

1983 RS

A PROFILE OF THE ORIGINAL PLANT COMMUNITIES
AT WHITMAN MISSION NHS: A DRAFT REPORT

R. GERALD WRIGHT

UNIVERSITY OF IDAHO/ COOPERATIVE PARK STUDIES UNIT

INTRODUCTION

Whitman Mission is located on the southern extreme of the Palouse Prairie region. Originally, this prairie was dominated by perennial grasses, principally bluebunch wheatgrass (*Agropyron spicatum*) which fourished in vast swords over the rolling plains. Intermixed with it were smaller patches of sandberg bluegrass (*Poa secunda*) and Idaho fescue (*Festuca idahoensis*). The region is classified as the *Agropyron-Poa* habitat type (Daubenmire 1942). Large native herbivores were generally absent from the Palouse, and because of this, the native grasses evolved with a low resistance to grazing. Subsequent grazing by domestic livestock and extensive cultivation for wheat are the main reasons why native perennial grasslands are now rare on the Palouse.

The original inhabitants of the area around Whitman Mission were the Cayuse indians. The Cayuse had no domestic livestock and practiced very little crop agriculture, depending instead on a partially nomadic existence which emphasized food gathering and salmon fisheries (Harris 1967). Fire was perhaps the most destructive tool of the Cayuse. It would be used periodically to burn particular areas to increase the production of wild forage and accessibility of plant foods; to facilitate hunting and travel by burning away underbrush; and to encircle game (Shinn

1980). The regularity with which the areas on or near the historic site were burned historically cannot be determined, but frequent cultural burning of any particular area was probably rare (Shinn 1980).

PLANT COMMUNITIES ON THE SITE

At the time the mission was established in 1836, an ox-bow of the Walla-Walla River, which has since moved to the south, flowed through the site (at least during times of high water). It is probable that at the time the mission was established, a mixture of three plant communities occupied the site (Fig 1). On the floodplains along the Walla-Walla and nearby Mill Creek, a narrow plant community consisting of dense tangled thickets of willows, cottonwoods, wild dogwoods, blackberries, elderberries, and other species common to riparian areas probably occurred. An association of perennial grasses, shrubs, and native forbs probably occupied the hillside area where soil depths and drainage were greater. Perennial grasses common to the Palouse probably dominated the rest of the site.

Intermixed throughout the site was giant wild ryegrass (*Elymus condensatus*), a species preferring a year-round supply of soil moisture and occurring primarily on clay bottomlands and seepage areas. It now occurs as scattered large bunches of grass, but historically, it may have been more extensive. It was this species that gave the indian name to the location, Waiilatpu, meaning place of the people of the ryegrass.

Although the indians probably occupied the site at least periodically for centuries before the mission was established, they probably didn't have a profound effect on the landscape. However, soon after the mission was established, an irrigation system was developed, crops planted, and areas were opened to grazing by draft stock and cattle. As it was located on the Oregon Trail, considerable stock moved through the mission, and there was ample opportunity for the introduction of exotic plants. The changes that occurred to the plants and landscape during the time the mission was active -- the introduction of domestic livestock, exotic plants, and agriculture, and the removal of riparian vegetation for fire and building wood, were a portent of things to come for the entire Palouse Prairie.

RECENT ACTIVITIES

Activities on the site between the historical period and the time of NPS acquisition in 1936 have not been well documented. Such information could provide a better understanding of how present day vegetation patterns have emerged. For example, one of the most disturbed areas on the site (north of the maintenance area) apparently was frequently tilled and used for vegetable crops.

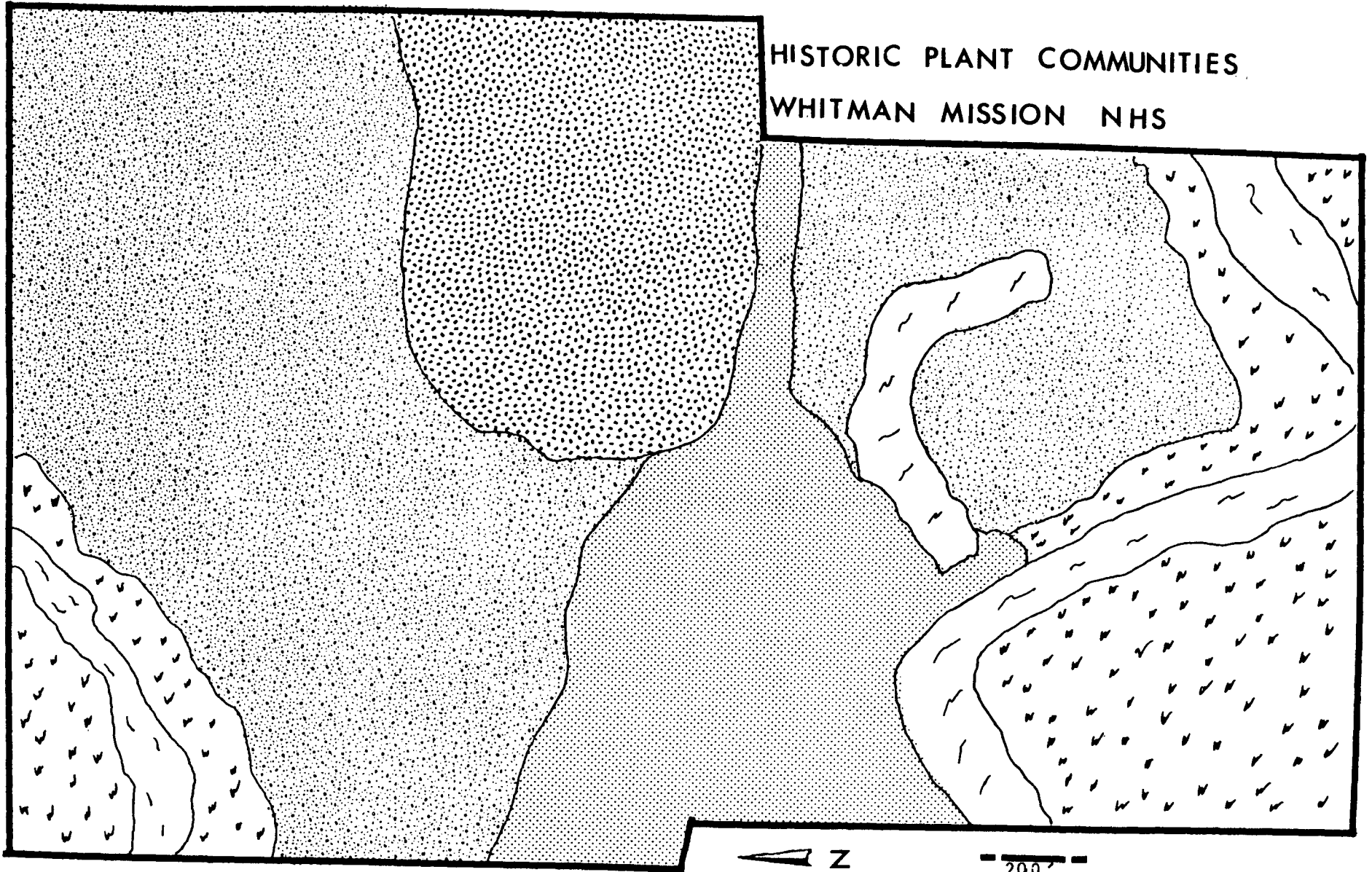
I have thus far been able to find only a few historic photos of the landscape which are clear enough to interpret vegetative conditions, and which are dated. Many of these are taken of or from the memorial shaft hillside. They show that the composition of the plant community on the top of the hill has changed drastically since the 1920's. In one photo (J-2-1), the mound is

covered entirely by short grasses. Shrubs are rare and are found only along the roadside. A 1936 photo (E-7-2) shows taller bunch grasses invading the site. The top of the hill was at one point part of a cultivated field as witnessed in a photo (E-7-9) taken about 1950. *Chrysothamnus* appears to have begun invading the top of the hill about 1957. The site was disturbed in 1961 when the memorial shaft was remodeled. A 1967 photo shows *Chrysothamnus* dominating the site.

Pictures of the pasture taken from the top of the hill show it being grazed by cattle and horses at least since 1936 (photo J-1-12). The northern half of the field was planted in corn this same year. A 1950 photo (E-7-9) shows the relative level between the pasture and the field to the east, and can be used to see the difference in compaction that has occurred throughout the years.

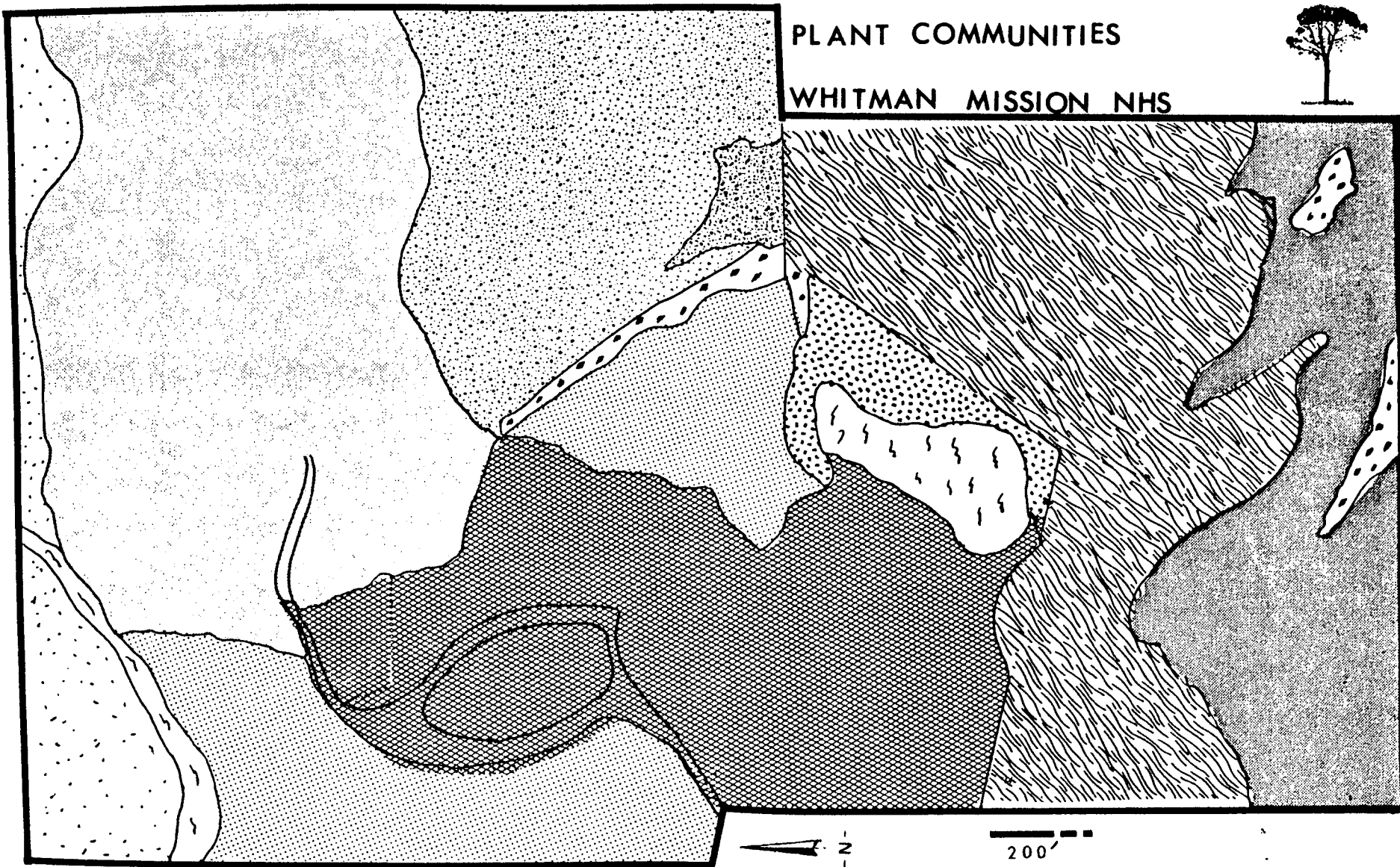
In summary, the undeveloped areas of the historic site reflect a 130 year history of a diversity of land uses and landscape disturbances. The development of the present plant communities (Fig 2) which are dominated by weedy species, annual grasses, and forbs is not surprising, but is found repeated time and again over broad areas of southeastern Washington (Daubenmire 1975). The individual variation that is present on specific areas of the historic site relates to the intensity and time since the last disturbance as well as to differences in soils and water availability.

HISTORIC PLANT COMMUNITIES
WHITMAN MISSION NHS




PLANT COMMUNITIES


WHITMAN MISSION NHS





KEYS

Historic Communities


 Native grassland: blue bunch wheatgrass - *Agropyron Spicatum*

 Sandberg bluegrass - *Poa Secunda*


 Developed area with cultivated crops

 Shrub grassland - blue bunch wheatgrass, *Chrysothamnus* sp. -


 rabbitbrush, various forbs


 riparian woodland - Cottonwood, dense shrubs mixed with
giant wildrye grass - *Elymus condensatus*


Present Communities


 Shrub grassland: rabbit brush, sage brush - *Artemisia* sp.


 Cheatgrass - *Bromus tectorum*, forbs

 Pasture - Clover - *Trifolium* sp., *Poa* sp. - bluegrass

 Pasture - foxtail barley - *Hordeum jubatum*, clover

 Mixed deciduous woodland

 Lawns - Bluegrass sp.

 Mixed grasses - Primarily

 Grassland - primarily blue bunch wheatgrass

 Mixed weed-grassland - *Agropyron riparium* (seeded) - stream bank
wheatgrass, cheatgrass, thistle, wild mustards

 Mixed weed-shrub - poison hemlock - *Conium maculatum*

 Mixed grass + sedge - giant wildrye