



Forest Community Monitoring at Hot Springs National Park

Importance: *The Fate of a Forest*

The Ouachita Mountains lie between the Ozark Plateau and Gulf Coastal Plain and foster a transitional oak-hickory-pine forest. This vegetation community provides cover for the recharge zone that contributes to the springs of Hot Springs NP. The park has managed the forest as a scenic backdrop for the bathhouses. Historically, shortleaf pine (*Pinus echinata*) and a mix of oak species (*Quercus* spp) dominated this forest that depended on fire to maintain its ecosystem function.



Long Term Monitoring: *Monitoring forest succession and integrity*¹

The Heartland Network Inventory and Monitoring Program scientists established seven monitoring sites in the forests of Hot Springs NP. They collected baseline data that will allow them to assess future change in the forest community. Each sampling site consisted of 10-square-meter plots in which scientists evaluated the amount and kind of plants in the overstory canopy, the understory shrub and the herbaceous layer. Scientists analyzed baseline conditions, giving a point of reference for assessing future changes in the forest community.

Status and Trends: *Baseline data help establish fire management goals*

Scientists will continue to track changes in species succession and management effects in the forest community. Overstory composition and structure reflect a forest affected by changes in the natural disturbance regime (fire suppression) and a history of human disturbance (logging and various land uses). Additionally, scientists discovered that:

1. Shortleaf pine, oak species (*Quercus* spp), and hickory species (*Carya* spp) dominated the forest overstory with few shortleaf pine represented in the largest size class, where oak and hickory prevail. This may affect the scenic quality of the forest.
2. Comparing monitoring data to the baseline data in the future should provide information on the success of re-introducing fire to promote regeneration of shortleaf pine. It will also allow managers to assess the effects of other management actions.

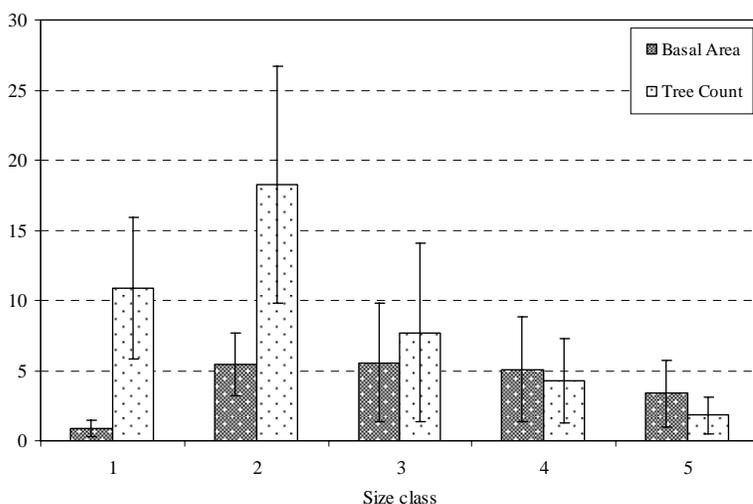


Figure 1: Mean (± 1 standard deviation) site overstory basal area (m^2/ha) and tree count by size class (1 = smallest trees and 5 = largest trees).

Heartland Network Inventory and Monitoring Program of the National Park Service. Visit www1.nature.nps.gov/im/units/hitn/index.htm.

... protecting the habitat of our heritage



¹ James, K. 2008. Forest Community Monitoring Baseline Report, Hot Springs National Park. Natural Resource Technical Report NPS/HTLN/NRTR—2008/081. National Park Service, Fort Collins, Colorado. D-231