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E. M. Christensen  
*Brigham Young University*

J. D. Brotherson  
*Brigham Young University*

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## DECREASES OF JUNIPER WOODLAND IN THE UTAH AND SALT LAKE VALLEYS SINCE SETTLEMENT

E. M. Christensen<sup>1</sup> and J. D. Brotherson<sup>2</sup>

**ABSTRACT.**— Although pinyon-juniper woodland is common throughout most of Utah, it is less so in Utah and Salt Lake valleys. Even so, stands do occur in the valleys and are known to have been there since presettlement times. Three such stands occurring along the eastern sections of the valleys have shown major decreases in area since settlement times, and one has all but disappeared. Their disappearance is attributed to early use for fuel, agricultural, and urbanization purposes.

The expansion since pioneer days of pinyon-juniper woodland in the foothills and benchlands of Utah is a well-known and documented phenomenon. Parker (1971) and Barney (1972) summarized the literature concerning the invasion of pinyon-juniper woodland that was earlier described by Mason (1963) as taking place on deep soils, relatively free of stones, and which formerly "supported a dense cover of grass, forbs, and shrubs."

In the eastern part of the Salt Lake and Utah valleys, however, an opposite trend has occurred: a decrease of junipers and juniper woodland.

Discussed here are decreases in three established stands of juniper as described by early pioneer residents. Pinyon pine (*Pinus edulis* Englem.) does not occur in Salt Lake Valley and is rare in Utah Valley (Erdman 1970). Therefore, the woodlands here described are essentially composed of Utah junipers (*Juniperus osteosperma* (Torr. Little), also known locally as "cedar."

### HISTORICAL DISTRIBUTION OF JUNIPER

It is generally believed that at the time of settlement, the Salt Lake Valley had few native trees on the foothills and benchlands (Smith 1953, Roberts 1965), although trees are known to have been common along the streams (Wakefield 1933, Wakefield 1936).

Part of Salt Lake City's folklore indicates that there was only one tree in the valley, a Utah juniper located at 300 South and 600 East Streets (Young 1930, Carter 1940), although other trees were noted by Brigham Young in 1847 (Young 1930). The stump of this particular tree stood for many years after the tree died in 1933 and part of it is still preserved under a monument canopy. Junipers were apparently not abundant in the Salt Lake Valley at the time of settlement because most early descriptions found in diaries and reports do not mention them (Wakefield 1933, 1936). There were some junipers scattered throughout the valley, however, as is shown in the writings of Langworthy (1855), Bryant (1949), and Gunnison (1852). Langworthy observed Salt Lake Valley from the southeast on 11 July 1850. He was impressed by the scarcity of trees, but noted the conifers on the hillsides:

... The whole expanse looks bleak and naked, there being no trees in sight except a very few along the banks of streams, and some stunted, scattering pines and cedars on the sides of the mountains.

Bryant, traveling through the Salt Lake Valley in 1849, also recorded the occurrence of junipers on the sides of the mountains:

... Hidden away in the profound chasms and along the streams whose beds are deeply worn in the mountain sides are the cedar, pine, dwarf-maple, and occasionally oak, where the inhabitants of the vale seek their fuel and building timber ...

<sup>1</sup>Dr. E. M. Christensen, Professor of Botany and Range Science, Department of Botany and Range Science, Brigham Young University, had gathered the material for this paper before his death in 1973. It is here published posthumously.

<sup>2</sup>Department of Botany and Range Science, Brigham Young University, Provo, Utah 84602.

The situation in Utah Valley was much the same as that in Salt Lake Valley. Cottam, the first ecologist to describe the vegetation in Utah Valley, commented that on the "western escarpment of the Wasatch . . . except for white fir near the summit, the absence of trees is noticeable" (Cottam 1926). Carvalho, who saw Utah Valley some 70 years earlier on 6 May 1854 (Carvalho 1860) stated:

. . . The scenery, which is enlivened by . . . flowering vales . . . is without timber except on the creeks which meander from the mountains . . . Sparse growths of young cottonwood are the only trees I have seen except in the canyons of the mountains, on which grow pines, cedars, and a species of mahogany.

Huntington (1842), an early pioneer, described Utah Valley in 1849 in his diary:

. . . Besides the Salt Lake Valley are several smaller valleys, the largest of which is the Ewtah, which would be the end of my searches to find a pleasant and delightful home . . . The most of the western side of the valley is . . . covered with juniper trees . . . the borders of . . . creeks and rivers are well stocked with wood.

There are juniper stands with old trees on the hillsides near the mouths of several canyons in both valleys: Parley's Canyon, Mill Creek Canyon, Tolcat's Canyon, Big Cottonwood Canyon, Spanish Fork Canyon. These groves are rather open and the older trees are usually highlined from browsing. There is little reproduction in the stands, but it appears sufficient to maintain the present density of the existing stands. These juniper stands were doubtless present in pioneer days, and are the types of stands referred to in the descriptions given above.

#### DECREASE OF PRESETTLEMENT JUNIPER STANDS

**POINT OF THE MOUNTAIN STAND.**— There were several well-established juniper stands of various sizes in Salt Lake and Utah valleys when settlement began. One of these was at Point of the Mountain near Jordan Narrows on the Traverse Range (T4S, R1W, S 13, 23, 24). The stand was generally ignored in the descriptions of the early travelers and pioneers, probably because the road bypassed it. This stand was still present in 1933 when Wakefield studied the ecology of early Salt Lake and Utah valleys (Wakefield 1933), but Wakefield did not note its size. Prior to the

development of the gravel pits and the construction of Interstate Highway I-15 during the past 15 years, there was an open grove of juniper trees remaining on the hill east of the road. Presently, there are only about 20 to 30 trees, which are scattered along the tops of the road cut of the I-15 Highway and the adjacent gravel pits to the north.

Another remnant stand of junipers also exists a few miles northeast of Lehi at Cedar Hollow, located about half a mile east of Lehi Cemetery (T5S, R1E, S3,4). The history of the community is unknown to the authors, but there are a few juniper trees there at the present time.

**MAPLETON STAND.**— In 1926 Cottam described only one stand of junipers in eastern Utah Valley (which is an indication that it was the largest one in the valley). He observed:

. . . the juniper belongs largely to the mountains. It is found sparingly on Mapleton Bench, but it reaches association rank on the slopes of Lake and West mountains.

By "association rank" Cottam meant that the species was a dominant of a major plant community. Lake and West mountains are on the western boundary of Utah Lake. By 1933 Wakefield noted "but a few remnant areas [of juniper communities] on Mapleton Bench."

Observations of early pioneers give the impression that in presettlement times this juniper stand was more extensive than either the brief descriptions of Cottam or Wakefield indicate. Mae B. Huntington summarized the impressions of the first pioneers of the Springville area with considerable emphasis on vegetation (Huff 1947):

When the Pioneers alighted from their wagons that September afternoon in 1850, one pioneer mother said it looked like a heaven on earth. The weary travelers stood knee-deep in native grass. They saw the benchlands nearby covered with cedars. They saw the distant hills covered with cottonwood and balsam.

In a history of Springville, Johnson (1900) relates an incident of the O. B. Huntington party in February 1849, when the horses strayed one night from a campsite in Springville toward the mouth of Maple Canyon "through the cedars which grew on what is now known as Mapleton Bench."

Much of Springville and Mapleton occupy the original area that supported junipers, but

today only a remnant of the grove (mostly south of Evergreen Cemetery, T8S, R3E, S9) remains to remind us of the stand that the pioneers knew.

**MANILA STAND.**— This stand is located about 1.5 miles north of Manila and about a mile east of the Alpine Country Club (T4S, R2E, S31; T5S, R2E, S6). It is restricted to a west-facing slope (approximately 25 degrees) south of American Fork Canyon and west of Highway 146. Although it was not mentioned by Cottam or Wakefield, the stand was evidently present when settlement occurred. A ring count on one medium-sized tree (2.8 dm. diameter at 1 foot above the surface) indicated that the tree was over 190 years old in 1963. The stand was apparently rather large at one time. On 15 December 1850, George A. Smith was in a grove of junipers located between American Fork and Provo, where he "found about 50 wagons camped in the cedars." He may have been referring to the Manila Stand. If so, the grove must have been larger than it is today to have accommodated 50 wagons, and it must have extended onto the surrounding level ground. If Smith was in another stand of junipers, it has completely disappeared because no other groves of junipers exist between the two cities today. In either case, a decrease of juniper woodland is indicated.

In 1849, a group of 50 men led by Parley P. Pratt may have camped in this same grove of junipers. Colton (1946) gave the account of Robert T. Campbell, the clerk of the company who wrote on 25 November 1849:

The company traveled to Cedar Grove where they camped at 4 or 5 p.m. about two and one-half miles from the Utah Fort.

Two days later they reached Provo River. It is about 12 miles from the Manila Stand to the site of Utah Fort and about 9 miles to the mouth of Provo Canyon, so either Campbell's estimation of distance was poor, the grove was much larger than today, or the group was in another "Cedar Grove" nearer to Provo that no longer exists.

In 1963 E. M. Christensen studied the Manila Grove. It was then about one mile long and one-quarter of a mile wide. Today it covers less than one-third of the area it covered in 1963, having been reduced primarily by

gravel mining, road building, and a tract housing development. In 1963, there were 90 juniper trees per hectare (stems 1 dm in diameter at 1 foot above surface and larger) and 21 juniper plants per hectare smaller than tree size. The projected foliar cover of the ground surface of the junipers was 11 percent. The average diameter of the trees was 2.4 dm (9.4 inches at 1 foot above the ground. The stand has been heavily grazed, gully erosion is evident, and exotic species are common in the understory. With the present housing development under construction, this stand will most likely disappear within the next 10 to 15 years.

#### SUMMARY

A conclusion can be made that there were juniper woodland stands in the eastern sections of Salt Lake and Utah valleys at the time of settlement by white men. Decrease in the area occupied by at least three of these juniper groves has occurred, even though increases in juniper have occurred elsewhere in Utah. In addition, juniper trees were scattered throughout these valleys, and, doubtless, the number of such trees has also decreased. Urbanization, agriculture, fuel procurement, etc., appear to be responsible for at least some of the decrease.

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