2010 Annual Report

2010 Annual Report

Fire Research And Management Exchange System (FRAMES)

May, 2011

All Photography by Karen Wattenmaker

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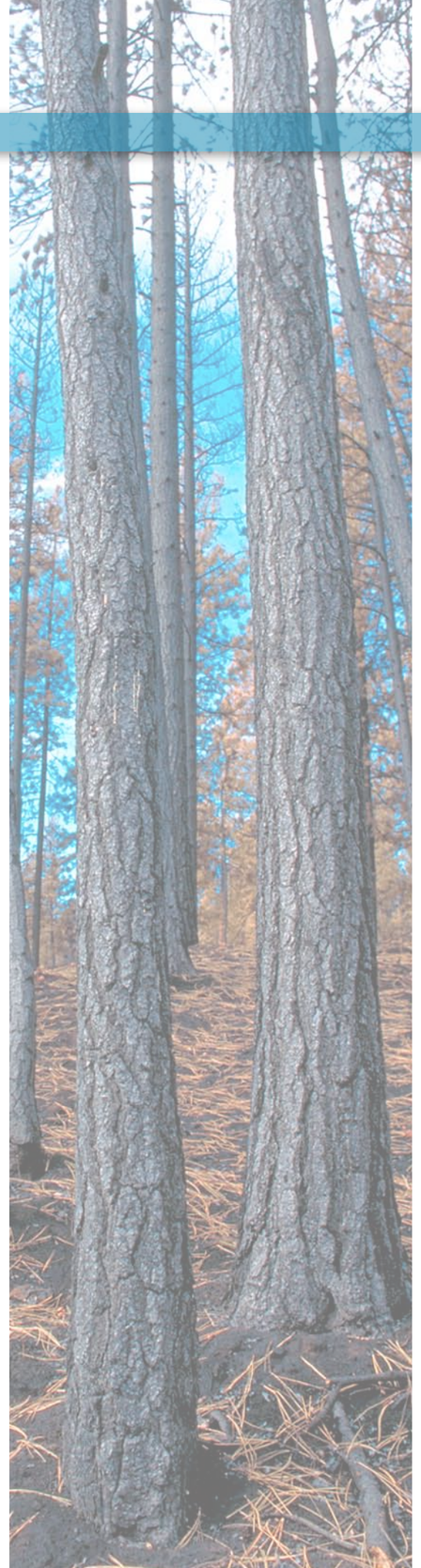
"Half the battle of providing the best science is accumulating it under one roof."

- Tim Swedberg, JFSP Communications Director,

Figure 1. Information at Work



Introduction

The close of 2010 marks the eighth anniversary of the Fire Research And Management Exchange System (FRAMES). The construction of FRAMES began in 2002 at the University of Idaho with funding support from the US Department of Agriculture Forest Service's Missoula Fire Lab in response to the need for cataloging and organizing wildland fire tools, data, and documents into a single system. Following the 1999 Joint Fire Science Program's (JFSP) conference and workshop entitled, "Crossing the Millennium: Integrating Spatial Technologies and Ecological Principles for a New Age in Fire Management" there was a clear need for managing what was described as a "deluge of data" and other information that would become increasingly available in the 21st century to wildland fire and other natural resource managers. FRAMES was proposed to be a mechanism for ongoing information exchange and technology transfer between the wildland fire management and research communities. In 2003, a partnership with the US Geological Survey's USGS - BIP (USGS - BIP) provided the technical foundation and federal legitimacy for meeting security and legislative requirements. In addition to providing a federal technological home for FRAMES, the USGS - BIP and FRAMES collaboration has advanced the mission of each and has provided a valuable service to the natural resource and wildland fire management communities.

In 2006, an interagency interim steering committee made up of representatives who had invested in FRAMES formed to determine next steps. With support from the US Forest Service and USGS - BIP, the Keystone Center facilitated the development of the FRAMES Strategic Plan (2007-2012), which emerged from over 100 telephone interviews and an online survey of fire and natural resource professionals. The broad vision described in the strategic plan focuses on developing a national wildland fire informatics system and clearinghouse that organizes, synthesizes, evaluates, distributes, tracks use, and measures the efficacy of wildland fire and fire-related information and technological resources[1]. To implement this vision, the FRAMES mission is to support wildland fire and natural resource professionals and policymakers by promoting and facilitating information and technology sharing, exchange, collaboration, and development through a state-of-the-art clearinghouse and web portal. The use of FRAMES portal informatics technologies[2] is used to help eliminate redundancy, reduce costs, and promote increased productivity and efficiency for the professionals responsible for wildland fire and fire-related research and management.

In 2008, along with continued support from USGS - BIP, the Wildland Fire Science Partnership (WFSP) was formed among the US Forest Service's Rocky Mountain Research Station (RMRS), the University of Idaho (UI), and the University of Montana (UM). The WFSP brings together programs established at each of the three partner institutions including FRAMES and Wildland Fire Science Program (UI); National Center for Landscape Fire Analysis (UM); and Missoula Fire Science Lab's Fire, Fuels & Smoke Science Program, and the Wildland Fire Management Research, Development, & Application (RD&A) Program. This University – Forest Service partnership was created to "improve the management of wildland fire by integrating science, technology, education, and practical experience[3]." The stated goals of the partnership are:

- **Increase core fire and fuel science and measurement capabilities** for the improvement of resource management and fire planning.
- **Produce timely, reliable, and consistent fire and fuel information** for resource managers to assess and implement decisions at a landscape scale.
- **Increase access to critical data and applications** to support documentation, implementation, and review of decisions and accomplishments.
- **Develop the skills and capabilities of future fire managers** by providing experiential education, research opportunities, access to relevant science data and applications and training[4].

The WFSP merges capabilities and capacities across state and federal agencies and unites them in a

1 Text is from the FRAMES Strategic Plan 2007-2012.

2 "Informatics" is the collection, classification, storage, retrieval, and dissemination of recorded knowledge from the Center for Biological Informatics at http://biology.usgs.gov/cbi/informatics/.

3 Quote is from the Wildland Fire Science Partnership Charter 2009.

4 Goals are taken from Wildland Fire Science Partnership Charter 2009.

Introduction

common cause. FRAMES contributes to the partnership by providing the technological capacity and resources for the WFSP to web-deliver the products that are stated in the WFSP Charter. FRAMES benefits from the collective knowledge, content, and stability that the partnership provides. Another significant milestone for FRAMES has been the move to integrate FRAMES with the National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT) program. NIFTT's mission is to assist land managers in the implementation of effective fuels, fire, and vegetation management technology for addressing risks to severe fire behavior & fire effects to restore healthy ecological systems. Much work is left to be done to integrate FRAMES and NIFTT. The current focus is upon online training. FRAMES and the University of Idaho's Wildland Fire Program are uniquely qualified to expand online training for wildland fire and other natural resource professionals. The long-term plan will be to further integrate FRAMES and NIFTT under the umbrella of the RD&A Program. Together and with the RD&A, FRAMES and NIFTT can further help provide a bridge between wildland fire research and management communities and make sure that the best science is available for managers to make decisions.

Throughout 2010, in conjunction with USGS – BIP, FRAMES began an upgrade of the portal technology software that is the platform that FRAMES is built upon. The FRAMES portal is delivered through a licensing agreement between USGS and ORACLE. The ORACLE portal serves USGS - BIP, FRAMES, and others. The upgrade process to a new version of the portal began in 2010 and dominated every aspect of FRAMES and NIFTT activities and operations.

Until further integration within existing wildland fire federal programs occurs, FRAMES development and management is guided by the FRAMES Strategic Plan (2007-2012). The Plan identifies programmatic and organizational goals that emphasize six principal areas of effort including:

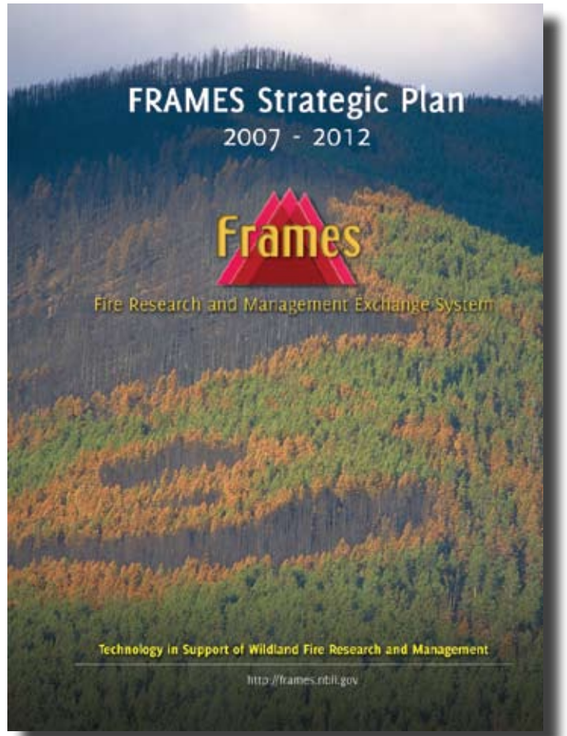


Figure 2. Strategic Plan

Goals

Programmatic Goals

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.

2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with the FRAMES informatics architecture and that target their common technology transfer and science delivery needs.

3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.

4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.

Organizational Goals

5. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.

6. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

This report summarizes activities and accomplishments for the calendar year of 2010. Additional details about FRAMES can be found at http://frames.nbii.gov.

Overview

FRAMES continues to expand and provide content to managers and researchers with the goal of making the content easier to find, access, distribute, compare and use. Over the years FRAMES has made a significant investment in developing a comprehensive standards-based system of cataloging called the Resource Cataloging System (RCS). Version 2.0 of (RCS v2) has been in operation since 2008. It's use is currently limited to FRAMES staff, as it was developed for "in-house" use rather than for release to other content providers. FRAMES staff will continue to work with researchers and managers to make sure that 1) new content is properly cataloged and 2) appropriate edits are made to existing content. During 2010, FRAMES contracted with SAIC to develop the specifications for Version 3.0 of the RCS. The specifications will be finalized during 2011, then development of Version 3.0 is slated to begin toward the end of 2011. Version 3.0 will enable all FRAMES partners to directly contribute content to the system. They will be able to create and edit records. Online help and tutorials will be available for partners to get answers to their questions and learn at their own pace how the catalog system works.

System Overview

The FRAMES RCS is a tool for wildland fire and other natural resource professionals to access information cataloged about wildland-fire related resources, and also to enter/catalog resources. Currently the catalog entry interface (RCS v2) is restricted to FRAMES Staff, but partners may request access to the system and once trained, select individuals may use the RCS v2. In the RCS there are six resource groups: Projects, Tools (including models), Documents, Web Pages, Data, and Programs (organizations). We have also just started to catalog recorded webinars, which will form the foundation of a 7th "Media" resource group that will include webinars, videos, podcasts, etc. (For now the records are categorized under the Data resource group). The RCS, particularly the information about documents and data, is based upon established metadata standards, and in the next version (RCS v3), users will have the ability to export records in formats following metadata standards such as Dublin Core (web metadata standard), Federal Geographic Data Committee (FGDC, spatial metadata standard), and Machine-Readable Cataloging (MARC, a bibliographic standard). Additional "data" metadata standards are under consideration for inclusion. By developing a cataloging system that integrates information about multiple types of resources (e.g., broader than just publications or datasets), we are able to provide information about relationships between resources, such as when a project produces a tool, is described by a document, and it's associated dataset, etc. Each of these records can be related to one another.

There are four main components to the RCS: 1) online Resource Cataloging Tool; 2) Resource Catalog Database; 3) record display pages; 4) search/browse functionality.[5] Information is entered into the catalog through the Resource Cataloging Tool. Information about a resource is entered through the online user interface to create a record for that resource. Controlled terms, such as Subject Areas, Geographic Areas, Partner Sites, and Collection are associated with each record, as well as other uncontrolled Key Words. And as appropriate, spatial bounding box coordinates can be entered for a record.

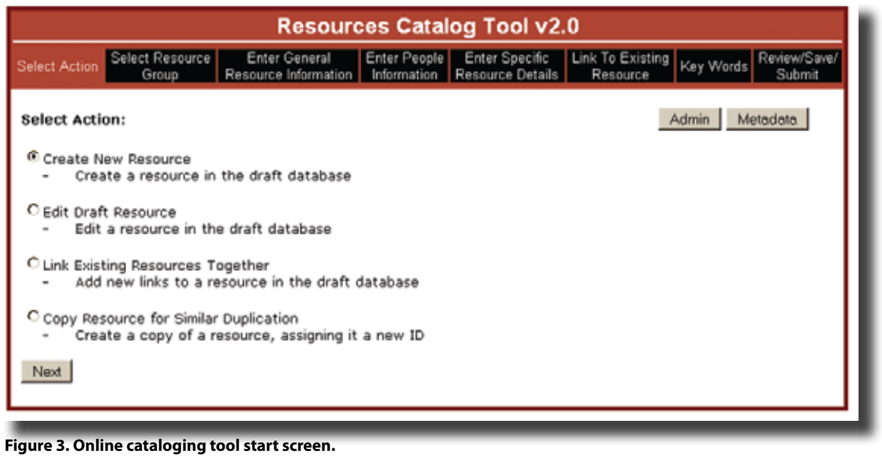
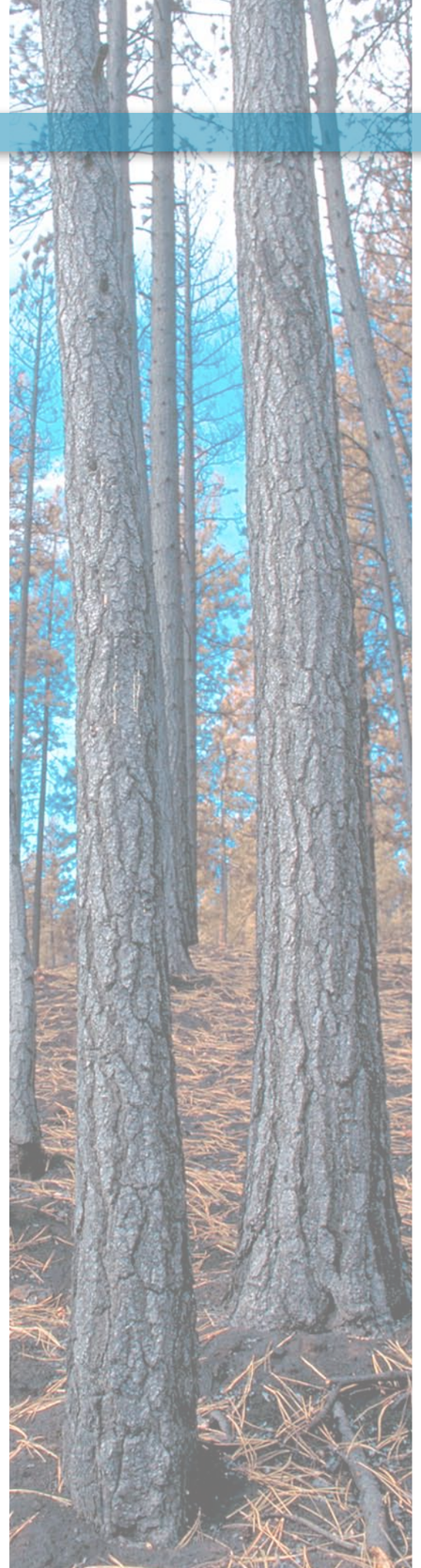
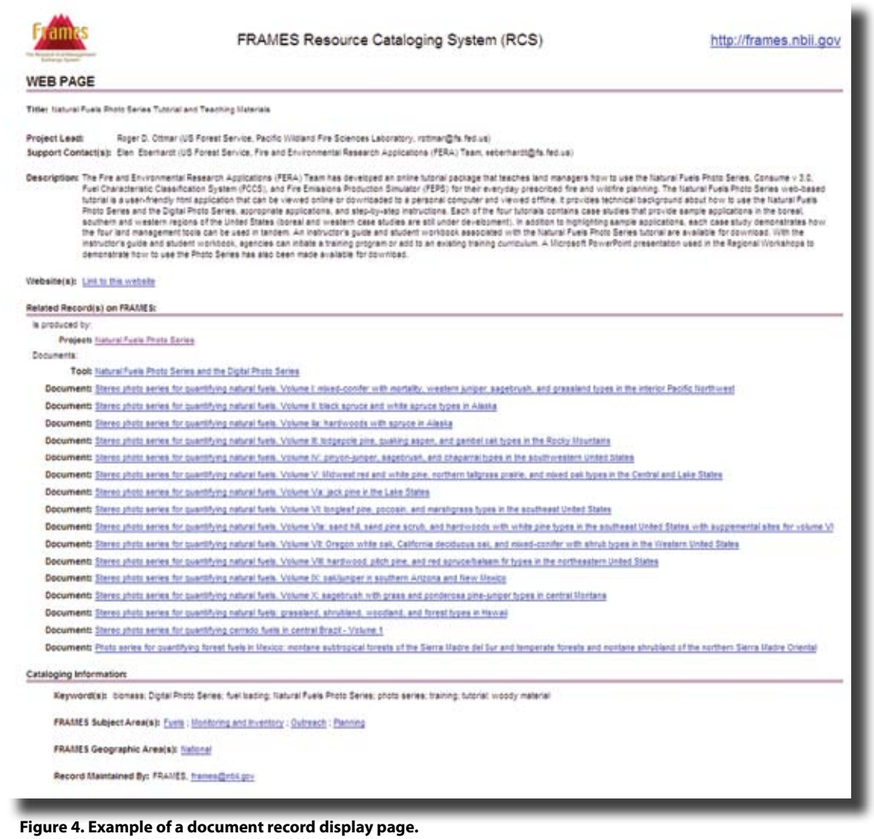


Figure 3. Online cataloging tool start screen.

5 For details about any component please contact Greg Gollberg, FRAMES Program Manager at gollberg@ uidaho.edu.



CONTENT: Resource Cataloging System (RCS)


FRAMES Resource Cataloging System (RCS) http://frames.nbii.gov

WEB PAGE

Title: Natural Fuels Photo Series Tutorial and Teaching Materials

Project Lead: Roger D. Ottmar (US Forest Service, Pacific Wildland Fire Sciences Laboratory, rottmar@fs.fed.us)

Support Contact(s): Ellen Eberhardt (US Forest Service, Fire and Environmental Research Applications (FERA) Team, eeberhardt@fs.fed.us)

Description: The Fire and Environmental Research Applications (FERA) Team has developed an online tutorial package that teaches land managers how to use the Natural Fuels Photo Series. Consume v 3.0, Fuel Characteristic Classification System (FCCS), and Fire Emissions Production Simulator (FEPS) for their everyday prescribed fire and wildfire planning. The Natural Fuels Photo Series web-based tutorial is a user-friendly html application that can be viewed online or downloaded to a personal computer and viewed offline. It provides technical background about how to use the Natural Fuels Photo Series and the Digital Photo Series, appropriate applications, and step-by-step instructions. Each of the four tutorials contains case studies that provide sample applications in the boreal, southern and western regions of the United States (boreal and western case studies are still under development). In addition to highlighting sample applications, each case study demonstrates how the four land management tools can be used in tandem. An instructor's guide and student workbook associated with the Natural Fuels Photo Series tutorial are available for download. With the instructor's guide and student workbook, agencies can initiate a training program or add to an existing training curriculum. A Microsoft PowerPoint presentation used in the Regional Workshops to demonstrate how to use the Photo Series has also been made available for download.

Website(s): Link to this website

Related Record(s) on FRAMES:

Is produced by:

Projects: Natural Fuels Photo Series

Documents:

Tool: Natural Fuels Photo Series and the Digital Photo Series

Document: Stereo photo series for quantifying natural fuels. Volume I: mixed-conifer with mortality, western juniper, sagebrush, and grassland types in the interior Pacific Northwest

Document: Stereo photo series for quantifying natural fuels. Volume II: black spruce and white spruce types in Alaska

Document: Stereo photo series for quantifying natural fuels. Volume IIa: hardwoods with spruce in Alaska

Document: Stereo photo series for quantifying natural fuels. Volume III: lodgepole pine, quaking aspen, and gambel oak types in the Rocky Mountains

Document: Stereo photo series for quantifying natural fuels. Volume IV: pinyon-juniper, sagebrush, and chaparral types in the southwestern United States

Document: Stereo photo series for quantifying natural fuels. Volume V: Midwest red and white pine, northern tallgrass prairie, and mixed oak types in the Central and Lake States

Document: Stereo photo series for quantifying natural fuels. Volume Va: jack pine in the Lake States

Document: Stereo photo series for quantifying natural fuels. Volume VI: longleaf pine, pocosin, and marshgrass types in the southeast United States

Document: Stereo photo series for quantifying natural fuels. Volume VIa: sand hill, sand pine scrub, and hardwoods with white pine types in the southeast United States with supplemental sites for volume VI

Document: Stereo photo series for quantifying natural fuels. Volume VII: Oregon white oak, California deciduous oak, and mixed-conifer with shrub types in the Western United States

Document: Stereo photo series for quantifying natural fuels. Volume VIII: hardwood, pitch pine, and red spruce/balsam fir types in the northeastern United States

Document: Stereo photo series for quantifying natural fuels. Volume IX: oak/juniper in southern Arizona and New Mexico

Document: Stereo photo series for quantifying natural fuels. Volume X: sagebrush with grass and ponderosa pine-juniper types in central Montana

Document: Stereo photo series for quantifying natural fuels: grassland, shrubland, woodland, and forest types in Hawaii

Document: Stereo photo series for quantifying cerrado fuels in central Brazil - Volume 1

Document: Photo series for quantifying forest fuels in Mexico: montane subtropical forests of the Sierra Madre del Sur and temperate forests and montane shrubland of the northern Sierra Madre Oriental

Cataloging Information:

Keyword(s): biomass; Digital Photo Series; fuel loading; Natural Fuels Photo Series; photo series; training; tutorial; woody material

FRAMES Subject Area(s): Fuels - Monitoring and Inventory - Outreach - Planning

FRAMES Geographic Area(s): National

Record Maintained By: FRAMES, frames@nbii.gov

Figure 4. Example of a document record display page.

In RCS v2, the online Resource Cataloging Tool, the Resource Catalog Database, and the record display pages are served by NACSE (Northwest Alliance for Computational Science & Engineering). Data from certain key fields in the Resource Catalog Database (a Microsoft SQL Server 2008 database) are exported nightly, in order to generate, modify or delete html pages (display records) based on cataloging activity from that previous day.

Data from certain fields tagged within each record are then crawled (nightly, as well) into search indices at USGS - BIP. These indices are then queried by the FRAMES Search function (accessed through the search box placed near the top of the left column on most FRAMES pages) and FRAMES Browse function (look for the Browse Records tab, found in conjunction with the search box on applicable topic and partner pages).

"FRAMES is a virtual shopping mall for wildland fire and other natural resource professionals."

- David Brownlie, Fire Ecologist,
Southeast Region, USFWS,.

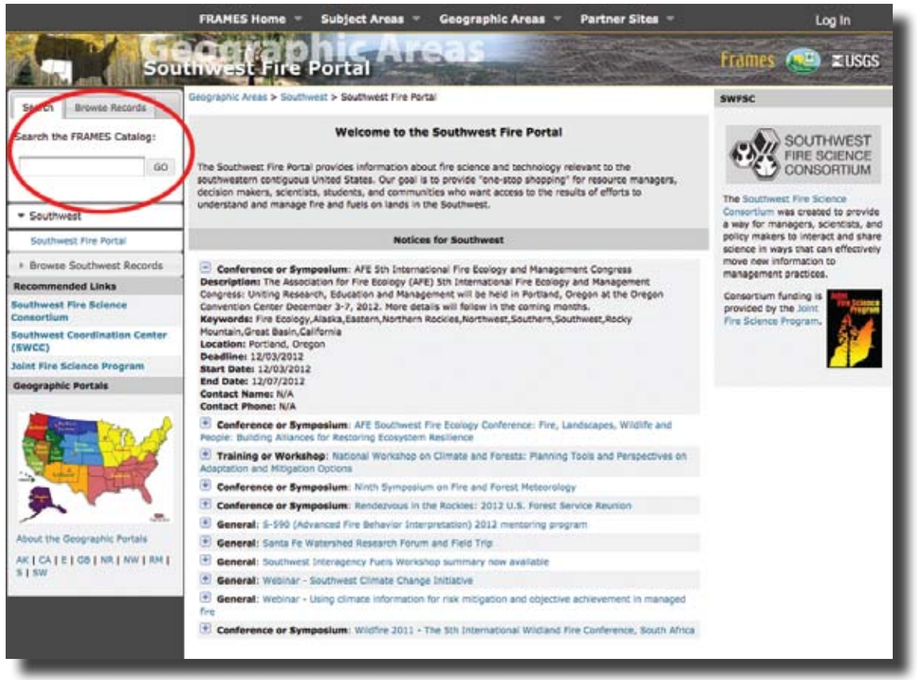


Figure 5. Where to find the Search and Browse functions on most FRAMES pages.

CONTENT: Resource Cataloging System (RCS)

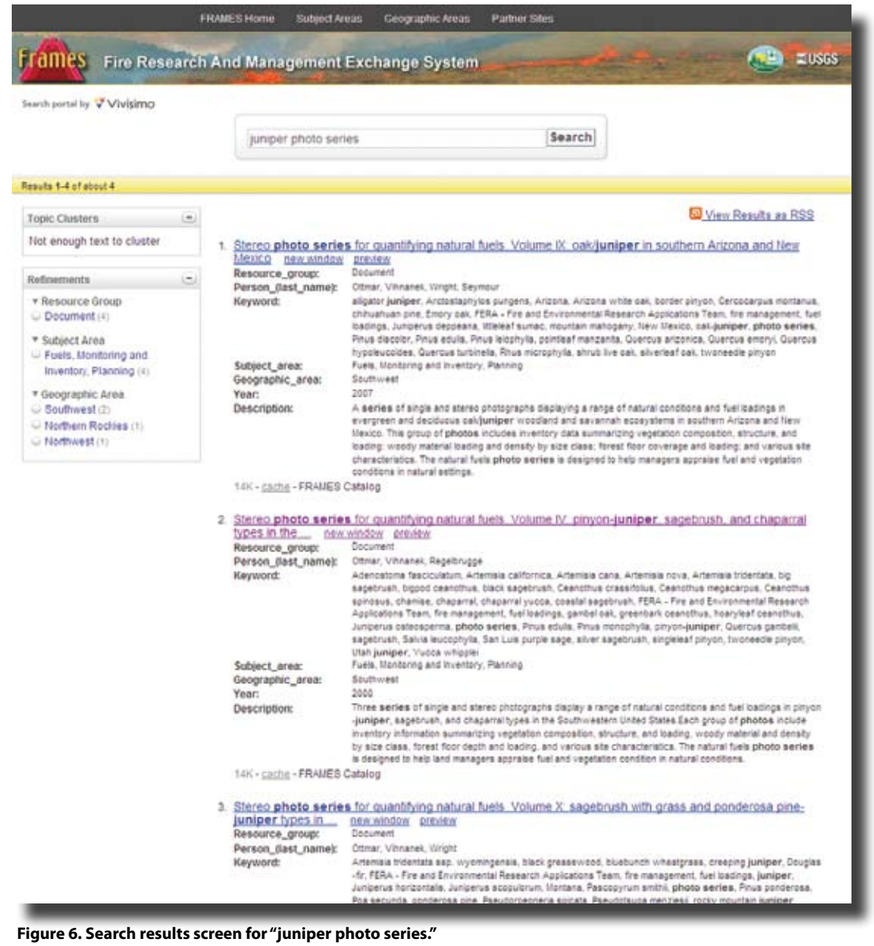


Figure 6. Search results screen for "juniper photo series."

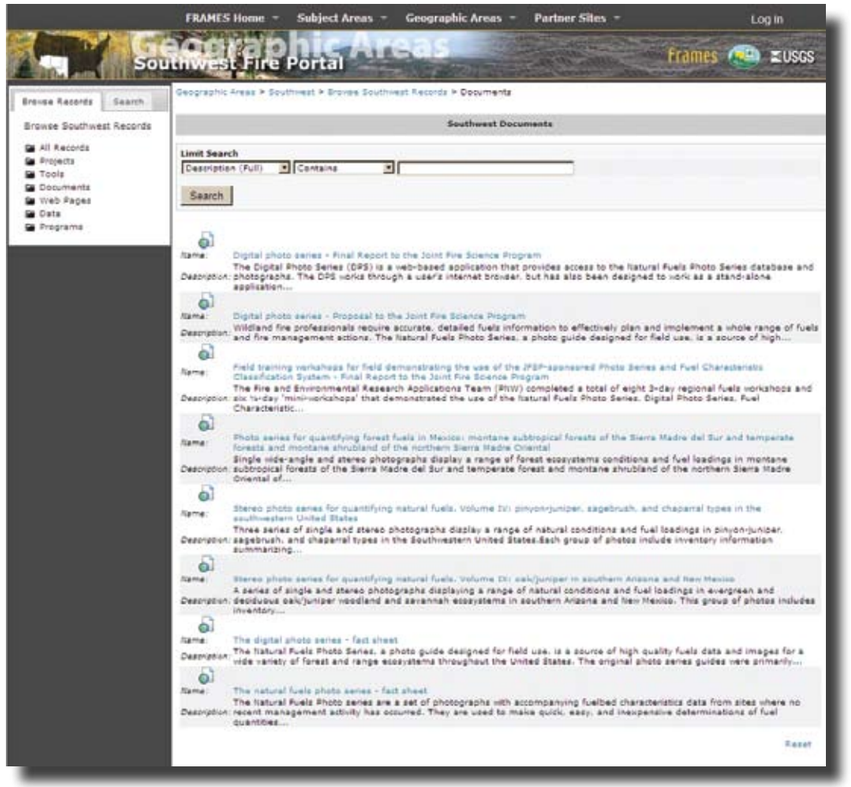
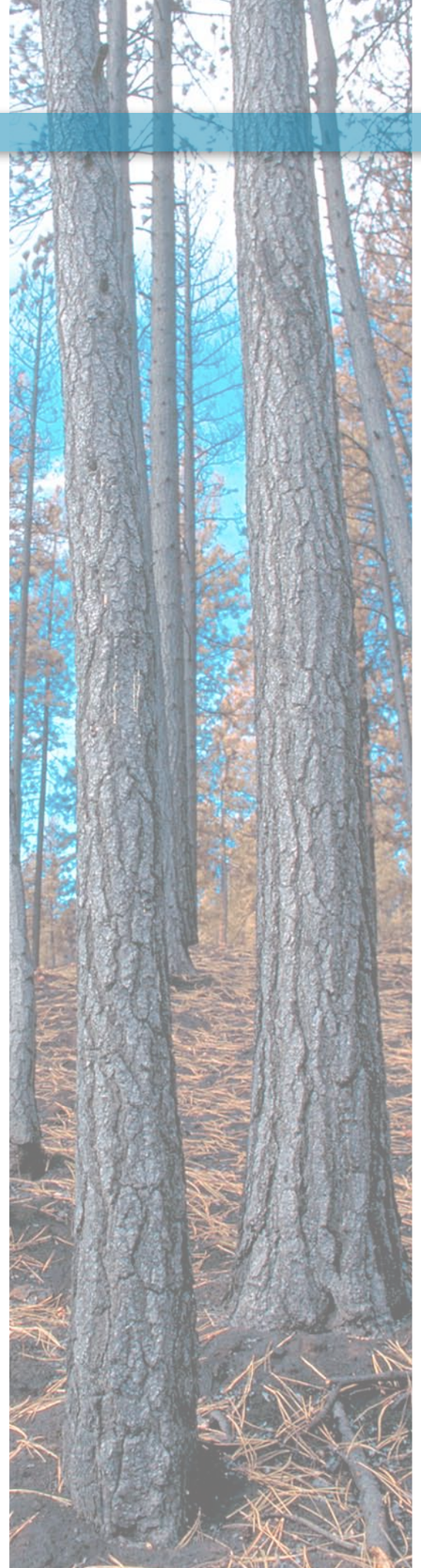


Figure 7. Browse results for Southwest Documents, then limited to "photo series."

Update and Status

Much of the effort dedicated to the RCS during 2010 was related to cataloging, specifically: 1) the continued clean up of records imported during 2008; 2) scanning multiple journals and adding relevant content (International Journal of Wildland Fire, Fire Ecology, Canadian Journal of Forest Research, Ecology, Ecological Applications, Forest Ecology and Management, Rangeland Ecology and Management, and BioScience); 3) adding content found on the following fire research laboratory websites : Missoula Fire Lab, Moscow Forestry Sciences Laboratory, and the Pacific Wildland Fire Sciences Laboratory; and 4) cataloging resources for the JFSP Biomass Review partner site (specifically, content provided by Dan Loeffler, principal investigator of the JFSP-funded project "A Review of Available Economic and Financial Biomass Information and Tools for Federal Land Managers in the West"); 5) cataloging additional documents provided by James McIver for the Fire and Fire Surrogates partner site; and finally 6) adding new records upon request.

The structure and display of the RCS remained stable throughout 2010, although improvements were made to the mapping fields (in anticipation of providing a map interface once the FRAMES portal software was upgraded). Additionally, an effort was initiated with the Tall Timbers Research Station to provide display pages (comparable to those developed for the RCS) for records generated by the E.V. Komarek Fire Ecology Database. Once complete, this effort will provide FRAMES users the ability to search, browse and view records maintained in the E.V. Komarek Fire Ecology Database side by side with records stored in the RCS. There is no plan at this time to merge the actual FRAMES Resource Catalog



CONTENT: Resource Cataloging System (RCS)

Database with the E.V. Komarek Fire Ecology Database. However, the construction of the RCS provides an opportunity for such a merger if desired at a later date.

Throughout the development, implementation and maintenance of RCS v2, an informal list of requirements and improvements has been compiled for RCS v3. During the fall of 2010 a contract was awarded to SAIC (Science Applications International Corporation) to develop a formal specifications document for RCS v3. More details about the upcoming RCS v3 are provided below, in the "RCS Next Steps" section.

RCS Metrics

During 2010, records were added to the RCS for more than 2600 resources. At the time of this report, the RCS contains a total of 9862 records about 214 projects, 164 tools, 9218 documents, 148 web pages, 114 datasets, and 4 programs.

RCS Next Steps

The 2011 FRAMES portal software upgrade will allow FRAMES to take advantage of the Vivisimo search platform implemented by USGS - BIP (http://nbii-info.blogspot.com/search/label/Vivisimo). We are currently in the process of determining how to fully take advantage of this technology, including how it can be used to improve the current Browse functionality.

In addition to an improved search engine and results display capabilities, the USGS - BIP Vivisimo search platform will provide a map interface for records with spatial components (please refer to the Google map interface currently in use by USGS - BIP for its Geospatial Search; http://search.nbii.gov).

Figure 8. NBII's geospatial search start screen.

CONTENT: Resource Cataloging System (RCS)

Figure 9. NBII's geospatial search results for "juniper."

In the short-term RCS v2 will continue to reside on NACSE and USGS - BIP servers. However, the University of Idaho is developing the Northwest Knowledge Network (NKN) in partnership with other academic institutions in the state and the Department of Energy's Idaho National Laboratory (INL). The USGS may also be a partner in this endeavor as well as other regional state and federal agencies and academic institutions. NKN will provide research data management services and tools. The long-term goal is to have the RCS and FRAMES physically located at NKN, but with USGS support.

As described earlier, specifications for RCS v3 are being developed through a contract with SAIC, by individuals who have programming expertise within the Oracle Portal software underlying FRAMES. The contract to actually develop RCS v3 is expected to be awarded during the late summer or fall of 2011, and the release of RCS v3 is anticipated during 2012. Although it may be possible to move RCS v2 to NKN, it is more likely that RCS v3 will be hosted there. In addition to other improvements, the online cataloging tool in RCS v3 will be more user-friendly and will incorporate a cataloging management hierarchy and workflow that will allow a topic, partner or geographic content manager to designate a number of catalogers that would submit records to them for review. The content manager would then either determine whether the record will be published, returned for improvement, clarification, etc. All of the cataloger access permissions would be administered through the FRAMES user account system.

CONTENT: FRAMES Homepage

Overview

The FRAMES Homepage provides an overview of content and collaboration services provided through FRAMES. Specifically, it describes how content display is structured (by accessing geographic area, subject area, and partner site portals). It also provides access to notices regarding current job postings, upcoming conferences, training opportunities, other general activities that are of interest to wildland fire and natural resource professionals. From the homepage users can log-in and access a suite of collaboration services. The homepage is also used to highlight new partner activities, resources, and provide access to their websites. Additionally, the homepage provides access to content in the FRAMES Resource Cataloging System (RCS). Content can either be browsed or searched from below the banner on the top left hand corner of the site.

Figure 10. The FRAMES Home Page

Homepage Revisions

Minor homepage updates occurred during 2010. These updates highlighted key partnerships and content areas.

Homepage Next Steps

Upon completion of the portal software upgrade early in 2011, there will be much more flexibility regarding webpage layout and design. FRAMES will undertake a substantial homepage revision during 2011.

CONTENT: Subject Areas

Overview

FRAMES subject area portals contain information relevant to topics of interest within the wildland fire community. Currently, FRAMES identifies 26 subject areas reflecting categories proposed by wildland fire researchers and as part of a draft of the National Wildland Fire Enterprise Architecture developed by the National Wildland Fire Coordinating Group (NWCG). The goal of FRAMES is to have the subject areas be collaborative spaces, managed by experts in the subject area for other content providers and content users. The only subject area currently being managed by subject experts is the Fire History Subject Area; the remaining subject area portals remain in the prototype phase; most don't highlight a significant amount of content, but they allow a user to browse records in the RCS related to the subject area.

The current subject areas are:

> administration, aviation, climate, communications, economics, emissions & smoke, fire behavior, fire ecology, fire effects, fire history, fire occurrence, fire prevention, fuels, hazard & risk, intelligence, logistics, mapping, models, monitoring & inventory, outreach, planning, prescribed fire, regulations & legislation, restoration & rehabilitation, safety, and weather.

Upcoming subject areas include: aquatic, and social sciences.

Update

No substantial changes were made to the Subject Areas during 2010.

Subject Areas Next Steps

Efforts are ongoing to encourage experts to assume the role of content manager for each subject area portal. Once the portal software upgrade has been completed in 2011, the subject area pages will be reviewed, and likely restructured such that those with content managers will be highlighted, and those without a content manager will continue to be accessible for resource browsing, but not featured as prominently as they are now.

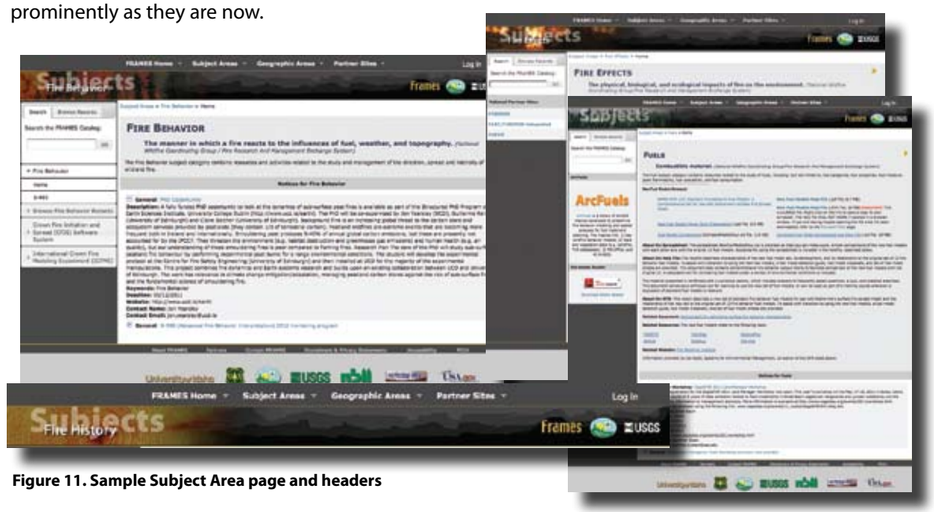


Figure 11. Sample Subject Area page and headers

Overview

Within the FRAMES Geographic Areas, wildland fire content is aggregated at a geographic level relevant to wildland fire management. The FRAMES Geographic Areas correspond to the boundaries of the 11 Geographic Area Coordinating Centers (GACC) designated by the National Interagency Fire Center (NIFC). FRAMES has combined the California North Ops GACC and the California South Ops GACC into the California Fire Portal, and combined the West Basin GACC and the East Basin GACC into the Great Basin Fire Portal (resulting in 9 geographic area fire portals). The nine fire portals on FRAMES are: Alaska, California, Eastern, Great Basin, Northern Rockies, Northwest, Rocky Mountain, Southern, and Southwest. Each FRAMES geographic area fire portal provides an opportunity for collaboration between researchers and managers located within that particular region. FRAMES is working with regional researchers and managers (including some of the Joint Fire Science Program (JFSP)-funded Regional Fire Science Delivery Consortia) to provide access to geographically-based and nationally relevant data, documents, and tools.

Five New Geographic Areas:

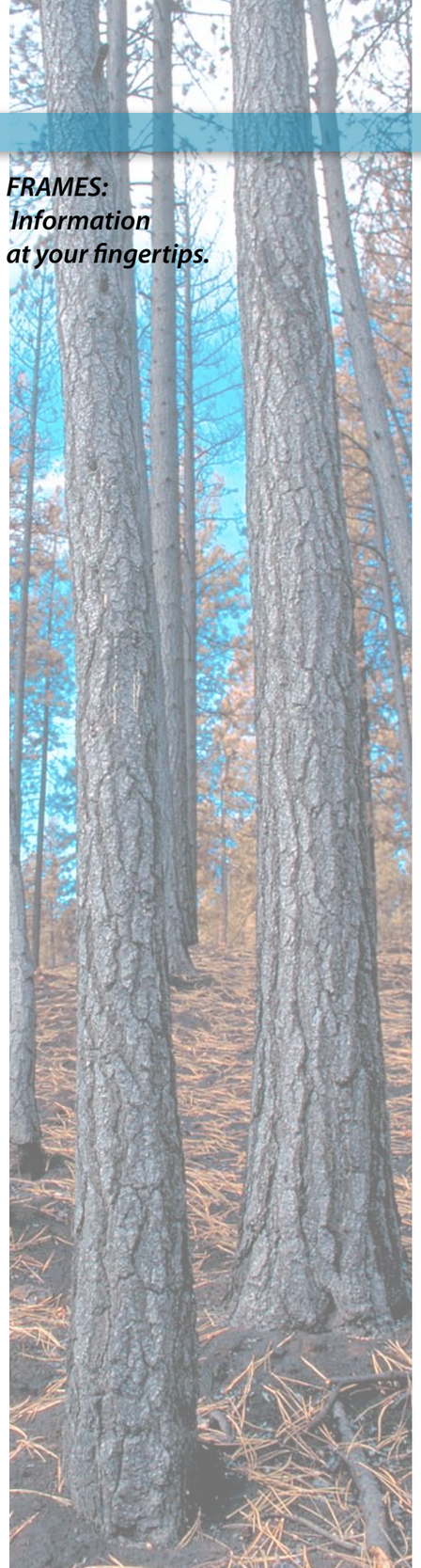
In 2010 FRAMES created the California, Eastern, Great Basin, Northern Rockies, and Rocky Mountain Fire Portals in response to growing collaborative efforts in these regions.

The Joint Fire Science Program (JFSP) Regional Science Delivery and Outreach Consortia Overview

In May 2009, JFSP released a Request For Applications (2009-S-04) soliciting proposals to support regional consortia of fire science providers and managers to enhance fire science delivery and adoption. Their goal is to develop a national network of regional consortia, each operating as a willing and formal association working together to enhance fire science delivery and adoption within a specified geographic region. Two of the key objectives of the RFA were: 1) dissemination of information and building relationships, which could include "develop[ing], promot[ing], and manag[ing] regional communities of practice to support peer-to-peer networking and knowledge exchange;" and 2) listing and describing existing research and synthesis information, which could include "develop[ing] and maintain[ing] a regional, quick-reference web catalog of existing fire and fuels research results" and "develop[ing] and maintain[ing] a regional, geo-spatial web catalog of new and ongoing research projects." FRAMES' geoportal approach to providing access to content, the collaboration services offered by FRAMES, and upcoming effort to establish a map-interface for the RCS complement the goals of the JFSP regional consortia. Five of the eight fully-funded consortia collaborated with FRAMES during 2010, and FRAMES also collaborated with two of the additional proposed consortia (resulting from JFSP's FA-RFA011-0004)

Alaska Fire Science Consortium

The focus of the Alaska Fire Science Consortium (AFSC) is to communicate the results of existing and on-going boreal forest fire science projects to land and fire managers, and to work with both the research and management communities to optimize fire science delivery methods so that the information is both useful and usable. Activities include (or will include) annual fire science delivery workshops, periodic fire science newsletters, one-page research summaries, a state-wide webinar series, workshops in remote communities, an Alaskan fire science 'help desk', updating existing fire science delivery products, and assisting in the development of new, innovative fire science related tools. The AFSC's website is hosted on FRAMES under the Alaska Fire Portal, and they are also using FRAMES to access and maintain the Alaska Fire Effects Reference Database (originally a FIREHouse product that has been rolled into the FRAMES RCS).



FRAMES: Information at your fingertips.

CONTENT: Geographic Areas

Pacific Northwest Fire Knowledge Exchange Consortium

The Pacific Northwest Fire Knowledge Exchange Consortium is working to enhance knowledge exchange of existing fire science and technologies throughout the PNW region, and encourage the adoption and evaluation of relevant fire science by fire and land management stakeholders. The Consortium will evaluate the fire science delivery systems currently used by the diverse fire community and how these delivery systems can be refined and improved.

Southern Fire Exchange

The Southern Fire Exchange (SFE) Consortium's primary objectives are to coordinate, improve, and increase access to existing fire science dissemination mechanisms, while developing syntheses, workshops/demonstrations, and enhancements to existing web-based platforms to fill gaps in available resources. A geographic area portal for the Southern region, the Southern Fire Portal, has existed on FRAMES since 2003. A consortium page was developed in 2010. Two of the stated goals of the Consortium are to expand the utility of the Southern Fire Portal and to hire an individual experienced in website development, implementation, and evaluation to be responsible for interacting with the Southern Fire Portal and FRAMES. The SFE hired a part time IT specialist in 2010, and this person helped develop and maintain the SFE page on FRAMES during 2010.

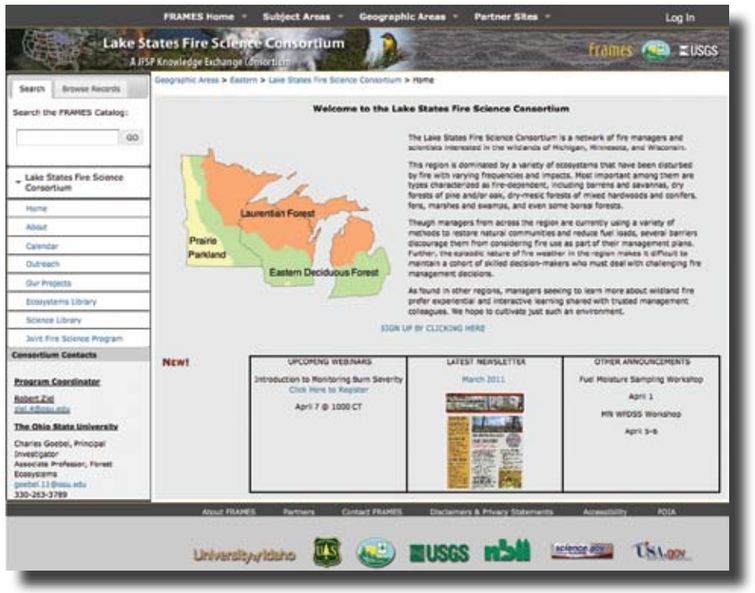


Figure 12. Lake States Fire Science Consortium Site

Lake States Fire Science Consortium

The Lake States Fire Science Consortium is a network of fire managers and scientists interested in the wildlands of Michigan, Minnesota, and Wisconsin. FRAMES is supporting the Lake States Fire Science Consortium by hosting the consortium's website (currently located under the Eastern Fire Portal). FRAMES will continue to support the consortium by assisting with the: 1) expansion of the website to

allow members of the consortium and end-user communities to maintain real-time communication and collaboration; and 2) utilization of the RCS to document fire science projects.

Southern Rocky Mountain Ecoregion Consortium

The Southern Rocky Mountain Ecoregion (SRME) Consortium was formed to facilitate collaboration between science practitioners and communities of science information users. The SRME Consortium includes Colorado and south central Wyoming. FRAMES is supporting the SRME by hosting the consortium's website (currently located under the Rocky Mountain Fire Portal). FRAMES will continue to support the consortium by assisting with the: 1) expansion of the website to allow members of the consortium and end-user communities to maintain real-time communication and collaboration; and 2) utilization of the RCS to document fire science projects.

Southwest Fire Science Consortium

The Southwest Fire Science Consortium provides opportunities for managers, scientists, and policy makers to interact and share science in ways that can effectively move new information to management practices. The consortium includes Arizona and New Mexico and seeks to link the academic community and the management community in educating future fire professionals with up-to-date science as well as practical experience. During 2010, FRAMES hosted a consortium webpage under the Southwest Fire Portal. FRAMES staff have demonstrated the FRAMES site during a Consortium sponsored Webinar, and traveled to Tucson and Albuquerque to attend Consortium workshops at their invitation. FRAMES staff presented at both of these workshops, handed out brochures, and put up a small FRAMES display. We look forward to further collaboration with the hiring of a consortium coordinator in 2011.

Figure 13. Pacific Northwest Fire Knowledge Exchange Consortium

CONTENT: Geographic Areas

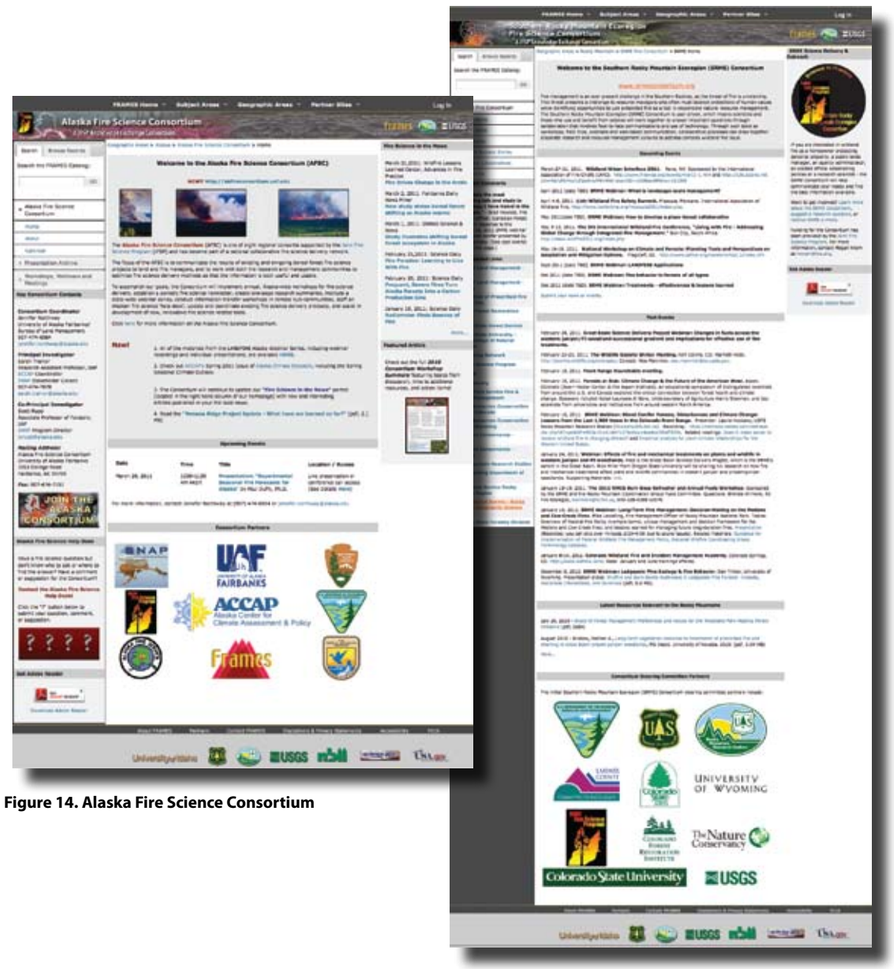


Figure 14. Alaska Fire Science Consortium

Figure 15. Southern Rocky Mountain Ecoregion Consortium

Next Steps

In addition to supporting these consortia, FRAMES will provide a standardized foundation for collaboration between all of the JFSP consortia, and help them leverage each other's activities, as well as help prevent duplication of efforts in terms of web-delivery.

Ongoing Partnerships

FRAMES provides web hosting and other services to several partners in an ongoing relationship. These services may include one or any combination of the following: 1) hosting of a public site 2) hosting of a collaboration server (login required) site 3) hosting of an application, database, tool, data, or other text based document and 4) metadata management for partner resources. FRAMES also provides consultation, portal support, web design, marketing support, and online training services for partners. The following list describes 13 partners using FRAMES to host their pubic websites.

Figure 16. WFDSS and JFSP Biomass Review

Website hosting and services for wildland fire researchers and managers.

Assessing Burn Severity - JFSP funded the Rapid Response project "Assessing the Causes, Consequences and Spatial Variability of Burn Severity" to be conducted during and after active fire incidents. The project's goal was to investigate the spatial variability in fire effects and to explore relationships between burn severity and fuels, fire behavior, local weather, and topography.

Fire and Fire Surrogates (FFS) Study - FFS was a national JFSP study to assess the effects of fire and fire surrogate fuel treatments. The goal was to quantify the costs and ecological consequences of alternative fire and fire surrogate restorative treatments in a number of forest types and conditions in the United States. Priority was given to forests with low to moderate severity natural fire regimes.

Fire Effects Monitoring and Inventory Protocol (FIREMON) - FIREMON is an agency independent plot level sampling system designed to characterize changes in ecosystem attributes over time. FIREMON has been integrated with the National Park Service Fire Ecology Assessment Tool into a new monitoring tool called FFI. FIREMON will still be supported but further development and updates may be suspended.

Fire Ecology Assessment Tool (FEAT) and FIREMON Integrated (FFI) - FFI is a monitoring software tool designed to assist managers with collection, storage, and analysis of ecological information. It was constructed through a complementary integration of FEAT and FIREMON.

Fire History Analysis and Exploration System (FHAES) - FHAES is the result of an effort to redevelop and enhance components of the FHX2 computer program, originally a DOS-based program considered to be the standard for fire history analysis. FHAES is a web-based design that is user-friendly and easily accessible to a broad range of users.

Fire Regime Condition Class (FRCC) - FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing FRCC can help guide management objectives and set priorities for treatments.

First Order Fire Effects Model (FOFEM) - FOFEM is a computer program developed to meet the needs of resource managers, planners, and analysts in predicting and planning for fire effects. FOFEM provides quantitative fire effects information for tree mortality, fuel consumption, mineral soil exposure, smoke and soil heating.

Human Dimensions and Fire Social Sciences (HDFSS) - The goal of the HDFSS is to provide social science fire managers can use. Teams of scientists and fire managers find and synthesize the best available social science and apply it to fire management. The teams then deliver the results in applications and tools designed by fire science users and researchers working together to create useful knowledge in forms that make sense to fire managers.

Interagency Fuels Treatment Decision Support System (IFT -- DSS) - The interagency Joint Fire Science Program (JFSP), in concert with the National Interagency Fuels Coordination Group (NIFCG), funded a multi-phased study to assess existing wildland fire management software tools and systems, the Software Tools and Systems (STS) Study. This study resulted in the development of the Interagency Fuels Treatment Decision Support System (IFT-DSS). IFT-DSS is a framework that organizes and makes available a large number of pre-existing software models. It provides access through the Internet and provides users with a single user interface to multiple software tools.

JFSP Biomass Review - This site was developed to showcase the results of the JFSP-funded project "A Review of Available Economic and Financial Biomass Information and Tools for Federal Land Managers in the West." The Review provides a synthesis of information products available to federal land managers to enhance their ability to understand and deal with the economic and financial aspects of woody biomass removal as a component of fire hazard reduction treatments.

National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT) - NIFTT is chartered by the National Interagency Fuels Coordination Group (NIFCG). NIFTT assists NIFCG in fulfilling its purpose of developing and implementing an effective interagency fuels management program to address risks related to severe fires in wildland-urban interface communities and to restore healthy ecological systems in other wildland areas. NIFTT and FRAMES have just formed a new partnership and FRAMES is assuming management responsibility for NIFTT.

Northern Rockies Climate and Fire (NRCF) Project - JFSP funded this 3-year research project to identify the climate drivers of regional fire and fuel dynamics in the Northern Rockies in the past, present, and future. Regional fire years were identified from two sources: multicentury tree-ring reconstructions and multidecadal fire atlases.

Wildland Fire Decision Support System (WFDSS) - This intent of this site is to provide WFDSS information for WFDSS GA Editors and WFDSS Spatial Data. This site is specific to the WFDSS application and is meant to provide information to users of WFDSS and to individuals who do not have access to WFDSS. The information provided is dynamic and updates are ongoing.

CONTENT: Partner Sites

Something New; Something NIFTT

The National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT) program was established to coordinate, develop, and transfer consistent, efficient, science-based fuel and fire ecology assessment tools and trainings. The Landscape Fire and Resource Management Planning Tools Project (LANDFIRE) was established to produce data products that are designed to facilitate national- and regional-level strategic planning and reporting of wildland fire management activities. NIFTT is responsible for creating tools that utilize the LANDFIRE data and also for training land and wildland fire managers in the appropriate use of these tools and data.

In July 2009, the staff of FRAMES was approached by the US Forest Service and asked to assume administration of NIFTT. Since 2003, FRAMES has collaborated with NIFTT and LANDFIRE. NIFTT and LANDFIRE are sponsored by the National Interagency Fuel Coordination Group (NIFCG). NIFCG was established under the guidance and direction of the Fire Directors of the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), the National Park Service (NPS), US Forest Service (FS), and the US Fish and Wildlife Service; the Chief of the Forest Service, and the Directors of the named Department of Interior Bureaus and the and the Deputy Commissioner of the Bureau of the Bureau of Indian Affairs.

The FRAMES infrastructure and the Wildland Fire Program at the College of Natural Resources have benefited NIFTT specifically by 1) hosting several websites that are under NIFTT's purview; 2) providing secure logged in space for staff and stakeholders of NIFTT to collaborate on tool and training development; 3) providing tools for registering, managing, and delivering on-line courses; and 4) providing expertise in the development of on-line training courses. The purpose of the new agreement is to develop comprehensive curricula of courses, workshops, help aids, and skill development tools for current fuel, fire and vegetation management applications.

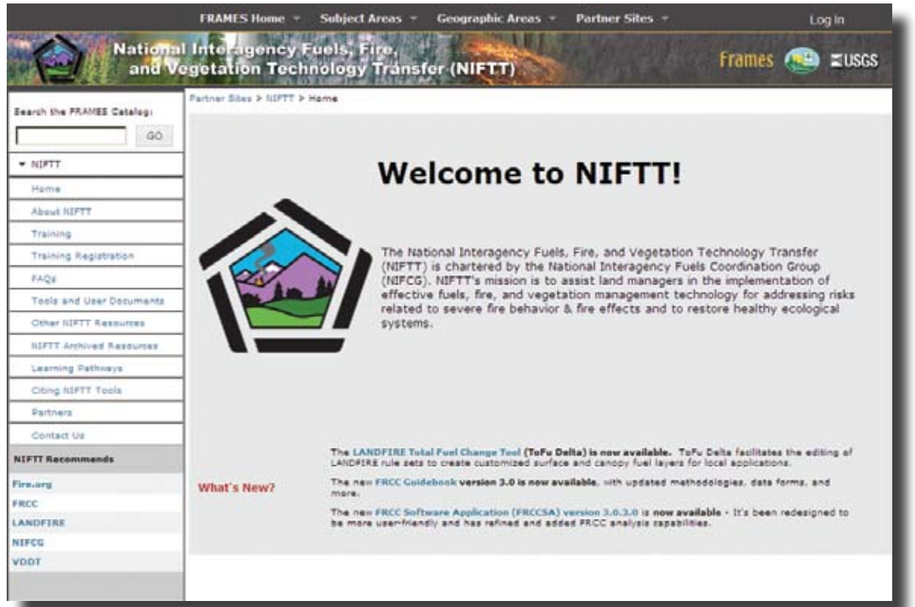


Figure 17. The NIFTT Web Site

Communities

One of the valuable features of the Portal technology involves the ability to create collaboration communities. These communities provide users with an opportunity to work in a collaborative environment to share documents, calendars, hold discussion threads, develop tasks and timelines, and other features. FRAMES offers this service to any groups involved in fire related projects that need a secure login environment that enables a distributed team of people to work collaboratively in an efficient manner. Some of the communities have relationships with partner sites, subject areas, or geographic areas, while others simply serve groups of individuals as secure places to work together.

The following collaboration communities were created (or overhauled) during 2010:

- Lake States Fire Science Consortium Community
- NIFTT Working Group (overhauled)
- Northern Rockies Fire Science Network Community
- RxCADRE Community

In 2010, the list of active collaborations server communities that FRAMES is providing services and support for included the following:

Figure 18. FRAMES Portal Training Community

Alaska Fire Science Consortium Community – This community is used by the Alaska Fire Science Consortium (a member of the JFSP-funded national network Knowledge Exchange Consortia). It is designed primarily to share documents and calendars, in order to facilitate the management of the consortium. Seventeen user accounts are associated with this community. The Alaska Fire Effects Task Group (FETG) Community will likely be rolled into this community during 2011. It was developed for the interagency Alaska Wildland Fire Coordination Group Research Committee's Fire Effects Task Group. The group's tech transfer activities that originally warranted the development of collaboration space now overlap with the Consortium's activities.

Anaktuvuk River Fire Community – This community is used to share document and data files related to ongoing monitoring of the 2007 Anaktuvuk River Fire (on the north slope of the Brooks Range in Alaska). Community members reside across multiple agencies or are retired and need a common, easily accessed platform to share information. Eleven user accounts are associated with this community.

Boreal Fire History Community – This community was developed for community members to share files and information relating to the JFSP project "Compiling, Synthesizing and Analyzing Existing Boreal Forest Fire History Data in Alaska." Community members are currently using document sharing (in part for sharing datasets), calendar and task capabilities, and have access to announcement and discussion capabilities. Community members are spread across multiple agencies and universities, and a FRAMES collaboration community has streamlined file sharing and facilitated project planning. Fourteen user accounts are associated with this community.

Fire History Analysis and Exploration System (FHAES) Working Group – The goal of the FHAES project is to enhance and / or redevelop components of the FHX2 software program, developed by Henri Grissino-Mayer, so that they are web-based, user friendly, and easily accessible to a broad range of users on the Internet. An advisory group guides the direction of these efforts and staff from NOAA's National Climatic Data Center, Paleoclimatology Branch is responsible for implementing projects. This community serves to help coordinate these activities.

FRAMES Cataloging Community – This community serves FRAMES staff involved in the cataloging of resources in the FRAMES RCS.

FRAMES Development Community – This community serves FRAMES staff and all partners who are developing or maintaining websites that are hosted by FRAMES. This community is a means of communicating to all who are a part of the FRAMES development network.

Idaho EPSCoR Collaboration Community – The Experimental Program to Stimulate Competitive Research or EPSCoR is funded by the National Science Foundation (NSF). Idaho has several funded grants that connect climate researchers at the University of Idaho (UI), Boise State University (BSU), Idaho State University (ISU) as well as the University of New Mexico and the University of Nevada (Reno). This collaboration community helps coordinate research activities across the three funded projects. Researchers share data and documents through this community. Thirty-two user accounts are associated with this community.

SERVICES: Communities, Logins, and Notices

Idaho National Fire Plan Community – Idaho has developed an extensive network of individuals and groups actively working on wildfire mitigation. Included are county emergency staff, planning and zoning officials, county commissioners, rural fire chiefs, state, federal, and tribal fire managers, interest groups, community leaders, and citizens. This community has been inactive for the past few years, but interest in renewing it has recently been expressed by the current National Fire Plan Coordinator for Idaho (Craig Glazier).

Lake States Fire Science Consortium Community - This community is used by the Lake States Fire Science Consortium (a member of the JFSP-funded national network Knowledge Exchange Consortia). It is designed primarily to share documents and calendars, in order to facilitate the management of the consortium. Nine user accounts are associated with this community.

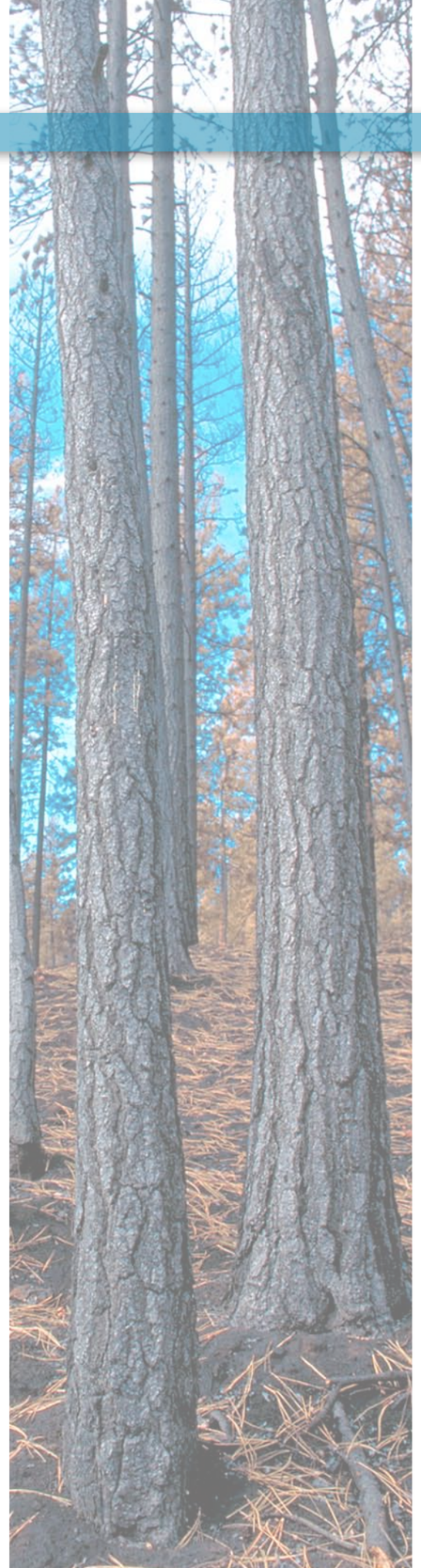
National Interagency Fuels, Fire, and Vegetation Technology Team (NIFTT) Working Group – NIFTT is chartered by the National Interagency Fuels Coordination Group (NIFCG) and was set up to help NIFCG develop and implement an effective interagency fuels management program to address risks related to severe fires in wildland-urban interface communities and to restore healthy ecological systems in other wildland areas. Specifically, NIFTT coordinates, develops, and transfers consistent, efficient, science-based fuel and fire ecology assessment tools and trainings. This community was set up to help the staff of NIFTT coordinate these efforts. Thirty user accounts are associated with this community.

Northern Rockies Fire Science Network Community - This community was developed for the Northern Rockies Fire Science Network (a potential member of the JFSP-funded national network Knowledge Exchange Consortia). It is designed primarily to share documents and calendars, in order to facilitate the management of the consortium. Nine user accounts are associated with this community.

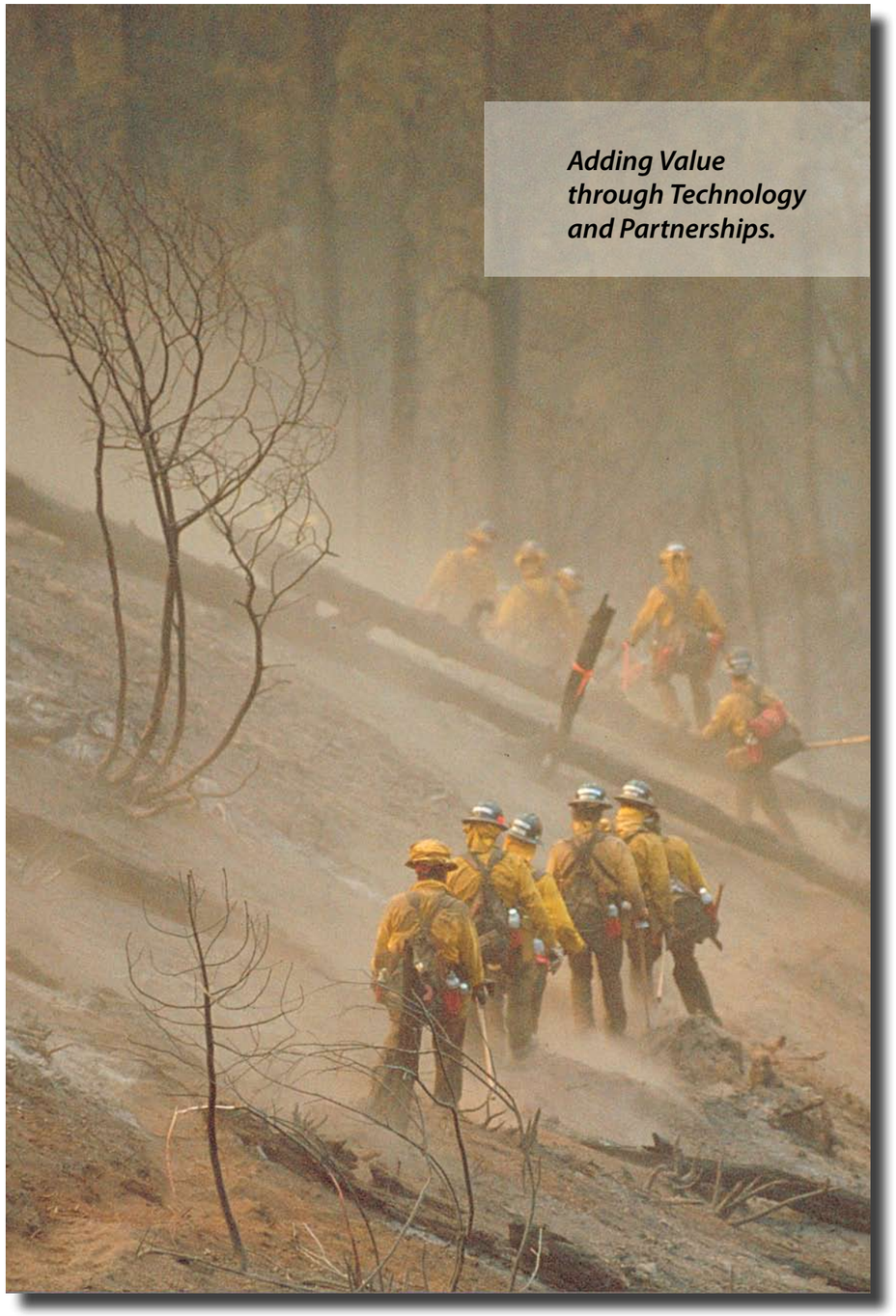
Partners File Sharing – This community was developed for use by new FRAMES partners, so that they can share documents before they have a community of their own set up.

RxCADRE Community - This community was developed for use by the Combustion-Atmospheric Dynamics Research Experiments (Rx CADRE) team. It was designed primarily to provide access to meeting presentations, shared files, and other online collaboration features. Thirty-two user accounts are associated with this community.

Pacific Northwest Fire Knowledge Exchange Consortium Community – This community was developed for the Pacific Northwest Fire Knowledge Exchange Consortium (a potential member of the JFSP-funded national network Knowledge Exchange Consortia). It is designed primarily to share documents and calendars, in order to facilitate the management of the consortium. Thirty-four user accounts are associated with this community.



SERVICES: Communities, Logins, and Notices



Portal Training Community – The Portal Training Community is accessible by anyone with a MyFRAMES account. It provides access to self-contained training materials relevant to portal collaboration features.

SA&I Program Collaboration Community – This community is used for calendar-sharing between members of the USFS Rocky Mountain Research Station Science Application and Integration Program (SA&I) team. Eight user accounts are associated with this community.

SRME Fire Consortium Community – This community was developed for the Southern Rocky Mountain Ecoregion Fire Consortium (a member of the JFSP-funded national network Knowledge Exchange Consortia). It is designed primarily to share documents and calendars, in order to facilitate the management of the consortium. Thirteen user accounts are associated with this community.

Southwest Fire Science Consortium Community – This community was developed for the Southwest Fire Science Consortium (a member of the JFSP-funded national network Knowledge Exchange Consortia). It is designed primarily to share documents and calendars, in order to facilitate the management of the consortium. Nine user accounts are associated with this community.

UI Cyberinfrastructure Community – This community was set up to address the University of Idaho's Research Office initiative to develop research data management capacity. Now called, the Northwest Knowledge Network (NKN), this community supports collaboration and facilitation of the activities associated with the development of NKN. Seventeen user accounts are associated with this community.

Wildland Fire Management RD&A Community – This community is used for document sharing between members of the Wildland Fire Management Research, Development and Application team. The team is based out of Boise, Idaho, but most members telecommute from other locations, and are frequently traveling to support team activities. Therefore a centralized, web-based platform for file sharing supports day-to-day team activities. Twenty-three user accounts are associated with this community.

Wildland Fire Science Partnership (WFSP) Community – This community was developed for the WFSP, including the members of the Executive Board, Program Managers, and the program's coordinator that are from The University of Idaho, University of Montana, and the Forest Service's Rocky Mountain Research Station as well as USGS - BIP staff involved in FRAMES development. Over time this site will likely be used by the partnership to track collaborative projects its members are engaged in. Twenty-three user accounts are associated with this community.

SERVICES: Communities, Logins, and Notices

Logins

There were 109 MyFRAMES accounts created in 2010, 384 accounts were archived (as part of the portal clean up), and at the time of this report, there are 354 MyFRAMES accounts. FRAMES partners and staff have login accounts that are used to 1) manage partner website content, 2) manage the FRAMES home page, 3) manage projects, 4) communicate, collaborate, and share information, and 5) beta test tools.

Notices

As a service to FRAMES partners and others in the wildland fire and natural resources communities, FRAMES offers notice posting. Notices can be about upcoming conferences, jobs, and other events. As with cataloged records, notices may also be categorized and sorted by subject and geographic areas, and by partner site. A project to update and simplify the notice posting system began in 2010 and should be completed in early 2011 with the portal upgrade.

Marketing Materials and Presentations

In 2010, FRAMES continued to use a 10' x 7' conference booth display structure and two 48" x 24" tabletop displays for workshops and other smaller meetings. Display content is tailored according to the target event, and during 2010 the booth display was utilized at two conferences and the tabletop displays were utilized at two workshops.

Figure 19. FRAMES Table Top Display

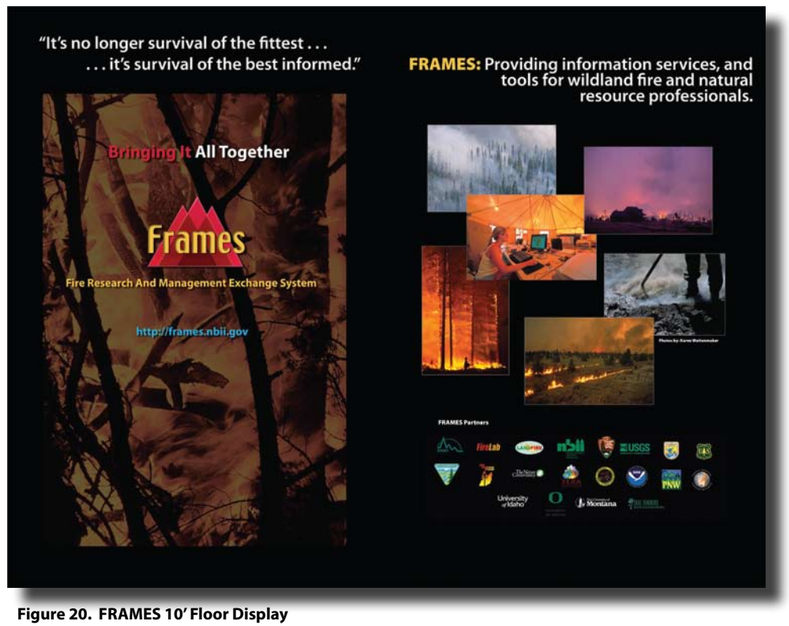


Figure 20. FRAMES 10' Floor Display

Marketing Materials and Presentations

Figure 21. FRAMES and Partner Brochures

Also, FRAMES staff worked with partners and promoted FRAMES in meetings, workshops, and conferences throughout the year. The following is a list of events that were attended by staff.

Table 1. Events attended by FRAMES Staff in 2010

2010 Date	Venue	Description
Jan 3-8	Lakewood, CO	Meetings with USGS - BIP in Lakewood
Jan 12	Tucson, AZ	Southwest Fire Science Consortium workshop
Jan 14	Albuquerque, NM	Southwest Fire Sccience Consortium workshop
Jan 27-28	Portland, OR	Pacific Northwest Fire Science Consortium workshop
Feb 2-3	Missoula, MT	Wildland Fire Science Parnership (WFSP) Meeting
April 19-24	Missoula, MT & Boise, ID	Missoula with NIFTT contractors and FS Staff; meeting in Boise with JFSP Program Manager
April 20	Gainesville, FL	Southern Fire Exchange (SFE) Executive Committee Meeting
May 3-8	Seattle, WA & Corvallis, OR	Meeting FRAMES Staff and NACSE
May 12-13	Moscow, ID	WFSP Meeting
Oct 6-7	Boise, ID	Idaho Wildland Fire Conference
Oct 12-14	Fairbanks, AK	Alaska Fire Science Consortium workshop and Fall Fire Review
Oct 17-19	Reston, VA	Meetings with USGS - BIP
Oct 25-29	Spokane, WA	3rd Fire Behavior & Fuels Conference
Dec 1-4	Oak Ridge, TN	Meeting with SAIC about RCS

Marketing Materials and Partnerships

The list below shows the diversity of partners who are part of FRAMES. Many organizations are connected through partner sites hosted by FRAMES and through Intranet Collaboration Communities.

National Interagency Fuels Technology Team (NIFTT)

Bureau of Land Management

National Park Service

US Forest Service

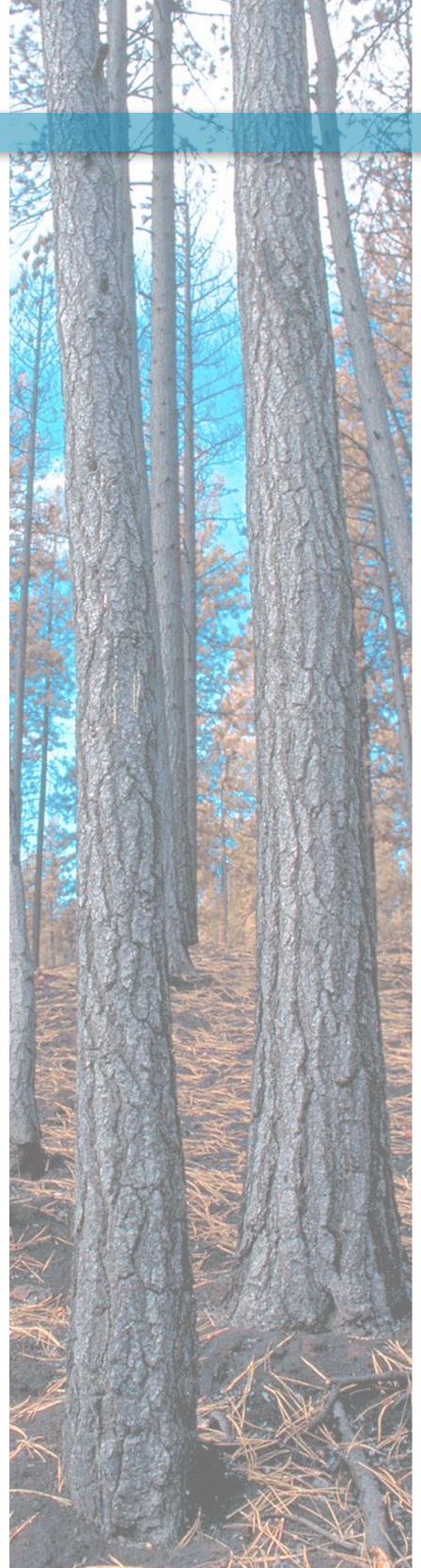
USFS Missoula Fire Science Lab

Systems for Environmental Management

Bureau of Indian Affairs (BIA)

US Geological Survey

US Fish and Wildlife Service



Marketing Materials and Partnerships

Fire and Fire Surrogates Project (FFS)

Joint Fire Science Program

Oregon State University

Fire History Analysis and Exploration System (FHAES)

NOAA Paleoclimatology Branch

USFS Rocky Mountain Research Station

Laboratory of Tree-Ring Science

Rocky Mountain Tree-Ring Research

University of Arizona

Assessing Burn Severity

University of Idaho

USFS Rocky Mountain Research Station

USFS Remote Sensing Applications Center (RSAC)

Joint Fire Science Program

Idaho – National Fire Plan

Idaho National Fire Plan Coordinator (shared USFS and IDL employee)

Idaho Department of Lands

Idaho Bureau of Homeland Security

Idaho State Fire Marshal

Idaho Department of Commerce and Labor

Idaho Governor's Office of Species Conservation

Nez Perce Tribe

Coeur d'Alene Tribe

Resource Conservation and Development Councils

Idaho Fire Chief's Association

Idaho Association of Counties

Marketing Materials and Partnerships

Bureau of Indian Affairs

Bureau of Land Management

US Fish and Wildlife

National Park Service

US Forest Service

Northern Rockies Climate and Fire

University of Idaho

USFS Missoula Fire Sciences Lab

Fire Effects Monitoring and Inventory Protocol (FIREMON) and Fire Ecology Assessment Tool (FEAT)/FIREMON Integrated (FFI)

USFS Missoula Fire Sciences Lab

Systems for Environmental Management

Human Dimensions & Fire Social Sciences

USFS Northern Research Station

Interagency Fuels Treatment Decision Support System (IFT-DSS)

Joint Fire Science Program

NWCG Fuels Management Committee

Sonoma Technology, Inc.

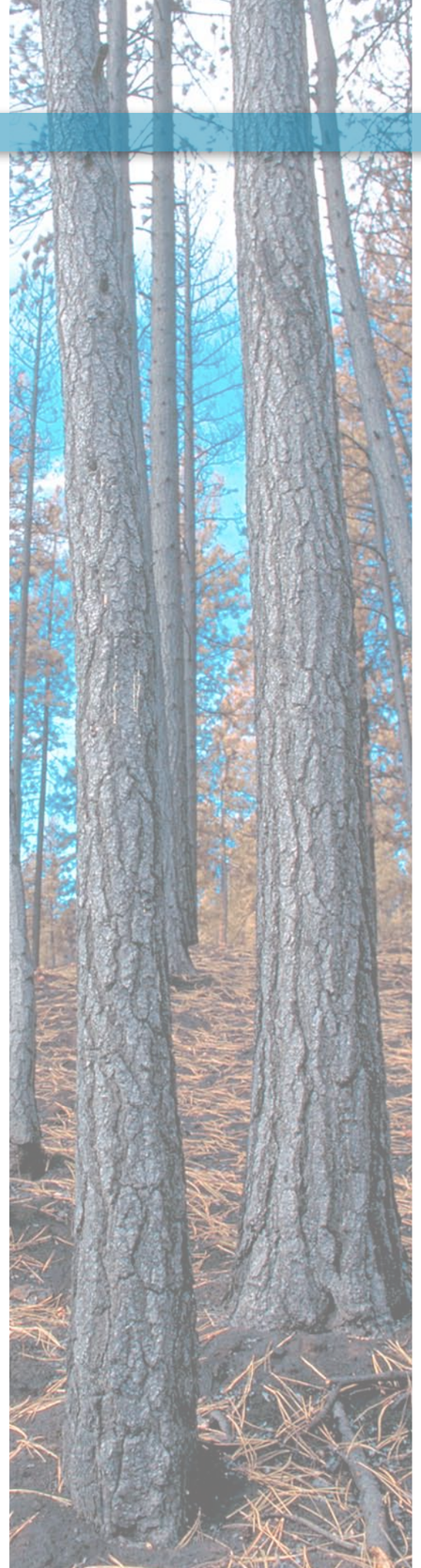
JFSP Biomass Study

USFS Rocky Mountain Research Station

Wildland Fire Decision Support System (WFDSS) and USFS Wildland Fire Management Research Development & Application

US Forest Service

National Park Service



Marketing Materials and Partnerships

Bureau of Indian Affairs

Bureau of Land Management

US Fish and Wildlife Service

Web - First Order Fire Effects Model (W-FOFEM)

University of Idaho

USGS Biological Informatics something something? Ialready forgot…

US Forest Service

Fire Modeling Institute

Systems for Environmental Management

Alaska Fire Science Consortium

University of Alaska

National Park Service

US Fish and Wildlife Service

Bureau of Land Management

BLM-Alaska Fire Service

Joint Fire Science Program

Lake States Fire Science Consortium

Ohio State University

US Fish and Wildlife Service

USFS Northern Research Station

Joint Fire Science Program

Pacific Northwest Fire Knowledge Exchange Consortium

Oregon State University

University of Oregon

University of Washington

USFS Region 6

USFS Pacific Northwest Research Station

Bureau of Land Management

USFS Pacific Wildland Fire Sciences Lab

The Nature Conservancy

Southern Fire Exchange

Joint Fire Science Program

American Forest Foundation

Association for Fire Ecology

Coalition for Prescribed Fire Councils

Conserved Forest Ecosystems Outreach and Research

Fire Research and Management Exchange System (FRAMES)

Joseph W. Jones Ecological Research Center

Longleaf Alliance

National Interagency Precribed Fire Training Center

National Park Service

National Woodland Owners Association

North Carolina State University, Department of Forestry and Environmental

Southeast Fire Ecology Partnership

Southern Group of State Foresters

Southern Regional Extension Forestry

Tall Timbers Research Station

Texas A&M University

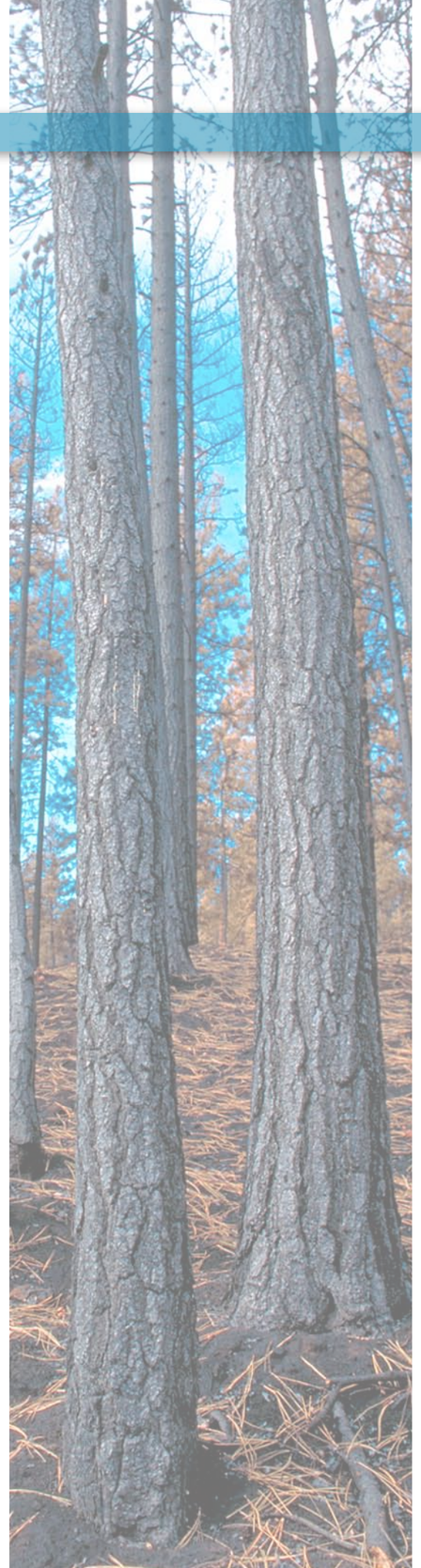
The Nature Conservancy

University of Florida, School of Forest Resources and Conservation

US Department of Defense

US Fish and Wildlife Service

US Forest Service, Region 8



Marketing Materials and Partnerships

US Forest Service, Southern Research Station, InterfaceSouth

Southwest Fire Science Consortium

Joint Fire Science Program

The Forest Guild

US Forest Service

USFS Rocky Mountain Research Station

Northern Arizona University

University of Arizona

Ecological Restoration Institute

Bureau of Land Management

US Fish & Wildlife Service

National Park Service

Bureau of Indian Affairs

Arizona State Forestry

New Mexico State Forestry

Southern Rocky Mountain Ecoregion Consortium

USFS Rocky Mountain Research Station

Joint Fire Science Program

US Forest Service

Bureau of Land Management

Larimer County

Colorado Forest Service

University of Wyoming

Colorado Forest Restoration Institute

The Nature Conservancy

Colorado State University

USGS

Fire Research And Management Exchange System (FRAMES) Partners

University of Idaho

USFS Rocky Mountain Research Station

USGS Biological Informatics

Oregon State University

USFS Missoula Fire Sciences Lab

USFS Wildland Fire Management Research Development & Application

USFS RMRS Science Application and Integration

National Center for Landscape Fire Analysis

Big Sky Institute

NOAA Paleoclimatology Program

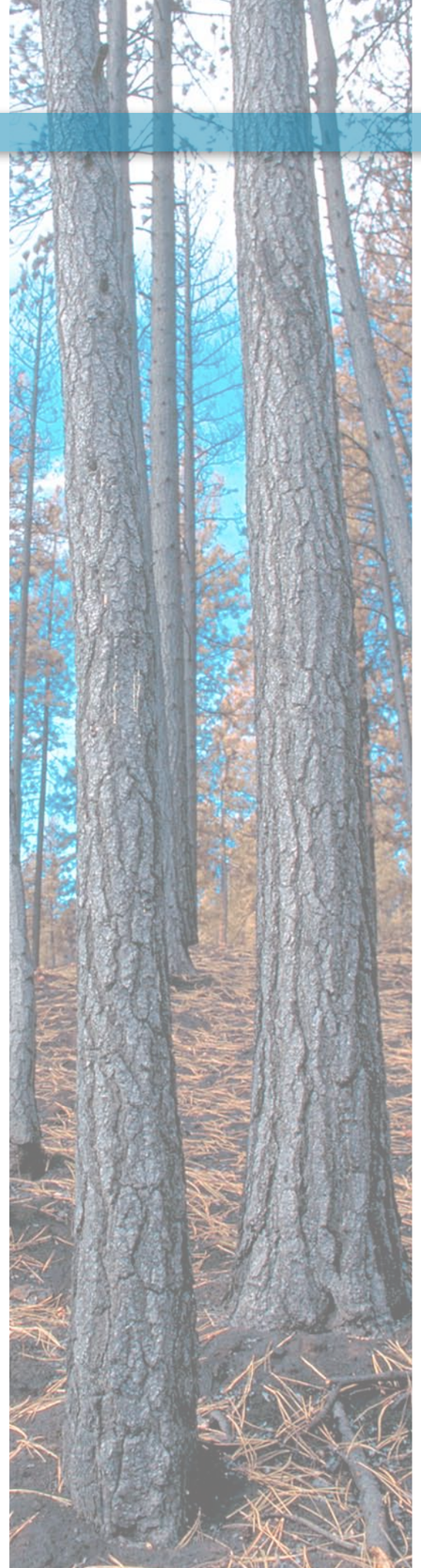
Tall Timbers Research Station

Wildland Fire Lessons Learned Center

Joint Fire Science Program

University of Alberta

CSIRO Bushfire Dynamics and Applications



Marketing Materials and Partnerships

Figure 22. FRAMES Partners

Overview

FRAMES infrastructure encompasses the underlying technological foundation and personnel that supports the management and movement of information, communication, and tools. FRAMES hardware infrastructure is hosted and maintained by the USGS - BIP in Denver, CO. The hardware infrastructure for the Resource Catalog System (RCS) is hosted and maintained by the Oregon State University's Northwest Alliance for Computational Science and Engineering (OSU / NACSE). Responsibility to maintain FRAMES technology and content reside with USGS - BIP personnel as well as the FRAMES Staff. FRAMES is a work in progress. The total build-out of FRAMES includes 1) a data, document, and tool repository, 2) consolidation, visualization, and web-based analytical capabilities of spatial data in a Geographic Information Systems (GIS) framework, 3) linked spatial and non-spatial databases, 4) a framework for managing and accessing remote sensing data, 5) a model management system, 6) web-enabled communications and collaboration, and all of this 7) in a platform that provides for customization based upon user, community, and agency needs.

USGS / Biological Informatics Program Component

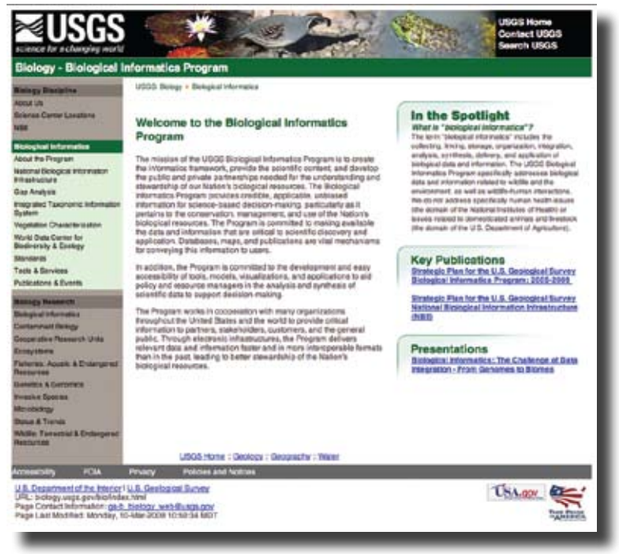
The USGS / Biological Informatics Program (BIP) supports many aspects of the FRAMES program related to information technology needs in four main areas that include system administration, customer support, FRAMES project implementation, and internal FRAMES projects.

For system administration, the USGS - BIP provides technical support for the overall system components that include Linux based servers, Portal servers, Portal licensing, and GIS servers plus the security, network, and documentation required by federal policies and regulations. Most of this work occurs at the USGS - BIP Center for Biological Informatics (CBI) facility in Denver, Colorado with some contributions by staff in Reston, Virginia. CBI hosts and maintains approximately 90 servers (Linux and Windows servers), 8 network devices, and 20 workstations with an estimated 72 TB raw storage capacity, 60 slot tape library, and about 102 websites with approximately 3300 named users. The system receives about 40 million hits including crawlers and more than 1 TB bandwidth consumed. FRAMES represents an integral part of this architecture and system. For 2010, approximately 525 hours were spent on FRAMES related system administration activities that ensured that FRAMES was online with up to date hardware and software and met all federal security requirements. Many of the security requirements have been incorporated into the USGS / BIP business process, which includes staff time contributed to FRAMES each year.

In 2010, one of the significant accomplishments in the area of system administration support relates to the preparatory work completed for the FRAMES Portal Upgrade, which is scheduled to be fully migrated in early 2011. This enormous effort undertaken by CBI staff with assistance from FRAMES staff involves several elements that form the basis for the upgrade in 2011 including:

- Streamlining existing communities, projects, and users to archive materials and delete outdated information;
- Re-architecting the entire system to improve performance and enhance functionality;
- Setting up new hardware using the Linux operating system instead of the previous Windows based operating system to increase stability;
- Virtualizing machines to include different instances of the Portal System on one machine to maximize licensing, improve performance, and enhance the user experience;
- Installing software for new versions of the various components such as the Portal, Publisher, and Collaboration;

- Migrating hundreds of thousands of data files from the old system into the new system by producing a series of data scripts to streamline the process;
- Instituting the Vivisimo search engine to replace the standard portal search; and
- Redesigning the user interface and creating new graphics and coding new templates needed for deployment in the new system



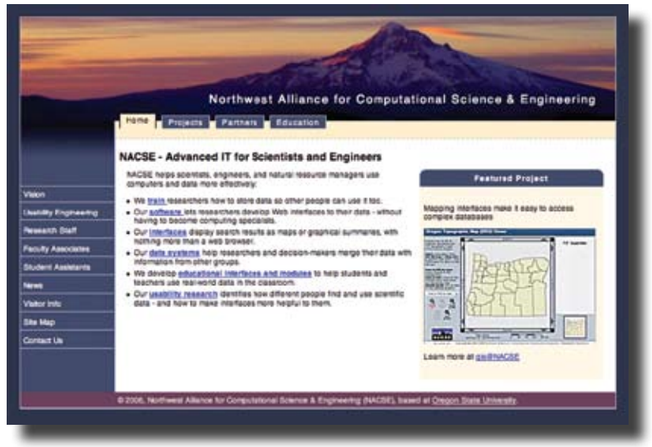
By the first quarter in 2011, the portal upgrade should be completed. Additional work in 2011 will involve addressing support issues related to the upgrade as well as migrating users from the current login system to the LDAP managed system. This change will require users to have more complex passwords that are changed more often to meet mandated federal security requirements.

The customer support area addresses a variety of requests that must be resolved by USGS / BIP staff such as releasing new communities on FRAMES, updating header files, investigating navigation/user interface issues, and many other tasks. In 2010, more than 140 requests were submitted to support@nbii.gov, the mechanism for reporting support questions related to FRAMES.

The FRAMES project implementation area focuses on specific activities that are needed to ensure continuity of tools as required by hardware or software changes. In 2010, this effort focused on the migration of the Fire Enhanced Runoff and Gully Initiation Model (FERGI) Tool to an updated GIS server and from ArcIMS to the new ArcGIS platform to ensure stability of the application. As part of this process, an effort was made to upgrade the application itself from Fortran to Java, a more current technology, and to include an enhanced feature that would enable multiple users to be accessing the tool simultaneously. The application was successfully migrated to a new server with improvements in performance and continues to be available to users that access it during fire season. However, the complexities of the mathematical models coded into the current system did not allow a transition to a newer programming language, which removed the possibility of a solution for a multiple user approach. During fires, when the tool is in active use, USGS - BIP staff help facilitate the results to ensure that multiple users do not overwrite model runs. Additionally, these challenges did not allow the system to be upgraded to the ArcGIS platform. Even with these issues, the application continues to function better than it has in the past few years. In 2011, FRAMES and USGS - BIP staff will work with partners to conduct an evaluation of the FERGI tool to determine the feasibility of modernizing it for enhanced use.

The FRAMES internal projects include activities identified in the annual planning process that will streamline workflow processes or enhance the user experience. In 2010, the FRAMES staff identified a need for identifying a Learning Management System (LMS) to address specific user requests. USGS - BIP staff met with the National Business Center and other professional experts to provide some contacts and other information related to LMS. Another effort involved working with Google Calendar to determine if the no cost version could be incorporated into a FRAMES partner site.

OSU / NACSE Component



Currently, and possibly until version 3.0 of the FRAMES Resource Cataloging System (RCS) is complete, NACSE hosts and maintains version 2.0 of the RCS on NACSE servers in Corvallis, Oregon.

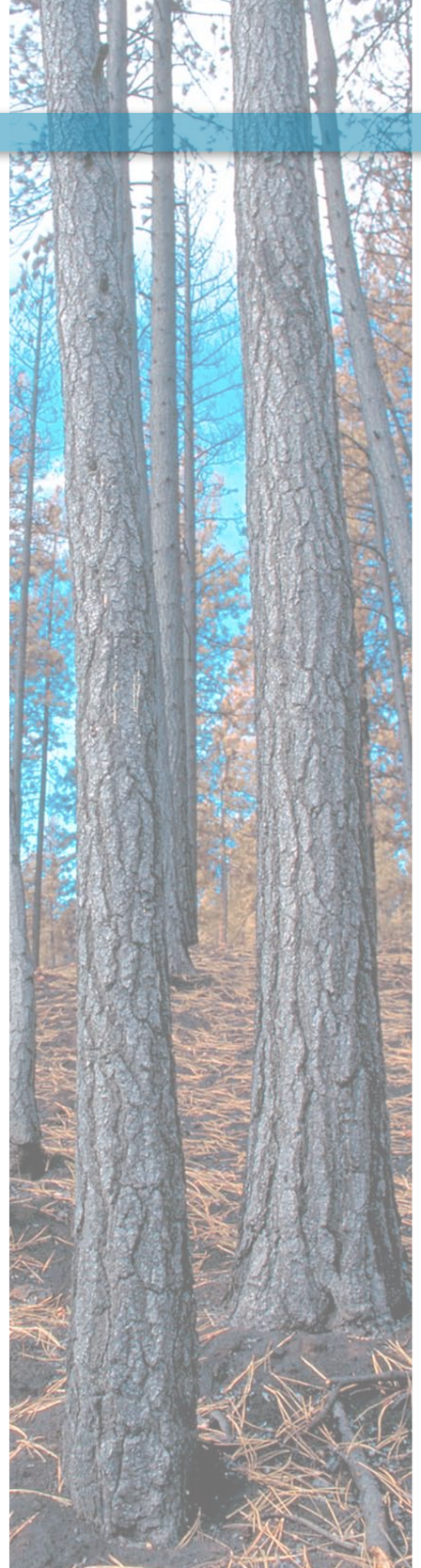
NACSE working files, database, and web services are maintained on NACSE's server farm of multi-processor SunFire and Dell PowerEdge servers. All servers are connected directly to the campus backbone and NERO. NACSE maintains separate machine environments for development, test, and production servers, allowing the development and testing of new software components without affecting the performance or stability of production-level services. The primary relational database management systems employed are PostgreSQL, MySQL, Oracle, and Sybase. A major portion of NACSE research is in support of distributed and federated databases that are integrated virtually to present the appearance of a single, homogeneous database. Additionally, NACSE is a participant in one of several shared computational clusters supported by the College of Engineering for specific research groups in colleges across the OSU campus. The system is built on Sun's Grid Engine with commodity hardware and freely available software. Over 160 CPUs operate within a heterogeneous mix of dual-processor servers including Dell PowerEdge 1850, Dell PowerEdge 2650, HP Proliant DL145, and most recently Sun X4100 units. Software is based on Redhat Enterprise Linux, with MPI to support message-passing parallelism. Each system is connected to the public network via gigabit Ethernet, and a second MPI communication network is built on dedicated gigabit hardware.

NACSE staff are highly experienced in the design and implementation of complex web-based applications, particularly those that involve querying and display of scientific data. In the past several years, NACSE staff have successfully developed several web-based applications specifically for USGS - BIP, with features such as data entry capability for model runs, data analysis, text-based and GIS-based display of query results, and various visualizations of output data.

Portal Software Update

The FRAMES platform uses the Oracle Web Suite portal software for its online presence. In June of 2008, the BEA portal technology AquaLogic suite of software that provided much of the information technology (IT) infrastructure for both USGS - BIP and FRAMES merged with Oracle. According to the CEO of Oracle, "…the addition of BEA will accelerate innovation by bringing together two companies with a common vision of a modern service-oriented architecture (SOA) infrastructure." "Together, Oracle and BEA will provide will provide a series of complementary and well-engineered middleware products, allowing customers to more easily build, deploy, and manage applications in a secure environment."

During 2009 and 2010, USGS - BIP began the process of upgrading NBII sites as well as FRAMES. FRAMES and USGS - BIP staff identified several projects that will better prepare USGS - BIP for the upgrade in



2011. Notice reengineering took place in 2010 with the preparation of a requirements document to USGS - BIP. The new Notices tool will be in place concurrent with the upgrade in 2011. Substantial clean-up within the collaboration and project management space on FRAMES also occurred in 2010 in preparation for the portal upgrade, as well as review of existing user accounts (including archiving old accounts). Additionally, the partner sites infrastructure was standardized and old, unused content cleared out, in order to improve the efficiency of transferring content to the upgraded portal.

Personnel: University of Idaho

Penny Morgan, at the University of Idaho, CNR, FOR, is the the lead faculty member of FRAMES.

Two new permanent State Board of Education (SBOE) positions were added in 2010 to the existing two permanent positions. All FRAMES positions are contingent on continued federal funding. Preexisting SBOE positions include the FRAMES Program Manager and FRAMES Project Manager. These positions are filled by Greg Gollberg and Diana Olson, respectively. Two other full-time SBOE positions were created and filled in 2010 including the FRAMES Content Manager (filled by Lynn Wells) and the Fire Research Scientist and Outreach Program Manager (filled by Eva Strand). The Fire Research Scientist and Outreach Program Manager is primarily responsible for the development, management, and oversight of all aspects of NIFTT and its relationship with FRAMES. Besides these four SBOE positions there are three additional FRAMES staff positions. They are a full-time FRAMES Graphics & Interface Design (John Black) Specialist and two part-time FRAMES Content Support Specialist positions, filled by Jennifer Lagadinos and Michael Tjoelker.

Personnel: USGS - BIP

Other support exists with USGS - BIP personnel including Jenifer Carlino, Janice Gordon, Julie Recker, Tim Mancuso, Jeff Falgout, Brad Williams, and Mary Macleod.

Personnel: OSU / NACSE

Contracts for support and maintenance of the RCS Version 2.0, plus the FOFEM project included staff from Oregon State University, NACSE. NACSE staff support includes Sherry Pittam and Ben Steinberg.

Personnel: MSU / BSI

Additional portal support was provided by Kelly Lotts at the Big Sky Institute, Montana State University. Funding for Kelly was arranged through USGS – BIP.

Infrastructure Overview: Dollars and Sense

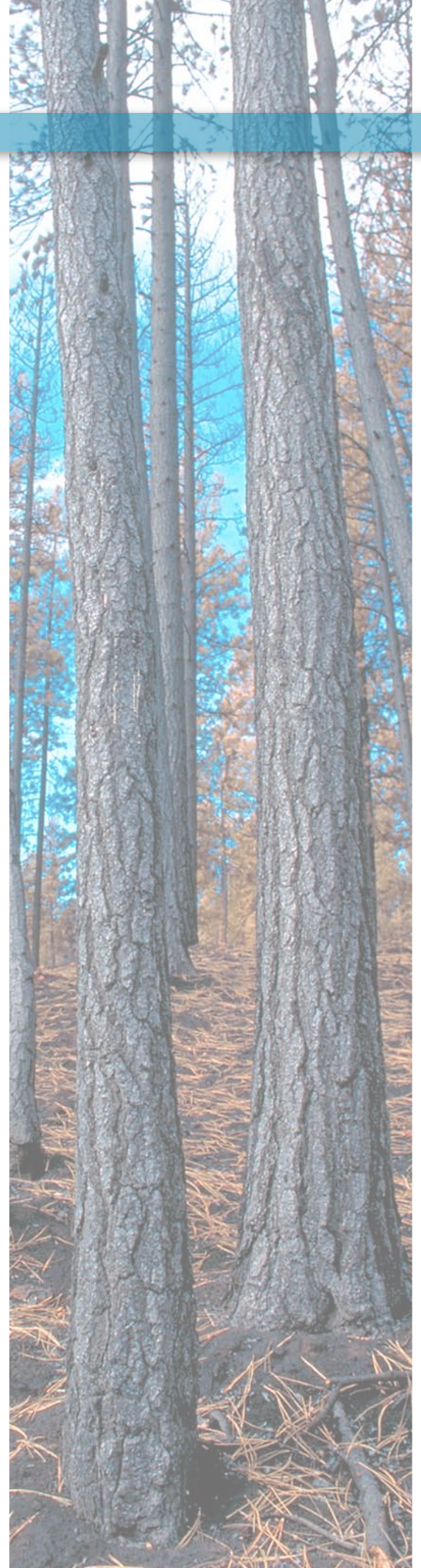
FRAMES continues to be funded through line item funding for the Wildland Fire Science Partnership (WFSP). This is the primary funding source for FRAMES. New funding to assume administration of the NIFTT program began at the end of 2009 and continued through 2010. With these two sources of dollars FRAMES annual funding exceeded a million dollars. FRAMES will continue to look to diversify its funding through efforts to provide custom services to new partners. FRAMES will also work with WFSP partners to increase funding to the partnership including the RMRS, University of Montana, and the University of Idaho. Also, in kind support from many organizations helps FRAMES fulfill its mission each year.

FRAMES Projects & Initiatives 2011 and Beyond

Once the upgrade to the portal is complete much of the work in 2011 will be to improve the look and feel of the FRAMES Home Page, but also the Subject Areas, Geographic Areas, and Partner Sites.

Primary activities for FRAMES in 2011 will be to:

1. NACSE will continue to maintain Version 2.0 of the Resource Cataloging System (RCS v2) and FRAMES Staff will increase the content holdings using Version 2.0 by working with content providers including researchers and managers.
2. Redesign FRAMES site following the completion of the portal software upgrade, including the Home Page, Subject Area pages, Geographic Area pages, and Partner Site pages.
3. Provide a map search interface for RCS v2 (the portal software upgrade will allow FRAMES to capitalize upon the powerful Vivisimo search platform currently used by USGS / Biological Informatics Program, which includes a map interface).
4. Complete specifications for RCS v3, award the RCS v3 contract, and begin development of RCS v3.
5. Better integrate the activities of FRAMES and NIFTT.
6. Seek a stable administrative home for FRAMES & NIFTT within the Wildland Fire Management RD&A.
7. Continue to support existing partners and seek new partners to complement the existing architecture of FRAMES including Subject Areas, Geographic Areas, and Partners Sites.



2010 Accomplishments: NIFTT

Online Courses and Course Material

- Published the Area Change Tool course online. This course teaches students how to use the Area Change Tool to update and customize LANDFIRE spatial data. The Area Change Tool is an extension to ArcGIS.
- Published the First Order Fire Effects Mapping Tool (FOFEMMT) course online. This course teaches students how to produce fire effects outputs such as smoke production, fuel consumption, soil heating and tree mortality, using LANDFIRE data. The FOFEM Mapping Tool is an extension to ArcGIS.
- Review and posting of S-244 (Part I) course material on the FRAMES web site
- Review and posting of S-490 course material on the FRAMES web site
- Review and posting of S-495 course material on the FRAMES web site
- Development of the Vegetation Dynamics Leaning Pathway. The courses in the learning pathway will be organized to begin with basic modeling concepts for novice users and continue through the introduction of advanced applications.
- Development of a revision plan for the LANDFIRE Concepts, Data, and Methods course.
- Completion of chapter 1-6 of the online learning material Introduction to Fire Behavior.
- NIFTT online courses have been transferred off the Blackboard learning management system at the University of Idaho to the eLeap online learning system. The eLeap system is easier to use and students no longer need to obtain a University of Idaho student ID to take NIFTT courses.

Learning Tools and Documentation

- Fire Regime Condition Class (FRCC) Guidebook version 3.0 with updated methodologies, data forms, and more
- Fire Regime Condition Class Software Application (FRCCSA) version 3.0.3.0. This product is a more user-friendly version that has refined and new FRCC analysis capabilities. FRCCSA includes a User's Guide and a Tutorial.
- The LANDFIRE Total Fuel Change Tool (ToFuDelta). ToFuDelta facilitates the editing of LANDFIRE rule sets to create customized surface and canopy fuel layers for local applications. The ToFuDelta tool includes a Draft User's Guide, Tutorial, and Help Utility.
- Wildland Fire Assessment Tool (WFAT) Beta-version. WFAT combines the strengths of FlamMap, ArcGIS, and FOFEM and allows users to model fire behavior and fire effects directly in a GIS environment. This learning tool includes a Draft User's Guide, Tutorial, and Help Utility.

Workshops

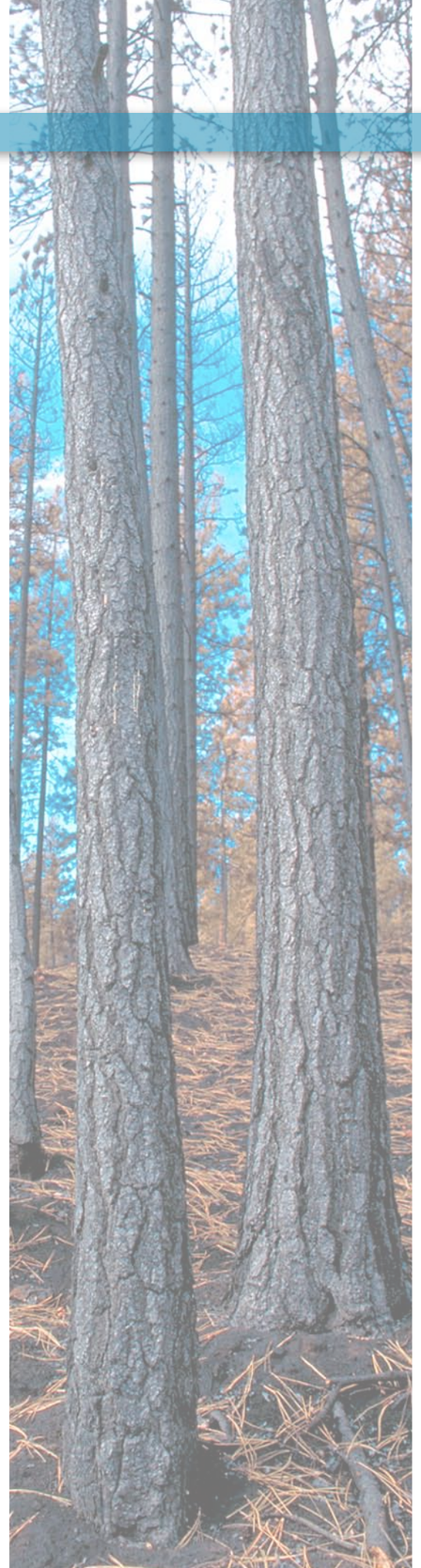
- LANDFIRE and the Area Change Tool (ACT). Hann W. and Strand EK, April 28, 2010. Guest lecture/lab in REM429 – Landscape Ecology, University of Idaho (32 students)
- Wildland Fire Assessment Tool, Jones JJ, Hamilton D, 3rd Fire Behavior and Fuels Conference, International Association of Wildland Fire, October 25-29, 2010, Spokane, Washington, USA (12 students).
- Fire Regime Condition Class, Barrett S, DeMeo, T., Hamilton D, 3rd Fire Behavior and Fuels Conference, International Association of Wildland Fire, October 25-29, 2010, Spokane, Washington, USA (32 students).
- LANDFIRE Total Fuel Change Tool, Smail T, Martin C., 3rd Fire Behavior and Fuels Conference, International Association of Wildland Fire, October 25-29, 2010, Spokane, Washington, USA (11 students).
- NIFTT Overview and Wildland Fire Assessment Tool presentation, demonstration and lab. Strand EK, November 10, 2010. Guest lecture/lab in FOR427 – Prescribed Burning Lab, Wildland Fire Program, University of Idaho (30 students).

Publications and Reports

- Stephen W Barrett, S.W., Havlina, D., Hann, WJ et al. (2010) Fire Regime Condition Class: Concepts, Methods, and Applications. Proceedings of 3rd Fire Behavior and Fuels Conference, October 25-29, 2010, Spokane, Washington, USA. Published by the International Association of Wildland Fire, Birmingham, Alabama, USA.
- Strand EK, Schon KH, Jones J (2010) Tools, courses, and learning pathways offered by the National Interagency Fuels, Fire, and Vegetation Technology Transfer, Proceedings of 3rd Fire Behavior and Fuels Conference, October 25-29, 2010, Spokane, Washington, USA. Published by the International Association of Wildland Fire, Birmingham, Alabama, USA.
- Evaluation of NIFTT courses 2008-2009. NIFTT Team
- NIFTT Online Course Statistics FY2010. NIFTT Team
- Results of Questionnaire to Federal Users of NIFTT Tools and Courses. NIFTT Team

Presentations

- Strand EK, Schon KH, Jones J (2010) Tools, courses, and learning pathways offered by the National Interagency Fuels, Fire, and Vegetation Technology Transfer, Poster presentation, 3rd Fire Behavior and Fuels Conference, International Association of Wildland Fire, October 25-29, 2010, Spokane, Washington, USA.
- Jones, J. (2010). NIFTT Overview. USFS, Region 4, Fuels Meeting. October 28, 2010.
- Jones, J. (2010) NIFTT Overview & WFAT Presentation. 2010 Prescribed Fire Workshop, November 7-9, 2010, Destin, FL



2010 Accomplishments: NIFTT

- Strand EK (2010) Guest lecture titled NIFTT Overview in FOR427 Prescribed Burning Lab at the University of Idaho, November 10, 2010

Meetings

- NIFTT/FRAMES vendor booth. Strand EK, Wells L. Oct. 6-7 2010 Wildland Fire conference, Boise
- NIFTT/FRAMES vendor booth. Olson D, Tjoelker M, Strand EK, Wells L. 3rd Fire Behavior and Fuels Conference, International Association of Wildland Fire, October 25-29, 2010, Spokane, Washington, USA.
- LANDFIRE Futures Meeting, November 8-9, 2010, Park City, Utah. Strand EK
- WFDSS Air Quality Tools meeting, NIFC, December 7-8, 2010, Boise Idaho. Strand EK

Marketing material

- NIFTT Brochure (300 copies printed and distributed at conferences and meetings).
- NIFTT Poster. Presented at the 3rd Fire Behavior and Fuels Conference, International Association of Wildland Fire, October 25-29, 2010, Spokane, Washington, USA.
- Flyers for advertising online courses and learning tools (100 copies printed and distributed at conferences and meetings).

Customer Support

- Updates and maintenance of three web sites: nifft.gov, frcc.gov, and landfire.gov
- Customer support via three helpdesks: helpdesk@nifft.gov, helpdesk@frcc.gov, and helpdesk@landfire.gov

Table 2. FRAMES Funding

FRAMES Funding Chronology 2002 - 2010

Projects funded in 2002	Date	Funded by	UI Amount	Partners	Earmark Funding
Fire Research And Management Exchange System (FRAMES)	27-Jun	RMRS, Missoula Fire Lab	$30,000		
Projects funded in 2003					
A New Wildland Fire Tools Database and Security Protocols for FRAMES	9-Jun	RMRS, Missoula Fire Lab	$40,000		
FRAMES Infrastructure Expansion Project I	9-Jun	Congressional Earmark	$199,000		$199,000
An Expert System and New Web Interface for Tools on FRAMES	4-Nov	JFSP	$99,475		
Projects funded in 2004					
Development of a Training Course for FRCC Assessment	25-Feb	NPS Pacific NW-CESU	$39,230		
Development of a Training Course for FRCC Assessment		NPS Pacific NW-CESU	$73,794		
A Continuation of the FRAMES Infrastructure Expansion Project I	22-Mar	Congressional Earmark	$197,000		$197,000
An Information Portal for Fire Science and Management in the Southern Region	1-Jun	JFSP	$117,509	$380,254	
Projects funded in 2005					
FRAMES Infrastructure Expansion Project II	16-Aug	Congressional Earmark	$97,000	$100,000	$197,000
Provide access for FERGI into the FRAMES portal	31-Jul	RMRS, Boise Aquatics Lab	$2,000		
Projects funded in 2006					
FRAMES Infrastructure Expansion Project III	29-Mar	Congressional Earmark	$129,170	$214,830	$344,000
Development of a 5-year Strategic Plan for FRAMES	11-Jul	NFP		$20,000	
		USGS - BIP		$20,000	
Development of a Training Course for FRCC Assessment	?	NPS Pacific NW-CESU	$20,000		
Projects funded in 2007					
Maintenance and Development of FRAMES	25-Jun	Congressional Earmark	$223,950	$124,050	$348,000
Projects funded in 2008					
Ongoing Maintenance and Development of FRAMES	30-Jul	Congressional Earmark	$349,665	$289,716	$639,381

APPENDIX A (Funding Report 2002-2010)

Fire Regime Condition Class (FRCC) Training Delivery and Registration	30-Jul	NIFTT	$13,765	$4,148	
			Grand Total of Earmark Funding		$1,924,381
Projects funded in 2009					FS Funding and DOI
Ongoing Maintenance and Development of FRAMES Year 2	20-Aug	Funding to WFSP from FS	$481,500		
FRAMES Support	20-Aug	USGS-BIP-NACSE		$169,098	$650,598
Developing comprehensive curricula for teaching and applying fuels, fire, and vegetation management technology	8-Sep		$117,119	$412,381	$529,500
			Grand Total of FS and DOI Funding 2009		$1,180,098
Projects funded in 2010					
Ongoing Maintenance and Development of FRAMES Year 3		Funding to WFSP from FS	$434,902		
FRAMES Support		USGS-BIP-NACSE		$215,031	$650,000
Developing comprehensive curricula for teaching and applying fuels, fire, and vegetation management technology (Round 1: 2010)			$146,431	$353,569	$500,000
Developing comprehensive curricula for teaching and applying fuels, fire, and vegetation management technology (Round 2: 2010)				$116,000	$116,000
Developing comprehensive curricula for teaching and applying fuels, fire, and vegetation management technology (Round 3: 2010)			$206,482	$583,518	$790,000
			Grand Total of FS and DOI Funding 2010		$2,056,000
			Totals	$3,017,992	$2,994,299
				All Year Funding To FRAMES	$6,012,291

APPENDIX B: FRAMES Strategic Plan 2007-2012

FRAMES: Technology in Support of Wildland Fire Research and Management

The Fire Research and Management Exchange System (FRAMES) supports wildland fire and natural resource professionals and policymakers through an on-line informatics system. FRAMES utilizes enterprise portal technology to promote science delivery and technology transfer at a national level. Resources including data, documents, tools, notices, and web pages are publicly available through http://frames.nbii.gov. FRAMES can host resources, link to them through its cataloging system, or provide a common view of resources (e.g., databases) that are remotely distributed. Access to these resources and other content can be customized for logged in users. Logged in users create and edit content that may or may not be publicly available. A suite of collaborative services including document management and sharing, threaded discussions, project and task management, and calendars are available to content developers and other logged in users. FRAMES is a collaborative effort to produce an integrative system for connecting the tools, information, and people who are part of the enterprise of wildland fire research and management.

The University of Idaho and the US Geological Survey's USGS - BIP program (NBII) has led the development of FRAMES with guidance and support USDA Forest Service (FS), Joint Fire Science Program (JFSP), Bureau of Land Management (BLM), National Park Service (NBP) and other federal, state, and private agencies and organizations. Since 2003, FRAMES has received funding and in-kind support from many including the FS, USGS / NBII, JFSP, BLM, NPS, National Interagency Fuels Technology Team (NIFTT), Fire Regime Condition Class (FRCC) Working Group, National,US Fish and Wildlife Service, Tall Timbers Research Station (TTRS), The Nature Conservancy (TNC), and congressional earmarks. Funding has supported three areas of development: content, infrastructure, and services. Infrastructure and content development has been emphasized with some effort spent on developing services. In 2006 there was a dramatic increase in portal traffic, logged in users, content added, partners sites hosted by FRAMES, and the use of available services. Today, FRAMES is at a crossroads between prototype and an operational system for fire informatics. This transition presents new opportunities and challenges that require additional guidance and planning.

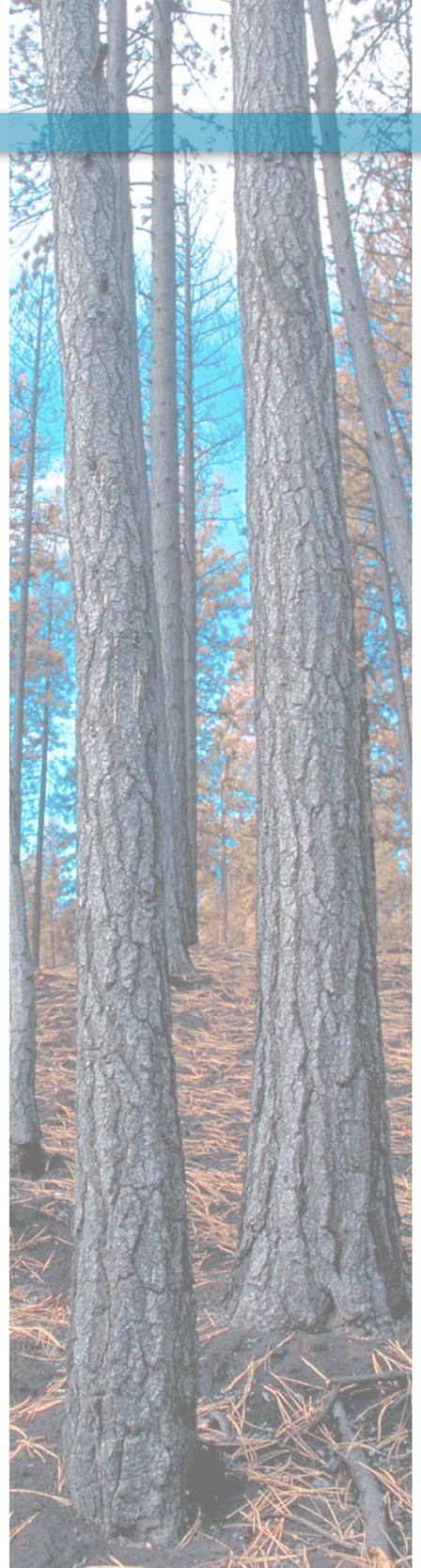
Beginning in 2007 and for each subsequent fiscal year, a FRAMES Project Management Plan will be developed by FRAMES staff, partners, and USGS - BIP personnel that will be reviewed by members of the FRAMES Interim Steering Committee (FISC). The FISC will continue to fill this role until such time as a permanent governance structure is established for FRAMES. Each annual plan will seek to further five-year goals established in the FRAMES Strategic Plan.

FRAMES Five Year Strategic Goals

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.

2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with FRAMES informatics architecture and that target their common technology transfer and science delivery needs.

3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.



APPENDIX B: FRAMES Strategic Plan 2007-2012

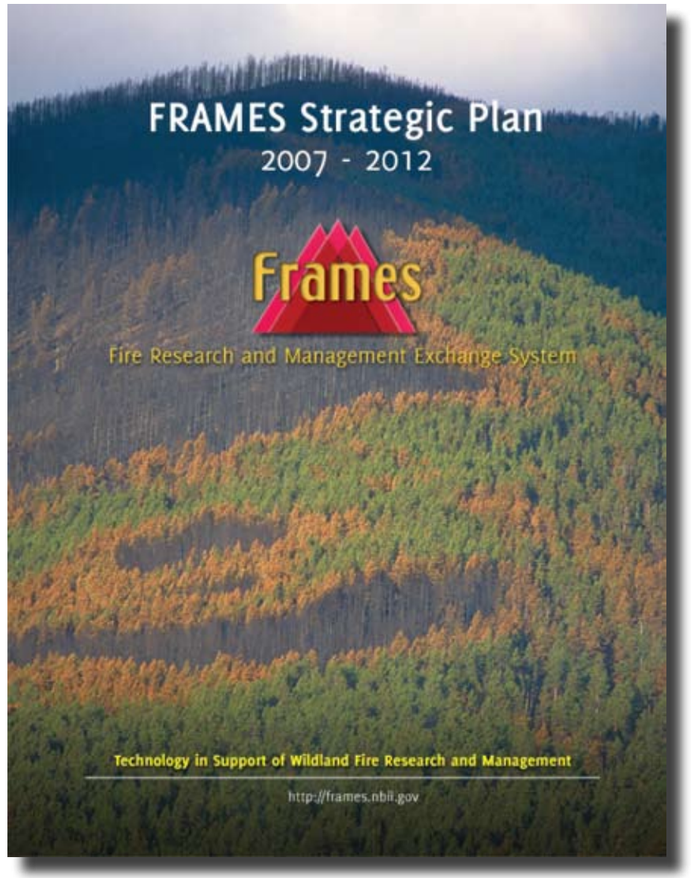
4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.

5. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.

6. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

FRAMES makes the following commitments to the larger community of fire policymakers, managers, researchers, and practitioners. We will be mission centered. We will continuously stay focused on our core mission, goals, and strategic actions. We will focus on excellence and undertake all activities at the highest levels of distinction. We will stay current

on developments in the fire community and informatics. We will be strategic in our partnerships. We will seek to measure our progress and work with sound metrics, learn from the results, and seek improvement as a result.



NIFTT Courses Summary Statistics FY 2010

National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT)
Prepared by: Eva K. Strand[1], Kathy Schon[2], Jeff Jones[3]

[1]Wildland Fire Program, College of Natural Resources, University of Idaho, Moscow, Id, [2]USDA Forest Service, McCall, Id, [3]USDA Forest Service, Whitefish, Mt

NIFTT Online Courses

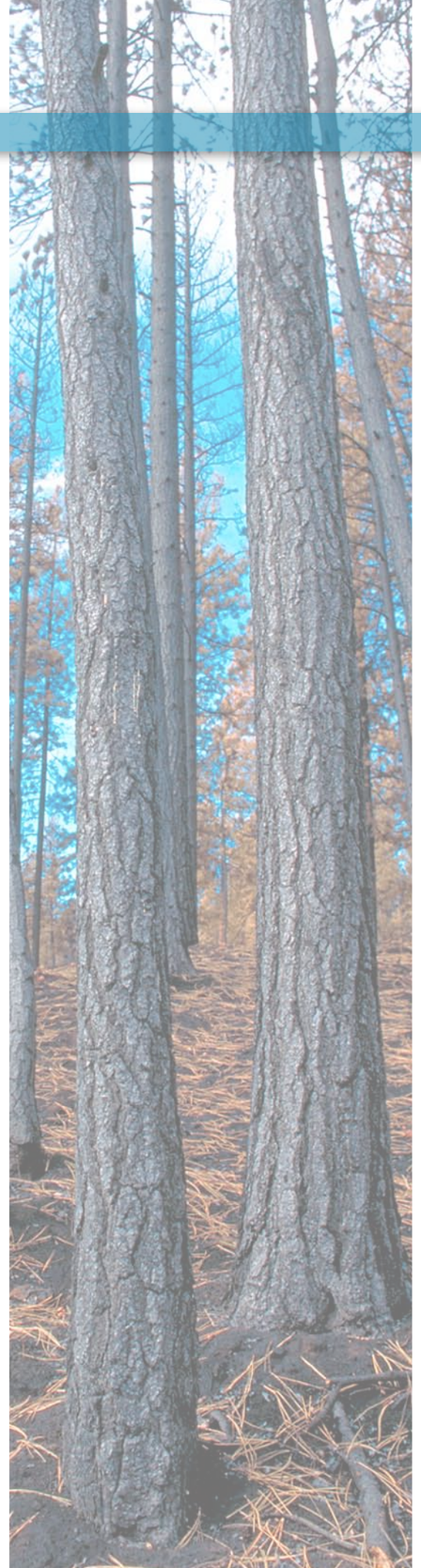
NIFTT was chartered in 2005 by the National Interagency Fuels Coordination Group to assist federal, state, and private land managers in the development and implementation of effective fuels, fire, and vegetation management technology for addressing risks related to severe fires in wildland-urban interface communities and restoring healthy ecological systems in other wildland areas. Since October 2010, NIFTT has been operating under the Rocky Mountain Research Station (RMRS) in the Wildland Fire Management RD&A. NIFTT is sponsored by the US Forest Service and the Department of Interior (DOI) and partners with the University of Idaho, the Fire Research And Management Exchange System (FRAMES), The Nature Conservancy, and the RMRS Fire Modeling Institute (FMI).

To date, NIFTT has developed six online courses and over ten computer-based learning tools focusing on technology transfer relating to stand- and landscape-scale assessments of fuels, fire, and vegetation dynamics. Courses include:

- LANDFIRE: Concepts, Data & Methods
- Introduction to the Fuel Characteristic Classification System (FCCS)
- Fire Regime Condition Class (FRCC)
- Introduction to the 40 Fire Behavior Fuel Models (FBFM40)
- Using Fire Behavior Nomographs
- GIS Tools for Fuels, Fire and Vegetation Management
  - Fire Regime Condition Class Mapping Tool (FRCCMT)
  - First Order Fire Effects Model Mapping Tool (FOFEMMT)
  - Area Change Tool (ACT)

The National Wildfire Coordinating Group [NWCG] course S-495, Geospatial Analysis, Interpretation, & Application, was developed in collaboration with the S-495 steering committee and NWCG faculty and is hosted by NIFTT.

NIFTT online courses are currently hosted through the University of Idaho Blackboard learning management system, but will in the near future be launched from the FRAMES website (http://frames.nbii.gov/) via the eLeaP learning management system. Course information and registration will remain on the NIFTT website (www.niftt.gov). A simplified registration approach will be implemented in which students need fewer passwords and can request a replacement password that is effective immediately.



APPENDIX C: NIFTT

Course Registration Statistics

Students registering for NIFTT courses come from a variety of sectors but are predominantly from the USDA Forest Service (USFS) and the Department of Interior (DOI). In 2010, 340 students registered for one or more NIFTT online courses. The USDA Forest Service contributed 32% of the registering students and DOI contributed 35%, while the remaining 33% of the students came from private, state, The Nature Conservancy (TNC), universities, and other (Figure 1). Registering students came from several of the agencies within DOI: Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), US Fish and Wildlife Service (USFWS), and US Geological Survey (USGS); see Figure 2.

The courses receiving the highest registration numbers in FY 2010 are Introduction to the FBFM40 (161 students) and LANDFIRE (129 students). In 2010, FCCS received 94 registrations, FRCC received 95 registrations, GIS Tools received 92 registrations, and Nomographs received 53 registrations (Figure 3). S-495, which is scheduled every year, is taught under the supervision of an online instructor from the NWCG and attracted 93 students in 2010. Overall, NIFTT online courses received 717 course registrations from 340 individuals; i.e., many students registered for more than one course. The number of student registrations by course and agency are summarized in Table 1

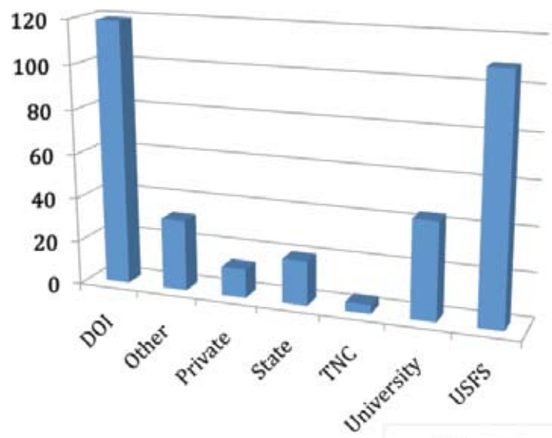
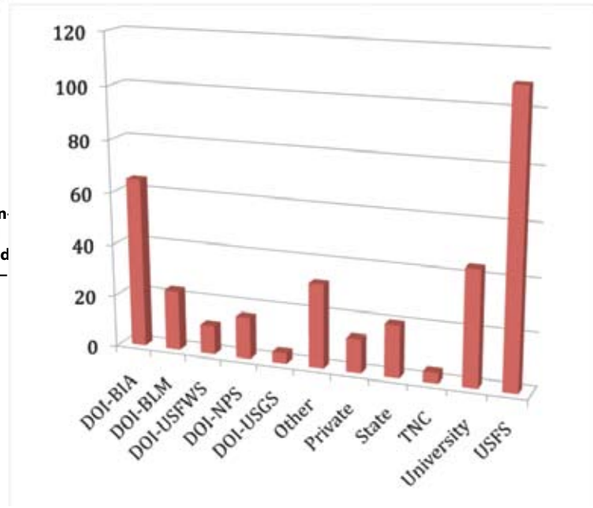


Figure 1. Number of individuals registering for NIFTT courses in 2010 by agency. This graph does not reflect the frequent instance in which one individual has signed up for more than one course. DOI – Department of Interior, TNC – The Nature Conservancy, USFS – USDA Forest Service.

Figure 2. Number of individuals registering for NIFTT courses in 2010 by agency. This graph does not reflect the frequent instance in which one individual has signed up for more than one course. The individual agencies within the Department of Interior are listed: BIA – Bureau of Indian Affairs, BLM – Bureau of Land Management, USFWS – US Fish and Wildlife Service, NPS – National Park Service, USGS – US Geological Survey.



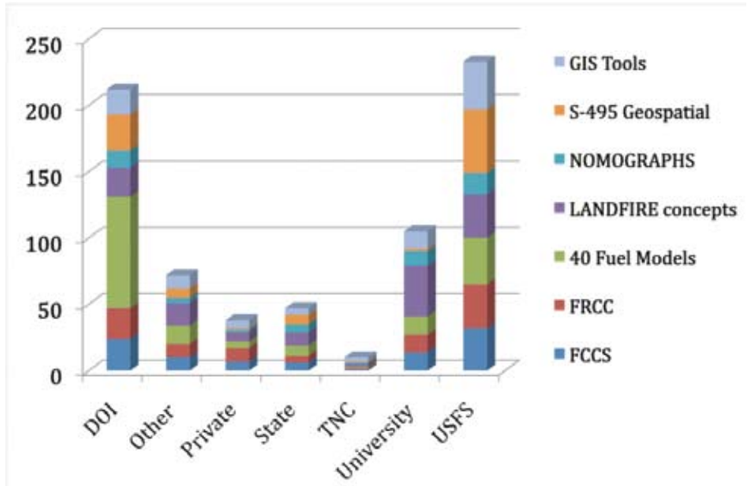


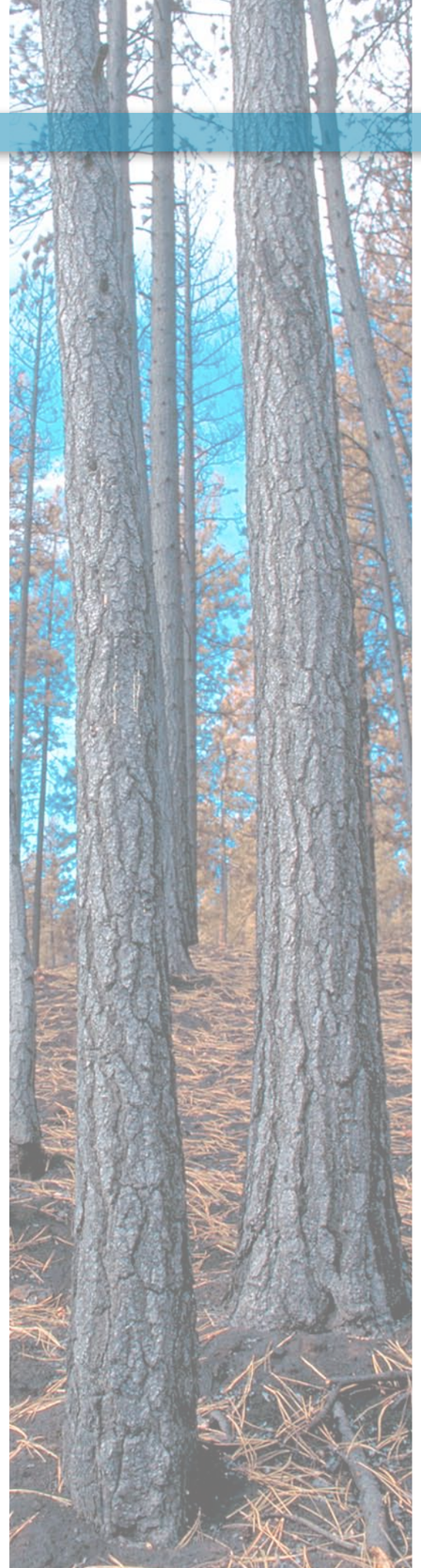
Figure 3. Number of NIFTT course registrations by course and agency for FY 2010.

Table 1. Number of student registrations by course and agency for FY 2010.

Course	DOI	Other	Private	State	TNC	University	USFS	Total
FCCS	24	10	7	6	1	14	32	94
FRCC	23	10	10	5	1	13	33	95
40 Fuel Models	84	14	5	8	1	14	35	161
LANDFIRE concepts	22	17	7	10	2	38	33	129
NOMOGRAPHS	13	4	2	6	1	11	16	53
S-495 Geospatial	27	7	1	7	1	2	48	93
GIS Tools	19	10	6	5	3	13	36	92
Total	212	72	38	47	10	105	233	717

Helpdesk

The NIFTT Helpdesk responds to questions related to LANDFIRE, FRCC, and NIFTT courses and tools. In FY2010, the helpdesk received 784 requests for assistance: 70% were requests related to online course registration and certification, 19% were related to LANDFIRE, 10% were related to NIFTT tools and training, and 1% was related to FRCC software (Table 2).



APPENDIX C: NIFTT

Table 2. NIFTT Helpdesk requests for FY 2010.

Helpdesk Topic FY 2010	# requests	% requests
LF Data Download Questions	26	3.3
LF Data Questions	25	3.2
LF Data Requests	45	5.7
LF Misc	50	6.4
LF Refresh	5	0.6
NIFTT Tools	55	7.0
NIFT Training	28	3.6
NIFT Courses - registration/certification	549	70.0
FRCC Software	1	0.1
Total	**784**	**100**

Results of Questionnaire to Federal Users of NIFTT Tools and Courses 2010

National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT)

Executive summary

NIFTT's mission is to assist land managers with conducting effective fuels, fire, and vegetation analysis technology for addressing risks related to severe fire behavior and fire effects, and to restore healthy ecological systems. NIFTT has developed over ten learning tools and eight online courses focusing on fire behavior, fire effects, and ecological departure. NIFTT course statistics from FY2010 indicate that approximately one third of the students are affiliated with the US Forest Service, one third with the Department of Interior, and one third is affiliated with universities, The Nature Conservancy, private entities, and other. In December 2010 and January 2011, the NIFTT Helpdesk delivered an online questionnaire to federal agency employees via email with the objective to: 1) Characterize individuals that have registered for courses and/or that have used NIFTT tools; 2) Characterize whether students believe the courses were useful for their job; 3) Characterize whether users of our tools believe the tool helped them with their job; 4) Develop an understanding of what folks really need to help them w/ their job (e.g., different tools, more or different training opportunities, local workshops/field visits by NIFTT staff, etc.).

The questionnaire was delivered to 420 federal employees who had registered for at least one NIFTT course during the time period 2008 to 2010. We received 28 responses (7% response rate) from the two email instances. The majority of the responding individuals were employed by the USDA Forest Service (22 of 28) in job series 462 (Forestry technician) or 401 (Natural resource manager). The grade level ranged from GS-04 to GS-12 with a majority of the course participants in the GS-09 grade (13 of 28). Responding individuals characterized themselves as fuels specialists, fire behavior analysts, or foresters.

Most of the respondents learned about NIFTT from a co-worker, however, other responses were common; from a supervisor, through the Internet, at a conference, from an instructor in a NIFTT or a non-NIFTT course. The three top motivations for taking a NIFTT course were to increase the efficiency on the job; it was a requirement of their current job; or to help advance their career. The NIFTT online courses were found to be extremely or fairly useful, particularly the Introduction to the 40 fire behavior fuel models course and the LANDFIRE concepts, data, and methods course. Course organization was generally found to be satisfactory, the length and rigor appropriate, and the content relevant. The majority of students who took a course said that they were extremely or fairly likely to recommend the course to others. Over 75% of the responding students preferred the online course delivery compared to class-

room workshops, webinars, etc. Most students (19 or 28) stated that they did not have time to travel, but that winter was the most likely time to travel if needed, and they could be away from work and home for up to a week.

Most of the responding students (22 or 28) had downloaded and used at least one of the five NIFTT tools we included in the questionnaire. The tools were found to be extremely to fairly helpful and if students had not used the tool they commented that the tool may be of potential use in the future. Approximately 50% of the responding students had at some point contacted the NIFTT Helpdesk. They all thought the helpdesk responded in a timely manner with a satisfactory response.

Students who took the current NIFTT courses would also be interested in taking online courses pertaining to: principles of risk assessment; other landscape ecology GIS tools; Wildland Fire Assessment Tool (WFAT); data/model calibration; weather analysis (e.g., Fire Family Plus); project level sampling, design and data analysis; introduction to FARSITE and FlamMap + exercises; Access database tutorials; and fire weather and fire behavior.

Introduction

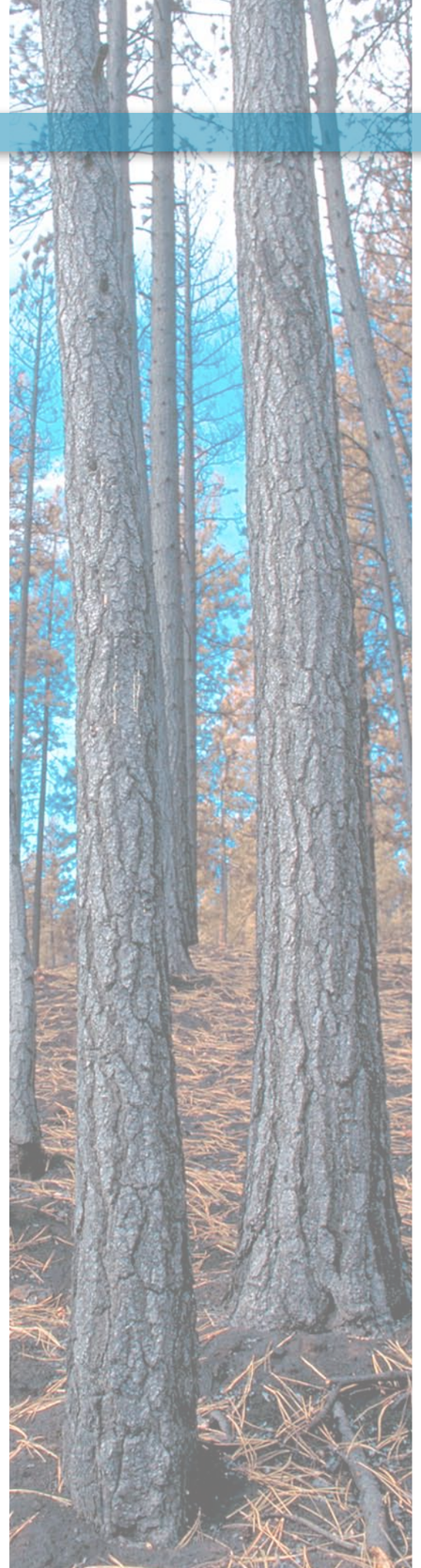
NIFTT's mission is to assist land managers with conducting effective fuels, fire, and vegetation analysis technology for addressing risks related to severe fire behavior and fire effects, and to restore healthy ecological systems. NIFTT is sponsored by the USDA Forest Service and the Department of Interior (DOI), and is a partner with the University of Idaho, Fire Research And Management Exchange System (FRAMES), The Nature Conservancy, and RMRS Fire Modeling Institute (FMI). To date, NIFTT has developed over ten computer-based learning tools and eight online courses focusing on technology transfer relating to stand and landscape scale assessments of fuels, fire behavior, fire effects, ecological departure, and vegetation dynamics. Courses include:

- Fuels Characteristic Classification System (FCCS)
- Fire Regime Condition Class Software Application (FRCCSA)
- Introduction to the 40 Fire Behavior Fuel Models (FM40)
- LANDFIRE Concepts, Data, and Methods
- Using Fire Behavior Nomographs
- Regime Condition Class Mapping Tool (FRCCMT)
- Area Change Tool (ACT)
- First Order Fire Effects Model Mapping Tool (FOFEMMT).

In the questionnaire, we included questions relating to five of the NIFTT Tools. Tools that are being updated or are only released for beta testing were not included in the questionnaire. The following tools were included:

- LANDFIRE Data Access Tool
- Area Change Tool
- Fire Regime Condition Class Software Application
- Fire Regime Condition Class Mapping Tool
- First Order Fire Effects Model Mapping Tool

Students registering for NIFTT courses in the fiscal year 2010 came from a variety of sectors but predominantly from the USDA Forest Service (USFS) and the Department of Interior (DOI). In fiscal year 2010, NIFTT received 717 course registrations from approximately 340 students. The USDA Forest Service contributed 32% of the registering students and DOI contributed 35%, while the remaining 33% of the students came from private, state, The Nature Conservancy (TNC), universities, and other institutions.



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Registering students came from several of the bureaus within DOI including: Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), US Fish and Wildlife Service (USFWS), National Park Service (NPS), and US Geological Survey (USGS).

Objectives

Although NIFTT has a thorough understanding of student numbers and the general affiliation of the students taking our courses, NIFTT's sponsors requested additional detail about the individuals who take NIFTT courses and use NIFTT tools. Consequently, a questionnaire was developed to acquire more information about the federal employees that have registered for NIFTT courses, or who have downloaded NIFTT tools. Objectives for the questionnaire were to:

1. Characterize individuals that have registered for courses and/or that have used NIFTT tools
2. Characterize whether students believe the courses were useful for their job
3. Characterize whether users of our tools believe the tool helped them with their job
4. Develop an understanding of what folks really need to help them w/ their job (e.g., different tools, more or different training opportunities, local workshops/field visits by NIFTT staff, etc.)

Methods

A user group questionnaire was emailed to all federal employees that had taken NIFTT online courses during the time period 2008-2010 (N = 420). Non-federal employees were not asked to participate in the questionnaire because this would require approval by OMB. The online link to the questionnaire (http://www.cnr.uidaho.edu/niftt/) was emailed to the students by NIFTT's Helpdesk on two different dates; December 21, 2010 and January 21, 2011. The questionnaire consisted of 17 questions divided in four categories: 1) Professional affiliation – three questions; 2) NIFTT on-line courses – eight questions; 3) NIFTT tools – three questions; and 4) NIFTT Helpdesk – three questions. The estimated time to complete the questionnaire was 5-10 minutes. The majority of the questions were organized with drop-down menus where students selected from a list. Multiple entry questions were organized with radio-buttons where students could select one or more answers. Several questions contained a write-in box where students could enter responses that were not part of the drop-down lists or radio-button alternatives. In addition, open ended questions were asked about what additional courses and tools would be useful to the user group. Responses were recorded automatically in a spreadsheet as students submitted the online questionnaire.

Altogether, 28 individuals (7 percent) responded to the questionnaire on one of the two delivery dates. The questions and answers are summarized below.

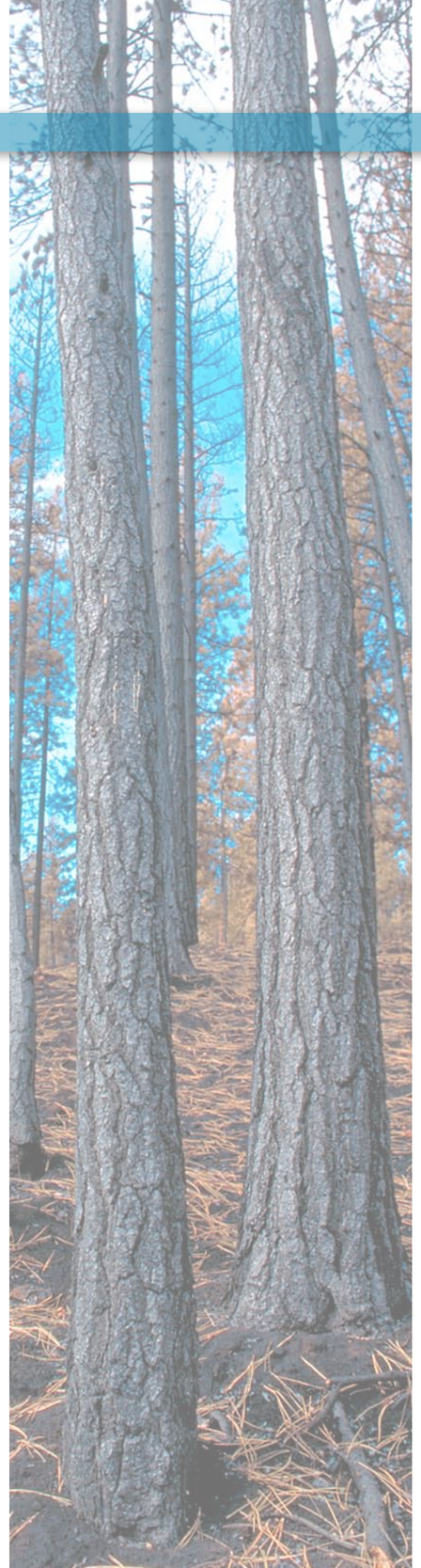
Results Page 1 - Affiliation

1. Which best represents the agency or organization that you work for? (Dropdown)

Agency	Responses
US Forest Service	22
Bureau of Land Management	0
National Park Service	0
Bureau of Indian Affairs	3
US Geological Survey	0
US Fish and Wildlife Service	0
US Department of Defense	0
The Nature Conservancy	0
Academic	0
State Government, please write in the name	1
Other please write in the name:	2 (Tribe)

2a. If you work for a federal agency what is your job series? (401, 402…) (Drop down)

Job Series	Responses
0401, General Natural Resources Management and Biological Sciences	5
0404, Biological Science Technician	0
0408, Ecology	1
0410, Zoology	0
0430, Botany	0
0454, Rangeland Management	0
0455, Range Technician	0
0457, Soil Conservation	0
0460, Forestry	3
0462, Forestry Technician	15
0470, Soil Science	0
0471, Agronomy	0
0482, Fish Biology	0
0485, Wildlife Refuge Management	0
0486, Wildlife Biology	0
0807, Landscape Architecture	0
1301, General Physical Science	0
1311, Physical Science Technician	0
1315 Hydrology	0
1316, Hydrologic Technician	0
1371, Cartographic Technician	1
Other	3



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2b. What is your grade level? (GS 1, 2, 3, …)(Drop Down)

Grade level	Responses
GS-01	0
GS-02	0
GS-03	0
GS-04	1
GS-05	1
GS-06	0
GS-07	2
GS-08	1
GS-09	13
GS-10	1
GS-11	1
GS-12	5
GS-13	0
GS-14	0
GS-15	0
No response	3

3. Which of the following best describes your position? (Please check only one response)

Position	Responses
Ecologist	1
Fuels specialist	11
Fire behavior specialist	4
Silviculture/forester	4
GIS Specialist	2
Range manager	0
Wildlife/fisheries biologist	1
Botanist	0
Hydrologist	0
Consultant	0
Researcher	1
Land Use Planner	0
Other (write in box)	3
No response	1

The students who responded "Other" provided the following answers:

Forest Fire Planner, Fire Program Manager, Wildland Firefighter

Page 2 – NIFTT Online Courses

4. How did you first learn about NIFTT? (multiple selection) (Please check only one response)

How did you first hear about NIFTT	Responses
From my Supervisor	4
From a Co-worker	5
Through an Internet search	4
At a Conference	4
Directly from the Instructor	3
Through a non-NIFTT course	3
Other (write in box)	4
No response	1

The students who responded "Other" provided the following answers:
- *From the College of Natural Resources at the UI*
- *U of I Graduate Program*
- *Forest Service email*
- *Through the class I was enrolled in*

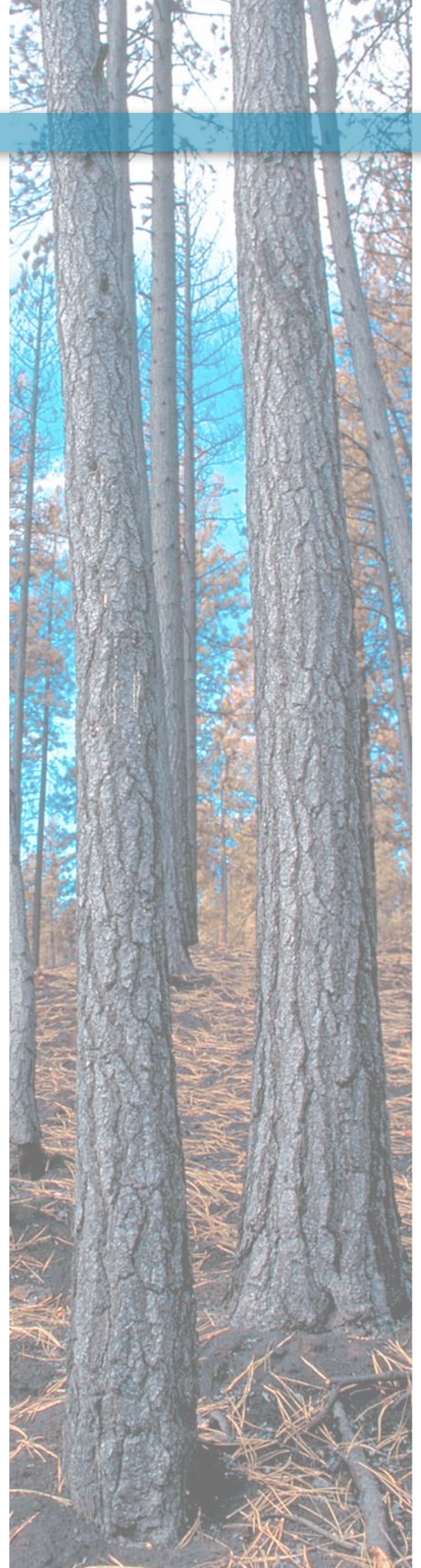
5. What motivated you to take a NIFTT course? (Please check all that apply)

Motivation	Responses
To increase efficiency in my current job	20
To help advance my Career	11
It is a requirement of my Job	16
The topic interested me	5
I had the time	1
Other (write in box)	3
No response	0

The students who responded "Other" provided the following answers:
- *The availability of it and the self pace*
- *To prepare for another course I was taking*
- *Prerequisite course study for an agency WFDSS workshop*

6. For each of the NIFTT courses listed below, please indicate how useful they are for your job.

NIFTT Course	Extremely useful	Fairly useful	Somewhat useful	Not at all useful	Total responding
Fuel Characteristics Classification System	7 (37%)	7 (37%)	5 (26%)	0	19



Fire Behavior Nomographs	7 (50%)	3 (21%)	4(29%)	0	14
Introduction to the 40 Fire Behavior Fuel Models	14 (67%)	4 (19%)	3 (14%)	0	21
Fire Regime Condition Class	8 (38%)	9 (42%)	4 (20%)	0	21
LANDFIRE concepts, data, and methods	9 (41%)	10 (45%)	3 (14%)	0	22
Area Change Tool (GIS tool)	8 (67%)	1 (8%)	3 (25%)	0	12
FRCC Mapping Tool (GIS tool)	5 (42%)	5 (42%)	2 (16%)	0	12
FOFEM Mapping Tool (GIS tool)	5 (56%)	3 (33%)	1 (11%)	0	9

7. What did you think about the courses with regards to ORGANIZATION, LENGTH, CONTENT, and RIGOR?

NIFTT Course Organization	Well organized	Adequate	Poorly organized	Total responses
Fuel Characteristics Classification System	9 (50%)	9 (50%)	0	18
Fire Behavior Nomographs	5 (62%)	3 (38%)	0	8
Introduction to the 40 Fire Behavior Fuel Models	7 (41%)	10 (59%)	0	17
Fire Regime Condition Class	8 (53%)	7 (47%)	0	15
LANDFIRE concepts, data, and methods	7 (41%)	10 (59%)	0	17
Area Change Tool (GIS tool)	4 (50%)	3 (38%)	1 (12%)	8
FRCC Mapping Tool (GIS tool)	3 (33%)	6 (67%)	0	9
FOFEM Mapping Tool (GIS tool)	2 (25%)	6 (75%)	0	8

NIFTT Course Length	Too long	Appropriate	Too short	Total responses
Fuel Characteristics Classification System	2 (13%)	13 (81%)	1 (6%)	16
Fire Behavior Nomographs	0	7 (87%)	1 (13%)	8
Introduction to the 40 Fire Behavior Fuel Models	0	14 (87%)	2 (13%)	16
Fire Regime Condition Class	0	14 (100%)	0	14
LANDFIRE concepts, data, and methods	2 (12%)	11 (69%)	3 (19%)	16
Area Change Tool (GIS tool)	0	5 (71%)	2 (29%)	7
FRCC Mapping Tool (GIS tool)	1 (13%)	7 (87%)	0	8
FOFEM Mapping Tool (GIS tool)	0	7 (100%)	0	7

NIFTT Course Content	Very relevant	Relevant	Not relevant	Total responses
Fuel Characteristics Classification System	6 (38%)	10 (62%)	0	16
Fire Behavior Nomographs	5 (62%)	3 (38%)	0	8
Introduction to the 40 Fire Behavior Fuel Models	9 (56%)	7 (44%)	0	16
Fire Regime Condition Class	8 (57%)	6 (43%)	0	14
LANDFIRE concepts, data, and methods	7 (44%)	9 (56%)	0	16

Area Change Tool (GIS tool)	0	5 (71%)	2 (29%)	7
FRCC Mapping Tool (GIS tool)	4 (50%)	4 (50%)	0	8
FOFEM Mapping Tool (GIS tool)	4 (57%)	3 (43%)	0	7

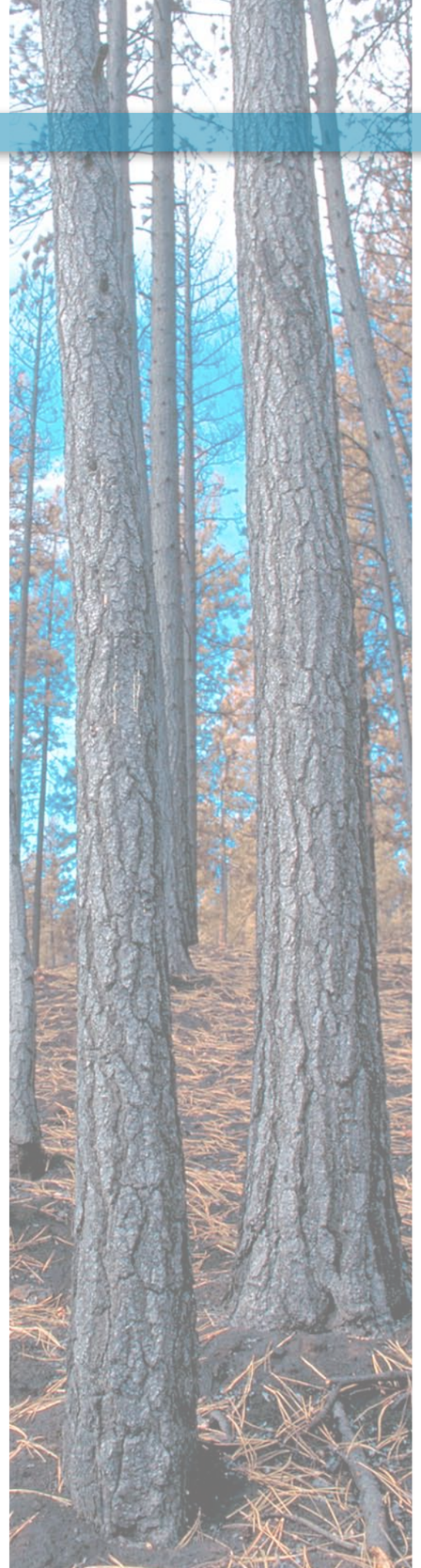
NIFTT Course Rigor	Too hard	Appropri-ate	Too easy	Total responses
Fuel Characteristics Classification System	0	15 (94%)	1 (6%)	16
Fire Behavior Nomographs	0	8 (100%)	0	8
Introduction to the 40 Fire Behavior Fuel Models	0	15 (94%)	1 (6%)	16
Fire Regime Condition Class	0	14 (100%)	0	14
LANDFIRE concepts, data, and methods	0	16 (100%)	0	16
Area Change Tool (GIS tool)	0	7 (100%)	0	7
FRCC Mapping Tool (GIS tool)	0	7 (88%)	1 (12%)	8
FOFEM Mapping Tool (GIS tool)	0	7 (100%)	0	7

8. Would you recommend the course to a colleague? (drop down)

Would you recommend the course?	Not at all likely	Somewhat likely	Fairly likely	Extremely likely	Total responses
Fuel Characteristics Classification System	0	1 (6%)	11 (61%)	6 (33%)	18
Fire Behavior Nomographs	3 (21%)	1 (8%)	7 (50%)	3 (21%)	14
Introduction to the 40 Fire Behavior Fuel Models	0	0	9 (47%)	10 (53%)	19
Fire Regime Condition Class	0	1 (6%)	6 (35%)	10 (59%)	17
LANDFIRE concepts, data, and methods	0	2 (10%)	6 (32%)	11 (58%)	19
Area Change Tool (GIS tool)	0	4 (33%)	3 (25%)	5 (42%)	12
FRCC Mapping Tool (GIS tool)	1 (8%)	1 (8%)	5 (42%)	5 (42%)	12
FOFEM Mapping Tool (GIS tool)	1 (10%)	0	6 (60%)	3 (30%)	10

9. Are there any additional courses that we could offer that would help you conduct your job more effectively (write in)? Eight responses were received:

- *Principles of Risk Assessment*
- *More landscape ecology GIS tools and classes*
- *WFAT, Data/Model Calibration, Weather Analysis (Fire Family Plus), Project Level Sampling, Design and Data Analysis*
- *I'd like to see some of the courses tailored towards "ologists", particularly Landfire, since Landfire was intended to be used by them for multiple uses, and still is not*
- *FARSITE and FlamMap intro and exercises*
- *S-495*
- *Wildfire modeling*
- *Fire weather and fire behavior.*



APPENDIX C: NIFTT

10. How would you prefer the courses to be offered (drop-down):

Course style	Responses
Online, self paced	22 (88%)
Scheduled webinars	1(4%)
Classroom workshops	1(4%)
Hybrid (online/classroom)	1(4%)

11a. Would you be able to travel to workshops? (Select the one that applies best)

Motivation	Respons-es
Yes, I can travel almost anytime, anywhere	2 (7%)
Maybe, depending on work priorities and travel budget	1 (4%)
No, I don't have the time	19 (68%)
No, I don't have the dollars	1 (4%)
No, I don't like to travel	5 (17%)
I don't know	0

The student who provided comments wrote:
- fire budgets are still in a downward trend. Travel is one of the first items to be cut

Questions for those who answered one of the first three options above:

11 b. What is the longest time you can be away from work?

Motivation	Respons-es
1 week	7 (44%)
2 weeks	4 (25%)
3 weeks	2 (12%)
More than 3 weeks	1 (7%)
Depends on the time of year	2 (12%)

11c. When is the best time during the year for you to travel?

Preferred season to travel	Responses
Summer	0
Fall	2 (13%)
Winter	9 (61%)

Spring	2 (13%)
Any time	2 (13%)

11d. When is the best time during the week for you to travel?

Preferred time	Responses
Monday thru Friday	7 (47%)
Any time	8 (53%)

Page 3 – NIFTT Tools

12. Select the NIFTT Tools that you have downloaded from our website (multiple selection):

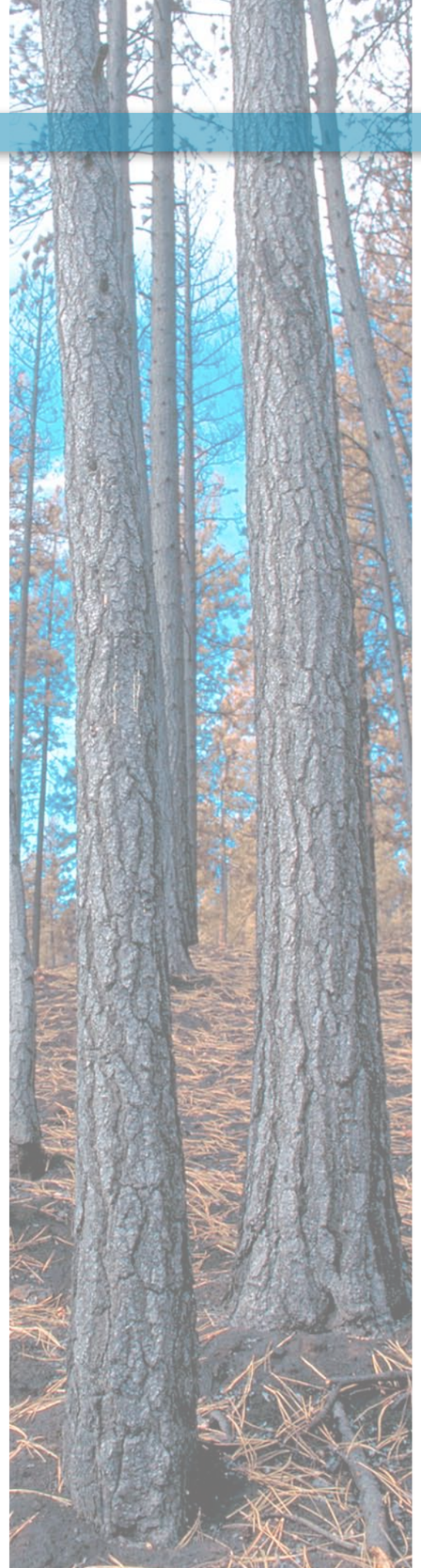
Tool	Responses
First Order Fire Effects Model Mapping Tool	5
Fire Regime Condition Class Software Application	7
Fire Regime Condition Class Mapping Tool	10
Area Change Tool	11
LANDFIRE Data Access Tool	10

13. Please indicate how well each of the NIFTT tools help you in your current position:

Tool	Not helpful	Somewhat helpful	Fairly helpful	Extremely helpful	May use in the future	Not likely to use tool	Total responses
FOFEM Mapping Tool	1 (6%)	3 (17%)	0	3 (17%)	11 (60%)	0	18
FRCC Software Application	0	4 (22%)	3 (18%)	5 (27%)	6 (33%)	0	18
FRCC Mapping Tool	0	1 (6%)	5 (31%)	4 (25%)	6 (38%)	0	16
Area Change Tool	0	5 (26%)	3 (16%)	3 (16%)	7 (37%)	1 (5%)	19
LANDFIRE Data Access Tool	0	1 (6%)	2 (12%)	6 (38%)	7 (44%)	0	16

14. Are there any additional tools that we could offer that would help you conduct your job more effectively (write in)?

Student responses:



- *Access data base tutorial for use in the ArcMap applications add-ons*
- *No comment at this time*
- *Work towards tools that integrate other tools or summaries from other tools/ make data transitions between tools easier, setup takes a long time*
- *WFAT will be a good addition*
- *Giving credit for the classes we take would be helpful especially given the time that the courses take*
- *Don't know*

Page 4 – Helpdesk

15. Have you ever contacted the NIFTT Helpdesk?

Answer	Responses
Yes	13
No	11
No response	4

16. If so, did the Helpdesk respond to you in a timely manner?

Answer	Responses
Yes	13
No	0
I don't remember	3
No response	12

17. Did the Helpdesk address your issue satisfactorily? (Yes, No, Don't remember)

Answer	Responses
Yes	13
No	0
I don't remember	3
No response	12


Frames
NIFT