Article

LANDFIRE Data

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Sky Lakes Wilderness, Oregon. Credit: Michael McCullough via Creative Commons.

As TNC's LANDFIRE team reflects on our Program's 10th anniversary, we can't help but think of the many TNC scientists who have helped us as as we work to characterize vegetation and fuel conditions across the country. You have provided data, expertise, moral support and, most exciting to me, innovations and powerful research. I thought of this recently when I read a great paper that was brought to my attention by our chief scientist Peter Kareiva, and another one that was submitted by our TNC colleagues on the west coast, both discussed below.

As Peter noted in Cool Green Science, TNC environmental economist Timm Kroeger, and colleagues published a provocative and hopeful paper that examined the effectiveness of targeted reforestation efforts that may potentially reduce ozone levels. The findings, in the August 2014 Proceedings of the National Academy of Science, suggest that reforestation be considered as a strategy for ozone control; they also provide criteria for maximizing cost effectiveness. In addition to tackling an important issue, the authors were open about limitations, provided ample methods and presented a palatable win-win strategy. I also like the fact that LANDFIRE data contributed to the analysis, e.g. they used the LANDFIRE Biophysical Settings (BpS) data set to limit

potential sites for reforestation. The BpS data represents the vegetation that may have been dominant prior to major European settlement. By intersecting this data with USGS current vegetation data, the authors were able to identify areas that have the potential to be forested, but which are not currently being managed to do so. This is an appropriate and important use of LANDFIRE resources, in both concept and scale.

Longtime LANDFIRE users Ryan Haugo (TNC Senior Forest Ecologist based in Yakima, WA) and Chris Zanger (TNC Forest Analyst based in Bend, OR) and colleagues from TNC, Oregon State University, and the US Forest Service, identified forested areas of eastern Washington, eastern Oregon, and SW Oregon areas that are most in need of either active forest restoration or "aging" (i.e., performing no action so that trees can age). LANDFIRE provided the ecological models for their study. Coupled with USFS and OSU datasets representing current conditions, Haugo and colleagues were able to identify areas where the difference between baseline and current conditions are the greatest. Using LANDFIRE models, they determined appropriate actions that would close the gap between the two. The authors creatively combined datasets, mined models and adapted data in a way that presents a comprehensive view of vegetation conditions. That kind of research and scenario planning was impossible before the advent of large datasets such as those that LANDFIRE delivers.

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A quick search of Google Scholar suggests that LANDFIRE products have been cited in roughly 1,000 peer-reviewed journal articles and technical reports over the last decade. On our 10th birthday, the TNC-LANDFIRE team commends our federal partners and thanks our Conservancy colleagues for continuing to develop, fine-tune, and use this ground-breaking and important national product. With every application of LANDFIRE tools and data in "real world" settings, we support the Conservancy's mission and provide the foundation that land managers need to conserve and restore valuable and cherished landscapes. **SC**

References

Kroeger, T., F.J. Escobedo, J.L. Hernandez, S. Varela, S. Delphin, J.R. Fisher, and J. Waldron. 2014. Reforestation as a novel abatement and compliance measure for ground-level ozone. Proceedings of the National Academy of Sciences, 111: E4204-E4213.

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