters and hot dry summers along with...

Type: Media

Webinar

Biodiversity and ecosystem services in managed forests

www.nrfirescience.org/resource/14218

This presentation was recorded during the 2016 State of the State and Forest Health Conference in Corvallis, OR.

Type: Media

Video

Sagebrush Ecosystems in a Changing Climate: Key Opportunities for Adaptive Management

www.nrfirescience.org/resource/15514

Sagebrush steppe rangelands comprise a large fraction of North America, but they are in decline due to increases in wildfire and invasive plants, factors that relate strongly to climate and weather variability. When intact, plant communities in sagebrush steppe appear well adapted to cold wet winters and hot dry summers along with...

Type: Media

Webinar

Sticky legal issues surrounding restoration

www.nrfirescience.org/resource/13052

Navigating adaptive management and cumulative effects analysis to satisfy legal requirements and address stakeholder concerns.

Type: Media

Webinar

Successful vegetation management practices in the sagebrush-steppe

www.nrfirescience.org/resource/15502

This webinar will walk the audience through the Vegetation Management Practices learning series, produced by the Bureau of Land Management and The Nature Conservancy. This learning series responds to action item #5 within the fuels section of the Integrated Rangeland Fire Management Strategy to implement a comprehensive knowledge...

Type: Media

Webinar

Recovery and adaptation after wildfire across the United States, 2009-2011

www.nrfirescience.org/resource/15292

Becoming a fire-adapted community that can live with wildfire is envisioned as a continuous, iterative process of adaptation. In eight case study sites across the United States we examined how destructive wildfire affected altered progress towards becoming fire-adapted, focusing on the role of planning and

WUI regulations (building...

Type: Media

Webinar

Adaptation and silvicultural decision-making

www.nrfirescience.org/resource/14733

Linda Nagel's presentation begins at 28:25. This talk was given at the Adaptive Silviculture for Climate Change (ASCC) Northern Rockies Workshop was held June 28, 2016 at the Supervisor's Office of the Flathead National Forest in Kalispell, Montana, bringing together natural resource managers, collaborators and stakeholders...

Type: Media

Webinar

Evolving paradigms of aspen ecology and management

www.nrfirescience.org/resource/14331

The Evolving Paradigms of Aspen Ecology and Management webinar was part 2 of a longer recording. It starts at time 28:30. In recent years, fundamental assumptions concerning aspen clonal age, regeneration, and genetic diversity have been challenged, and these findings have important implications for management and persistence of...

Type: Media

Webinar

A Three-Step Decision Support Framework for Taking Climate Adaptation Actions

www.nrfirescience.org/resource/15933

We will present a framework for using available climate science to set forward-looking conservation goals and select among a menu of climate adaptation strategies. This decision support framework is designed to catalyze adaptation actions by bridging recent advances in climate science and adaptation planning, while also helping...

Type: Media

Webinar

Taking action on climate change in the Crown of the Continent

www.nrfirescience.org/resource/15505

The Crown Adaptation Partnership (CAP) is a stakeholder-driven process that brings together representatives from jurisdictions across the Crown of the Continent to establish a shared understanding of the effects of climate change, prioritize climate conservation targets, and identify and implement adaptation strategies that have the...

Type: Media

Webinar