

Introduction

The purpose of this plan is to examine existing vegetative conditions throughout Pipe Spring National Monument, evaluate the appropriateness of those conditions and make long term recommendations for changes to and management of the vegetation within the Monument.

The Pipe Spring National Monument (PISP) staff has identified in scoping sessions related to this project, five vegetation management/land use zones within the monument, and a sixth zone immediately adjacent to the east (see Map 1).

Monument (40 acres)

- Visitor Zone (VZ) 7.4 acres
- Historic District (HD) 9 acres
- Shrubland/Grassland Zone (SGZ) 14 acres
- Hillside Zone (HZ) 5.6 acres
- Administrative Zone (AZ) 4.acres

Adjacent Area

- Tribal Zone (TZ) 2.7acres

This report describes the desired future condition for vegetation monument-wide and for each of the six management zones. PISP has several proposed actions that could affect vegetation. The report takes into account several proposed actions at PISP and vegetation management specific projects oriented to achieve the desired future condition.

The following report describes the condition of existing vegetation and the desired future condition for vegetation monument-wide and for each of the six management zones. Proposed actions in each zone are described and both positive and negative impacts estimated. Estimates of potential impacts are based on research studies conducted on the monument, PISP archival material, scientific references, discussions with PISP staff and other resource experts, site reconnaissance, and best professional judgment (see References).

Existing Conditions Monument-Wide

The Visitor Zone landscape is the most disturbed within the monument. Little remains of the topsoil, topography, or hydrology. Consequently, most existing vegetation is early to mid-successional in species composition. The existing community is lacking in species diversity and age diversity when compared to relatively undisturbed shrub steppe communities in the region.

The Historic District Zone is primarily a cultural landscape characterized by introduced shade trees, native desert shrub steppe and pinion/juniper woodland. The native desert shrub steppe community has been disturbed by historic activities associated with ranching, as well as more current NPS activities. The community has a deficient perennial grass/annual forb understory and no perceivable biological soil crust. The area

bordering the Hillside Zone to the north is dominated by pinyon/juniper woodland species with a shrub, perennial grass and annual forb understory. As noted in the PISP Avian Inventory Report, junipers observed in the NE of the HDZ may be following a successional pattern through which desert shrub steppe is over time replaced by pinyon/juniper communities (Johnson, Holmes, and Stuart 2004, 30).

The introduced trees in this zone are clustered near the fort and around the ponds. Relict Siberian elms (*Ulmus pumila*) to the west of the fort are contributing historic features that are in decline, with seedlings/saplings growing in their shadows. The cottonwoods and *Ailanthus* within and adjacent to the ponds have died or have been in decline over the past 15 yrs, matching trends seen throughout the monument. Seeps from the ponds support cultivated roses and herbaceous riparian species. Further north within the historic zone are the remnants of silverleaf cottonwoods (*Populus alba*) near the chicken house and barren areas where *Ailanthus* once grew. A few decadent cottonwoods remain.

The Hillside Zone is comprised of the pinyon-juniper plant community, one of most predominant habitat types adjacent to the monument. With the exception of a lack of mature pinon pine and Utah juniper, there is a diversity of age classes in the stand, comprised of these species.

In general, the Shrubland/Grassland Zone plant communities are degraded. Grasses and forbs are minimal, replaced with dominant shrub species. Consequently the pre-settlement pattern of grassland interspersed with shrub species is no longer evident (Alexander 1998). Biological soil crust exists in a few isolated locations but is generally absent from this zone. The riparian plant community in the SW corner of the SGZ has been stressed by drought and lack of spring water which used to flow from the irrigation ditch across the corral and into the arroyo.

Structures, roads, parking, utilities, lawn, shrubs and shade trees give the Administrative Zone the characteristics of a suburban development. The introduced plantings are sprinkler irrigated and are in general in good condition. *Ailanthus* has invaded several planting beds on the southwest corner of the AZ. The lawn panels are in decline. They are an unnatural food source for cottontail rabbits, whose population on PISP exceed regional norms and degrade some of the plantings in the VZ.

The condition of existing vegetation on tribal land east of the entry road has not been studied. Condition of the lawn and shade trees east of the visitor center are in good condition. Trees in the parking lot appear stressed and several decadent trees were recently removed.

Desired Future Conditions Monument-Wide

- Establish a landscape that to the greatest extent possible, complements, and reduces conflicts with, the depiction of a 19th century landscape associated with Mormon pioneer settlement, in the Historic District.
- Natural resources will reflect a variety of successional ecosystems – from desert grasslands to overgrazed rangeland – from pre-European contact, 19th century conditions to present conditions.
- Maximize use of spring water for cultural and natural resources
- Minimize use of culinary water (pumped well water) for cultural and natural resources
- Maintain integrity of vegetation as related to the cultural resources of the monument
- Maintain/ enhance habitat for long and short distance migrating birds and other native species
- Potentially control rabbit and other rodent populations while optimal vegetative conditions are reestablished.
- Replace/ remove exotic ailanthus selectively, and exotic elms outside of Historic District.