

Management of Piñon Juniper Woodlands in the Southwestern Great Basin: Determining Invasion Thresholds

A proposal for the Joint Fire Science Program, AFP 2004-2-Task 1

Need

Managers need to know how much restoration effort will be required to reverse the effects of PJ encroachment into sagebrush-steppe. Theoretically, at the early stages of invasion, control of PJ trees may be all that is needed, and at the very late stages of invasion, control of trees may need to be followed by active restoration of shrubs, grasses, and other surface vegetation. Somewhere in between there should be a broad threshold that separates these two phases of invasion, and subsequent effort required to reverse the invasion.

Objectives

- Determine the thresholds at which above-ground plant community composition changes (species and functional type diversity and cover), seedbanks (diversity and density) become depleted, and fuelbed and simulated fire behavior (using fuel characteristics and existing fire spread models) changes at various stages of pinyon-juniper encroachment.

Methods

Establish multiple sampling points arranged along replicate ecotones between closed stands of PJ and the adjacent sagebrush steppe it is invading. The major challenge will be finding ecotonal gradients that are within a single soil mapping unit, or at spread over similar soil types. Do we have any information At each monitoring point, measure plant, seedbank, and fuel characteristics.

Has BLM already done any sort of stratification at the Bodie Hills site that would help us with this project?

*note – There has been some work on vegetation changes along woodland gradients in UT, including a study of seedbank composition. I assume these are *J. osteosperma* and *P. edulis* woodlands, probably dominated by juniper. If we proposed to do this in CA, then we would need to explain why cannot use the data from UT.