

ASSESSING MULTIPLE PROCESSES, INCLUDING FIRE, FOR A REGIONAL ASSESSMENT OF GRASSLANDS AND SHRUBLANDS BASED ON NRCS ECOLOGICAL SITES FRAMEWORK

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ABSTRACT

The Nature Conservancy is working with the Bureau of Land Management to assess multiple indicators of ecological condition, including fire regime, across grasslands and shrublands in southern New Mexico. The purpose of the assessment is to identify restoration opportunities and support integrative land management (e.g., fire and range programs). Ecological site descriptions, developed by the USDA Natural Resources Conservation Service (NRCS), are the basis of the assessment. Ecological sites are biophysical units that comprise associations of soils, topography, climate, and potential vegetation. Ecological site descriptions describe reference and non-reference states, processes that maintain these states or drive transitions between them, and potential options for managing states towards desired conditions. The descriptions include advanced state-and-transition models that depict complex ecological dynamics, nonlinear pathways, and ecological thresholds. The role of fire in maintaining reference and non-reference states, and as a possible restoration tool, is described and mapped in relation to multiple interacting ecological processes. In this assessment, ecological sites are identified and mapped from digitized NRCS soil surveys, and reference and non-reference states are mapped by experts with knowledge of specific areas and through remote sensing analysis. Each state is attributed in GIS with ecological processes that influence ecosystem functionality, and with restoration options, based on the ecological site descriptions. The assessment is designed to support statewide and field office-level planning and priority setting. However, since the underlying spatial units, soil survey map units, were developed at fine to medium scale (1:24,000–1:100,000), the assessment is also informative about individual landscapes and watersheds.

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