

The Tech Spec.

Issue #4

WFMRD&A Spring 2020

Celebrating Ten Years of the Wildland Fire Management RD&A



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- ✓ Welcome to the RD&A: New Hires on Board
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Wildland Fire Management Research Development & Application Staff Meeting - Bend, OR November 2019

Back Row: Sam Amato, Reggie Goolsby, Mitch Burgard, Andrew Bailey, Jonathon Olson (detailer), Wes Hall (detailer), Ben Butler **Front Row:** Morgan Pence, Tami Parkinson, Tonja Opperman, Diane Rau, Tim Sexton (Program Manager), Judy Wartella (detailer), Bre Schueller, Nicole Vaillant, Roshelle Pederson (Meeting Facilitator), Kim Ernstrom **Not Shown:** Mark Hale (Deputy Program Manager), Caroline Noble, Erin Noonan-Wright, Trevor Miller, Rick Mowery

WFMRD&A Ten Years in the Making

Over the past 10 years the program has been anchored in providing wildland fire decision support and transferring technology to the field. This comes in all shapes and forms - staff regularly provide fire behavior expertise as LTANs, FBANs, SOPLs and GISSs to incident management teams, regional offices and local fire management units across the country. Many of our employees instruct and manage upper level and capstone fire management training courses such as S495, S590, S482, M581 just to name a few. Working with line officers and agency administrators is integral to promoting sound decision making and is tied to national efforts such as the Cohesive Strategy, Risk Management Assistance and other collaborative efforts that tie fire management planning and wildfire response together. The WFMRD&A has been on the forefront of application development and

Editors Note

The Tech Spec. is published a couple times a year as time permits. Staff contribute stories based on current events and projects. As readers, if you have questions, thoughts or comments related to any of the content or are curious and would like to know more about the things the WFMRD&A is working on please contact Kim Ernstrom.

Kim_ernstrom@nps.gov



*Integrating
science, technology
and fire management.*

Wildland Fire Management RD&A

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Tim Sexton
– Program
Manager

Managers Corner

During the development of this newsletter, COVID-19 went from a threat of uncertain proportions to a pandemic that has severely impacted all of our work and personal lives. This issue of Tech Spec, the WFM RD&A newsletter, is centered on our ten-year

anniversary. However, I would be remiss in not acknowledging the tremendous impact COVID-19 has on our wildfire decision support, application development, support to line officers, and technology transfer. We will continue to maintain WFDSS and provide analysts to support real-time decision-making on wildfires. We are working with the Enterprise Risk Management Assistance Group (ERMA) in developing additional tools and strategies for limiting firefighter exposure to COVID-19 while continuing to protect the public and high value assets from wildfire. Because of our experiences in virtual support we have become adept in technologies that facilitate supporting multiple incidents and decision-makers from afar. We will continue to innovate and adapt to support field managers as they face what will likely be a very challenging few months of wildfire activity.

Welcome to Rick Mowery and Trevor Miller!

Over the past five years the WFMRD&A has experienced some movement in the ranks, there have been a few retirements, a few new employees and a few promotions all adding up to several years with vacancies at various points in the process of being filled. After navigating the hiring process we are happy to announce that Rick Mowery and Trevor Miller have joined the RD&A fun. Both Rick and Trevor have detailed with the RD&A staff in the past so it is with much enthusiasm that we bring them on board full time!



Rick grew up in Spokane and Omaha, but moved back west to live among mountains again. He holds a B.S. in Forestry from Utah State University, with time spent studying in Joensuu, Finland and Petrozavodsk, Russia. His Forest Service career started in 1997 in Ogden Utah on a data collection crew covering 3 forests in northern Utah and western Wyoming. He has worked on handcrews and engines, as a fuels tech, AFMO, and Fire Ecologist. Currently, he is a zone Fire Ecologist/Fuels Planner on the Fremont-Winema N.F. in south-central Oregon. Outside of work, Rick enjoys camping and rock hounding with his wife, woodworking and armored medieval combat.

Trevor graduated with a B.S. in Natural Resource Management from Cornell University and spent a couple years in Washington D.C.; Trevor started his agency career with the BLM in Butte, Montana in 2001. After a stint of movement through the Fire and Aviation Units of the Grand Canyon National Park, the USFWS Mid-Columbia Wildlife Refuge, the USFS Wasatch-Cache-Uinta National Forest, he ultimately landed on the Deschutes National Forest in late 2007 where he has stayed ever since. He has held positions as an Engine Foreman, Handcrew Foreman, Fire Use Module member, Fuels Technician, and district Fuels AFMO. Outside of work, Trevor enjoys with his family the typical outdoor pursuits of the Bend Oregon area and his moonlighting job as the President and founder of the Central Oregon Avalanche Center.



The WFMRD&A is a whole lot more than just WFDSS!

The Wildland Fire Management RD&A is often referred to as the “WFDSS Group”. This is a misnomer - which actually only scratches the surface of the myriad of activities and projects our staff lead, support and participate in throughout the course of a year.



On any given day The Wildland Fire Management RD&A staff leads, coordinates with and facilitates a wide variety of projects and efforts within and across the wildfire management community.

Desert Research Institute (DRI): Three projects underway with DRI; wildfire extremes data collection, Risk and Decision making analysis and evaluating nighttime temperature trends. For more info visit: <http://dri.edu>

Wildland Fire Learning Portal: Kim Ernstrom and Tonja Opperman are participating on the Learning Portal Stakeholder Working Group to provide input, support and recommendations as the Learning Portal evolves into the enterprise solution for education and training for the interagency wildland fire community: wildlandfirelearningportal.net

Amazon Web Services (AWS): The WFMRD&A took the lead in standing up an application development and hosting playground using an AWS environment. This service has become invaluable to all involved including the Missoula FireLab and other researchers for prototyping new technology.

National Line Officer Team (NLOT): Active since 1996, the NLOT was formed to strengthen communication and integration between line officers and Fire and Aviation Management programs, both Tim Sexton and Tami Parkinson are actively involved with NLOT.

https://wfmrda.nwcg.gov/national_line_officer_team.php

Continued from cover

Continues to manage the Wildland Fire Decision Support System (WFDSS) and the Interagency Fuels Treatment Decision Support System (IFTDSS). Efforts are underway to revolutionize WFDSS and bring a next generation of decision support applications to the field.

The Original Vision Continues

Promoting fire management innovations through the integration of science and technology

Mission:

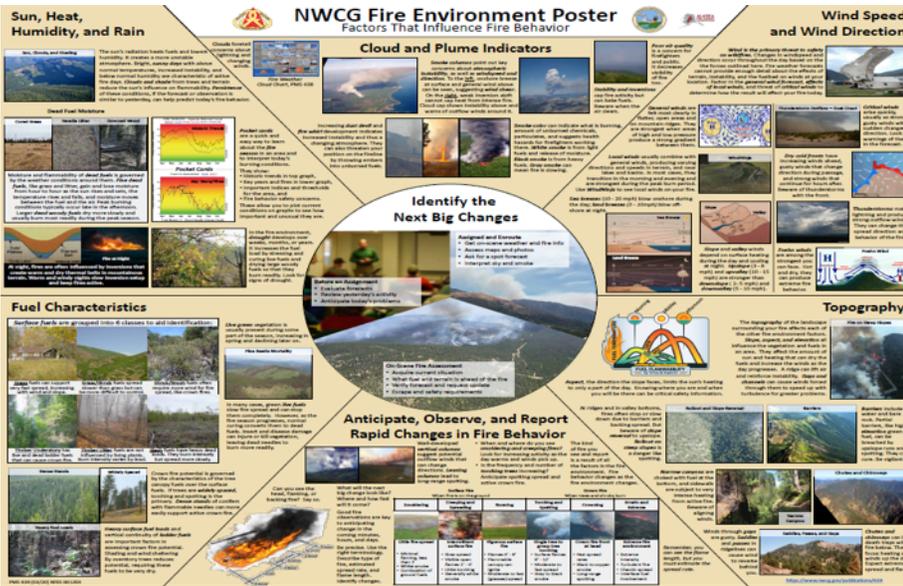
The WFMRD&A serves as a primary point of contact for communication between scientists and participating field managers and as advisors to program administrators at local, regional, and national levels by:

- Mentoring practitioners,
- Supporting improved and informed decision making while tying fire management activities to land management goals,
- Supporting partnerships between agencies, and
- Finding creative solutions to fire management issues and processes.

The WFMRD&A sponsors and guides the development and application of wildland scientific knowledge; develops decision support tools; and provides science application services through:

- Technology transfer,
- Developing fire science applications,
- Exploring the application of new technologies, and
- Providing advice on best practices and standards in technology development and use





Wildland Fire Decision Support System (WFDSS): Next Generation under development

An effort to update WFDSS has begun. Over the next few years we will be building a new user interface as well as updating underlying system architecture to incorporate new technology advances since WFDSS was first built in 2007. We are using an "Agile Development" process which means the turnaround with our software developers has tight weekly or bi-weekly deadlines. In order to make sure the next version of WFDSS meets user needs we are utilizing online forms and User Groups (UGs) to get requirements and enhancement requests from the field, and to validate wireframes and the application as we have iterative versions ready for testing. This iterative process will help to ensure we stay on track with the needs and wants of the field.

We are currently gathering nominations for User Groups (UGs) that will assist us over the next 18 months with the following: identifying user needs, priorities and workflows, testing beta software and application versions, and acting as points of contact with local WFDSS users. Consult your GAE if you are interested in participating in a User Group.

[Click HERE for New Updates!](#)

WFMRDA Facilitates Development of Fire Behavior Education Materials

The Northern Arizona University (NAU) and the USFS have entered into a research joint venture agreement to assist with the development of video materials to complement and further develop difficult fire environment concepts for firefighters. This information will be hosted on the [World of Wildland fire](#) which is managed by the wildland fire education and training collaborative a conglomerate of university and federal agency representatives. The first videos will be used to develop complementing information for the Fire Environment Poster (see above).



University of Alaska Fairbanks (UAF)- An interagency agreement was initiated at the UAF to continue the development of several products and reference materials either as updates or new materials. The principal contributor from UAF is Robert Ziel; he continues to update the Fire Behavior Field Reference Guide <https://www.nwcg.gov/publications/pms437>, the Fire Environment Poster PMS 439, and is in the development stages of the Appendix B replacement - the Fire Behavior Pocket Guide. These materials are becoming the cornerstone materials for the NWCG fire behavior curriculum to reference and tier too in the future.



South Dakota School of Mines and Technology - A joint venture agreement has been initiated with the South Dakota School of Mines and Technology for a complete revision and update to the [Fire Weather Handbook - PMS 425-1](#)



WFMRD&A COHESIVE STRATEGY NEWS AND ACTIVITIES

Tami Parkinson was one of three co-chairs for the 3rd National Cohesive Wildland Fire Strategy hosted in Plymouth, MA October of 2019 “Defining our future with Wildland Fire – A New Paradigm”. This workshop was the result of a partnership with the International Association of Wildland Fire (IAWF), Wildland Fire Leadership Council (WFLC) and the Regional Strategy Committees – Southern, Northeastern and Western.

Over 200 people attended the workshop representing 47 different states and provinces from all over the world. Every year this

workshop continues to improve with more interaction with the audiences, presenters and information sharing on how to improve the overarching goals of the strategy. Caroline Noble attended the workshop and gave a presentation on IFTDSS and Monique Wynecoop who was a detailer with the WFMRD&A also attended the conference to participate as part of the Keynote Panel on Traditional Ecological Knowledge. The 4th Annual workshop will be held in Asheville, NC October 26-30, 2020 – [“Hard Truths, Fantastic Failures and Magnificent Successes of Cross-Boundary, Landscape Level and Community-Wide Implementation”](#) Jim Hubbard USDA Undersecretary closed out the workshop to a full house.

WESTERN REGION

The Western Region Strategy Committee (WRSC) met in Sacramento, CA in January for the biannual face-to-face meeting. There was a day of information sharing with partners or stakeholders including but not limited to: utility companies, insurance agencies, elected officials, and a discussion around the master agreements with the Forest Service. A field trip was taken the second day of the meeting to Paradise, CA to tour through the fire area from 2018. The spring WRSC face-to-face meeting is planned for the week of June 8th in Nevada.



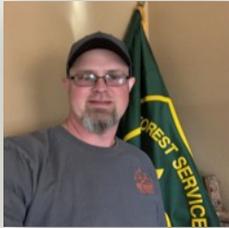
Tami Parkinson of the WFMRD&A participates in Western Governors Association meeting in Boise, Idaho



Tami Parkinson also attended the Western Governors Association meeting in Boise, Idaho in October of 2019. This meeting was a roundtable exercise for stakeholders across the west to discuss cross boundary and inter-jurisdictional implications of the Western Cohesive Fire Strategy. This initiated the first of many discussions with several utility companies, federal fire agencies, non-profit organizations to identify some of the issues and discuss potential solutions or next steps forward for cross boundary management with these stakeholders. Tami has continued the interaction and information sharing with the local power affiliate – Idaho Power working with the meteorologist and assisting with other opportunities for information sharing and coordination.

IT TAKES A VILLAGE: NINE FABULOUS DETAILERS JOIN THE WFMRD&A STAFF

In order to augment the permanent staff while a number of vacancies were being filled, the WFMRD&A reached out to the field and found some top-notch fire managers to join the team. Some even returning a second time around. We can't thank them enough for their dedication and hard work; we wish we could "keep" them all!



Wes Hall - Wes joined us from Lincoln National Forest as a Fuels Specialist. This is not the first time Wes has detailed with the RD&A and we were grateful to have his experience. Wes spent most of his time supporting WFDSS Operations and Maintenance and took the lead ensuring WFDSS Training was operating at its peak to best support S495 Geospatial Fire Analysis, Interpretation, and Application taught at NAFRI in November. Thank YOU Wes for your hard work.

Jon Reick - Jon detailed to us from the Rocky Mountain Research Station's Fire Economics Team. He supported active incidents, provided troubleshooting for WFDSS, release planning and testing, and On-Call Support. Jon continues to work with the RDA on the WFDSS Next Generation project, providing expertise and guidance from the research user group community. We are grateful to continue to work with Jon in this capacity!



Barry Kleckler - Barry detailed to us from the Ochoco National Forest where he is a AFMO Fuels Specialist. Barry spent the majority of his time with the RDA supporting WFDSS Operations and Maintenance by organizing, prioritizing, and troubleshooting bugs. He was a great asset during the peak of fire season as he provided continuity for WFDSS On-Call support to our internal team as well as the field. Thank you again Barry for your consistent reliable approach to dealing with new issues every single day.



Jonathan Olson - This is the second detail Jonathan has had with the RDA, and we were grateful to have his support and expertise once again. Jonathan primarily supported WFDSS Operations and Maintenance throughout the fall and into the winter. He worked to prioritize work and test code fixes. He supported S495 from afar ensuring fire behavior modeling was functioning at its peak performance. Jonathan was the right person for the right job at just the right time- THANK YOU again.



Monique Wyncoop - Monique participated in several facets of the RD&A throughout her detail. The first half of her detail Monique worked with the IFTDSS team, providing an outside perspective as a new user to the application. She learned the application and built a tutorial embedding some of the products she developed into the forest CFLRP projects. The second half of her detail Monique worked on updates to the WFMRD&A website, adding and updating content as needed. She also assisted with the review and updates to the FS AA/Line Officer Desk Guide. Thank you Monique for diving in and working on multiple projects and priorities.



It Takes a Village: WFMRDA Detailers Continued



Shawn Kelly, Fire Management Specialist with the Bureau of Indian Affairs has been detailed with the RD&A since December. He has been working with our contractor providing assistance with our data refresh plan. Part of his work has been updating and loading datasets and working with our contractor to do quality assurance for data uploads. Shawn has also assisted with data management to support IFTDSS as well as testing and troubleshooting deployments of GIS bug fixes for WFDSS. Shawn's detail with the RDA will end in late March.

Joe Flores – Joe came to the RDA from the Ashley National Forest – Forest FMO. Joe helped demystify the National Archives and Records Administration (NARA) requirements for the Next Generation of WFDSS, providing us with some clearer guidance on what we need to store in WFDSS to support the Agency's responsibilities to fulfill their NARA requirements. Joe also provided the useful perspective of an FMO, especially in light of re-designing the WFDSS Next Gen. decision process. IFTDSS benefited from Joe's experience as well since he is working to incorporate the Quantitative Wildfire Risk Assessment into the new Forest Plan that is being developed. Thanks Joe, for lending your expertise at a critical time.



Kurt Kirkpatrick joined us as a GIS Specialist with the Twin Falls District BLM. Kurt's expertise with data processing was instrumental in getting our data refresh cycle finished. Kurt was involved with data related to aquatic and terrestrial fire retardant avoidance areas, infrastructure, jurisdictional boundaries, trails, and wild and scenic rivers among other data sets, and also researched other available sources. Kurt worked in both the ArcGIS Pro and the FME environments and was able to pick up previous years' FME workspaces, modify and run scripts and update data. Kurt's skills were invaluable during a significant "crunch time" for the WFMRD&A data program.

Judy Wartella – Judy filled a 120 detail with the Office of Wildland Fire, behind our Data Manger, Andrew Bailey, while he was in a detail with the BLM. Judy, who works for the National Park Service, Redwood National Park supports a wide range of natural, cultural, and fire-management activities in the park. Judy managed GIS staff workload and provided oversight of data management for several projects; IFTDSS, WFDSS and Next Generation WFDSS. Judy provided critical technical guidance to support development of data sets and workflows for other RD&A projects.



During fall of 2019 the WFMRD&A partnered with the Hispanic Association of Colleges and Universities (HACU) program to host intern **Toneona Christon**. Toneona is currently a junior majoring in Agriculture Business Management at Alcorn State University in Mississippi. Toneona assisted the WFMRDA virtually, during her fall semester at Alcorn state, supporting program administration, and culminated her internship by spending a week working at the National Interagency Fire Center in Boise, Idaho.





Wildland Fire Management RD&A Deputy Program Manager, Mark Hale attended the Wildland Fire Canada 2019 Conference, in Ottawa, Canada, Nov 19-21. The biannual conference is intended to bring wildland fire managers, specialists, researchers and graduate students together to learn about and discuss emerging trends and issues in wildland fire management, ecology and science. Mark was a presenter for two special sessions including Integrated Decision Support and Information Systems and Services, and gave presentations on Wildland Fire Decision Support Systems (WFDSS), Fire Modeling Framework and the Interagency Fuels Treatment Decision Support System (IFTDSS). Mark also met with government officials and



scientist on ways to collaborate on future projects in 2020.

Mark Hale presenting in Canada

April 9th, 2020
1200-1300 MDT

AGENCY ADMINISTRATOR

Refresher and Hot Topics for Wildland Fire

Save the Date for the Webinar!

- FS National Line Officer Team –NLOT – Update
- Dingell Act and Omnibus overview
- Cohesive Strategy
- WFDSS Highlights 2020
- And more....

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<https://register.gotoweinar.com/register/4787838081829814029>

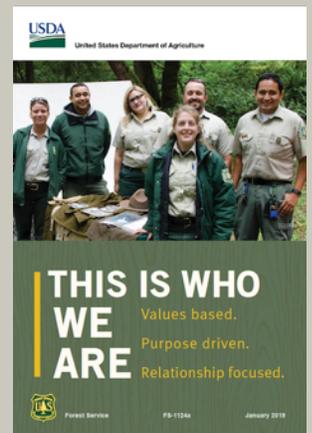
Tami Parkinson has been working closely with the Agency Administrator Training and Certifications Task group - a small group of National Line Office Team (NLOT) members focused specifically on the certification program, AA competencies, and training. This group has assisted in providing direction on the program implementation, development of Frequently Asked Questions, coordinated with national training officers for proper ordering procedures and integration into IQCS and ROSS. In the last couple of years the Red Book updates has been a large workload due to the significant changes to the program.

Agency administrator references to this program are hosted on the Agency Administrator Toolbox - https://wfmrda.nwcg.gov/line_officer_resources.php in addition to the reference for the certification program the 2020 [Line Officer Desk Reference Guide](#) is hosted along with a few new references.

Mark Hale attended the Unit Point of Contact (POC) coordination meeting for “This is Who We Are” (TIWWA) in Portland, OR, January 14-16. The meeting covered expectations of the POC, rollout planning and an introduction to the training. Mark will be assisting Beth Rand and Drag Sharp with rollout to State and Private Forestry over the coming year. Mark also attended an Ambassador workshop Feb 10th-13th. The purpose of the workshop was to develop and train Ambassadors who will facilitate TIWWA sessions.

“This Is Who We Are is” was introduced in a guide in 2019 and workshops will be about reconnecting with Forest Service values and continued learning from previous engagements including the Safety Journey and Stand Up for Each Other.

[https://www.nafsr.org/docs/2019/usfs_ This Is Who We Are 041719.pdf](https://www.nafsr.org/docs/2019/usfs_This%20Is%20Who%20We%20Are%20041719.pdf)



Automated Wildfire Perimeter Sharing!



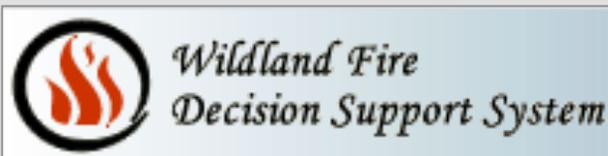
Fire Perimeter from the Ferguson Fire near Yosemite National Park, 2018

Andrew Bailey, Data Manager for the WFMRD&A and Cole Belongie (FAM-IT) have worked together, with guidance of the NWCG Geospatial Subcommittee, to automate the sharing of wildfire perimeters. Wildfire perimeters are generated by incident GIS Specialists and firefighters, and have great value to the public and to cooperators. Using a suite of Extract, Transform, and Load tools (ETL), they have built a process that automatically shares perimeters approved by incident and agency personnel to the [NIFC Open Data portal](https://data-nifc.opendata.arcgis.com/). The data are shared as a web service using ArcGIS Online technology, which also provides GIS and other file download formats. Since being

put into place as a proof-of-concept in late May 2019, the service has fulfilled nearly 120 million requests for data, with a peak of 24.7 million requests in one day during late October. The service fulfils an average of over 350,000 requests per day.

The NIFC Open Data Portal is a location from which authoritative wildland fire data can be discovered and accessed. Users include internal fire mapping tools and applications that use fire perimeters as reference data to provide context for their users, insurance companies seeking information on the location of fires with regards to individuals seeking insurance, public safety partner organizations working at Emergency Operations Centers, and newspapers building visualizations to accompany articles.

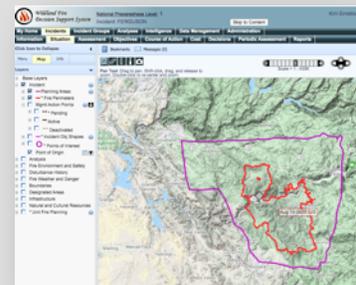
<https://data-nifc.opendata.arcgis.com/datasets/wildfire-perimeters>



The fall and winter of 2019/2020 has been a busy time for the WFDSS Operations and Maintenance team. We are busy making sure WFDSS is available and functional to support wildland fire decision makers and training all year

long. Below are highlights of the work we accomplished this fall/winter and our plans for spring:

- November support for S495 Geospatial Fire Analysis, Interpretation, and Application
 - This course relies on WFDSS Training operating at its peak performance
 - 50 students produced hundreds of Basic, Short Term, Near Term and FSPro Fire Behavior runs on Training during the week long course
- November and December Oracle Database Migration
- December and January upgraded the servers to Windows 2016
- March 2020 release:
 - 19 non code related bugs resolved this cycle
 - 41 High and Medium priority bugs
 - 2 adjustments to comply with IRWIN Version 6 changes
- April 2020 WFDSS O&M Team Planning meeting
 - Ensure needed infrastructure upgrades are scheduled
 - Ensure IT requirements are accounted for
 - Ensure Data Refresh Plan is on track
 - Planning other high priority work, including for example incorporating LANDFIRE 2016 Remap and High priority bug fixes

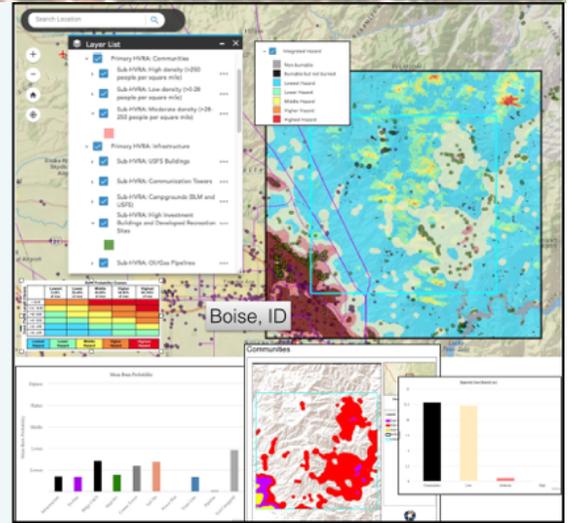
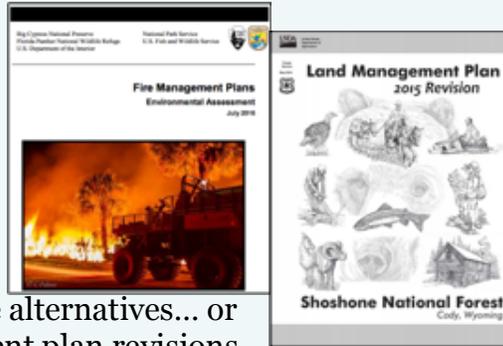


Exposure Analysis Now in IFTDSS!

Exposure Analysis is an assessment of wildfire hazard—likelihood and intensity—where Highly Valued Resources or Assets are located.

<https://iftdss.firenet.gov>

Exposure analysis has broad applicability in planning.....it can be used in NEPA Assessments to compare differences in exposure of HVRAs under multiple alternatives... or during land management plan revisions to identify where wildfires are most likely to occur in relation to HVRA location (Scott et al 2013)



IFTDSS allows users to view outputs on the map along with a full report comparing Primary HVRA's and Sub-HVRA's. Use this analysis to evaluate and explain the impact of wildfire on a variety of Values across your Area of Interest.

“Off the Clock” Double the Fun – Twins!

Caroline and Diane met in 2013 when they were assigned as co-mentors of an S495 classroom group. At the time Diane worked for the WFMRD&A while Caroline was an



Caroline Noble and Diane Rau have something special in common. Both have fraternal twins. No doubt it keeps them on their toes.

NPS employee. Little did they know that soon they would have much more in common. A year later, Caroline was hired by the WFMRD&A and a short year after that, Diane revealed she was expecting twins. Caroline's twins were born in 2004 and Diane's in 2016. During their spare 7 minutes a year they swap advice and stories on the shared experiences. Caroline's twins grew up with prescribed fire and were bored with it by age 7. She is hoping they show a renewed interest one day. Diane's three kids, to include her twins, are true forest service brats; being raised and trained in a family full of current and former forest service employees.