

Presettlement Vegetation of Cache Valley, Utah and Idaho

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Highlight: *Explorers and early settlers found abundant grass and little sagebrush in Cache Valley in northeastern Utah and southeastern Idaho. Excessive grazing by livestock after settlement caused the grass to decrease and the sagebrush to increase. Most grassland areas were eventually plowed for dry-land or irrigated farming. However, in the dry-farm belt are many steep or rocky slopes, inaccessible corners, and similar areas that have not been plowed, irrigated, heavily grazed, or burned in recent years. Many of these areas support vegetation that, except for increased sagebrush, is undoubtedly similar to that described by explorers, early settlers, and historians.*

About 60% of Cache Valley, so named for the huge fur caches made here by the trappers, is in northeastern Utah and 40% in southeastern Idaho. The valley floor extends north and south slightly over 50 miles and varies from 5 to 12 miles in width. The valley, 4,400 to 5,200 feet in elevation, is completely surrounded by mountains with peaks up to 9,980 feet. Precipitation on or near the valley floor ranges from 15 to 20 inches annually. In the surrounding mountains it reaches 50 inches. Spring and winter are the seasons of highest precipitation.

As Mary Ann Maughan (1898) viewed Cache Valley with the first company of permanent settlers in 1856, she exclaimed, "Oh, what a beautiful valley!" In 1832 Ferris (1940) wrote: "One of the most extensive and beautiful vales of the Rocky Mountain range . . ., producing everywhere most excellent grass . . ." Hayden (1879) called Cache Valley the garden spot of Utah.

Stansbury's official report (1852) indicated that Cache Valley had the finest range imaginable for any number of cattle

and that any amount of hay might be cut without interfering with range for the cattle. An 1870 report to the U. S. Commissioner of Agriculture stated that Cache Valley was probably the finest grazing section in the entire Salt Lake basin and must become a favorite pasture ground for stock raisers (U. S. Dep. Agr., 1871).

In 1825, as Peter Skeene Ogden's Hudson Bay trapping party traversed the

length of the valley, they repeatedly mentioned plains covered with huge herds of buffalo (Miller, 1952, 1954). The 1841 Bartleson wagon train (Kelly, 1930), and Fremont (1845) and his party traveled in 1843 through the north and west parts of the valley. Both Fremont and Bidwell of the wagon train mention a fine cover of grass.

Notes from the public land survey of Cache Valley (Utah section in 1855-78, and Idaho section in 1872-73) indicate good grass for grazing and sometimes for mowing on most areas; sagebrush is rarely mentioned (U. S. Govt., 1855-78 and 1872-73). The Trenton and Cornish area on the west side of the valley was called the Big Range because of its abundant grass and excellent grazing. Sagebrush in this area was rare when the 1876 land



Fig. 1. *This excellent stand of bluebunch wheatgrass and forbs, with scattered bitterbrush and sagebrush, south of Weston, Idaho, has had little grazing for the past 50 years. Except for more sagebrush at present, the vegetation is probably similar to that found on the Big Range of the Trenton-Cornish area at the time of settlement.*

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This paper is a joint contribution from Agr. Res. Serv. and Forest Service, U.S. Dep. Agr., and Utah Agricultural Experiment Station, Logan. (Utah Agr. Exp. Sta. Journal Paper 1325.)

The authors thank those who supplied information or made helpful comments on the manuscript. Special thanks to A. J. Simmonds and Earl M. Christensen who supplied many publications and historical records.

Manuscript received March 30, 1973.



Fig. 2. A good stand of bluebunch wheatgrass with forbs and scattered sagebrush at Mapleton, Idaho, has had only light grazing for many years. This represents a grassland with some sagebrush that grew on many of the foothills and benches before settlement.



Fig. 3. This heavy stand of 7-foot reed canary grass near Logan, Utah, is representative of the heavy grass that grew in the moist valley-bottom soil and provided winter feed for livestock and cover for bears.

survey was made. However, grazing was very heavy, and by 1888 sagebrush covered the foothills and much of the flats (Simmonds, 1970).

Settlers, historians, and students of early history tell of the excellent grass in Cache Valley (Maughan¹; Tullidge, 1889;

Hovey, 1925; Olson and Olson, 1927; Stewart, 1941; and Ricks, 1953 and 1956). Mary Ann Hull came to Franklin, Idaho, with the first settlers in 1860. She stated that there was good grass on the benches and foothills east of Franklin and Preston, with only widely spaced sagebrush plants on the higher slopes and no sagebrush in swales and areas of deep soil. After settlement, the local livestock and, later, migratory sheep used this area so heavily that the grass decreased and the sagebrush increased. Within 40 years after settlement, sagebrush was abundant and the settlers could count the migrating bands of sheep by the clouds of dust².

Hanson (1939), Hanson and Stoddart (1940), Stoddart (1941), and Tisdale et al. (1969) concluded that northern Utah and southern Idaho were essentially a grassland with small amounts of sagebrush but that uncontrolled livestock grazing had reduced the perennial grass and allowed sagebrush to increase.

Study Areas

To determine the vegetation in Cache Valley before it was changed by the white man, we reviewed literature on early vegetation and also searched the valley floor up to 5,200-foot elevation for good stands of native vegetation. We tried to locate areas where explorers and settlers had described the vegetation. The best stands of native vegetation and those that seemed to resemble the original vegetation were in the dry-farm belt around the edge of the valley or in breaks along streams. Here were many steep or rocky slopes, inaccessible corners, and similar areas that had not been plowed, irrigated, heavily grazed, burned, or otherwise damaged for 50 years.

We selected 73 areas on which we recorded the presence and estimated the abundance of 47 of the more important herbaceous and woody species. The abundance of a species was the average stand found on the various sites of an area. This varied from rare, through poor, fair, and good, to very good as compared with what might be expected for this species on the sites of that area. Areas averaged about 2 miles apart, and 6 miles was the greatest distance between areas.

We counted annual growth rings on sagebrush plants on most areas and on trees on some areas.

Present Vegetation

Much of the unplowed land in the valley has been heavily grazed and supports dense stands of big sagebrush (*Artemisia tridentata*) and cheatgrass

(*Bromus tectorum*) and minor stands of perennial grass and forbs. From the literature we concluded that originally there had been much grass, with limited sagebrush in the valley. We found that the areas traveled by the Hudson Bay trappers (Miller, 1953, 1954), Fremont (1954), and the Bartleson wagon train (Kelly, 1930) and the area called the Big Range (Simmonds, 1970) still have good grassland remnants (Fig. 1).

Many of the protected or moderately used areas had good stands of grass and forbs, with little sagebrush (Fig. 2). On such areas, beardless bluebunch wheatgrass (*Agropyron spicatum* var. *inermis*)³ was the most abundant species and was the only native grass that grew in major amounts on all 73 areas. Other native grasses with rare to good stands on many areas and in order of abundance were: streambank wheatgrass (*Agropyron riparium*), basin wildrye (*Elymus cinereus*), Junegrass (*Koeleria cristata*), Sandberg bluegrass (*Poa secunda*), western wheatgrass (*A. smithii*), and various bluegrasses (*Poa* spp.). Ridge tops and areas of sandy soil supported Indian ricegrass (*Oryzopsis hymenoides*), needle-and-thread (*Stipa comata*), and sand dropseed (*Sporobolus crytandrus*).

Five exotic grasses are spreading and are undoubtedly adapted to Cache Valley: cheatgrass, crested and intermediate wheatgrasses (*A. desertorum* and *intermedium*), and bulbous and Kentucky bluegrasses (*Poa bulbosa* and *pratensis*).

The tall grass in the moist valley bottom was used by the American Fur Company and later by the early settlers for wintering cattle (Stansbury, 1852; Ricks, 1953). This grass has been altered by grazing, cultivation, and water development. Patches of basin wildrye, called big bunchgrass by the settlers, and reed canary grass (*Phalaris arundinacea*) probably resemble the original tall grass (Fig. 3).

Early records rarely mention forbs. However, palatable forbs were probably abundant, especially on the north exposures and favorable sites. At present, arrowleaf balsam-root (*Balsamorhiza sagittata*) is the most abundant forb species and was found on all 73 areas. Other major forbs in order of abundance were little sunflower (*Helianthella uniflora*), stone seed (*Lithospermum*

³ At Red Rock Pass and some other locations, especially in the northwest part of the valley, there is considerable bluebunch wheatgrass (*A. spicatum*). In this paper both forms are called bluebunch wheatgrass.

¹ Peter Maughan's letter quoted in *Deseret News*, June 22, 1859.

² Personal communication in 1934.



Fig. 4. This bluebunch wheatgrass near Avon, Utah, has been moderately grazed by sheep for at least 60 years. Grazing has been just heavy enough to eliminate many forbs and to maintain a good stand of grass but little sagebrush.

ruderalis), flax (*Linum lewisii*), lupine (*Lupinus* spp.), cleft-leaf balsam (*B. macrophylla*), hawksbeard (*Crepis* spp.), yarrow (*Archillea lanulosa*), and penstemon (*Penstemon* spp.). The forbs seemed to be damaged more than the grasses by heavy grazing, especially sheep grazing (Fig. 4).

From early records, sagebrush was found in small amounts. It has increased and in 1972 was found on all 73 areas. Other shrubs in order of abundance were: bitterbrush (*Purshia tridentata*), rabbitbrush (*Chrysothamnus* spp.), chokecherry (*Prunus* spp.), serviceberry (*Amelanchier alnifolia*), wild rose (*Rosa* spp.), bigtooth

maple (*Acer grandidentatum*), and Utah juniper (*Juniperus osteosperma*). Probably rabbitbrush, maple, and juniper have increased, but the other woody plants have changed little since settlement.

Maximum growth rings on the sagebrush plants ranged from 21 at Red Rock pass to 81 at Cornish. Almost half of the areas had sagebrush with over 50 rings. However, in this area it is difficult to accurately determine the age of sagebrush plants much beyond about 50 years. At about this age most stems split and the exposed central rings break up. Adjacent juniper or maple trees usually had more growth rings than the older sagebrush plants.

Conclusions

Early records show that Cache Valley was predominantly a grassland area. Comparing the early records with present conditions, there has been a decrease in grasses and palatable forbs and an increase in sagebrush. Today we find undisturbed areas that, except for increased sagebrush, probably closely resemble the original vegetation.

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