

Hillside Zone (HZ)

(Map 4)

Desired Future Condition

- Natural processes predominate
- Visitor use- views, trail and waysides, experience of natural environment and distant views

Condition of Existing Vegetation

This small zone in the northwest corner of the monument is comprised of the pinyon-juniper plant community, one of most predominant habitat types adjacent to the monument. The pinion-juniper zone is dominated by two-needle pinion (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), sagebrush (*Artemisia spp.*), Utah serviceberry (*Amelanchier utahensis*), roundleaf buffaloberry (*Shepherdia rotundifolia*), green rabbitbrush (*Chrysothamnus viscidiflorus*), snakeweed (*Gutierrezia spp.*, *Cowania mexicana*), Mormon tea (*Ephedra viridis*), yucca (*Yucca spp.*), and cactus (*Opuntia spp.*) With the exception of a lack of mature pinion pine and Utah juniper, there is a diversity of age classes in the stand, comprised of these species.

A study cited in the PISP Avian Inventory suggests that vegetative change in pinion/juniper communities of the Great Basin has occurred at drastic rates over the past century. According to Cole et al, “the most severe vegetation changes of the previous 5,400 years occurred during the last 200 years and these changes can be primarily attributed to grazing by livestock”. During this period, plants consumed by cattle and sheep such as winterfat, ricegrass, sagebrush, roundleaf buffaloberry, greasewood, and pinion pine have declined significantly, while aggressive invasive species have taken their place (Johnson, Holmes, and Stuart 2004, 29).

Actions

- 1 Action: Continue current policy of allowing natural processes to operate in the zone. Annual monitoring of vegetation will continue, as will trail maintenance and the removal of invasive exotic vegetation.**

Positive Impacts

Allowing the Hillside Zone to evolve naturally will increase the probability that a representative pinion-juniper woodland will persist within the monument boundaries.

Negative Impacts

Minor soil disturbance will continue, associated with removal of non-native species.

Shrubland/Grassland Zone (SGZ)

(Map 4)

Desired Future Condition

Natural processes predominate with potential for enhancement (i.e. native grass restoration) for visitor understanding of pre-European contact. As noted in the PISP CLI, the surrounding natural desert-scrub landscape is a contributing feature to the historic landscape.

Visitor use- view/ observe/ retain some flexibility for guided tours and interpretive trails

Condition of Existing Vegetation

The Shrubland/Grassland Zone plant community is dominated by four winged saltbush (*Atriplex* sp.) with smaller patches of rabbitbrush (*Chrysothamnus* sp.) and basin big sagebrush (*Artemisia tridentata* Nutt. spp. *tridentata*). In general, the SG Zone plant communities are degraded. Grasses and forbs are minimal, replaced with dominant shrub species, the result of historic grazing and more recent site disturbances such as



construction and demolition of the CCC camp, construction and removal of the campground and other similar activities leading to introduction and competition from exotics. 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 recent drought has stressed plants throughout the monument. The riparian plant community in the SW corner of the Shrubland/Grassland Zone 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.

Actions

- 1- Treatment of shrubland zones. Any or all of these actions could be pursued.
 - 1A Action: Retain shrubland/grassland as it currently exists
 - 1B Action: Selective thinning of shrubs and grass/forb reintroduction
 - 1C Action: Creation of small plots for intensive grass and forb reintroduction

- 2- Continued monitoring of vegetation and removal of non-native invasive species
- 3- Alternative location for Paiute camp with related trails

1 Action: Treatment of shrubland zones. Any or all of the following actions could be pursued.

1A Action: Retain shrubland/grassland as it currently exists.

Positive Impacts

Existing SG vegetation would continue to perform ecosystem functions such as site stabilization, erosion control, wildlife habitat (at a minimal level) and others. Although not pre-settlement in species composition, the existing SG vegetation projects a general western landscape character.

Negative Impacts

The generally degraded condition of vegetation in the SG zone would persist. The level of native species diversity would remain low, and park visitors would be deprived of the experience of a pre-settlement vegetation palate.

1B Action: Selective thinning of shrubs and grass/forb reintroduction

Positive Impacts

A successful planting of native grasses and forbs would recreate the pre-settlement vegetation palate and would give park visitors that experience. It would also create new interpretive opportunities. Moreover, the success of native grasses and forbs would facilitate the restoration of BSC and expand habitat for wildlife and overall floral and faunal species diversity on the monument.

Negative Impacts

Selective thinning of shrubs and planting of grasses and forbs in cleared areas would produce minor disturbances to the soil surface associated with the removal of shrubs. The soil would be more substantially disturbed when cleared areas were prepared for seeding grasses and forbs. Minor site disturbance and mechanical weed removal or application of herbicides associated with weed control could persist for three to five years or until new plantings become established. As noted earlier in this report, the restoration of native landscapes in this environment is very difficult (MacMahon 2007, pers. comm). Much depends on weather and longer climatic cycles, invasive species and herbivory. A failed planting leaves a site that is ideal for invasion by non-native species.

1C Action: Creation of small plots for intensive grass and forb reintroduction

Positive Impacts

Positive Impacts would be the same as those described above.

Negative Impacts

Negative Impacts would be the same as those described above, except they would be confined to smaller plots.

2 Action: Control of Invasive Exotics

Note: In addition to controlling invasive exotic plants in newly planted areas, PISP intends to control them throughout the SG Zone.

Positive Impacts

The control (complete eradication is not feasible) of invasive plants would enhance growing conditions for native species. It would also give PISP visitors a more accurate representation of pre-settlement native species and native plant communities.

Negative Impacts

Negative Impacts would include minor site disturbance associated with mechanical removal and/or the application of herbicides at locations where invasive plant species occur throughout the SG Zone.

3 Action: Alternative location for interpretive Paiute camp with addition of supporting trail

The proposed relocation of the camp and access trail northwest of the visitor center on the east side of the flood ditch would require minor site clearing, the relocation of camp structures and restoration of former parking lot site.

Positive Impacts

The proposed relocation of the campsite to the site described above would place it adjacent to the visitor center, where the pre-settlement story is told, and in a plant community context appropriate to that time period. Exiting the museum, visitors would experience a transition from the pre-settlement to post settlement periods, with the flood ditch serving as the “timeline” between the two. This location could benefit from the context created by the proposed grass/forb plantings previously discussed depending upon location chosen for this effort. The

proposed location is in an area where the plant community is classified as degraded on the monument vegetation map. Thus the development of the campsite would not disturb the limited number of high quality plant communities on PISP. The old campsite (which is in the Visitor Zone) would be revegetated with native shrub, grass and forb species extending the native plant context west across the ditch.

Negative Impacts

Relocation of the Paiute camp would produce minor disturbances to the site, including removal of shrubs and soil regrading to create the campsite and for the access trail. Shrub removal and soil disturbance will create habitat for invasive plants which will have to be controlled mechanically or with chemicals. No significant loss of wildlife habitat is expected.