



SOUTHERN  
Fire Exchange



Association for  
Fire  
Ecology

2017 FIRE CONGRESS

Research Highlight



# Comparing the Use of Pyrometers and Thermocouples for Estimating Prescribed Burning Flame Temperature

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## MAIN QUESTIONS OR ISSUES THAT YOU ADDRESSED

Which tool is better for measuring maximum heating temperature in Ozark upland oak-hickory forests of Arkansas, thermocouples or pyrometers?

## LOCATION AND ECOSYSTEM INVESTIGATED

Upland Ozark oak-hickory forests Springfield Plateau Washington County, Arkansas.

## KEY FINDINGS OF YOUR RESEARCH

In upland oak-hickory forests of Arkansas, both pyrometers and thermocouples are effective in measuring the maximum heating temperature of prescribed fire. Pyrometers are the best option for predicting maximum heating temperature due to low cost and short deployment time. Due to shallow soil heating, pyrometers are sufficient for measuring soil heating.

## HOW DID YOU ANSWER THE MAIN QUESTIONS OR INFORM THE ISSUES?

Pyrometers and thermocouples were used side by side above, on, and beneath the soil. They were placed in 54 grids across 4 different burn units.

## HOW MIGHT/WILL IT INFLUENCE FIRE MANAGEMENT DECISIONS OR PRACTICES?

Pyrometers were accurate in measuring the mean maximum heating temperature in upland-oak hickory forest in Arkansas, especially at 1 foot above the surface, and were both cost effective and simple to deploy in the field.

## WHO IS THE MAIN END-USER OF YOUR RESEARCH?

Researchers and land managers/planners

## CONGRESS SESSION

Fire Modeling

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This research was presented at the 7th International Fire Ecology and Management Congress, which was held in Orlando, Florida, November 28-December 2, 2017 and was hosted by the Association for Fire Ecology, in cooperation with the Southern Fire Exchange.