

Office of Applied Science

Project Highlight

Fire effects study ignites new research



Dr. Jed Meunier posing by a burn-scarred tree

Natural Resources Research Scientist Dr. Jed Meunier's research on prescribed fire as a management tool wrapped up on June 30th this summer. The project was born out of a need to understand how residence time, fire intensity, weather and seasons affect the reduction of invasive woody species in Wisconsin's fire-dependent landscapes.

Spring is currently the most active fire season for prescribed burns, but research suggests it may not be very effective or reliable. Spring burns effectively kill the plants above ground (top-kill) without damaging the roots, which can result in resprouting. Additionally, suitable weather windows in the spring have been highly variable in recent years, making it difficult to meet management needs.

Meunier and his team sought to identify alternative management options for burns to increase their effectiveness, which was identified as a priority by Meunier's interviews of managers in the agency. A research project was set up around this need to (1) understand changing suitable burn windows, (2) evaluate efficacy of seasonality and various fire behavior in meeting objectives in field and controlled experiments, and to (3) evaluate historical fire frequency and seasonality as a way to inform current fire use.

Overall, the findings suggest that spring may not be the most effective time of year to conduct prescribed burns. In fact, some data show spring burns can cause up to a 150% increase in re-sprouting whereas summer burning had little resprouting, likely because the plants are more dormant in the summer than during their peak growing season in the spring. This was especially true for honeysuckle and black oak.

Meunier's team also found that their data aligns with historical fire seasonality pre-Euro settlement. Meaning wildfires that occurred before fire exclusion often occurred in summer. Results also speak to challenges of reduced burn windows. Suitable burn weather has become increasingly variable and we may need to add burns outside of the spring dormant period. Adding greater heterogeneity to fire use can also help wildlife managers be more effective in meeting their objectives.

Even though fieldwork has finished, Meunier continues to analyze data and will be reporting out findings and management recommendations aimed at helping the agency become more effective and strategic in its use of fire to maintain fire dependent communities and wildlife.



Burn coordinators facilitating a prescribed burn