Dr. Greg King & Michael Boyd

A Dendroarchaeological Analysis of the Taylor/Scott Cabin:

Cooking Lake, AB | May 2024

AUGUSTANA
Tree Ring Lab

Figure 1. Taylor/Scott Cabin as it appeared in 2022.

Introduction

Based on concerns regarding recent declining water levels in Cooking Lake, a study was launched to investigate historic water levels, aiming to extend records into the early 1800s, prior to European settlement. This project links natural and human history by examining and connecting information from tree rings and local history.

The Augustana Tree Ring Lab in partnership with Strathcona County resident and local history researcher Michael Boyd conducted tree-ring sampling at several different properties around Cooking Lake, including sampling living trees as well as several log cabins believed to be built in the late 19th century. The goal of the sampling was to construct a long-term chronology of tree-ring widths from around Cooking Lake to determine if they contained valuable information about the regional environment prior to European settlement.

As a landowner and thus a stakeholder in this project, we would like to provide you with the results of our findings on your property.

Site Information

Site Name: Taylor/Scott Cabin

Contact Info: Birch Bay Ranch, Sharon and Darryl Fraess

ATRL Site Code: TC

Sampling Date: Spring/Summer 2021

Latitude: 53° 26' 24.8" N

Longitude: 113° 4' 11.7" W

Species: White Spruce

Historical Context

Builder/original owner: Hedley Clarence Taylor

Location: 51505 Range Rd 215, Sherwood Park

Legal Description: SW1/4 32 51 21 W4

Dimensions (excluding additions): Length: 7.5 m Width 6.0 m Height 4.6 m (estimated)

Hedley Clarence Taylor, an Edmonton lawyer, was one of the founding members of the Koney Island (KI) Sporting Company. He was born in New Brunswick in September, 1864. His wife Bessie was born in New Brunswick in Feb, 1868. They had two sons Gordon and

Harold. He became a District Court Judge. Taylor remained a member of the KI Sporting Company until his death in Feb 1931.

Taylor acquired the land on which the cabin stands in late 1905 or 1906. His reason given to the Land Agent for the purchase includes the following, "*There is a nice little clump of trees which faces an arm of Cooking lake, which would make a very nice little place to build a Summer Cottage .....for my family to reside in during the summer months*". In 1918 Taylor built a new summer cottage at Plover Point, South Cooking lake and possibly stopped using the older cabin. In Nov, 1923 Taylor made the final payment on the original purchase. He also filed a quit claim deed to Justice David Lynch Scott for an undivided half interest in the parcel. In Feb 1924 a patent is issued in the names of Hedley Clarence Taylor and David Lynch Scott for S1/2 and NW ¼ 32-51-21 W4. David Lynch Scott died at Cooking Lake in July 1924 and owned both properties.

Description: The cabin is a single storey structure built of round spruce logs with a stone fireplace and a covered front veranda. It originally stood north-east of its current location, at the top of the high bank overlooking a bay of Cooking Lake. The name Wooden Pan Lodge was carved in the bottom window sill of the front window. On the 1914 Township Survey conducted by D.L.S. Soars, the bay in front of the Taylor/Scott cabin was referred to as Wooden Pan Bay. The property is now owned by the Birch Bay Ranch. The cabin was moved from its original location in the 1970s (Figure 2). The fireplace fell apart during the move and the hole was filled with new logs. The original veranda was also lost. Some other logs have been replaced. A new metal roof has been added. It is currently used as a "tack" store by the ranch. A new veranda has been added to the front. Outside log ends have .22 cartridge casings pressed into them to make numbers representing years. The years include 1907 to 1917. It is assumed that the cabin was probably built in 1906 or 1907.

Figure 2. Photograph of cabin before it was moved. (S. Fraess)

Tree-Ring Methods

Twenty-two cores were sampled from the building using a combination of a standard 5.1 mm increment borer and a ⅝" dry wood drill corer. The sampling process has no negative effects on the structural integrity of the building. Logs were selected for sampling according to their integrity (the absence of rot) and the presence of bark (indicating the last tree-ring has not been removed). Samples were always taken at the larger (basal) end of the log.

In addition, using a Haglof increment borer, five living trees were sampled from the stand located at the original location of the Taylor/Scott cabin overlooking the bay off of South Cooking Lake (Figure 3). The trees were selected based on external characteristics that suggested they may be older/remnant trees.

Figure 3. Oblique air photo from 1924 showing a view of the current Birch Bay Ranch property. The arrow marks the approximate original location of the Taylor/Scott cabin and where sampling of live trees was conducted.

All samples were stored in envelopes and taken back to the Augustana Tree Ring Lab in Camrose for analysis. The samples were glued onto slotted mounting boards and labeled with the appropriate code to indicate site, wall and log number. The samples were sanded with progressively finer sandpaper (80 to 600 grit) in order to reveal individual tree-rings. Each core was then scanned to create a digital image which was measured on the computer. This process produced measurements indicating the annual growth rates of the individual trees to 0.001 mm (Figure 4).

Figure 4. Example of a core sampled from a wooden cabin as part of this project.

Prior to further analysis, it was important to determine the tree species used in the construction of the cabin. Based on the presence of bark and beetle galleries as well as an examination of wood anatomy, it was confirmed that all of the samples were white spruce (*Picea glauca*).

The process of analyzing archeological data requires two steps. The first is to crossdate (pattern-match) the samples within the cabin to each other. This ensures that there is a significant correlation between the growth patterns of the trees within the building (representing a stand of trees that was growing together and thus should have similar growth trends). Once this was completed, the cabin logs were crossdated against a white spruce living chronology constructed by the Augustana Tree Ring Lab from live trees obtained from former islands around the edges of Cooking Lake that avoided major fires in the early 1900s and retained old white spruce. This established a “master” chronology demonstrating overall tree-growth patterns through time.

Tree-Ring Results

Based on our analysis of seventeen timbers (two samples were not datable and several timbers had multiple samples), it was determined that the last complete year of growth of the trees within the cabin logs predominantly ranged from 1903 to 1905. Only one sampled timber has an outer date (1914) later than this (Figure 5). This suggests that the trees used in the construction of the cabin were cut down over a period of a few years up to the early-mid summer of 1906. Most of the trees were 40-80 years old when harvested, but a couple of trees were closer to 110 years in age.

These results were based on our ability to show that all of the timbers from the structure contain a common signal as there appear to be several “marker” years we can use to align the cores (Figure 6). We assessed the strength of this signal by calculating an overall correlation between all of the timbers from the cabin, which at 0.51 is of good strength.

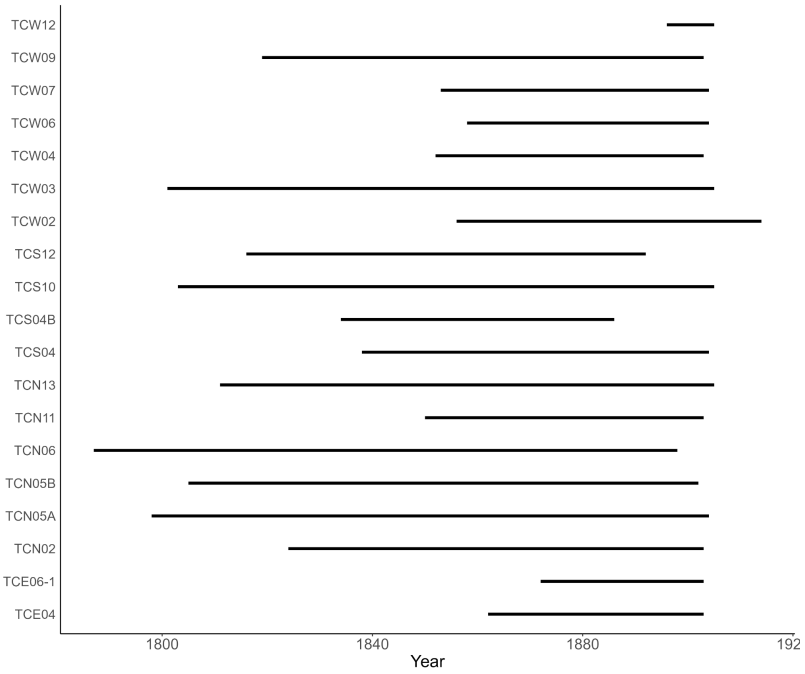

Figure 5. Segment plot showing the length of each dated sample from the Taylor-Scott cabin

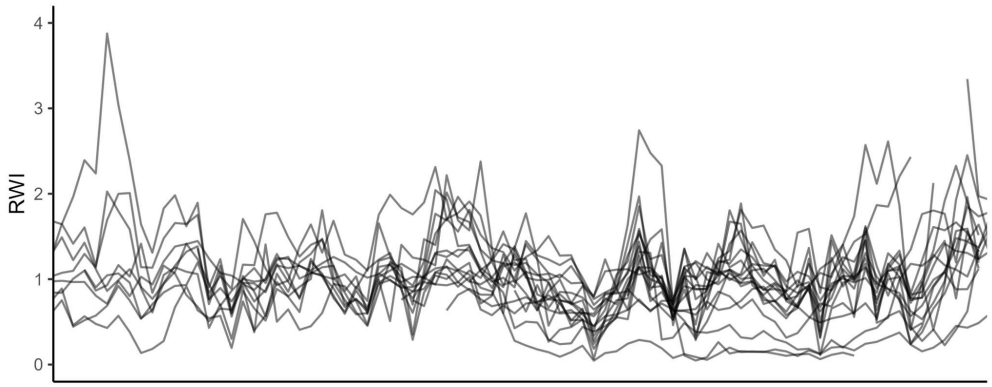

Figure 6. Plot showing a line for each sampled Taylor Scott cabin timber with darker lines revealing overlap between samples and a common signal.

Although we could internally crossdate the samples from the Taylor/Scott cabin, we still needed to absolutely crossdate the rings to anchor it in time with trees that were living at the time of sampling to provide a known calendar date. We were able to collect a total of 40+ living and recently dead trees from various locations around Cooking Lake. With the living samples we were able to generate a 50+ year overlap period which we could use to anchor the cabin timbers (Figure 7). When we evaluate the statistical comparison between all of the living trees and the historic timbers from Taylor cabin, we see a very good intercorrelation between all of the series of 0.63 – this means that across the entire time period, there is a similar ring width response. This means we can confidently assign calendar dates to the Spruce Lodge timbers and know they were harvested locally.

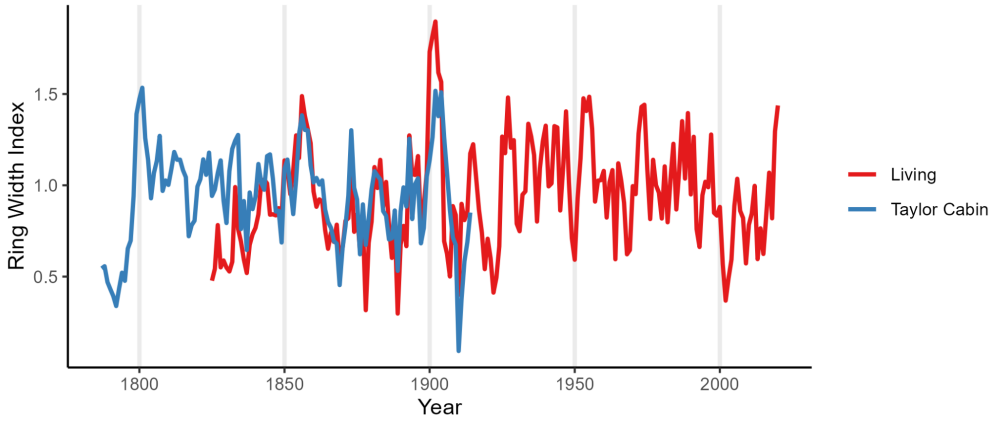

Figure 7. Overlap of the living (red) and Taylor Cabin (blue) chronologies reveals similar growth patterns, indicating that we can confidently assign calendar dates to the timbers.

The additional five living trees sampled on the Birch Bay property were also measured and analyzed. Four of the five trees were less than 80 years old and likely represent natural regeneration of trees following initial clearing. One tree did have an inner ring date of 1885, which means it was already on the landscape when the Taylor/Scott cabin was constructed (but perhaps was too small to be harvested for use!).

Conclusions

In summary, the results yielded from this study showed that based on cores collected from seventeen timbers from the Taylor/Scott cabin, the wood predominantly dated to the end of the growing season between 1904 and 1906. This means it was likely built no earlier than 1906, which aligns with the known historical data. The tree ring data showed that the average age of trees harvested for cabin construction were 70 years old, while the oldest tree sampled was 112 years old with an inner ring date of 1787 (unfortunately this sample is not complete and likely lost several outside rings)!

The data collected from this cabin and including that data into a longer regional master chronology are important to the local history of South Cooking Lake and could be used to support other historical research in the area. For example if other wooden structures in the region are found, it could be possible to place them in this chronology and thus determine construction dates. Furthermore, this data can be used in ongoing environmental research to learn about climatic trends in the past, enabling a better understanding about past climates and to compare these trends to the current climate.

This research was conducted at the Augustana Tree Ring Lab in Camrose, Alberta. Any questions regarding the findings of this report or follow-up questions can be directed to:

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Thank you for your permission to collect samples and participation in this study!