



Historical Fire Regimes in Missouri: A Path for Understanding

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QUICK SUMMARY: Missouri, historically known for its frequent fires, now faces a significant fire deficit of 2.6 million acres. This figure, derived by the [Missouri Prescribed Fire Council](#) (MPFC) and informed by [LANDFIRE's Biophysical Systems Products](#), has led to profound changes in the state's ecosystems. Consequently, groups like the MPFC are advocating for the responsible use of prescribed fire to promote and protect the state's natural habitats.

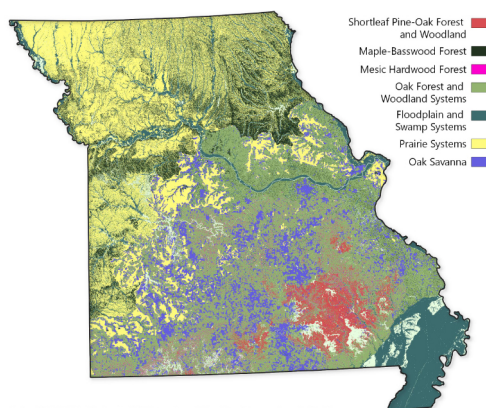
Working with LANDFIRE's TNC Team and Eleanor Gagnon (Conservation Data Lab), the MPFC transformed a simple spreadsheet that estimated the historic fire return intervals into an [interactive, updated fire needs assessment website](#) for visualizing the role of historic fires and the potential of prescribed fire to transform Missouri's ecosystems.

This [LANDFIRE-powered](#) fire needs assessment [website](#) can be used to demonstrate the urgent need for an increase of controlled burning in the state and communicate role of fire within the context of Native American traditional ecological burning, wildlife conservation, and reducing fuel loads.

A Closer Look: Every 2-20 years - that's the frequency with which Missouri's historically fire-adapted ecosystems once burned. Prior to European settlement, nearly all of Missouri's ecosystems experienced regular fires, however due to effective fire prevention and suppression strategies, Missouri is experiencing a significant fire deficit that managers, landowners and groups like the MPFC are working to reduce.

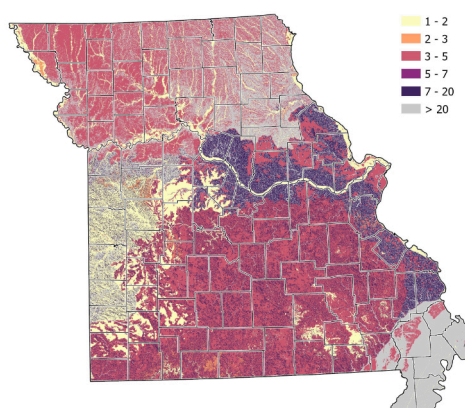
Exploring Historical Fire Levels:
Excluding agricultural and developed

Missouri's Historical Ecosystems Prior to European Settlement



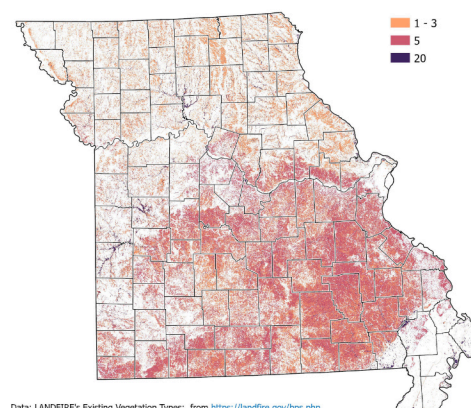
Data: LANDFIRE's Biophysical Settings; from <https://landfire.gov/vegetation/bps>.
Map by Randy Swaty and Eleanor Gagnon, May 2024.
LANDFIRE's Biophysical Settings Reclassified to match Missouri Natural Communities.

Missouri's Historical Mean Fire Return Interval in Years



Data: LANDFIRE's Biophysical Settings; from <https://landfire.gov/bps.php>.
Map by Randy Swaty and Eleanor Gagnon.
Represents the mean number of years between fires prior to European colonization.
Map made May, 2024.

Missouri's "Needed" Mean Fire Return Interval in Years



Data: LANDFIRE's Existing Vegetation Types; from <https://landfire.gov/bps.php>.
Map by Randy Swaty and Eleanor Gagnon, May 2024.
Represents the needed mean number of years between fires as agreed upon by the Missouri Prescribed Fire Council.
White areas represent agricultural, urban or areas with fire return intervals > 20yr.

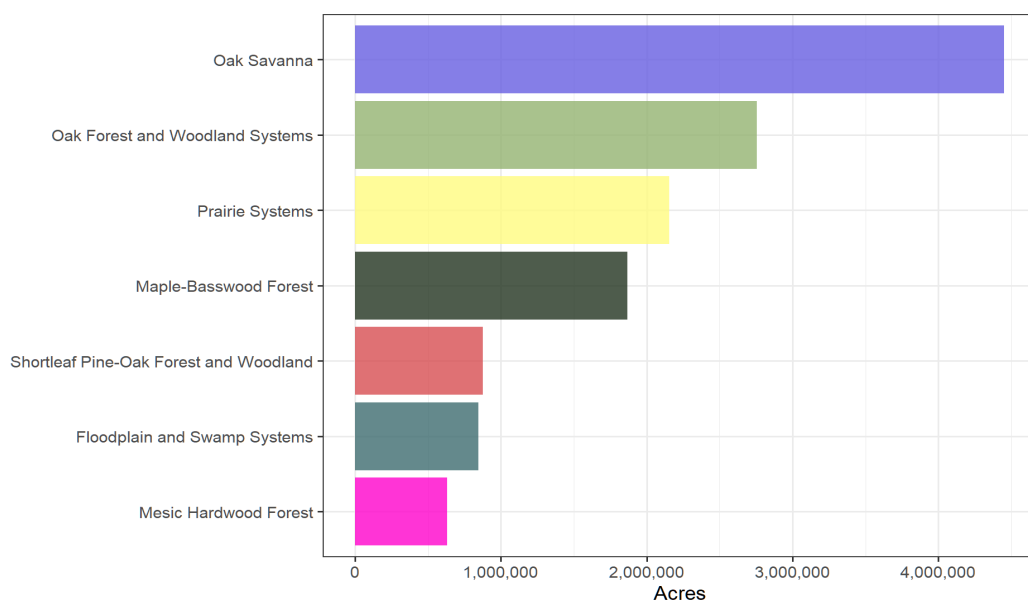


Figure 2.
Estimated annual acres burned per ecosystem prior to European colonization.

lands, this [Fire Needs Assessment](#) allows users to explore the number of acres that need to be burned (within each county) to achieve historical fire levels. Users can quickly identify the counties with the greatest fire needs (e.g., Shannon County & Reynolds Counties) and compare that with [LANDFIRE's Mean Fire Return Interval \(MFRI\)](#) values, derived from [LANDFIRE's Biophysical Settings](#) product. Perhaps most importantly, the fire needs website provides information on why the reintroduction of fire is important and offers tangible, next steps to help landowners plan prescribed burning on their property.

Historical Fire Regimes: Not a Proxy but a Path for Understanding: For hundreds of years Missouri's ecosystems have been shaped by the historic burning practices of Native Americans. Within the fire needs assessment, users can explore the MFRI map and the estimated annual acres that burned per ecosystem prior to European colonization – a visualization that demonstrates the varied role of fire within each ecosystem type.

Why This Matters: Reliable, consistent data, partnerships, trust and stewardship are essential components of a future where controlled burns are a common part of Missouri's future. This fire needs assessment can be used as an accompaniment to a preliminary burn plan for future fire management efforts in the state. We encourage users to [explore the assessment](#).

Note: LANDFIRE (and partners) are available for product support and consultation.

Funding for the project described in the [LANDFIRE-Powered Prescribed Fire Assessment](#) was provided by the US Forest Service through the [National Cohesive Wildland Fire Management Strategy](#).

Got Questions?

- Explore (another) [LANDFIRE-Powered Frequent Fire Landscape Map](#)
- [Schedule a time to chat with Randy Swaty, TNC Ecologist](#)
- Ask the LANDFIRE Helpdesk: helpdesk@landfire.gov