



Under-Canopy and Interspace Soil Moisture and Temperature of One-Seed Juniper Stands

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Juniper has encroached into native grasslands decreasing forage value and habitat for wildlife. Research on juniper woodlands suggests that junipers tap water from deep ground and superficial layers beyond the canopy drip-line, depleting water for herbaceous plants. We investigated the soil moisture in under-canopy plots and interspace plots of dead and live trees. We hypothesized that 1) under juniper snags, soil moisture would be higher than under live trees due to the lack of root activity by trees, 2) soil moisture would be lower in interspaces than under tree plots, 3) simulated heavy defoliation would no influence on soil moisture and 4) temperature would be inversely related to soil moisture. The study was carried out in Corona, NM. Under-canopy and interspace plots were instrumented with water and temperature sensors. Understory herbaceous plants were hand-clipped to simulate heavy infrequent dormant season defoliation. Soil moisture was higher under live trees (20.5 %) and between live trees (16.6 %) than under dead trees (16.2 %) and between dead trees (14.2 %). Simulated defoliation did not have significant effects on soil moisture either under trees or in interspace plots. Soil temperature was higher between trees (23°C) than under dead (22°C) and under live trees (21°C). Our results suggest that interspaces could serve as nutrient and water pools for herbaceous plants due to warmer temperatures and wetter soils.

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