

# Dendroarchaeology and the Old Statehouse Cabins In Fillmore, Utah

- Goals:**
- Determine cutting dates for historic cabins
  - Determine species of timbers
  - Determine provenance of timbers
  - Strengthen historical record of Fillmore's early settlers

## Background and Process

Fillmore, Utah is home to the Territorial Statehouse State Park Museum. One of the attractions is the original log cabins constructed by the town's early settlers. We were interested in the potential applications of dendrochronology to expand our knowledge of the cabins' history.

We used a dry wood borer kit to extract cores from the log cabins and mounted and sanded the cores to prepare them for visual crossdating and analysis. Crossdating is a method for constructing a historical record, or chronology, from tree ring data.

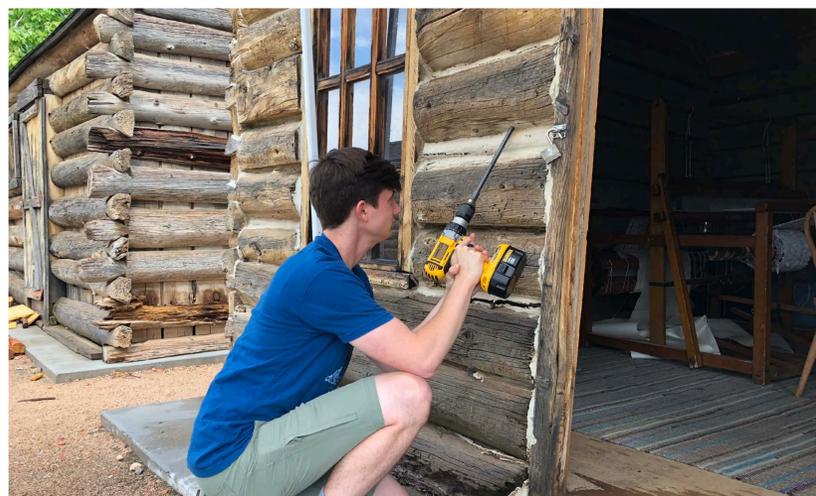


Figure 1. Picture showing extraction of cores from cabins

After creating skeleton plots, a form of visual crossdating, we used COFECHA, a statistical software, to verify the dates of our chronologies. When we were satisfied that our cores were dated properly we looked for clusters of cutting dates that could indicate stock-piling or reusing timber and give us the years in which the trees were cut. We also used ARSTAN to check the correlation of our chronology with other chronologies throughout Utah to determine the provenance of the timber.

## Results

For the two cabins from which we extracted cores, we found strong clusters of end cutting dates. For the Davies Cabin we found that 20 of the 38 samples (taken from 36 logs) were cut in 1873, and one was cut in 1874. For the Payne Cabin all 16 samples representing 15 logs were cut in 1870 (see figure 2).

Based on the color and anatomy of the samples, we determined

the species of the timber was Douglas-fir (*Pseudotsuga menziesii*). To determine the provenance of the timber, we compared the correlations of the Chronology developed from the cabin with six other Douglas-fir chronologies throughout Utah. The Red Canyon Chronology from just west of Fillmore had the highest correlation (0.82) as seen in figure 4.

## Conclusions

The Davies Cabin was likely built in 1874, five years prior to the formerly believed

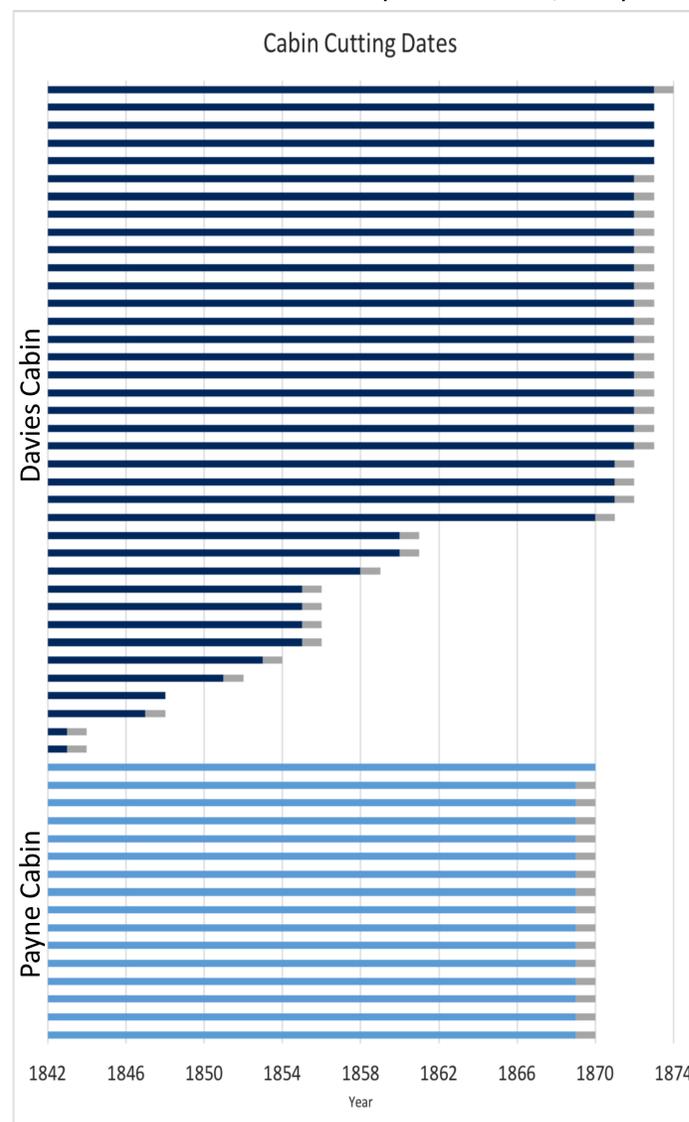


Figure 2. This graph shows the last year of the 52 samples. The gray mark at the end of the bar indicates that sample had not formed a complete ring and was likely cut during the growing season of that year.

building date of 1879. The Payne Cabin was likely built late in the year of 1870 or in the beginning of 1871. Documented practices of using deadwood or reusing wood may explain the sporadic, earlier cutting dates of the Davies Cabin. The cutting dates also align with journal entries and historic documents. We also determined that the timber used in both cabins likely came from sites near Fillmore (see figure 4).

## Discussion

Dating the cabins gave us a better understanding of the early settlers of Fillmore. There are many other historic buildings and sites in the Intermountain West that can benefit from similar studies. Dead wood can also be used in other dendrochronological studies because it can extend the tree ring record back further. Tree rings have been used to reconstruct various data like precipitation, streamflow, snowpack and lake water level.

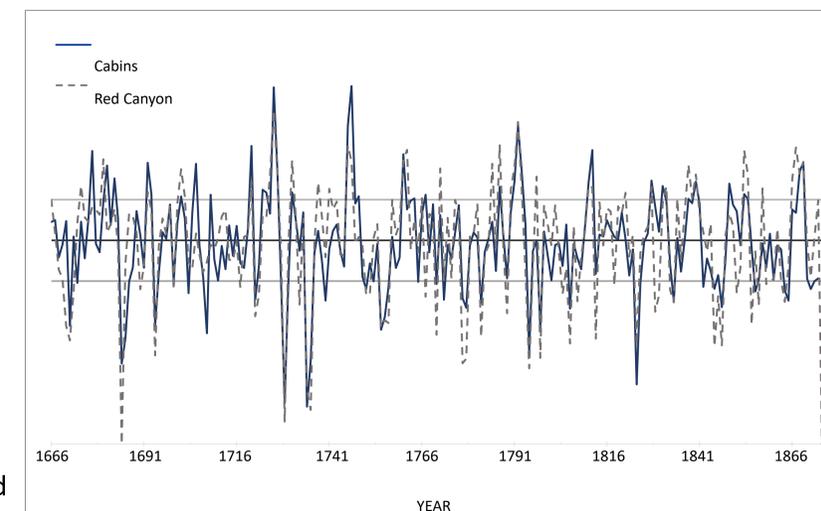


Figure 3. Line graph showing correlation between Red Canyon and Statehouse Cabin chronologies

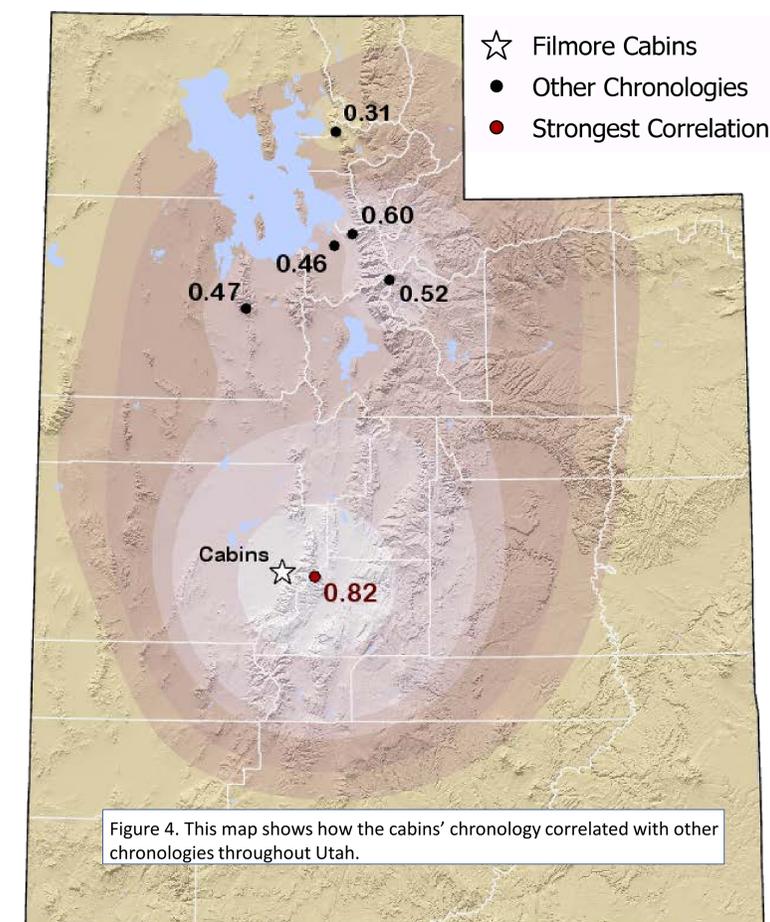


Figure 4. This map shows how the cabins' chronology correlated with other chronologies throughout Utah.