

### 3. *Pinus edulis* - *Juniperus monosperma* (*Quercus grisea*) / *Bouteloua gracilis* Tree Savanna Association (P)

Two-needle pinyon - Oneseed juniper (Gray oak) / Blue grama Tree Savanna Association (P)

This association is characterized by a sparse tree canopy (5–18%), co-dominated by one-seed juniper (*Juniperus monosperma*) and two-needle pinyon (*Pinus edulis*), with two common associates, gray oak (*Quercus grisea*) and alligator juniper (*Juniperus deppeana*), and an herbaceous stratum (<0.5) dominated by blue grama (*Bouteloua gracilis*). Oneseed juniper (*J. monosperma*) is the clear canopy dominant, with cover averaging to 9%, compared to only 5% for two-needle pinyon (*P. edulis*). Gray oak (*Q. grisea*) and alligator juniper (*J. deppeana*) are common associates, each providing an average of 3–4% cover. Tree heights vary, with two-needle pinyon (*P. edulis*) ranging from 6 to 12 meters tall and averaging to 8 meters. Oneseed juniper (*J. monosperma*) is shorter, averaging 5 meters and rarely over 6 meters. The field stratum is characterized by a matrix of bunchgrasses primarily dominated by blue grama (*B. gracilis*), which provides a consistent cover ranging up to 30% and averaging to 20%. Other contributing bunchgrasses include bristly wolfstail (*Muhlenbergia alopecuroides*), sideoats grama (*Bouteloua curtipendula*), spidergrass (*Aristida ternipes*), squirreltail (*Elymus elymoides*), and hairy grama (*Bouteloua hirsuta*).

This association spans large areas, often covering and wrapping around entire hilltops. Elevation ranges from approximately 1,700–1,920 meters (5,600–6,300 ft). Typically, these communities are found on predominantly west-, southwest-, and southeast-facing slopes, covering 8.0% (83.72 ha/206.87 ac) of the project area and 6.15% (13.12 ha/32.43 ac) of the monument.

#### Common species

- *Pinus edulis*
- *Juniperus monosperma*
- *Quercus grisea*
- *Juniperus deppeana*
- *Bouteloua gracilis*

