A guide to fuels management in riparian areas of the Interior West
www.nrfirescience.org/resource/12632
Fuel treatments in riparian areas pose distinct challenges. Riparian areas are protected by administrative regulations, many of which are largely custodial and restrict active management. However, riparian areas have also been affected by fire suppression, land use, and disturbance and manipulative treatments of fuels...
Author(s): Kathleen A. Dwire, Kristen E. Meyer, Sandra E. Ryan, Gregg M. Riegel, Timothy A. Burton
Year Published: 2016
Type: Document
Synthesis, Technical Report or White Paper

Riparian fuel treatments in the western USA: challenges and considerations
www.nrfirescience.org/resource/14663
Fuel reduction treatments are being conducted throughout watersheds of the western United States to reduce hazardous fuels in efforts to decrease the risk of high-severity fire. The number of fuel reduction projects that include near-stream environments is increasing, bringing new challenges to riparian management. Riparian areas...
Author(s): Kathleen A. Dwire, Kristen E. Meyer, Gregg M. Riegel, Timothy A. Burton
Year Published: 2016
Type: Document
Technical Report or White Paper

Fire, fuels, and streams: the effects and effectiveness of riparian treatments
www.nrfirescience.org/resource/13214
Fire is an important disturbance in riparian systems—consuming vegetation; increasing light; creating snags and debris flows; altering habitat structure; and affecting stream conditions, erosion, and hydrology. For many years, land managers have worked to keep fire out of riparian systems through the use of buffers...
Author(s): Josh McDaniel
Year Published: 2015
Type: Document
Research Brief or Fact Sheet

Eriophorum viridicarinatum (green-keeled cottongrass)
www.nrfirescience.org/resource/11521
This FEIS species review synthesizes information on the relationship of Eriophorum viridicarinatum (green-keeled cottongrass) to fire—how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution...
Author(s): Robin J. Innes
Year Published: 2013
Type: Document
Synthesis

Disease in a dynamic landscape: host behavior and wildfire reduce amphibian chytrid infection
www.nrfirescience.org/resource/12017
Disturbances are often expected to magnify effects of disease, but these effects may depend on the ecology, behavior, and life history of both hosts and pathogens. In many ecosystems, wildfire is the dominant natural disturbance and thus could directly or indirectly affect dynamics of many diseases. To determine how probability of...
Author(s): Blake R. Hossack, Winsor H. Lowe, Joy L. Ware, Paul S. Corn
Interactive effects of wildfire, forest management, and isolation on amphibian and parasite abundance
www.nrfirescience.org/resource/11970
Projected increases in wildfire and other climate-driven disturbances will affect populations and communities worldwide, including host-parasite relationships. Research in temperate forests has shown that wildfire can negatively affect amphibians, but this research has occurred primarily outside of managed landscapes where...
Author(s): Blake R. Hossack, Winsor H. Lowe, R. Ken Honeycutt, Sean A. Parks, Paul S. Corn
Year Published: 2013
Type: Document
Book or Chapter or Journal Article

Appendix 1: Regional summaries - Great Plains
www.nrfirescience.org/resource/11902
Natural vegetation of the Great Plains is primarily grassland and shrubland ecosystems with trees occurring in scattered areas along streams and rivers, on planted woodlots, as isolated forests such as the Black Hills of South Dakota, and near the biogeographic contact with Rocky Mountains and eastern deciduous forests. Trees are...
Author(s): Linda A. Joyce
Year Published: 2013
Type: Document
Synthesis, Technical Report or White Paper

Fire as a tool for controlling Tamarix spp. seedlings
www.nrfirescience.org/resource/13506
Fire is often used in northern grasslands to control invasive grass species but has unknown effects on Tamarix spp., more recent invaders. Temperature (using an oven as a fire surrogate) and duration combinations that would be most lethal to Tamarix seeds and seedlings were determined. Tamarix seeds were sown in soil-lined dishes,...
Author(s): Michelle K. Ohrtman, Sharon A. Clay, David E. Clay, Alanexander J. Smart
Year Published: 2012
Type: Document
Book or Chapter or Journal Article

Fish life histories, wildfire, and resilience - A case study of rainbow trout in the Boise River, Idaho
www.nrfirescience.org/resource/11514
In this short piece we address the question of how aquatic ecosystems and species can change in response to disturbances, such as those related to the influence of wildfire on stream ecosystems. Our focal species is rainbow trout (Oncorhynchus mykiss) in the Boise River, Idaho. Rainbow trout in this system have persisted in the face...
Author(s): Amanda E. Rosenberger, Jason B. Dunham, Helen M. Neville
Year Published: 2012
Type: Document
Technical Report or White Paper
Effects of spring prescribed burning and wildfires on watershed nitrogen dynamics of central Idaho headwater areas
www.nrfirescience.org/resource/8294
Fire is known for its potential to profoundly affect nitrogen (N) dynamics in both terrestrial and aquatic ecosystems. However, few studies have investigated fire effects on several important watershed N pools simultaneously or have directly compared effects of spring prescribed burns and wildfires that occurred in the same...
Author(s): Kirsten Stephan, Kathleen L. Kavanagh, Akihiro Koyama
Year Published: 2012
Type: Document
Book or Chapter or Journal Article

Aquatic species invasions in the context of fire and climate change
www.nrfirescience.org/resource/11273
This paper focuses on the nexus among native and nonnative fishes with respect to fire and climate change in the western United States. Although many taxa are involved, I emphasize native and nonnative salmonids because these are obligate coldwater species that might be expected to respond strongly to fire and because most research...
Author(s): Michael K. Young
Year Published: 2012
Type: Document
Technical Report or White Paper

Wildfire severity mediates fluxes of plant material and terrestrial invertebrates to mountain streams
www.nrfirescience.org/resource/11477
Wildfire effects upon riparian plant community structure, composition, and distribution may strongly influence the dynamic relationships between riparian vegetation and stream ecosystems. However, few studies have examined the influence of fire on these processes. To that end, we compared the quantity and composition of...
Author(s): Breeanne K. Jackson, S. Mazeika P. Sullivan, Rachel L. Malison
Year Published: 2012
Type: Document
Book or Chapter or Journal Article

Cornus sericea (red-osier dogwood)
www.nrfirescience.org/resource/10629
This FEIS species review synthesizes information on the relationship of Cornus sericea (red-osier dogwood) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Corey L. Gucker
Year Published: 2012
Type: Document
Synthesis

Fire and fish: a synthesis of observation and experience
www.nrfirescience.org/resource/11271
The effects of wildfire on aquatic systems and fishes occurring in them has been linked to the direct or immediate influence of the fire on water quality and the indirect or subsequent effects on watershed characteristics and processes that influence water quality and quantity, stream channels, and aquatic
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

Betula occidentalis (water birch)
www.nrfirescience.org/resource/10582
This FEIS species review synthesizes information on the relationship of Betula occidentalis (water birch) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Corey L. Gucker
Year Published: 2012
Type: Document
Synthesis

Salix amygdaloides (peachleaf willow)
www.nrfirescience.org/resource/10658
This FEIS species review synthesizes information on the relationship of Salix amygdaloides (peachleaf willow) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology...
Author(s): Janet L. Fryer
Year Published: 2012
Type: Document
Synthesis

Burning questions for managers: fuels management practices in riparian areas
www.nrfirescience.org/resource/8354
Vegetation treatment projects for fuel reduction in riparian areas can pose distinct challenges to resource managers. Riparian areas are protected by administrative regulations, many of which are largely custodial and restrict active management. Like uplands, however, riparian areas have been affected by fire suppression, land use,...
Author(s): Kristen E. Meyer, Kathleen A. Dwire, Patricia A. Champ, Sandra E. Ryan, Gregg M. Riegel, Timothy A. Burton
Year Published: 2012
Type: Document
Book or Chapter or Journal Article
Genetic variation reveals influence of landscape connectivity on population dynamics and resiliency of western trout in disturbance-prone habitats

Salmonid fishes have evolved and persisted in dynamic ecosystems (Waples and others 2008) where disturbance events vary in frequency, magnitude, timing, and duration (Gresswell 1999; Dale and others 2001), as well as the specific nature of associated effects (e.g., changes in thermal or flow regimes, geomorphology, or water...

Author(s): Helen M. Neville, Robert E. Gresswell, Jason B. Dunham
Year Published: 2012
Type: Document
Technical Report or White Paper

Fire effects on gross inorganic N transformation in riparian soils in coniferous forests of central Idaho, USA: wildfires v. prescribed fires

We investigated differences between wildfires and prescribed fires in their effects on nitrogen (N) dynamics in mineral soils collected from riparian coniferous forests of central Idaho, USA. Specifically, we investigated how the two types of fires affected inorganic N concentrations, microbial biomass N and gross transformation...

Author(s): Akihiro Koyama, Kirsten Stephan, Kathleen L. Kavanagh
Year Published: 2012
Type: Document
Book or Chapter or Journal Article

Climate change, forests, fire, water, and fish: building resilient landscapes, streams, and managers

Fire will play an important role in shaping forest and stream ecosystems as the climate changes. Historic observations show increased dryness accompanying more widespread fire and forest die-off. These events punctuate gradual changes to ecosystems and sometimes generate stepwise changes in ecosystems. Climate vulnerability...

Author(s): Charles H. Luce, Penelope Morgan, Kathleen A. Dwire, Daniel J. Isaak, Zachary A. Holden, Bruce E. Rieman
Year Published: 2012
Type: Document
Technical Report or White Paper

Toxicodendron radicans, Toxicodendron rydbergii (eastern poison-ivy, western poison-ivy)

This FEIS species review synthesizes information on the relationship of Toxicodendron radicans, Toxicodendron rydbergii (eastern poison-ivy, western poison-ivy) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on...

Author(s): Robin J. Innes
Year Published: 2012
Type: Document
Synthesis

Rapid increases and time-lagged declines in amphibian occupancy after wildfire
Climate change is expected to increase the frequency and severity of drought and wildfire. Aquatic and moisture-sensitive species, such as amphibians, may be particularly vulnerable to these modified disturbance regimes because large wildfires often occur during extended droughts and thus may compound environmental threats. However...

Author(s): Blake R. Hossack, Winsor H. Lowe, Paul S. Corn
Year Published: 2012
Type: Document
Book or Chapter or Journal Article

Amphibian responses to wildfire in the western United States: emerging patterns from short-term studies
www.nrfirescience.org/resource/8285
The increased frequency and severity of large wildfires in the western United States is an important ecological and management issue with direct relevance to amphibian conservation. Although the knowledge of fire effects on amphibians in the region is still limited relative to most other vertebrate species, we reviewed the current...
Author(s): Blake R. Hossack, David S. Pilliod
Year Published: 2011
Type: Document
Book or Chapter or Journal Article, Synthesis

Persistent effects of wildfire and debris flows on the invertebrate prey base of rainbow trout in Idaho streams
www.nrfirescience.org/resource/8287
Wildfire and debris flows are important physical and ecological drivers in headwater streams of western North America. Past research has primarily examined short-term effects of these disturbances; less is known about longer-term impacts. We investigated wildfire effects on the invertebrate prey base for drift-feeding rainbow trout...
Author(s): Amanda E. Rosenberger, Jason B. Dunham, John M. Buffington, Mark S. Wipfli
Year Published: 2011
Type: Document
Book or Chapter or Journal Article

Review of fuel treatment effectiveness in forests and rangelands and a case study from the 2007 megafires in central, Idaho, USA
www.nrfirescience.org/resource/11449
This report provides managers with the current state of knowledge regarding the effectiveness of fuel treatments for mitigating severe wildfire effects. A literature review examines the effectiveness of fuel treatments that had been previously applied and were subsequently burned through by wildfire in forests and rangelands. A case...
Author(s): Andrew T. Hudak, Ian Rickert, Penelope Morgan, Eva K. Strand, Sarah A. Lewis, Peter R. Robichaud, Chad M. Hoffman, Zachary A. Holden
Year Published: 2011
Type: Document
Synthesis, Technical Report or White Paper

Alnus incana, Alnus incana subsp. rugosa, Alnus incana subsp. tenuifolia (gray alder, speckled alder, thinleaf alder)
www.nrfirescience.org/resource/10660
This FEIS species review synthesizes information on the relationship of Alnus incana, Alnus incana subsp. rugosa, Alnus incana subsp. tenuifolia (gray alder, speckled alder, thinleaf alder) to fire--how fire
Schedonorus pratensis (meadow fescue)
www.nrfirescience.org/resource/10472
This FEIS species review synthesizes information on the relationship of Schedonorus pratensis (meadow fescue) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy...
Author(s): Katharine R. Stone
Year Published: 2010
Type: Document
Synthesis

Effects of climate change and wildfire on stream temperatures and salmonid thermal habitat in a mountain river network
www.nrfirescience.org/resource/11440
Mountain streams provide important habitats for many species, but their faunas are especially vulnerable to climate change because of ectothermic physiologies and movements that are constrained to linear networks that are easily fragmented. Effectively conserving biodiversity in these systems requires accurate downscaling of...
Author(s): Daniel J. Isaak, Charles H. Luce, Bruce E. Rieman, David E. Nagel, Erin E. Peterson, Dona L. Horan, Sharon Parkes, Gwynne L. Chandler
Year Published: 2010
Type: Document
Book or Chapter or Journal Article

Melilotus alba, Melilotus officinalis (white sweetclover, yellow sweetclover)
www.nrfirescience.org/resource/10456
This FEIS species review synthesizes information on the relationship of Melilotus alba, Melilotus officinalis (white sweetclover, yellow sweetclover) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is...
Author(s): Corey L. Gucker
Year Published: 2010
Type: Document
Synthesis

Fuel reduction management practices in riparian areas of the Western USA
www.nrfirescience.org/resource/12577
Two decades of uncharacteristically severe wildfires have caused government and private land managers to actively reduce hazardous fuels to lessen wildfire severity in western forests, including riparian areas. Because riparian fuel treatments are a fairly new management strategy, we set out to document their frequency and extent on...
Author(s): Katharine R. Stone, David S. Pilliod, Kathleen A. Dwire, Charles C. Rhoades, Sherry P. Wollrab, Michael K. Young
Year Published: 2010
**Polygonum aviculare (prostrate knotweed)**
www.nrfirescience.org/resource/10471
This FEIS species review synthesizes information on the relationship of Polygonum aviculare (prostrate knotweed) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species'...
Author(s): Katharine R. Stone
Year Published: 2010
Type: Document
Synthesis

**Prescribed fires as ecological surrogates for wildfires: a stream and riparian perspective**
www.nrfirescience.org/resource/11444
Forest managers use prescribed fire to reduce wildfire risk and to provide resource benefits, yet little information is available on whether prescribed fires can function as ecological surrogates for wildfire in fire-prone landscapes. Information on impacts and benefits of this management tool on stream and riparian ecosystems is...
Author(s): Robert S. Arkle, David S. Pilliod
Year Published: 2010
Type: Document
Book or Chapter or Journal Article

**Populus alba, Populus x canescens, Populus x heimburgeri, Populus x rouleauiana, Populus x tomentosa (white poplar, gray poplar, Heimburger's poplar, Roulwau's poplar, Chinese white poplar)**
www.nrfirescience.org/resource/10457
This FEIS species review synthesizes information on the relationship of Populus alba, Populus x canescens, Populus x heimburgeri, Populus x rouleauiana, Populus x tomentosa (white poplar, gray poplar, Heimburger's poplar, Roulwau's poplar, Chinese white poplar) to fire--how fire affects the species and its habitat, invasiveness of...
Author(s): Corey L. Gucker
Year Published: 2010
Type: Document
Synthesis

**Equations to convert compacted crown ratio to uncompacted crown ratio for trees in the Interior West**
www.nrfirescience.org/resource/8368
Crown ratio is the proportion of total tree length supporting live foliage. Inventory programs of the US Forest Service generally define crown ratio in terms of compacted or uncompacted measurements. Measurement of compacted crown ratio (CCR) involves envisioning the transfer of lower branches of trees with asymmetric crowns to fill...
Author(s): Chris Toney, Matthew C. Reeves
Year Published: 2009
Type: Document
Book or Chapter or Journal Article
Integrated analysis for management of fire and fuels, terrestrial and aquatic - Final Report to the Joint Fire Science Program
www.nrfirescience.org/resource/12111
The potential for fire to negatively impact habitat that supports a threatened or endangered species, either directly or indirectly through phenomena such as debris flows, presents resource managers with a tough choice: treat fuels to reduce the risk of fire but potentially degrade stream habitat or do not treat fuels knowing an...

Author(s): Charles H. Luce, Bruce E. Rieman, Paul F. Hessburg, Anne E. Black, Matthew R. Dare
Year Published: 2009
Type: Document
Technical Report or White Paper

Influence of wildfire severity on riparian plant community heterogeneity in an Idaho, USA wilderness
www.nrfirescience.org/resource/11445
Despite the increasing recognition of riparian zones as important ecotones that link terrestrial and aquatic ecosystems and of fire as a critical natural disturbance, much remains unknown regarding the influence of fire on stream-riparian ecosystems. To further this understanding, we evaluated the effects of mixed severity wildfire...

Author(s): Breeanne K. Jackson, S. Mazeika P. Sullivan
Year Published: 2009
Type: Document
Book or Chapter or Journal Article

Carex rostrata, Carex utriculata (swollen beaked sedge, Northwest Territory sedge)
www.nrfirescience.org/resource/10595
This FEIS species review synthesizes information on the relationship of Carex rostrata, Carex utriculata (swollen beaked sedge, Northwest Territory sedge) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the...

Author(s): Michelle B. Anderson
Year Published: 2008
Type: Document
Synthesis

Climate change effects on historical range and variability of two large landscapes in western Montana, USA
www.nrfirescience.org/resource/8162
Quantifying the historical range and variability of landscape composition and structure using simulation modeling is becoming an important means of assessing current landscape condition and prioritizing landscapes for ecosystem restoration. However, most simulated time series are generated using static climate conditions which fail...

Author(s): Robert E. Keane, Lisa M. Holsinger, Russell A. Parsons, Kathy L. Gray
Year Published: 2008
Type: Document
Book or Chapter or Journal Article

Carex rossii (Ross's sedge)
www.nrfirescience.org/resource/10594
This FEIS species review synthesizes information on the relationship of Carex rossii (Ross's sedge) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire
management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and...

**Floods, fire, and ice: disturbance ecology of riparian cottonwoods**

www.nrfirescience.org/resource/8237

Cottonwoods are poplar trees that are well adapted to dynamic riparian, or streamside, zones throughout the Northern Hemisphere. Here we assess the influences of three prominent physical disturbances, floods, fire, and ice, on cottonwood population ecology. We emphasize cottonwoods along rivers from the 'Crown of the Continent', the...

Author(s): Stewart B. Rood, Lori A. Goater, John M. Mahoney, Cheryl M. Pearce, Derald G. Smith

Year Published: 2007

Type: Document

Book or Chapter or Journal Article, Synthesis

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**Salix discolor (pussy willow)**

www.nrfirescience.org/resource/10679

This FEIS species review synthesizes information on the relationship of Salix discolor (pussy willow) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and...

Author(s): Corey L. Gucker

Year Published: 2007

Type: Document

Synthesis

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**Betula glandulosa (bog birch)**

www.nrfirescience.org/resource/10740

This FEIS species review synthesizes information on the relationship of Betula glandulosa (bog birch) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and...

Author(s): Jennifer E. Tollefson

Year Published: 2007

Type: Document

Synthesis

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**Responses of pond-breeding amphibians to wildfire: short-term patterns in occupancy and colonization**

www.nrfirescience.org/resource/8249

Wildland fires are expected to become more frequent and severe in many ecosystems, potentially posing a threat to many sensitive species. We evaluated the effects of a large, stand-replacement wildfire on three species of pond-breeding amphibians by estimating changes in occupancy of breeding sites during the three years before and...

Author(s): Blake R. Hossack, Paul S. Corn

Year Published: 2007

Type: Document

Book or Chapter or Journal Article
The effect of spring prescribed fires on nitrogen dynamics within riparian and stream ecosystems - Final Report to the Joint Fire Science Program

www.nrfirescience.org/resource/11173

The effects of prescribed fires on nitrogen dynamics in N limited headwater ecosystems in the northern Rocky Mountains of central Idaho are being investigated. This replicated study studies causal mechanisms that regulate nitrogen (N) dynamics between small headwater streams, riparian vegetation and soil following spring prescribed...

Year Published: 2007
Type: Document
Technical Report or White Paper

Eleocharis palustris (common spikerush)

www.nrfirescience.org/resource/10694

This FEIS species review synthesizes information on the relationship of Eleocharis palustris (common spikerush) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic...

Author(s): Alan S. Hauser
Year Published: 2006
Type: Document
Synthesis

Development of initial Wildland Fire Use documentation for Charles M. Russell National Wildlife Refuge

www.nrfirescience.org/resource/11077

The Charles M. Russell National Wildlife Refuge manages ecosystems that depend on fire for their maintenance. Fire is abundant in and adjacent to the refuge where lightning and human ignitions can rapidly spread in grass and shrub fuels. Farm and ranch land which would be adversely impacted by fire, pose a significant logistical...

Author(s): Bill Clark, Doug Stephen, Pat Stephen, Laurie L. Kurth, Ken Kerr
Year Published: 2006
Type: Document
Management or Planning Document

Acer grandidentatum (bigtooth maple)

www.nrfirescience.org/resource/10895

This FEIS species review synthesizes information on the relationship of Acer grandidentatum (bigtooth maple) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology,...

Author(s): Jennifer E. Tollefson
Year Published: 2006
Type: Document
Synthesis

Carex aquatilis (leafy tussock sedge)

www.nrfirescience.org/resource/10693

This FEIS species review synthesizes information on the relationship of Carex aquatilis (leafy tussock sedge) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire
regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology...

Author(s): Alan S. Hauser
Year Published: 2006
Type: Document
Synthesis

Postfire logging in riparian ecosystems
www.nrfirescience.org/resource/8126
We reviewed the behavior of wildfire in riparian zones, primarily in the western United States, and the potential ecological consequences of postfire logging. Fire behavior in riparian zones is complex, but many aquatic and riparian organisms exhibit a suite of adaptations that allow relatively rapid recovery after fire. Unless...

Author(s): Gordon H. Reeves, Peter A. Bisson, Bruce E. Rieman, Lee E. Benda
Year Published: 2006
Type: Document
Book or Chapter or Journal Article

Stream succession: channel changes after wildfire disturbance
www.nrfirescience.org/resource/11414
One concept in geomorphology is that vegetation is a fundamental control on sediment and water supplies to streams and, therefore, on downstream fluvial processes and channel morphology. Within this paradigm, wildfire has been implicated as a major driving force behind landscape erosion and changes to stream channels, periodically...

Author(s): Nicholas E. Schiedt
Year Published: 2005
Type: Document
Dissertation or Thesis

Spatially distributed estimates of riparian stream shading from remote sensing: effects of disturbance and relationship to stream temperature
www.nrfirescience.org/resource/11405
Solar radiation has long been recognized as a major component of the energy budget of streams, and modeling of stream temperature across stream basins requires estimates of riparian stream shade over extensive areas. A variety of methods are available for measuring shade locally, including hemispherical photography, however these...

Author(s): Charles H. Luce, B. Gutierrez-Teira, David E. Nagel
Year Published: 2005
Type: Document
Conference Proceedings

Fish and stream habitat risks from uncharacteristic wildfire: observations from 17 years of fire-related disturbances on the Boise National Forest, Idaho
www.nrfirescience.org/resource/11451
Several large, uncharacteristic wildfires occurred on the Boise National Forest in Southwest Idaho, from 1986 to 2003. From 1987 to 1994, severe wildfires burned almost 50% of the ponderosa pine forest types (about 200,000 ha). The intensity of the fires varied across the landscape, with a mix of low to moderate severity, and lesser...

Author(s): Timothy A. Burton
Year Published: 2005
Type: Document
Lonicera fragrantissima, Lonicera maackii, Lonicera morrowii, Lonicera tatarica, Lonicera x bella, Lonicera xylosteum (winter honeysuckle, Amur honeysuckle, Morrow's honeysuckle, Tatarian honeysuckle, Bell's honeysuckle, European fly honeysuckle)

www.nrfirescience.org/resource/10465
This FEIS species review synthesizes information on the relationship of Lonicera fragrantissima, Lonicera maackii, Lonicera morrowii, Lonicera tatarica, Lonicera x bella, Lonicera xylosteum (winter honeysuckle, Amur honeysuckle, Morrow's honeysuckle, Tatarian honeysuckle, Bell's honeysuckle, European fly honeysuckle) to fire--how...
Author(s): Gregory T. Munger
Year Published: 2005
Type: Document
Synthesis

Effects of prescribed and wildland fire on aquatic ecosystems in western forests - Final Report to the Joint Fire Science Program
www.nrfirescience.org/resource/11161
The goal of the project is to understand how fire in upland and riparian forests influence stream communities and whether prescription burning mimics the ecological function of fire in a watershed. The project has two components: wildland fire and prescribed fire. To document the range of biotic and abiotic responses to wildland...
Author(s): David S. Pilliod, R. Bruce Bury, Paul S. Corn
Year Published: 2005
Type: Document
Technical Report or White Paper

Wildfire, channel disturbance, and stream temperature: spatio-temporal patterns and associations with the distribution of fish and amphibians in central Idaho
www.nrfirescience.org/resource/8407
Temperature is a critical factor in stream ecosystems, and one that is very likely to be altered by wildfire and associated channel disturbance. In central Idaho streams, temperatures after wildfires may increase following loss of shade from riparian vegetation, and changes in channel structure that increase exposure to solar...
Author(s): Jason B. Dunham, Charles H. Luce, Amanda E. Rosenberger, B. Gutierrez-Teira, David E. Nagel, Bruce E. Rieman
Year Published: 2005
Type: Document
Conference Proceedings

Scales of Stream Disturbance Patterns and Population Structure in Bull Trout
www.nrfirescience.org/resource/11406
Ecological theory proposes that the geometry and dynamics of suitable habitats are important predictors for the persistence of a population or metapopulation. A key finding supporting a metapopulation-like conceptualization of extinction and colonization in fragmented salmonid populations is that individuals of particular species...
Author(s): Charles H. Luce, Bruce E. Rieman, Jason B. Dunham
Year Published: 2005
Type: Document
Conference Proceedings
**Elaeagnus angustifolia (Russian-olive)**
[www.nrfirescience.org/resource/10486](http://www.nrfirescience.org/resource/10486)
This FEIS species review synthesizes information on the relationship of Elaeagnus angustifolia (Russian-olive) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy...
Author(s): Kristin L. Zouhar
Year Published: 2005
Type: Document
Synthesis

**Juncus balticus (Baltic rush)**
[www.nrfirescience.org/resource/10701](http://www.nrfirescience.org/resource/10701)
This FEIS species review synthesizes information on the relationship of Juncus balticus (Baltic rush) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and...
Author(s): Alan S. Hauser
Year Published: 2005
Type: Document
Synthesis

**Cornus nuttallii (Pacific dogwood)**
[www.nrfirescience.org/resource/10681](http://www.nrfirescience.org/resource/10681)
This FEIS species review synthesizes information on the relationship of Cornus nuttallii (Pacific dogwood) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology,...
Author(s): Corey L. Gucker
Year Published: 2005
Type: Document
Synthesis

**Long-term impacts of fire and mass wasting on solar loading and stream heating in mountain streams of central Idaho**
[www.nrfirescience.org/resource/11433](http://www.nrfirescience.org/resource/11433)
The immediate impacts of watershed disturbances such as forest fires, debris flows, and hyperconcentrated flows to lotic systems can include the local decimation of fish, amphibian, and insect populations, but the long-term impacts to biota may have more to do with the trajectory of stream habitat recovery from disturbance. This...
Author(s): C. W. Welcker, John M. Buffington, Bruce E. Rieman, Charles H. Luce, J. A. McKean
Year Published: 2005
Type: Document
Conference Proceedings

**Convolvulus arvensis (field bindweed)**
[www.nrfirescience.org/resource/10487](http://www.nrfirescience.org/resource/10487)
This FEIS species review synthesizes information on the relationship of Convolvulus arvensis (field bindweed) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on
Enhancing moist forest restoration opportunities in riparian systems

www.nrfirescience.org/resource/10976
In northern Rocky Mountain moist forests, riparian systems contain many attributes that create unique biophysical conditions that alter disturbances and microenvironments; thus creating distinct forest structures, species composition, and management challenges. For example, browsing, limited opening size, competition from...

Author(s): Theresa B. Jain, Russell T. Graham
Year Published: 2004
Type: Document
Conference Proceedings, Synthesis

Impacts of fire and mass wasting on channel morphology and stream temperature in mountain rivers of central Idaho (abstract)

www.nrfirescience.org/resource/11432
Debris flows and hyperconcentrated flows immediately impact streams by changing channel morphology, grain size, sediment storage and transport, amount of incision, riparian vegetation, large woody debris dynamics, and extirpating fish, amphibian, and insect populations. In central Idaho, these disturbances are commonly triggered by...

Author(s): C. W. Welcker, John M. Buffington, Bruce E. Rieman, Charles H. Luce, J. A. McKean
Year Published: 2004
Type: Document
Conference Proceedings

Lewis's Woodpecker (Melanerpes lewis): a technical conservation assessment

www.nrfirescience.org/resource/11498
Lewis's woodpecker (Melanerpes lewis) is a locally common but patchily distributed woodpecker species usually seen in open forests of western North America. The combination of its sporadic distribution, its diet of adult-stage free-living insects (primarily aerial), its preference to nest in burned landscapes, and its variable...

Author(s): Stephen C. Abele, Victoria A. Saab, Edward O. Garton
Year Published: 2004
Type: Document
Technical Report or White Paper

Sonchus arvensis (perennial sowthistle)

www.nrfirescience.org/resource/10464
This FEIS species review synthesizes information on the relationship of Sonchus arvensis (perennial sowthistle) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species'...

Author(s): Jack McWilliams
Year Published: 2004
Type: Document
Synthesis
Wildfire and weeds in the Northern Rockies

In 2000, wildfires burned more than 200,000 acres on the Bitterroot National Forest of Montana and nearly 1.5 million acres in the Northern and Intermountain Regions. These fires increased light and nutrient levels, reduced plant competition, and increased exposure of bare soil. These conditions favor the invasion and expansion of...

Author(s): Elaine Kennedy Sutherland
Year Published: 2003
Type: Document
Conference Proceedings

Fire and aquatic ecosystems of the western USA: current knowledge and key questions

Understanding of the effects of wildland fire and fire management on aquatic and riparian ecosystems is an evolving field, with many questions still to be resolved. Limitations of current knowledge, and the certainty that fire management will continue, underscore the need to summarize available information. Integrating fire and...

Author(s): Peter A. Bisson, Bruce E. Rieman, Charles H. Luce, Paul F. Hessburg, Danny C. Lee, Jeffrey L. Kershner, Gordon H. Reeves, Robert E. Gresswell
Year Published: 2003
Type: Document
Book or Chapter or Journal Article, Synthesis

Tamarix chinensis, Tamarix gallica, Tamarix parviflora, Tamarix ramosissima (tamarisk, French tamarisk, small-flowered tamarisk, saltcedar)

This FEIS species review synthesizes information on the relationship of Tamarix chinensis, Tamarix gallica, Tamarix parviflora, Tamarix ramosissima (tamarisk, French tamarisk, small-flowered tamarisk, saltcedar) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and...

Author(s): Kristin L. Zouhar
Year Published: 2003
Type: Document
Synthesis

Fire and riparian ecosystems in landscapes of the western USA

Despite the numerous values of riparian areas and the recognition of fire as a critical natural disturbance, few studies have investigated the behavior, properties, and influence of natural fire in riparian areas of the western USA. Riparian areas frequently differ from adjacent uplands in vegetative composition and structure,...

Author(s): Kathleen A. Dwire, J. Boone Kauffman
Year Published: 2003
Type: Document
Book or Chapter or Journal Article

Introduction to the effects of wildland fire on aquatic ecosystems in the western USA

Description not entered
Author(s): Bruce E. Rieman, Robert E. Gresswell, Michael K. Young, Charles H. Luce
Responses of stream benthic macroinvertebrates to fire
www.nrfirescience.org/resource/7964
Synthesis of published research on the responses of stream benthic macroinvertebrates to fire in western United States indicates a consistent pattern of response that can guide resource management and future research. Direct effects of fire generally are minor or indiscernible. Indirect effects, resulting primarily from increased...
Author(s): G. Wayne Minshall
Year Published: 2003
Type: Document
Book or Chapter or Journal Article

Acer platanoides (Norway maple)
www.nrfirescience.org/resource/10466
This FEIS species review synthesizes information on the relationship of Acer platanoides (Norway maple) to fire—how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy....
Author(s): Gregory T. Munger
Year Published: 2003
Type: Document
Synthesis

Wildfire effects on stream food webs and nutrient dynamics in Glacier National Park, USA
www.nrfirescience.org/resource/8150
We documented immediate and mid-term (5 y) impacts on streams from a large (15,500 ha) wildfire in northwestern Montana. Fire-related impacts were ecosystem-wide, extending from water chemistry to fish. During the initial firestorm, phosphorus and nitrogen levels increased 5- to 60-fold above background levels resulting from aerial...
Author(s): Craig N. Spencer, Kristin O. Gabel, F. Richard Hauer
Year Published: 2003
Type: Document
Book or Chapter or Journal Article

Linkages between streams and riparian vegetation at increasing in time-since-fire in western Montana watersheds
www.nrfirescience.org/resource/11042
Succession in upland vegetation following fire is well studied, yet the concurrent changes in riparian zones and streams have received little attention. Our objective was to examine variation in riparian and stream characteristics in three headwaters basins of the Bitterroot River in western Montana in summer 2001. These watersheds...
Author(s): Elaine Kennedy Sutherland, Michael K. Young, Ethan Mace, Robert S. Ahl
Year Published: 2002
Type: Document
Conference Proceedings

Juniperus scopulorum (Rocky Mountain juniper)
Juniperus scopulorum (Rocky Mountain juniper)

This FEIS species review synthesizes information on the relationship of Juniperus scopulorum (Rocky Mountain juniper) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic...

Author(s): Janette S. Scher
Year Published: 2002
Type: Document
Synthesis

Lythrum salicaria (purple loosestrife)

This FEIS species review synthesizes information on the relationship of Lythrum salicaria (purple loosestrife) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy...

Author(s): Gregory T. Munger
Year Published: 2002
Type: Document
Synthesis

Pseudotsuga menziesii var. glauca (Rocky Mountain Douglas-fir)

This FEIS species review synthesizes information on the relationship of Pseudotsuga menziesii var. glauca (Rocky Mountain Douglas-fir) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy....

Author(s): Peter D. Steinberg
Year Published: 2002
Type: Document
Synthesis

Carduus nutans (musk thistle)

This FEIS species review synthesizes information on the relationship of Carduus nutans (musk thistle) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy....

Author(s): Kristin L. Zouhar
Year Published: 2002
Type: Document
Synthesis

Cirsium vulgare (bull thistle)

This FEIS species review synthesizes information on the relationship of Cirsium vulgare (bull thistle) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy....

Author(s): Kristin L. Zouhar
Year Published: 2002
Perspectives on persistence of native fishes and nonnative fish invasions in fire-prone landscapes - Slide presentation
www.nrfirescience.org/resource/11517
Powerpoint presentation about direct and indirect effects of fire on fish populations. Presented at the Fire and Aquatic Ecosystems Workshop, April 22-24, 2002 in Boise, Idaho.
Author(s): Jason B. Dunham, Michael K. Young, Robert E. Gresswell, Bruce E. Rieman
Year Published: 2002
Type: Document
Conference Proceedings

Scale of severe channel disturbances relative to the structure of fish populations
www.nrfirescience.org/resource/11404
Stream temperature and channel disturbance are two potentially important controls on the distribution and persistence of fish populations. Temperature regulates primary physiological processes that constrain the demographic response of populations to their environments. Ultimately temperature may be a first order determinant of the...
Author(s): Charles H. Luce, Bruce E. Rieman, John G. King, Jason B. Dunham
Year Published: 2002
Type: Document
Conference Proceedings

The role of fire in riparian zones of the northern Rocky Mountains
www.nrfirescience.org/resource/11137
While the importance of riparian systems in the northern Rocky Mountains as sources of productivity and diversity is recognized, there is little information about the interaction between pattern and process. To sustain these areas, we need to understand the characteristics of disturbance processes and how they result in patterns in...
Author(s): Elaine Kennedy Sutherland, Kevin S. McKelvey
Year Published: 2002
Type: Document
Conference Proceedings, Technical Report or White Paper

Cynoglossum officinale (houndstongue)
www.nrfirescience.org/resource/10500
This FEIS species review synthesizes information on the relationship of Cynoglossum officinale (houndstongue) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy...
Author(s): Kristin L. Zouhar
Year Published: 2002
Type: Document
Synthesis

Acer glabrum (Rocky Mountain maple)
www.nrfirescience.org/resource/10609
This FEIS species review synthesizes information on the relationship of Acer glabrum (Rocky Mountain maple) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire
regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology,....

Author(s): Michelle B. Anderson
Year Published: 2001
Type: Document
Synthesis

**Populus deltoides, Populus deltoides var. deltoides, Populus deltoides var. mislizeni, Populus deltoides var. monilifera (eastern cottonwood, eastern cottonwood, Rio Grande cottonwood, plains cottonwood)**

This FEIS species review synthesizes information on the relationship of Populus deltoides, Populus deltoides var. deltoides, Populus deltoides var. mislizeni, Populus deltoides var. monilifera (eastern cottonwood, eastern cottonwood, Rio Grande cottonwood, plains cottonwood) to fire--how fire affects the species and its habitat,...

Author(s): Jane E. Taylor
Year Published: 2001
Type: Document
Synthesis

**Benthic macroinvertebrate assemblages in five central Idaho (USA) streams over a 10-year period following disturbance by wildfire**

The effects of wildfire on benthic macroinvertebrate assemblages of streams in mixed-conifer forest were examined for 10 successive years following the Mortar Creek Fire of 1979. Changes in burned-catchment streams were evaluated relative to a paired set of reference-catchment streams. Taxa richness and total abundance tended to be...

Author(s): G. Wayne Minshall, Christopher T. Robinson, Deron E. Lawrence, Douglas A. Andrews, James T. Brock
Year Published: 2001
Type: Document
Book or Chapter or Journal Article

**Populus angustifolia (narrowleaf cottonwood)**

This FEIS species review synthesizes information on the relationship of Populus angustifolia (narrowleaf cottonwood) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic...

Author(s): Kevin A. Simonin
Year Published: 2001
Type: Document
Synthesis

**The role of fire in juniper and pinyon woodlands: a descriptive analysis**

Among the most pronounced vegetation changes in past 130 years has been the increase in both distribution and density of juniper (Juniperus spp.) and pinyon (Pinus spp.) across the Intermountain West. Juniper and pinyon species between the Canadian and Mexican borders occupy over 30 million ha throughout this region. Prior to...

Author(s): Richard F. Miller, Robin J. Tausch
Cirsium arvense (Canada thistle)
www.nrfirescience.org/resource/10482
This FEIS species review synthesizes information on the relationship of Cirsium arvense (Canada thistle) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy....
Author(s): Kristin L. Zouhar
Year Published: 2001
Type: Document
Synthesis

Salix scouleriana (Scouler willow)
www.nrfirescience.org/resource/10606
This FEIS species review synthesizes information on the relationship of Salix scouleriana (Scouler willow) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology....
Author(s): Michelle B. Anderson
Year Published: 2001
Type: Document
Synthesis

Populus balsamifera subsp. trichocarpa (black cottonwood)
www.nrfirescience.org/resource/10851
This FEIS species review synthesizes information on the relationship of Populus balsamifera subsp. trichocarpa (black cottonwood) to fire--how fire affects the species and its habitat, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy....
Author(s): Peter D. Steinberg
Year Published: 2001
Type: Document
Synthesis

Water quality, substratum and biotic responses of five central Idaho (USA) streams during the first year following the Mortar Creek fire
www.nrfirescience.org/resource/11442
The Mortar Creek Fire burned 26 000 ha of mixed-conifer Rocky Mountain forest in July-August 1979. Changes in burn stream conditions were examined relative to reference streams for various ecological factors on two to six occasions, from October 1979 to August 1980. Factors included major ions and nutrients, suspended and benthic...
Author(s): G. Wayne Minshall, James T. Brock, Douglas A. Andrews, Christopher T. Robinson
Year Published: 2001
Type: Document
Book or Chapter or Journal Article

Centaurea maculosa (spotted knapweed)
This FEIS species review synthesizes information on the relationship of Centaurea maculosa (spotted knapweed) to fire--how fire affects the species and its habitat, invasiveness of the species, effects of the species on fuels and fire regimes, and fire management considerations. Information is also provided on the species' taxonomy... 
Author(s): Kristin L. Zouhar 
Year Published: 2001 
Type: Document 
Synthesis 

Prunus virginiana (chokecherry) 
www.nrfirescience.org/resource/10503 
This FEIS species review synthesizes information on the relationship of Prunus virginiana (chokecherry) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used... 
Author(s): Kathleen A. Johnson 
Year Published: 2000 
Type: Document 
Synthesis 

The Bitterroot Ecosystem Management Research Project: what we have learned, symposium proceedings; May 18-20, 1999; Missoula, MT 
www.nrfirescience.org/resource/11890 
The varied topics presented in these symposium proceedings represent the diverse nature of the Bitterroot Ecosystem Management Research Project (BEMRP). Separated into six sections, the papers cover the different themes researched by BEMRP collaborators as well as brief overviews of five other ecosystem management projects. The... 
Author(s): Helen Y. Smith 
Year Published: 2000 
Type: Document 
Conference Proceedings 

Associated riparian communities 
www.nrfirescience.org/resource/10962 
Some 100 years of fire exclusion in the Interior Northwest has resulted in riparian areas dominated by dense thickets of shade-tolerant trees. If former, more open conditions could be restored, these habitats could once more support a more diverse bird community. Efforts toward this at two study sites are described. 
Author(s): Colin C. Hardy, Robert E. Keane, Michael G. Harrington 
Year Published: 2000 
Type: Document 
Conference Proceedings 

Use of the helitorch to enhance diversity on riparian corridors in mature pinyon-juniper communities: a conceptual approach 
www.nrfirescience.org/resource/12109 
As pinyon-juniper have increased their dominance throughout the Great Basin, other perennial plants have declined in abundance. Riparian areas traditionally have the greatest biodiversity found in the region. The increase of pinyon-juniper can generally be attributed to a change in the disturbance regime. To increase the plant...
Fire ecology of the forest habitat types of northern Idaho
www.nrfirescience.org/resource/11234
Provides information on fire ecology in forest habitat and community types occurring in northern Idaho.
Identifies fire groups based on presettlement fire regimes and patterns of succession and stand development after fire. Describes forest fuels and suggests considerations for fire management.
Author(s): G. Allen Rasmussen, Robin J. Tausch, Stephen C. Bunting
Year Published: 1999
Type: Document
Conference Proceedings

Populus tremuloides (quaking aspen)
www.nrfirescience.org/resource/10717
This FEIS species review synthesizes information on the relationship of Populus tremuloides (quaking aspen) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Jane Kapler Smith, William C. Fischer
Year Published: 1997
Type: Document
Synthesis, Technical Report or White Paper

Reestablishing fire-adapted communities to riparian forests in the ponderosa pine zone
www.nrfirescience.org/resource/11248
Ecological research has implicated the practice of fire exclusion as a major contributor to forest health problems in the semiarid ponderosa pine (Pinus ponderosa) zone of the Inland West (Mutch and others 1993; Sampson and others 1994). Prior to 1900, frequent, low-intensity fires occurred on upland forests in this forest zone at...
Author(s): Matthew K. Arno
Year Published: 1996
Type: Document
Technical Report or White Paper

Remote sensing of forest fire severity and vegetation recovery
www.nrfirescience.org/resource/8152
Burned forested areas have patterns of varying burn severity as a consequence of various topographic, vegetation, and meteorological factors. These patterns are detected and mapped using satellite data. Other ecological information can be abstracted from satellite data regarding rates of recovery of vegetation foliage and variation...
Author(s): Joseph D. White, Kevin C. Ryan, Carl H. Key, Steven W. Running
Year Published: 1996
Type: Document
Book or Chapter or Journal Article

Consequences of fire on aquatic nitrate and phosphate dynamics in Yellowstone National Park
www.nrfirescience.org/resource/11990
Airborne remotely sensed data were collected and analyzed during and following the 1988 Greater Yellowstone Ecosystem (GYE) fires in order to characterize the fire front movements, burn intensities and various vegetative components of selected watersheds. Remotely sensed data were used to categorize the burn intensities as: severely...

Author(s): James A. Brass, Vincent G. Ambrosia, Philip J. Riggan, Paul D. Sebesta
Year Published: 1996
Type: Document
Conference Proceedings

Heracleum lanatum (cow parsnip)
www.nrfirescience.org/resource/10630
This FEIS species review synthesizes information on the relationship of Heracleum lanatum (cow parsnip) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): Lora L. Esser
Year Published: 1995
Type: Document
Synthesis

Urtica dioica (stinging nettle)
www.nrfirescience.org/resource/10612
This FEIS species review synthesizes information on the relationship of Urtica dioica (stinging nettle) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): Jennifer H. Carey
Year Published: 1995
Type: Document
Synthesis

Festuca subulata (bearded fescue)
www.nrfirescience.org/resource/10644
This FEIS species review synthesizes information on the relationship of Festuca subulata (bearded fescue) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Lora L. Esser
Year Published: 1994
Type: Document
Synthesis

Carex concinna (low northern sedge)
www.nrfirescience.org/resource/10925
This FEIS species review synthesizes information on the relationship of Carex concinna (low northern sedge) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Roberta A. Walsh
Year Published: 1994
Type: Document
Fish mortality resulting from delayed effects of fire in the greater Yellowstone ecosystem

During the 1988 fires in the GYE, Minshall et al. (1989) observed fish kills in streams, but the extent and causes of mortality were not reported. While conducting other studies of watersheds in the GYE, we observed a fish kill in a burned watershed that occurred two years after the fires. In this paper we describe aspects of this...

Author(s): Michael K. Young, Michael A. Bozek
Year Published: 1994
Type: Document
Book or Chapter or Journal Article

Haliaeetus leucocephalus (bald eagle)

This FEIS species review synthesizes information on the relationship of Haliaeetus leucocephalus (bald eagle) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can...

Author(s): S. A. Snyder
Year Published: 1993
Type: Document
Synthesis

Equisetum sylvaticum (wood horsetail)

This FEIS species review synthesizes information on the relationship of Equisetum sylvaticum (wood horsetail) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can...

Author(s): Robin F. Matthews
Year Published: 1993
Type: Document
Synthesis

Tortula ruralis (twisted moss)

This FEIS species review synthesizes information on the relationship of Tortula ruralis (twisted moss) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...

Author(s): Robin F. Matthews
Year Published: 1993
Type: Document
Synthesis

Aix sponsa (wood duck)

This FEIS species review synthesizes information on the relationship of Aix sponsa (wood duck) to fire--how fire affects the species and its habitat, and fire management considerations. Information is
Branta canadensis (Canada goose)
www.nrfirescience.org/resource/10847
This FEIS species review synthesizes information on the relationship of Branta canadensis (Canada goose) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): S. A. Snyder
Year Published: 1993
Type: Document
Synthesis

Marchantia polymorpha (liverwort)
www.nrfirescience.org/resource/10757
This FEIS species review synthesizes information on the relationship of Marchantia polymorpha (liverwort) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Robin F. Matthews
Year Published: 1993
Type: Document
Synthesis

Equisetum arvense (field horsetail)
www.nrfirescience.org/resource/10858
This FEIS species review synthesizes information on the relationship of Equisetum arvense (field horsetail) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Janet Sullivan
Year Published: 1993
Type: Document
Synthesis

Anas platyrhynchos (mallard)
www.nrfirescience.org/resource/10848
This FEIS species review synthesizes information on the relationship of Anas platyrhynchos (mallard) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): S. A. Snyder
Year Published: 1993
Type: Document
Synthesis
Poa compressa (Canada bluegrass)
www.nrfirescience.org/resource/10578
This FEIS species review synthesizes information on the relationship of Poa compressa (Canada bluegrass) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...
Author(s): Ronald Uchytil
Year Published: 1993
Type: Document
Synthesis

Salix boothii (Booth willow)
www.nrfirescience.org/resource/10637
This FEIS species review synthesizes information on the relationship of Salix boothii (Booth willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): Lora L. Esser
Year Published: 1992
Type: Document
Synthesis

Schoenoplectus americanus (Olney's threesquare bulrush)
www.nrfirescience.org/resource/10565
This FEIS species review synthesizes information on the relationship of Schoenoplectus americanus (Olney's threesquare bulrush) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This...
Author(s): Ronald Uchytil
Year Published: 1992
Type: Document
Synthesis

Salix bebbiana (Bebb willow)
www.nrfirescience.org/resource/10563
This FEIS species review synthesizes information on the relationship of Salix bebbiana (Bebb willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): Julie L. Tesky
Year Published: 1992
Type: Document
Synthesis

Erodium cicutarium (cutleaf filaree)
www.nrfirescience.org/resource/10462
This FEIS species review synthesizes information on the relationship of Erodium cicutarium (cutleaf filaree) to fire--how fire affects the species and its habitat, invasiveness of the species, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general...
**Salix monticola (mountain willow)**
[www.nrfirescience.org/resource/10639](http://www.nrfirescience.org/resource/10639)
This FEIS species review synthesizes information on the relationship of *Salix monticola* (mountain willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...

Author(s): Lora L. Esser
Year Published: 1992
Type: Document
Synthesis

**Salix glauca (grayleaf willow)**
[www.nrfirescience.org/resource/10581](http://www.nrfirescience.org/resource/10581)
This FEIS species review synthesizes information on the relationship of *Salix glauca* (grayleaf willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...

Author(s): Ronald Uchytil
Year Published: 1992
Type: Document
Synthesis

**Betula papyrifera (paper birch)**
[www.nrfirescience.org/resource/10570](http://www.nrfirescience.org/resource/10570)
This FEIS species review synthesizes information on the relationship of *Betula papyrifera* (paper birch) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...

Author(s): Ronald Uchytil
Year Published: 1991
Type: Document
Synthesis

**Picea glauca (white spruce)**
[www.nrfirescience.org/resource/10579](http://www.nrfirescience.org/resource/10579)
This FEIS species review synthesizes information on the relationship of *Picea glauca* (white spruce) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used for...

Author(s): Ronald Uchytil
Year Published: 1991
Type: Document
Synthesis

**Salix planifolia (planeleaf willow)**
Salix drummondiana (Drummond willow)
This FEIS species review synthesizes information on the relationship of Salix drummondiana (Drummond willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be...

Author(s): Ronald Uchytil
Year Published: 1991
Type: Document
Synthesis

Salix geyeriana (Geyer willow)
This FEIS species review synthesizes information on the relationship of Salix geyeriana (Geyer willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...

Author(s): Ronald Uchytil
Year Published: 1991
Type: Document
Synthesis

Celtis reticulata (netleaf hackberry)
This FEIS species review synthesizes information on the relationship of Celtis reticulata (netleaf hackberry) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can...

Author(s): D. A. Tirmenstein
Year Published: 1990
Type: Document
Synthesis

Populus balsamifera subsp. balsamifera (balsam poplar)
This FEIS species review synthesizes information on the relationship of Populus balsamifera subsp. balsamifera (balsam poplar) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This...

Author(s): Holly T. Harris
Year Published: 1990
Alnus rhombifolia (white alder)
www.nrfirescience.org/resource/10576
This FEIS species review synthesizes information on the relationship of Alnus rhombifolia (white alder) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): Ronald Uchytil
Year Published: 1989
Type: Document
Synthesis

Alnus viridis subsp. sinuata (Sitka alder)
www.nrfirescience.org/resource/10572
This FEIS species review synthesizes information on the relationship of Alnus viridis subsp. sinuata (Sitka alder) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review...
Author(s): Ronald Uchytil
Year Published: 1989
Type: Document
Synthesis

Rubus laciniatus (evergreen blackberry)
www.nrfirescience.org/resource/10478
This FEIS species review synthesizes information on the relationship of Rubus laciniatus (evergreen blackberry) to fire--how fire affects the species and its habitat, invasiveness of the species, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general...
Author(s): D. A. Tirmenstein
Year Published: 1989
Type: Document
Synthesis

Salix lutea (yellow willow)
www.nrfirescience.org/resource/10567
This FEIS species review synthesizes information on the relationship of Salix lutea (yellow willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used for...
Author(s): Ronald Uchytil
Year Published: 1989
Type: Document
Synthesis

Effects of fire in the northern Great Plains
www.nrfirescience.org/resource/11184
Fire has been used inconsistently to manage native and tame grasslands in the Northern Great Plains
(NGP) of the north-central U.S. and south-central Canada, particularly the grasslands found in prairies, plains, agricultural land retirement programs, and moist soil sites. This has happened for three primary reasons: (1) the...

Author(s): Kenneth F. Higgins, Arnold D. Kruse, James L. Piehl
Year Published: 1989
Type: Document
Synthesis, Technical Report or White Paper

Salix lucida subsp. lasiandra (Pacific willow)
www.nrfirescience.org/resource/10577
This FEIS species review synthesizes information on the relationship of Salix lucida subsp. lasiandra (Pacific willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species...
Author(s): Ronald Uchytil
Year Published: 1989
Type: Document
Synthesis

The effects of fire on watersheds: a summary
www.nrfirescience.org/resource/11049
Over the past three days we have been presented with the results of a most impressive quantity and quality of research on the effects of fire on watersheds. My attempt to summarize these papers will hardly do them justice, but hopefully will recapitulate some of their more important and generalizable findings. My comments are...
Author(s): Nicholas Dennis
Year Published: 1989
Type: Document
Conference Proceedings

Salix lemmonii (Lemmons willow)
www.nrfirescience.org/resource/10575
This FEIS species review synthesizes information on the relationship of Salix lemmonii (Lemmons willow) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...
Author(s): Ronald Uchytil
Year Published: 1989
Type: Document
Synthesis

Alnus rubra (red alder)
www.nrfirescience.org/resource/10571
This FEIS species review synthesizes information on the relationship of Alnus rubra (red alder) to fire--how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used for...
Author(s): Ronald Uchytil
Year Published: 1989
Type: Document
Synthesis
Rubus discolor (Himalayan blackberry)

This FEIS species review synthesizes information on the relationship of Rubus discolor (Himalayan blackberry) to fire—how fire affects the species and its habitat, invasiveness of the species, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general...

Author(s): D. A. Tirmenstein
Year Published: 1989
Type: Document
Synthesis

Rubus spectabilis (salmonberry)

This FEIS species review synthesizes information on the relationship of Rubus spectabilis (salmonberry) to fire—how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used...

Author(s): D. A. Tirmenstein
Year Published: 1989
Type: Document
Synthesis

Acer negundo (boxelder)

This FEIS species review synthesizes information on the relationship of Acer negundo (boxelder) to fire—how fire affects the species and its habitat, and fire management considerations. Information is also provided on the species' taxonomy, distribution, basic biology, and general management. This species review can be used for...

Author(s): Lynn Rosario
Year Published: 1988
Type: Document
Synthesis

Fire, logging, and white-tailed deer interrelationships in the Swan Valley, northwestern Montana

The historical importance of fire was investigated on the upper Swan Valley winter white-tailed deer range in northwestern Montana. The relatively recent impacts of logging on winter range quality were also included in these studies. Fire exclusion has led to successional development of once open-canopied mature seral forests, and...

Author(s): June D. Freedman, James R. Habeck
Year Published: 1985
Type: Document
Conference Proceedings, Technical Report or White Paper

Fire's influence on wildlife habitat on the Bridger-Teton National Forest, Wyoming - Volume I: photographic record and analysis

The Bridger-Teton National Forest in the Jackson Hole Region of Wyoming has long been recognized for its wildlife resource. Management efforts have emphasized the measurement of forage utilization by
elk (Cervus canadensis nelsoni) and their effect on summer and winter ranges. Less consideration has been given to other biotic and...
Author(s): George E. Gruell
Year Published: 1980
Type: Document
Technical Report or White Paper

The pyrolysis products and thermal characteristics of cottonwood and its components
www.nrfirescience.org/resource/11944
This study was undertaken to determine the thermal properties of, and the pyrolysis products from, western cottonwood (Populus trichocavya) and two of its major components: cellulose and xylan. The modifications due to treatment of the wood and its components with an acid and alkali were also documented. Differential thermal...
Author(s): Charles W. Philpot
Year Published: 1971
Type: Document
Technical Report or White Paper