

## **Causes of Juniper Invasion in Southwestern Idaho**

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*Abstract.* Invasion of western juniper into vegetation dominated by mountain big sagebrush and perennial bunchgrass on the Owyhee Plateau of southwest Idaho appears to be directly related to cessation of periodic fires. Evidence from adjacent climax juniper stands indicates that fires were frequent for at least several hundred years preceding white settlement. Fires have been much less frequent during the past century due to active fire control, development of roads and other fire barriers, and reduced fuel because of heavy grazing and a shift towards decreased precipitation. Physical and biotic factors affecting the establishment of juniper, seed dispersal mechanisms, and the fire history of the study area were investigated. Results indicated that range condition as such had a negligible effect on juniper establishment. Juniper seedlings became established most readily on areas supporting well-developed herbaceous and shrubby vegetation. Seed dispersal was primarily localized, and accomplished by gravity and disturbance by animal trampling. Abundant evidence of fire in the form of charred stumps and fire scars on living trees was found throughout the study area. Old juniper stands are confined to rocky ridges where understory vegetation is sparse and fires less intense. Juniper was apparently kept out of the denser vegetation of deeper soils by more intense fires. Most herbaceous and shrubby species survived this treatment due to greater tolerance to fire, or rapid reproduction from seed.