

Assessment of Drought Related Mortality in Pinyon-Juniper and Ponderosa Pine Forests Using Forest Inventory and Analysis Data

John D. Shaw¹

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¹ USDA Forest Service, Rocky Mountain Research Station, Forest Inventory and Analysis, Ogden, UT.

Abstract—Widespread mortality in several forest types is associated with several years of drought in the Southwest. Implementation of USDA Forest Service Forest Inventory and Analysis (FIA) annual inventory in several states coincided with the onset of elevated mortality rates. Analysis of data collected 2000-2004 reveals the status and trends of mortality in pinyon-juniper and ponderosa pine forests across the Southwest. A complex of drought, insects, and disease is responsible for mortality rates approaching 100 percent in some areas, while other areas have experienced little or no mortality. Drought-related mortality is almost exclusively limited to the pinyon component in pinyon-juniper stands. The proportion of mortality of ponderosa pine varies among the cover types in which it occurs. Elevation and Palmer Drought Severity Index appear to be correlated with observed mortality.