

Tallgrass Prairie and Oak Savanna Fire Science Consortium

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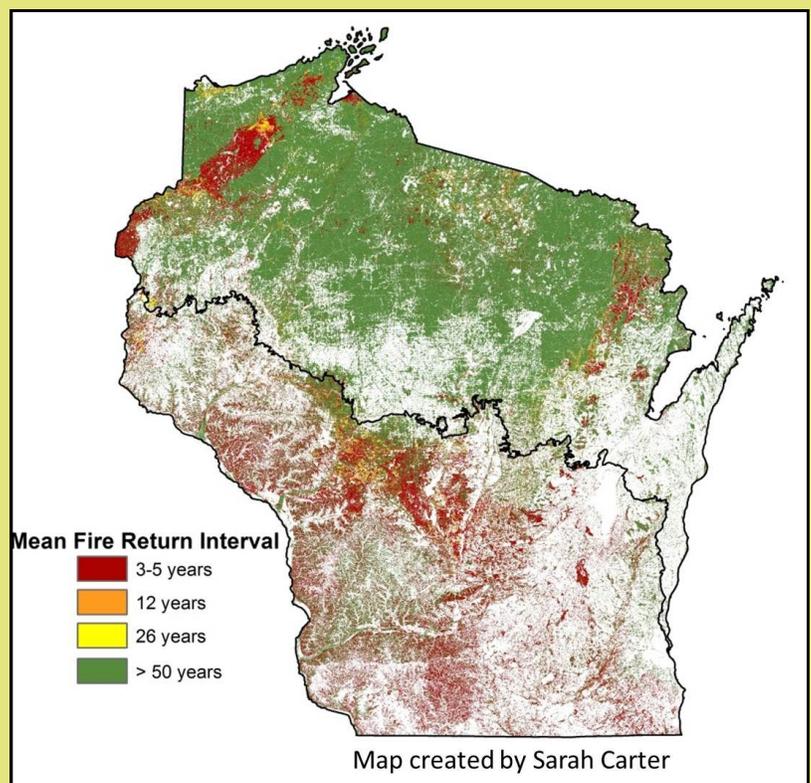
What are the priority areas for prescribed fire in Wisconsin?

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Land managers know that fire was a historical disturbance in Wisconsin, but the use of prescribed fire for ecosystem management is limited on the modern landscape. Challenges to using prescribed fire may include limited funding and staff, proximity to urban development, or the lack of landscape scale information regarding prescribed fire. Currently there is no resource for the state that documents how frequently prescribed fire should be applied to ecological communities or how much of the landscape would need to be managed with prescribed fire on an annual basis to maintain desired conditions. Understanding where prescribed fire is beneficial to the ecosystem, or supports existing conservation efforts, can help land managers identify priority areas for burning. Also, identifying how much, where, and how often prescribed fire is needed in Wisconsin can increase awareness and funding for prescribed fire implementation and research.

To answer the question of where to use prescribed fire, the Tallgrass Prairie and Oak Savanna Fire Science Consortium has partnered with the SILVIS Lab at UW-Madison and the Lake States fire Science Consortium to conduct a Fire Needs Assessment (FNA) for Wisconsin. This project used LANDFIRE vegetation data (www.landfire.gov) to identify where fire-dependent vegetation is located and the fire return interval of community types.

To identify priority areas for prescribed fire we focused on vegetation with a fire return interval less than 50 years. We then incorporated additional spatial data sets to do a cost-benefit analysis, assessing the ecological benefits, effort, and challenges associated with prescribed fire. The Wildlife Action Plan and community rarity were used to determine where the benefits of prescribed fire are greatest. We also incorporated non-ecological factors, like the effort needed to maintain these communities and challenges to using fire on the landscape (i.e., Wildland Urban Interface). In taking this approach we hope to identify areas with the greatest potential for successful long term management with prescribed fire.



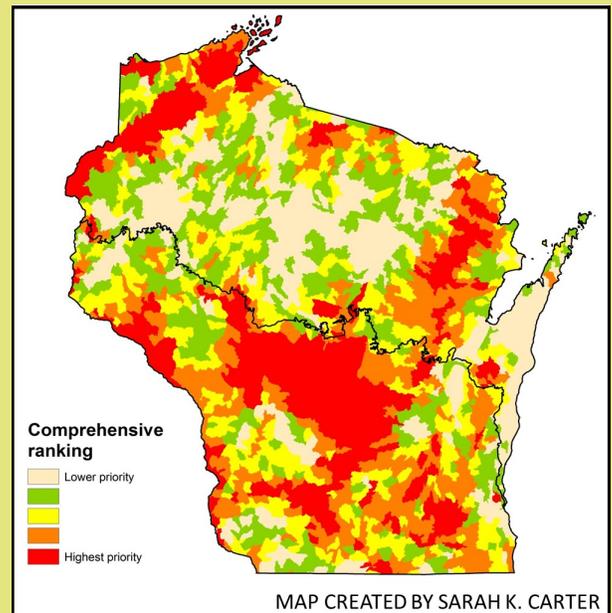
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We found that the highest priorities for management with prescribed fire occurred in the Central Sand Plains and Sand Hills, Northwest and Northeast Sands, and along the lower Wisconsin River. These areas reflect where high concentrations of rare ecosystems with frequent fire return intervals occur and there may be less challenges associated with applying prescribed fire in the Wildland Urban Interface.

Given that this is an initial attempt at identifying priority areas for using prescribed fire we encourage land managers, conservation planners, and fire practitioners to work with the Consortium to improve upon this product. This landscape scale analysis can be used as the starting point for fine scale analyses of local conditions, or could be incorporated into other regional planning efforts to identify where fire may be an important land management tool.



MAP CREATED BY SARAH K. CARTER

How to learn more:

- 1) Email corresponding author [Tracy Hmielowski](mailto:Tracy.Hmielowski@usda.gov).
- 2) Access the article online: <http://dx.doi.org/10.1890/15-0509>
- 3) View the data, archived through Dryad <http://dx.doi.org/10.5061/dryad.s18gk>

Literature cited: Hmielowski, T. L., Carter, S. K., Spaul, H., Helmers, D., Radeloff, V. C., & Zedler, P. (2016). Prioritizing land management efforts at a landscape scale: a case study using prescribed fire in Wisconsin. *Ecological Applications*, 26(4), 1018-1029.

Potential use for this information

- Identifying regions for increased private land-owner outreach
- Determining where prescribed fire alone will not restore desired conditions, but additional restoration tactics could be used
- Setting goals for prescribed fire use in regions where fire dependent communities are located
- Highlighting the fire dependent communities and barriers to prescribed burning in a region where fire is often overlooked