Combination of Landsat and Sentinel-2 MSI data for initial assessing of burn severity
www.nrfirescience.org/resource/17251
Nowadays Earth observation satellites, in particular Landsat, provide a valuable help to forest managers in post-fire operations; being the base of post-fire damage maps that enable to analyze fire impacts and to develop vegetation recovery plans. Sentinel-2A MultiSpectral Instrument (MSI) records data in similar spectral...
Author(s): Carmen Quintano, Alfonso Fernández-Manso, O. Fernández-Manso
Year Published: 2018
Type: Document
Book or Chapter or Journal Article

Severity of forest wildfire had a major influence on early successional ectomycorrhizal macrofungi assemblages, including edible mushrooms
www.nrfirescience.org/resource/17414
Wildfires are likely to have a major influence on below-ground patterns and processes in forests but these effects and their consequences to forest succession are generally poorly known. Ectomycorrhizal macrofungi (ECM) is a key below-ground ecological group, mainly because of their functional relationships to trees. During severe...
Author(s): Kauko Salo, Jari Kouki
Year Published: 2018
Type: Document
Book or Chapter or Journal Article

Simulations Inform Design Of Regional Occupancy-Based Monitoring For A Sparsely Distributed, Territorial Species
www.nrfirescience.org/resource/17463
Sparsely distributed species attract conservation concern, but insufficient information on population trends challenges conservation and funding prioritization. Occupancy-based monitoring is attractive for these species, but appropriate sampling design and inference depend on particulars of the study system. We employed spatially...
Author(s): Quresh Latif, Martha M. Ellis, Victoria A. Saab, Kim Mellen-McLean
Year Published: 2017
Type: Document
Book or Chapter or Journal Article

Assessment of fire effects based on forest inventory and analysis data and a long-term fire mapping data set
www.nrfirescience.org/resource/15534
Integration of Forest Inventory and Analysis (FIA) plot data with Monitoring Trends in Burn Severity (MTBS) data can provide new information about fire effects on forests. This integration allowed broad-scale assessment of the cover types burned in large fires, the relationship between prefire stand conditions and fire severity, and...
Author(s): John D. Shaw, Sara Goeking, James Menlove, Charles E. Werstak
Year Published: 2017
Type: Document
Book or Chapter or Journal Article

A large source of dust missing in particulate matter emission inventories? Wind erosion of post-fire landscapes
www.nrfirescience.org/resource/16292
Wind erosion of soils burned by wildfire contributes substantial particulate matter (PM) in the form of...
dust to the atmosphere, but the magnitude of this dust source is largely unknown. It is important to accurately quantify dust emissions because they can impact human health, degrade visibility, exacerbate dust-on-snow issues (...)

Author(s): Natalie S. Wagenbrenner, Serena H. Chung, Brian K. Lamb
Year Published: 2017
Type: Document
Book or Chapter or Journal Article

Impacts of fire radiative flux on mature Pinus ponderosa growth and vulnerability to secondary mortality agents
www.nrfirescience.org/resource/14915
Recent studies have highlighted the potential of linking fire behaviour to plant ecophysiology as an improved route to characterising severity, but research to date has been limited to laboratory-scale investigations. Fine-scale fire behaviour during prescribed fires has been identified as a strong predictor of post-fire tree...

Author(s): Aaron M. Sparks, Alistair M. S. Smith, Alan F. Talhelm, Crystal A. Kolden, Kara M. Yedinak, Daniel M. Johnson
Year Published: 2017
Type: Document
Book or Chapter or Journal Article

Patterns and mechanisms of plant succession after fire on Artemisia-grass sites in southeastern Idaho
www.nrfirescience.org/resource/15400
Cover data for plant species on eight environmentally similar sites that were each burned in a different year (from 2 to 36 years ago) were used to construct a composite sequence of vegetational change after fire on Artemisia-grassland sites in southeastern Idaho. Some species were early successional such as Lithospermum ruderale,...

Author(s): David L. Humphrey
Year Published: 2014
Type: Document
Book or Chapter or Journal Article

Contrasting effects of wildfire and ecological restoration in old-growth western larch forests
www.nrfirescience.org/resource/13003
The scientific basis for restoration of fire-excluded western larch/mixed-conifer forests is not as well developed as that for dry fire-frequent forests. We compared the effects of wildfire and restoration (combined thinning and prescribed fire) in fire-excluded western larch forests. In 2012, the wildfire site had more, taller, and...

Author(s): Taylor Hopkins, Andrew J. Larson, R. Travis Belote
Year Published: 2014
Type: Document
Book or Chapter or Journal Article

A synthesis of post-fire Burned Area Reports from 1972 to 2009 for western US Forest Service lands: trends in wildfire characteristics and post-fire stabilisation treatments and expenditures
www.nrfirescience.org/resource/13010
Over 1200 post-fire assessment and treatment implementation reports from four decades (1970s-2000s) of western US forest fires have been examined to identify decadal patterns in fire characteristics and the justifications and expenditures for the post-fire treatments. The main trends found were: (1) the area burned by wildfire...
Integrating satellite imagery with simulation modeling to improve burn severity mapping

Both satellite imagery and spatial fire effects models are valuable tools for generating burn severity maps that are useful to fire scientists and resource managers. The purpose of this study was to test a new mapping approach that integrates imagery and modeling to create more accurate burn severity maps. We developed and assessed...

A technical guide for monitoring wildlife habitat

Information about status and trend of wildlife habitat is important for the U.S. Department of Agriculture, Forest Service to accomplish its mission and meet its legal requirements. As the steward of 193 million acres (ac) of Federal land, the Forest Service needs to evaluate the status of wildlife habitat and how it compares with...

Highlights of satellite-based forest change recognition and tracking using the ForWarn System

Satellite-based remote sensing can assist forest managers with their need to recognize disturbances and track recovery. Despite the long standing availability of raw imagery, the systematic delivery of spatially continuous, ready-to-use, processed products has evaded us until recently. The web-based ForWarn system moves us a step...

Mitigating old tree mortality in long-unburned, fire-dependent forests: a synthesis

This report synthesizes the literature and current state of knowledge pertaining to reintroducing fire in stands where it has been excluded for long periods and the impact of these introductory fires on overstory tree injury and mortality. Only forested ecosystems in the United States that are adapted to survive frequent fire are...
Wildland fire in ecosystems: fire and nonnative invasive plants
www.nrfirescience.org/resource/12531
This state-of-knowledge review of information on relationships between wildland fire and nonnative invasive plants can assist fire managers and other land managers concerned with prevention, detection, and eradication or control of nonnative invasive plants. The 16 chapters in this volume synthesize ecological and botanical...
Year Published: 2008
Type: Document
Synthesis, Technical Report or White Paper

Real-time smoke particulate sampling; fire storm 2000
www.nrfirescience.org/resource/11202
Reports the findings of a study comparing the results of instruments measuring smoke particulate in real time to gravimetric samplers in Missoula and Hamilton, Montana, during the summer of 2000. Real-time, particulate monitoring instruments were evaluated to determine their accuracy when measuring smoke particulate concentrations...
Author(s): Andy Trent, Mary A. Davies, Richard Karsky, Richard W. Fisher
Year Published: 2001
Type: Document
Technical Report or White Paper

Mycorrhization, physiognomy, and first-year survivability of conifer seedlings following natural fire in Grand Teton National Park
www.nrfirescience.org/resource/11448
Ectomycorrhiza formation, survivability, and physiognomic characteristics were assessed for conifer seedlings encountered 1 and 2 years postfire in the Huck burn site near Grand Teton National Park. Pinus contorta Dougl. ex Loud. germinated and was abundant throughout the first growing season. Abies lasiocarpa (Hook.) Nutt....
Author(s): Steven L. Miller, Therese M. McClean, Nancy L. Stanton, Stephen E. Williams
Year Published: 1998
Type: Document
Book or Chapter or Journal Article

Long-term recovery of Wyoming big sagebrush after four treatments
www.nrfirescience.org/resource/15445
Long-term recovery of Wyoming big sagebrush (Artemisia tridentatassp.wyomingensisBeetle and Young) after four treatments was investigated. Treatments at a south-western Montana site were spraying with 2,4-D, plowing and rotocutting, all applied in 1963, and burning applied in 1964. The treatments and an experimental control (no...
Author(s): Myles J. Watts, Carl L. Wambolt
Year Published: 1996
Type: Document
Book or Chapter or Journal Article

Monitoring fire effects with FFI
www.nrfirescience.org/resource/14128
FFI (FEAT/FIREMON Integrated) is an ecological monitoring system designed to assist managers with collection, storage and analysis of plot level ecological information. It includes a large selection of standard sampling protocols and supports user defined methods. It supports scalable (project to landscape scale) monitoring at the...
Type: Media
Although fire is ubiquitous in forest ecosystems, its role in driving forest cover change and climate feedbacks remains unclear at the global scale. Here we present an observation-driven assessment of fire-induced forest cover loss and its biophysical climate feedback. Our results show that fire-induced forest cover accounts for 14....