

RECONSTRUCTING THE FIRE HISTORIES OF NATIONAL PARKS IN THE GREAT PLAINS

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Abstract: Few studies have been undertaken in the Great Plains that describe historic fire regimes and quantify fire frequencies. Since 2006 we have been assessing and establishing fire scar history research sites throughout the Great Plains region. Our research objective was to describe historic fire regimes of national park units and/or their vicinities and develop a model for mapping historic frequencies across the region. Despite being a grassland dominated biome, the Great Plains region harbors large areas of forests in open structures (savannas, parklands, and gallery forests) and in unique environments (high elevations, badlands, canyons, and cliffs). Overall, excellent potential exists for conducting fire scar history studies in the Great Plains region. To date we have completed eleven multi-century fire scar reconstructions in nine states. Species used in fire scar histories include ponderosa pine (*Pinus ponderosa*), Rocky Mountain juniper (*Juniperus scopulorum*), bur oak (*Quercus macrocarpa*), and post oak (*Quercus stellata*). In summary, site fire history records ranged from 200 to over 600 years in length. Pre-EuroAmerican settlement period fire frequencies ranged from 5 to over 15 years. Generally, fire scars recorded fire occurrence during the dormant season in the southern plains and during the late growing season in the northern plains. Geographically, fire frequencies generally decreased with increasing latitude as a function of temperature.