[Extended Abstract]

LANDFIRE IN THE APPALACHIANS

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CONTEXT OF THE LANDFIRE PROGRAM

LANDFIRE is approaching its' 10th birthday, and moving forward. A partnership between the U.S. Department of the Interior; the Forest Service, U.S. Department of Agriculture; and The Nature Conservancy, LANDFIRE delivered national spatial data sets representing conditions in 2000, 2008, and 2010, and the first comprehensive descriptions of all major ecosystems in the United States. The impetus of the LANDFIRE Program (formerly the LANDFIRE Project) was to provide foundational information that could support regional and national fire and natural resource management planning programs, such as Fire Programs Analysis (FPA), and the Hazardous Fuels Prioritization and Application System (HFPAS). However, LANDFIRE as it exists today is more than originally envisioned and may serve as complementary or supplementary information for more local applications as well.

WHY SHOULD YOU BE INTERESTED IN LANDFIRE?

Given the context above, what makes LANDFIRE unique? There are five key characteristics of the LANDFIRE program that may make it useful and interesting to anyone involved in natural resource management and wildland fire planning, namely:

- LANDFIRE is comprehensive: every acre in the United States, including Alaska, Hawai'i and the island territories, is included in the product suite, regardless of ownership.

- LANDFIRE is consistent: every attempt was made to treat every acre consistently to allow for regional comparisons, and only procedural changes that improved the usability of the product suite were made over time between the various temporal versions.

- LANDFIRE products are internally compatible: the vegetation models match the BpS product; all tools work with all relevant spatial layers in all versions; all layers 'match' spatially and thematically. LANDFIRE products are ready-to-use from the moment you receive them.

- LANDFIRE delivers many one-of-a-kind products: LANDFIRE produces more than 20, 30-meter raster data layers. Many of these products are unique, such as Pre-European settlement vegetation maps, historic mean fire return intervals, and annual and compiled disturbance layers. In addition, LANDFIRE created and made available quantitative, dynamic vegetation models for every major ecological system in the United States. Where else can you obtain this type of information?

- LANDFIRE is regularly updated: the original version of LANDFIRE represented landscape conditions circa 2001, but vegetation and fuels layers have been updated and delivered twice since, once representing conditions in 2008 and once in 2010. LANDFIRE 2012 production is underway.

WHAT SHOULD YOU REMEMBER AS YOU CONSIDER USING LANDFIRE PRODUCTS?

All users should remember that LANDFIRE products were designed to be used for very large landscape-level, regional or national scale analyses. LANDFIRE may be used to complement or supplement local data, but should not be assumed to represent local conditions faithfully as delivered, i.e., "out-of-the-box." The applicability of LANDFIRE data at the local level will depend on which products will be used, the specific application, and the geography of interest. It requires local review to determine the usability of LANDFIRE spatial products

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and models, and while it is possible that unedited LANDFIRE spatial data and models will be useful as-is, that should NOT be the user's expectation. All data, regardless of its source, should be reviewed prior to acceptance and use.

LANDFIRE PERFORMANCE AND APPLICATION IN THE APPALACHIANS

A variety of LANDFIRE Program products have been used in the Appalachian region. A few highlights and links to learn more are presented below. Note that these tidbits of information are based upon personal conversations or investigations of all types—informal, formal, first-hand, second-hand, and reviewing reports. However, we endeavor to pass along any information we think is reliable and potentially of interest to our user community.

- According to some local users, LANDFIRE Existing Vegetation Type (EVT) map accuracy is not sufficient at smaller scales (small geographies). This is disappointing, but it is not unexpected given the design criteria (regional/national scope) for LANDFIRE, and the difficulty of mapping the rather complex hardwood mixtures ubiquitous in the mountains. Also, users should understand that LANDFIRE spatial products are not post-processed to improve their visual appeal—what you see is the raw output of a classification algorithm.

- A good alternative to LANDFIRE EVT may be the Terrestrial Habitat Map created by The Nature Conservancy Eastern Region Science Team. While not perfect (and there have been some legend issues with this product as well), this map has been relatively well received in its coverage area.

- An analysis in the Southern Blue Ridge landscape by Steve Simon indicated that LANDFIRE mapped too much area as "fire dependent" in the BioPhysical Settings (pre-European Settlement vegetation) layer. For instance, fire dependency went too far downslope into the "Coves" according to Simon.

- The LANDFIRE Ecological System legend created some problems in the Appalachian region; for instance, there is only one type of "Cove" in the LANDFIRE BpS and EVT layers. There were some additional omissions as well, and some overlaps between ecological systems that did not exactly match local expectations.

- Eastern West Virginia was mapped 'too mesophytic' in the EVT layer. We remember hearing about this issue from at least one individual, but could not find any specific backup documentation or additional information.

- Where it has been investigated and used, the Percent Forest Cover spatial layer has held up well. It shows the right kind of landscape variation, but does tend to miss very small openings (individual tree gaps, for instance). Typically, large disturbances and small anthropogenic disturbances are visible and relatively well mapped if the time since disturbance is not too great.

- A stakeholder group involved with the Cherokee National Forest North District localized LANDFIRE National Dynamics Vegetation models to develop relevant reference conditions to support local planning. The models were also used with current vegetation condition data developed from a combination of local inventory data and LF2008 Existing Forest Cover to evaluate the costs and benefits of management activities.

- The TNC LANDFIRE Team is currently supporting a Central Appalachians Assessment facilitated by The Nature Conservancy in Virginia and the National Forests of Virginia, primarily utilizing LANDFIRE quantitative vegetation models at this time.

- At a meeting in Asheville, NC, a group of interested individuals modified LANDFIRE vegetation models to develop relevant reference conditions for the important ecosystems in the Pisgah/Nantahala National Forest region. These models, coupled with current vegetation condition information derived from LIDAR, were used in an ecosystem assessment led by Josh Kelly, estern North Carolina Alliance.

- The TNC LANDFIRE Team is currently working with the National Forests of Georgia and partners in the Warwoman landscape in Northeast Georgia to develop local reference conditions for the major ecosystems extant in that watershed.

- The LANDFIRE Program and The Nature Conservancy supported the development of local information in the Southern Blue Ridge region of North Carolina and the Copper Creek watershed in North Georgia.

Check out the LANDFIRE Web Hosted Applications Map for more information on how LANDFIRE has been used across the Nation.

WHERE IS LANDFIRE GOING?

- LANDFIRE vegetation and fuels products updated to represent conditions at the end of CY2010 are available (LF 2010).

- LF2012 production is underway, and incremental delivery is expected to begin in the summer of 2014. We expect to complete all production and deliveries by 1Q of 2015. The Appalachian region will likely be delivered near the end of CY2014 or early CY2015.

- LANDFIRE is considering a complete remap of some spatial layers in the future, either before or after a 2014 update depending on budgets and user needs.

- Finally, LANDFIRE and other national-scale mapping programs are investigating their joint interests and how we can work together to be more effective and efficient. For instance, a formal MOU between GAP and LANDFIRE has been approved.

WHAT CAN YOU DO?

The LANDFIRE user community plays a key role in the future of LANDFIRE, especially helping the program improve the usability of its products. Your investment should be minimal, with incredible potential returns. We are not asking for anything you don't already have or know, just that you provide what you have to us!

- The LANDFIRE update process is driven by disturbance information, be they human-caused or natural. Any disturbance information, called 'Events' by LANDFIRE, are used in the LANDFIRE update/change detection process. More information is available on the LANDFIRE program Web site www.landfire.gov.

- LANDFIRE will use geo-referenced vegetation plots to support a future remapping process or to assess the accuracy of current products. Quality field data are critical to LANDFIRE, so consider providing what you have following the guidelines available on the program Web site.

- Tell us what you learn or see when you review or use LANDFIRE Program products—good and bad. Any information is appreciated, but the more specific the more useful it is to us. What did you see and where did you see it? How are you using LANDFIRE Program products? We are working to create an online feedback capability, which will be announced when available. Communicate with LANDFIRE using helpdesk@landfire.gov for now, or contact a LANDFIRE team member.

- Finally, as you consider using LANDFIRE, think deeply about what you really need (not just what you would like to have), and remember that LANDFIRE is a national/regional scale product suite by design. The LANDFIRE Team will help you determine if/how our program products can be used in your situation. You should not assume they will or will not.

TAKE HOME MESSAGES

LANDFIRE is in the business of providing data and information to the fire, resource management, and conservation communities. This is a difficult 'row to hoe' because building data sets for other people and programs is like trying to raise their children—you never do it like they would. While LANDFIRE spatial data and models are not perfect, LANDFIRE has proven its worth across the country for regional- or landscape-scale application and can often support more local applications following review and local adjustment. The LANDFIRE Program has evolved the product suite and procedural processes to better meet user requirements—both fire and non-fire. Users can contribute to this process, and indeed enable it, by providing geo-referenced vegetation plots, spatial information on man-made or natural disturbance events, and by communicating what they see and learn to the LANDFIRE Program. Visit the Contribute Data Section on the program Web site (see below) and send us a message at helpdesk@landfire.gov.

ACKNOWLEDGMENTS

LINKS TO EXPLORE

- Explore real applications of LANDFIRE Program products across the country on the Web Hosted Applications Map! (WHAM!). Full link: maps.tnc.org/landfire/

- Watch LANDFIRE presentation, learn new methods and tools, and understand LANDFIRE products by viewing videos on our YouTube channel. Full link: www.youtube.com/user/landfirevideo?feature=results_main

- Join the LANDFIRE discussion community on our Twitter site. Full link: twitter.com/nature_LANDFIRE

- Obtain more details about the LANDFIRE Program and access products at the official program Web site. Full link: www.landfire.gov

- Discover new tools that can use LANDFIRE data developed by the Wildland Fire RD&A team. Full link: www.niftt.gov

- Review additional LANDFIRE application and find support materials on The Conservation Gateway. Full link: www.conservationgateway.org (search for LANDFIRE)