

VEGETATION ANALYSIS AND MANAGEMENT FOR  
FORT LARAMIE NATIONAL HISTORIC SITE, WYOMING

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Objectives

The research underway has three principal objectives. The first of these is to expand the knowledge of the existing vegetation of the site. The site has almost quadrupled in size (to 836 acres) and only portions of the original site have been investigated (Davis, 1959; Johnson, 1978). The second objective is to develop an understanding of the historic vegetation of the area. National Park Service (NPS) plans for the interpretation of the site call for an historic time frame of the 1870's but the diverse uses of the property over the past century have created vegetation distributions that are not congruent with that time period. The third objective is to develop a vegetation management plan for the site that will convert the existing vegetation into an approximation of the historical vegetation and provide guidelines for maintaining that appearance.

Methods

The analysis of existing vegetation types is being compiled through a combination of field data collection and aerial photograph interpretation. Following initial ground inventory, the site was divided into apparent vegetation types and line-intercept transects of the herbaceous vegetation were completed in each of the characteristic types. These data are being analyzed on the basis of cover and frequency and will be used in conjunction with the aerial photographs to develop a map of vegetation types/management units. In addition, surveys were taken on the site to identify species not encountered in the quantitative sampling.

An understanding of the historic vegetation of the site is being derived from the following: examination of the files and records available at Fort Laramie, a review of the early scientific literature from exploration in the region and current literature on the native vegetation of the region.

The management plan is being developed from a combination of sources which include the scientific literature, land reclamation reports and NPS management efforts at the Scott's Bluff National Monument.

## Results and Conclusions

While the field data and historic information are still being analyzed, several preliminary observations are possible. Most of the site is now occupied by vegetation that was not characteristic for the region. Those sites that still resemble the native flora show changes in the density of some species. In most cases, woody species are more abundant and forbs are less abundant but the variance in forbs could be accounted for by the very dry conditions of the last year. Some sites are considerably wetter than they would have been historically owing to seepage from onsite and adjacent irrigation ditches and canals.

The local historical information is inadequate to develop a target prescription on the basis of species composition. Most of the observation of vegetation as revealed by the records at Fort Laramie was cursory. Mention is made of several individual species but for the most part, plants seem to have been noticed on the basis of utility (cottonwood), showiness (blazing star) or tribulation (cactus). Old photographs taken in the area within twenty years of the desired time-frame do not have high resolution but two conclusions can be drawn from them: herbaceous vegetation was very sparse in the area around the fort site and there were many fewer trees than exist at present. This is consistent with the expectation derived from historic records as the site had been continuously occupied for forty years by the 1870's. During much of this time there had been very high seasonal populations owing the central role Fort Laramie played in the westward movement of settlers and miners. Demands for firewood and forage for stock appear to have largely denuded the area around the fort.

On the basis of the preliminary observations given above, several tentative conclusions may be drawn. Owing to the paucity of historic data, the management plan will be developed on the basis of the approximate native vegetation of similar sites in the region. Management constraints concerning erosion, control of weeds and community relations preclude an exact recreation of the historic scene even if there were quantitative data sufficient to make it feasible. Tree density should be reduced to the extent possible. It will be difficult to overcome the effect of seepage irrigation from outside the NPS boundaries (leakage from the Fort Laramie Canal). Unless arrangements can be made to seal the canal, it will probably not be possible to establish historically valid vegetation in the affected areas.

## Literature Cited

- Davis, George V. 1959. A vegetative study of three relic areas located within Fort Laramie National Monument. M.S. Thesis. Dept. of Range Manage. Univ. of WY. 77 pp.
- Johnson, Douglas R. 1978. An environmental interpretive plan for Fort Laramie National Historic Site. M.S. Thesis. Dept of Rec. and Park Admin. Univ. of WY. 240 pp.